



**Government of Uttarakhand**



**Zonal Master Plan**  
(Forest & Wildlife)

**For**  
**Bhagirathi**  
**Eco-Sensitive Zone**  
**District – Uttarkashi**

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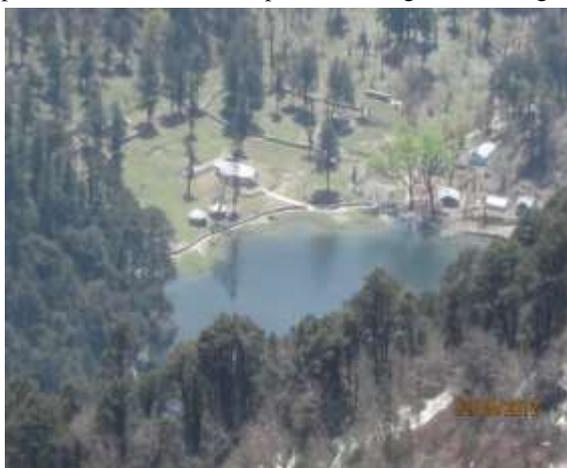
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### **1-Introduction**

With spectacular hilly terrain, stunning natural beauty, ancient temples, swift rivers and lush greeneries, the district Uttarkashi is one of the favorite districts for tourist to visit. This place is a real paradise for adventure enthusiasts and sports lovers. The Nehru Mountaineering Institute is a premier institute for adventure tourism. Bugyals or a “high altitude meadows” ie. Dayara, Kandara, Gidara etc., Tals (lakes) ie. Saattal, Dodital, Nachiketatal, Kedartal etc. and Gangotri National Park are also popular among different tourists. Gangotri, having the main temple of Ganga, the holiest river in the country, is one of the Chardham of Uttarakhand. Gaumukh Glacier is the physical source of Bhagirathi (Ganga) and is of great importance to the pilgrims. In the cold region of the Gangotri national park (Neelang Valley) more than 450 species of vascular plants, 15 species of mammals and 150 birds species have been recorded.

The river Bhagirathi is rich in aquatic flora & fauna including migratory species. Due to the increase in anthropogenic pressure in this area, irreparable damage to the fragile mountain ecosystems including flow and character of the river has occurred. So for the conservation of environment of the area and ecosystem of the river Bhagirathi, the powers conferred by sub-section (1) read with clause (v) and clause (xiv) of sub-section (2) of section (3) of the environment (protection) Act, 1986 (29) of 1986, the central Government vide its notification dated 18, December 2012 from Gaumukh to Uttarkashi with a total of an area of 4179.56 sq. km. covering the entire watershed of about 100km. stretch of the river Bhagirathi has been declared as an Eco-sensitive zone from ecological and environmental point of view.

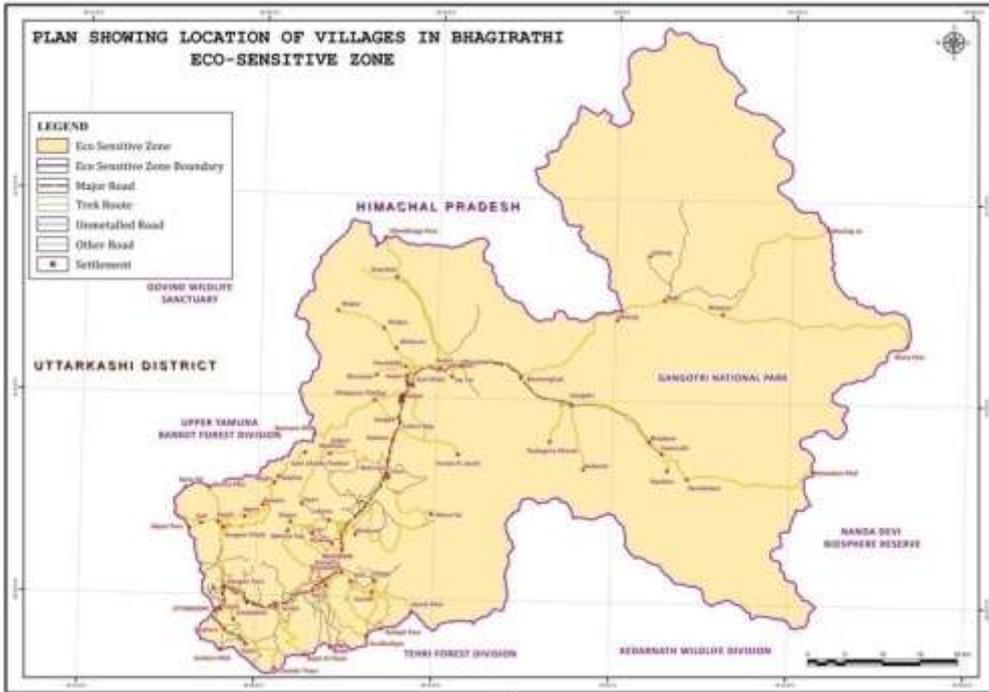


There are around 88 villages falling in this eco-sensitive zone and the list of same is given below:

SN.	Village / Town name	Elevation (m)	Area (ha)	SN.	Village / Town name	Elevation (m)	Area (ha)
1	Agoda	2428	214.09	45	Kyark	2007	149.4
2	Aleth	1785	99.59	46	Ladari	1111	117.9
3	Bagori	2762	83.98	47	Lata	1536	163.08
4	Bagyal Gaon	1558	91.85	48	Malla	1727	96.97
5	Bandrani	1599	61.79	49	Mando	1220	139.95
6	Barsu	2154	144.6	50	Maneri	1519	95.63
7	Bayana	2003-	133.99	51	Manpur	1578	167.52
8	Bhangeli	2016	160.37	52	Mastari	1705	83.52

SN.	Village / Town name	Elevation (m)	Area (ha)	SN.	Village / Town name	Elevation (m)	Area (ha)
9	Bhancoli	2155	213.93	53	Mukhawa	2925	213.31
10	Bhatwari	1649	327.28	54	Nalda Urph Bodhhar	1672	290.44
11	Bhela Tipri	1639	63.18	55	Natin	2035	72.86
12	Bhukki	2436	96.52	56	Naugaon	2075	123.19
13	Bonga	1327	100.05	57	Nalang	4254	67.24
14	Bongari	1694 .	54.03	58	Netala	1277	290.7
15	Dandalka	2413	92.06	59	Nirakot	1615	153.97
16	Dansra	2640	68.99	60	Nesmor	2253	263
17	Dhanpur	1833	113.7	61	Ongee	1538	113.55
18	Dharali	2485	99.98	62	Pahi	2331	3.88
19	Dhwari	1799 .	94.33	63	Pala Maradi	-1727	304.37
20	Didsari	1555	173.11	64	Pata	1338	80.93
21	Dovah	1744	305.77	65	Pilang	2040	122.42
22	Gajoli	1720	126.67	66	Purali	2460	155.07
23	Gangotri	3008	71.81	67	Raithal	1720	132.34
24	Gawana	1316	131.94	68	Said Urph Maja Gaon	1970	118.94
25	Gorshali	1962	183.29	69	Sanj	1579	176.77
26	Gyanja	1997	93.6	70	Salang	1794	158.21
27	Hinna	1455	256.56	71	Sal u	1864	89.75
28	Hurri	2453 '	140.49	72	Sangralt	1812	51.26
29	Jadung	4373	72 .	73	Sara	1424	63.82
30	Jakhol	1927	101.78	74	Sarag	1328	61.68
31	Jamak	1428	203.4	75	Sari	1909	72.99
32	Jaspur	2649	134.58	76	Saura	1467	150.67
33	Jhala	2459	66.05	77	Seku	1905	217.58
34	Jodaw	2224	228.71	78	Silla	1766	111.6
35	Jokani	1718	54.53	79	Silyan	1509	55.47
36	Joshiyara	1423	217.91	80	Siror	1363	268.62
37	Kamar	1993	85.78	81	Sukki	2642	105.98
38	Kanath	1779	130.42	82	Sungar	1993	62.88
39	Kankrari	1764	60.91	83	Syawa	2145	88.25
40	Kishanpur	1725	154.5	84	Thalan	1481	87.34
41	Kotiyal Gaon	1454	162.52	85	Tehar	1884	150.24
42	Kumalti	1466	77.69	86	Tiloth	1099	60.4
43	Kunjan	2060	143.4	87	Uttarkashi	1241	#N/A
44	Kuroli	1804	59.23	88	Uttron	1290	131.7

Plan showing depicting location of these villages is placed below.



#### Zonal Master Plan for Forest & Wildlife

In order to implement this notification and regulate the activities in eco-sensitive zone, the Government of Uttarakhand shall prepare in consultation with local people a zonal master plan within a period of two years from the date of publication of this notification and the same shall be approved by the Ministry of Environment and Forests, Government of India.

The zonal master plan shall be prepared with due involvement of all concerned state departments, namely:

- i. Environment,
- ii. Forest,
- iii. Urban Development,
- iv. Tourism,
- v. Municipal,
- vi. Revenue,
- vii. Public Works Department,
- viii. Environmental protection and pollution control board,
- ix. Water resources,
- x. Horticulture,
- xi. Panchayati Raj,
- xii. Rural Development Department, etc.

The zonal master plan for Forest & Wildlife shall be prepared keeping in view the following points mentioned under the MOEF notification:



## 2- Forest Types

The forest area stretches from the low-lying valleys to tree line on the slopes of the lofty ranges of the Himalayas separating Uttarkashi Forest division and Gangotri National Park. They present a large variety of different features and a great diversity of climate and vegetation. These forests have been classified according to Champion & Seth classification as under.

### **Uttarkashi Forest Division**

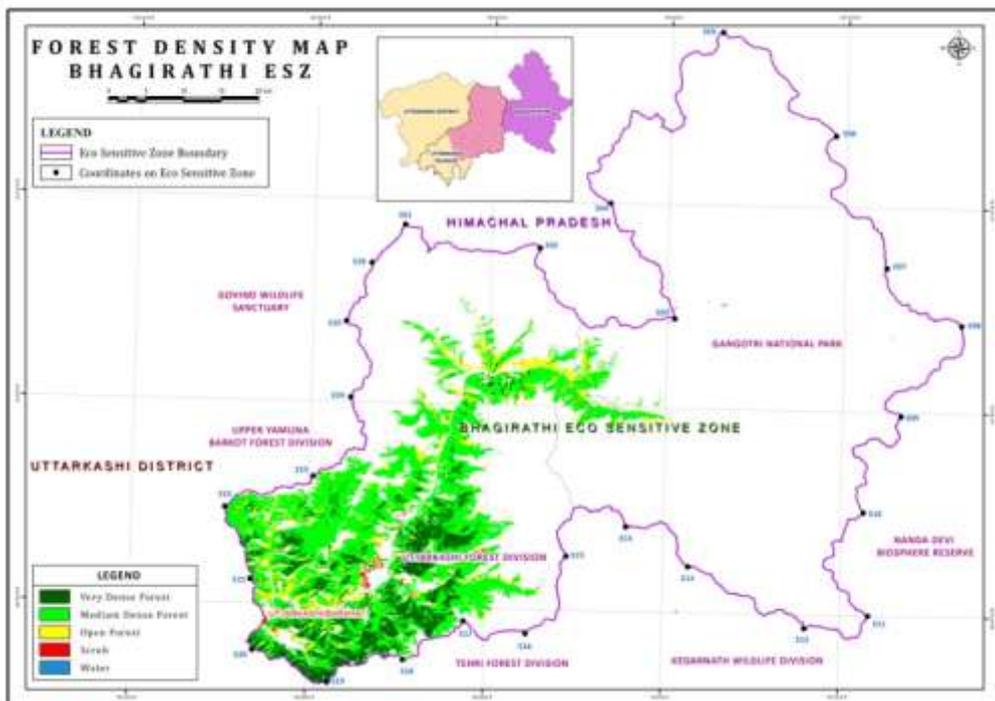
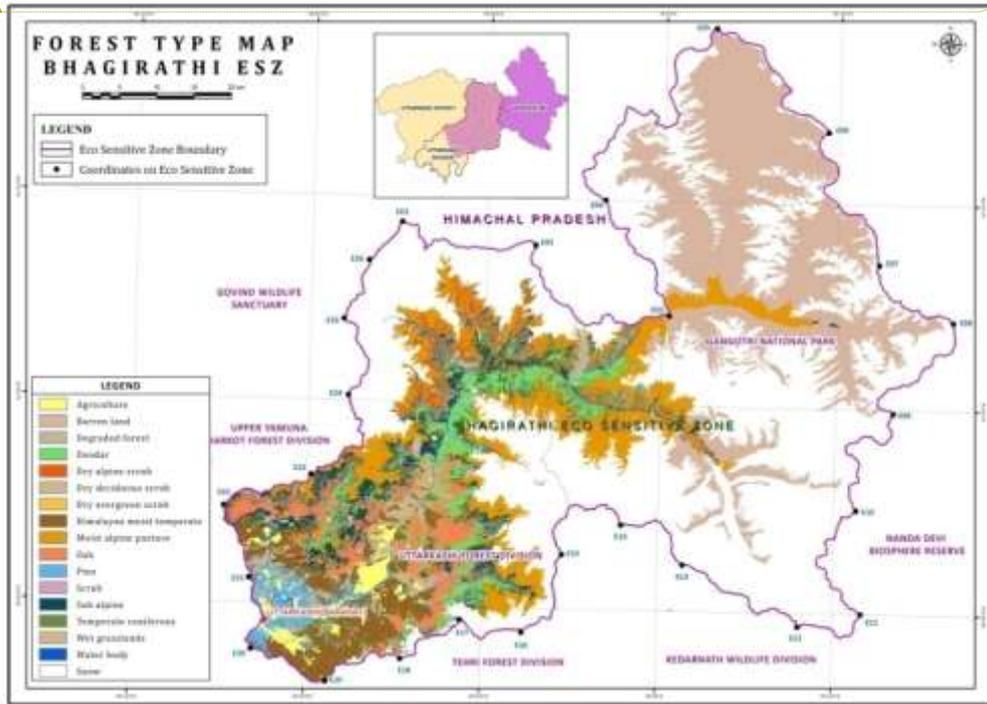
S.N.	Forest Type	According to Champion - Seth	Area (in Ha.)
1	2	4	5
<b>Group-9, Sub Tropical Pine Forest</b>			
2	9/C <sub>1b</sub>	Sub Tropical Himalayan Chir Pine Forest	33724.04
3	9/C <sub>1ds-2</sub>	Sub Tropical Euphorbia scrub	Included in main type
<b>Group-12, Himalayan Moist Temperate Forest</b>			
4	12/C <sub>1a</sub>	Bang oak Forests( <i>Quercus leucotrichophora</i> )	24308.30
5	12/C <sub>1b</sub>	Morou oak Forests( <i>Quercus deletata</i> )	1284.06
6	12/C <sub>1c</sub>	Moist deodar Forests	2045.48
7	12/C <sub>1d</sub>	Western mixed coniferus Forests	8185.72
8	12/C <sub>1e</sub>	Moist temperate deciduous Forests	4681.00
9	12/C <sub>1ds-2</sub>	Himalayan temperate secondry scrub	222.58
10	12/C <sub>2a</sub>	Kharsu oak Forests	14471.75
11	12/C <sub>2b</sub>	West Himalayan upper oak Forests	1619.06
12	12/ds-1	Mountain Bamboo breaks	2736.49
13	12/ds-2	Himalayan temperate park land	Included in main type
14	12/ds-3	Himalayan temperate pasture	Included in alpine pasture area
15	12/E <sub>1</sub>	Cyprus Forests	59.10
16	12/IS-1	Alnus Forests	123.63
17	12/2S-1	Low level blue pine Forests	3019.02
<b>Group-13, Himalayan Dry Temperate Forest</b>			
18	13/C <sub>2b</sub>	Dry Deodar Forests	114.5
<b>Group-14, Sub-Tropical Alpine Forest</b>			
19	14/2S-1	Sub alpine Blue pine Forests	206.27
<b>Group-15, Moist Alpine Scrub</b>			
20	15/C <sub>1</sub>	Rhododendron scrub Forests	6967.07
21	15/C <sub>3</sub>	Alpine Pasture	53197.1
22	15/E <sub>1</sub>	Dwarf Rhododendron scrub Forests	-
23	15/E <sub>2</sub>	Dwarf Juniper scrub	-
<b>Group-16, Dry Alpine Scrub</b>			
24	16/C <sub>1</sub>	Dry Alpine Scrub	Included in alpine pasture area

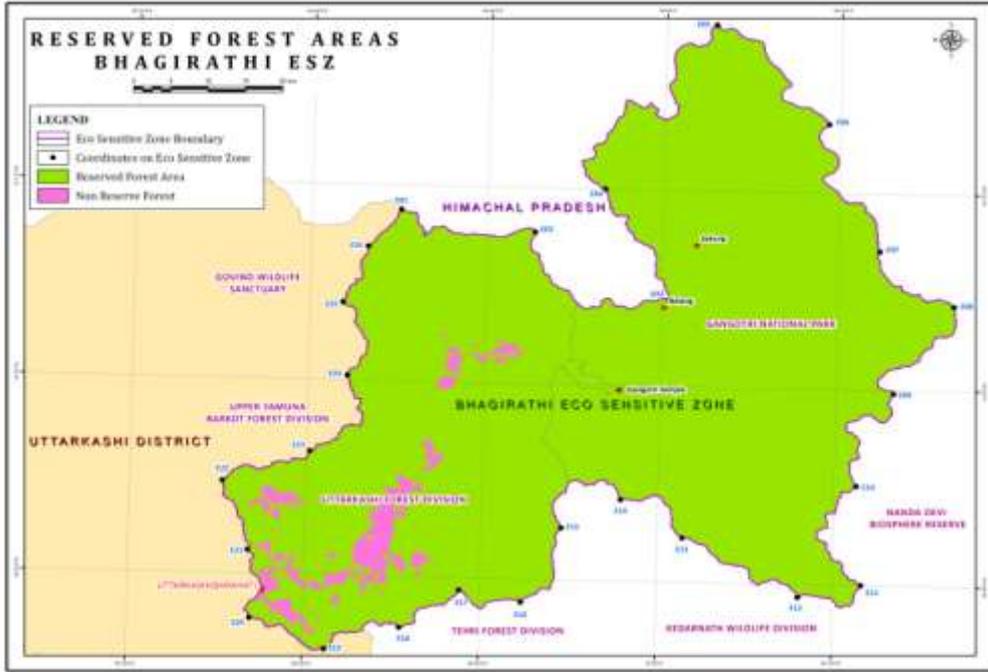
**Gangotri National Park**

<b>Group-12, Himalayan Moist Temperate Forest</b>			
1	12/C <sub>1c</sub>	Moist deodar Forests	299.40
2	12/C <sub>1d</sub>	Western mixed coniferus Forests	210.10
3	12/C <sub>1e</sub>	Moist temperate deciduous Forests	152.05
4	12/C <sub>1/s-2</sub>	Himalayan temperate secondary scrub	85.95
5	12/ds-2	Himalayan temperate park land	Included in main type
6	12/ds-3	Himalayan temperate pasture	Included in alpine pasture area
7	12/E <sub>1</sub>	Cyprus Forests	13.08
8	12/IS-1	Alnus Forests	8.02
9	12/IS-2	Reverian blue pine Forests	63.25
10	12/2S-1	Low level blue pine Forests	72.90
<b>Group-13, Himalayan Dry Temperate Forest</b>			
11	13/C <sub>2b</sub>	Dry Deodar Forests	163.60
<b>Group-14, Sub-Tropical Alpine Forest</b>			
12	14/2S-1	Sub alpine Blue pine Forests	100.25
<b>Group-15, Moist Alpine Scrub</b>			
13	15/C <sub>1</sub>	Birch/Rhododendron scrub Forests	1,370.50
14	15/C <sub>3</sub>	Alpine Pasture	26,637.50
15	15/E <sub>1</sub>	Dwarf Rhododendron scrub Forests	-
16	15/E <sub>2</sub>	Dwarf Juniper scrub	33.20
<b>Group-16, Dry Alpine Scrub</b>			
17	16/C <sub>1</sub>	Dry Alpine Scrub	Included in alpine pasture area

Reserve Forest Area (Uttarkashi Forest Division)	-	1716.88 sq. km.
Protected Area (Gangotri National Park)	-	2390.02 sq. km.
Total Non Reserve Forest Area	-	72.66 sq. km.
Total Area	-	4179.56 sq. km.

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**2.1 Block wise & Compartment wise area**

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Gangotri National park	Gangotri National park	Behronghati Beet	Gartang	4a	91.75	170.8
Gangotri National park	Gangotri National park	Behronghati Beet	Gartang	4b	1067.24	989.5
Gangotri National park	Gangotri National park	Behronghati Beet	Gartang	5a	168.27	243.2
Gangotri National park	Gangotri National park	Behronghati Beet	Gartang	5b	935.42	979.3
Gangotri National park	Gangotri National park	Bhagirathi Beet	Gangotri	1a	150.51	138
Gangotri National park	Gangotri National park	Bhagirathi Beet	Gangotri	1b	51997.7	53718.4
Gangotri National park	Gangotri National park	Gangotri Beet	Gangotri	2a	71.92	65.2
Gangotri National park	Gangotri National park	Gangotri Beet	Gangotri	2b	524.76	556.4
Gangotri National park	Gangotri National park	Gangotri Beet	Gangotri	3b	499.71	480
Gangotri National park	Gangotri National park	Gangotri Beet	Gangotri	4b	174.99	259.8
Gangotri National park	Gangotri National park	Gangotri Beet	Gangotri	5b	128.84	132.3
Gangotri National park	Gangotri National park	Gangotri Beet	Gangotri	6b	34.69	39.7
Gangotri National park	Gangotri National park	Gartang-I Beet	Gartang	1a	22.54	158.2
Gangotri National park	Gangotri National park	Gartang-I Beet	Gartang	1b	725.41	798.4
Gangotri National park	Gangotri National park	Gartang-II Beet	Gartang	2a	78.28	79.3
Gangotri National	Gangotri National park	Gartang-II Beet	Gartang	2b	1061.38	1122.6

DIVISION	NEW RANGE	NEW BEAT	BLOCK	COMPART-MENT	GIS Area (ha)	Notified Area (ha)
park						
Gangotri National park	Gangotri National park	Gartang-II Beet	Gartang	3a	57.75	47.8
Gangotri National park	Gangotri National park	Gartang-II Beet	Gartang	3b	601.18	612.7
Gangotri National park	Gangotri National park	Jaadganga Beet	Karcha	1b	54.69	77.3
Gangotri National park	Gangotri National park	Jaadganga Beet	Karcha	2a	168.58	183.3
Gangotri National park	Gangotri National park	Jaadganga Beet	Karcha	2b	117.61	109.3
Gangotri National park	Gangotri National park	Jaadganga Beet	Karcha	3a	123.82	115.3
Gangotri National park	Gangotri National park	Jaadganga Beet	Karcha	3b	112.14	110.1
Gangotri National park	Gangotri National park	Jaadganga Beet	Karcha	4a	136.56	107.6
Gangotri National park	Gangotri National park	Jaadganga Beet	Karcha	4b	712.35	715.9
Gangotri National park	Gangotri National park	Jadung Beet	Gartang	1c	50826.6	45823.1
Gangotri National park	Gangotri National park	Karcha Beet	Karcha	5a	166.67	133.9
Gangotri National park	Gangotri National park	Karcha Beet	Karcha	5b	697.08	681.9
Gangotri National park	Gangotri National park	Karcha Beet	Karcha	6a	149.75	105.6
Gangotri National park	Gangotri National park	Karcha Beet	Karcha	6b	3327.39	3209.6
Gangotri National park	Gangotri National park	Nilapani Beet	Karcha	7a	169.32	229
Gangotri National	Gangotri National park	Nilapani Beet	Karcha	7b	83023.6	84373

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
park						
Gangotri National park	Gangotri National park	Patangani-I Beet	Patangani	1b	465.14	473.1
Gangotri National park	Gangotri National park	Patangani-I Beet	Patangani	2b	1725.34	1791.1
Gangotri National park	Gangotri National park	Patangani-II Beet	Patangani	3b	6144.4	6369.4
Gangotri National park	Gangotri National park	Patangani-III Beet	Patangani	4b	6180.6	6381.1
Gangotri National park	Gangotri National park	Patangani-IV Beet	Patangani	5a	115.04	109.3
Gangotri National park	Gangotri National park	Patangani-IV Beet	Patangani	5b	4517.78	4739.7
Gangotri National park	Gangotri National park	Patangani-V Beet	Patangani	6a	205.02	205.6
Gangotri National park	Gangotri National park	Patangani-V Beet	Patangani	6b	22003.7	22366.6
Uttarkashi Forest Division	Badahat Range	Agoda-I Beet	Dodital Blok	6a	1573.4	1717.5
Uttarkashi Forest Division	Badahat Range	Agoda-I Beet	Dodital Blok	6b	77.18	87.4
Uttarkashi Forest Division	Badahat Range	Agoda-II Beet	Dodital Blok	6C	108.56	6.5
Uttarkashi Forest Division	Badahat Range	Agoda-II Beet	Dodital Blok	7a	60.42	69.2
Uttarkashi Forest Division	Badahat Range	Agoda-II Beet	Dodital Blok	7b	1012.86	1116.5
Uttarkashi Forest Division	Badahat Range	Badahat Beet	Mahidanda Blok	1	225.88	235.5
Uttarkashi Forest Division	Badahat Range	Badahat Beet	Mahidanda Blok	2a	32.32	38.4
Uttarkashi Forest	Badahat Range	Badahat Beet	Mahidanda Blok	2b	119.72	108.5

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Badahat Range	Badahat Beet	Mahidanda Blok	2c	5.72	4.5
Uttarkashi Forest Division	Badahat Range	Badahat Beet	Mahidanda Blok	2d	9.05	9.3
Uttarkashi Forest Division	Badahat Range	Badahat Beet	Utraun Block	7	192.36	189
Uttarkashi Forest Division	Badahat Range	Dodital-I Beet	Dodital Block	4a	9.81	4
Uttarkashi Forest Division	Badahat Range	Dodital-I Beet	Dodital Block	4b	1922.54	1799.7
Uttarkashi Forest Division	Badahat Range	Dodital-II Beet	Dodital Block	4c	1555.36	1685.1
Uttarkashi Forest Division	Badahat Range	Dodital-II Beet	Dodital Block	5a	23.9	11.3
Uttarkashi Forest Division	Badahat Range	Dodital-II Beet	Dodital Block	5b	12.13	6.5
Uttarkashi Forest Division	Badahat Range	Dodital-III Beet	Dodital Block	5c	192.04	364.5
Uttarkashi Forest Division	Badahat Range	Dodital-III Beet	Dodital Block	5d	300.43	364.6
Uttarkashi Forest Division	Badahat Range	Dodital-III Beet	Dodital Block	5e	918.4	680.4
Uttarkashi Forest Division	Badahat Range	Gajoli-I Beet	Dodital Block	8a	1024.96	953
Uttarkashi Forest Division	Badahat Range	Gajoli-I Beet	Dodital Block	8b	3.88	3.2
Uttarkashi Forest Division	Badahat Range	Gajoli-I Beet	Dodital Block	8c	213.51	372.3
Uttarkashi Forest Division	Badahat Range	Gajoli-II Beet	Dodital Block	9a	1136.93	1133.7
Uttarkashi Forest	Badahat Range	Gajoli-II Beet	Dodital Blok	9b	56.08	39.3

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Badahat Range	Gajoli-II Beet	Dodital Blok	9c	120.54	127.9
Uttarkashi Forest Division	Badahat Range	Gajoli-II Beet	Dodital Blok	9d	105.29	84.8
Uttarkashi Forest Division	Badahat Range	Gawana-II Beet	Gawanagad Block	3b	1079.31	1112.5
Uttarkashi Forest Division	Badahat Range	Gawana-II Beet	Gawanagad Block	4b	4.39	1059.1
Uttarkashi Forest Division	Badahat Range	Heena Beet	Maneri Block	6	324.35	336.7
Uttarkashi Forest Division	Badahat Range	Heena Beet	Maneri Block	7	288.58	264.3
Uttarkashi Forest Division	Badahat Range	Heena Beet	Maneri Block	8	253.81	261.4
Uttarkashi Forest Division	Badahat Range	Heena Beet	Maneri Block	5a	181.72	175.6
Uttarkashi Forest Division	Badahat Range	Heena Beet	Maneri Block	5b	428.75	434.2
Uttarkashi Forest Division	Badahat Range	Kaldyani Beet	Utraun Block	1	188.78	168.4
Uttarkashi Forest Division	Badahat Range	Kaldyani Beet	Utraun Block	3	205.07	199.5
Uttarkashi Forest Division	Badahat Range	Kaldyani Beet	Utraun Block	2a	84.97	87.4
Uttarkashi Forest Division	Badahat Range	Kaldyani Beet	Utraun Block	2b	456.8	500.6
Uttarkashi Forest Division	Badahat Range	Maneri Beet	Maneri Block	1	275.08	274.4
Uttarkashi Forest Division	Badahat Range	Maneri Beet	Maneri Block	2	163.32	147.7
Uttarkashi Forest	Badahat Range	Maneri Beet	Maneri Block	3	153.95	196.3

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Badahat Range	Maneri Beet	Maneri Block	4a	198.84	183.7
Uttarkashi Forest Division	Badahat Range	Maneri Beet	Maneri Block	4b	307.18	336.3
Uttarkashi Forest Division	Badahat Range	Naitala Beet	Gawanagad Block	1	244.4	246.1
Uttarkashi Forest Division	Badahat Range	Naitala Beet	Gawanagad Block	2	176.97	186.2
Uttarkashi Forest Division	Badahat Range	Naitala Beet	Gawanagad Block	3a	100.38	86.6
Uttarkashi Forest Division	Badahat Range	Naitala Beet	Gawanagad Block	4a	149.07	114.1
Uttarkashi Forest Division	Badahat Range	Naitala Beet	Gawanagad Block	5a	245.33	276.4
Uttarkashi Forest Division	Badahat Range	Naitala Beet	Gawanagad Block	5b	34	10.9
Uttarkashi Forest Division	Badahat Range	Nald-I Beet	Nald Block	1	174.32	192.2
Uttarkashi Forest Division	Badahat Range	Nald-I Beet	Nald Block	3	284.6	253.7
Uttarkashi Forest Division	Badahat Range	Nald-I Beet	Nald Block	2a	241.66	241.2
Uttarkashi Forest Division	Badahat Range	Nald-I Beet	Nald Block	2b	145.45	142
Uttarkashi Forest Division	Badahat Range	Nald-I Beet	Nald Block	4a	226.36	235.5
Uttarkashi Forest Division	Badahat Range	Nald-II Beet	Nald Block	4b	1013.66	1040
Uttarkashi Forest Division	Badahat Range	Seku-I Beet	Dodital Block	1a	190.8	249.1
Uttarkashi Forest	Badahat Range	Seku-I Beet	Dodital Block	1b	93.05	68

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Badahat Range	Seku-I Beet	Dodital Block	1c	97.02	52.8
Uttarkashi Forest Division	Badahat Range	Seku-I Beet	Dodital Block	2a	209.95	213.7
Uttarkashi Forest Division	Badahat Range	Seku-I Beet	Dodital Block	2b	670.14	765.7
Uttarkashi Forest Division	Badahat Range	Seku-I Beet	Dodital Block	3a	136.09	76.1
Uttarkashi Forest Division	Badahat Range	Seku-I Beet	Dodital Block	3b	1109.29	1416
Uttarkashi Forest Division	Badahat Range	Seku-I Beet	Dodital Block	3c	286.21	173.2
Uttarkashi Forest Division	Badahat Range	Utraun Beet	Utraun Block	6	240.72	278.4
Uttarkashi Forest Division	Badahat Range	Utraun Beet	Utraun Block	4a	124.53	106
Uttarkashi Forest Division	Badahat Range	Utraun Beet	Utraun Block	4b	195.57	189.4
Uttarkashi Forest Division	Badahat Range	Utraun Beet	Utraun Block	5a	218.34	225.8
Uttarkashi Forest Division	Badahat Range	Utraun Beet	Utraun Block	5b	123.66	110.9
Uttarkashi Forest Division	Gangotri range	Bagori Beet	Harsil Block	8	79.18	83
Uttarkashi Forest Division	Gangotri range	Bagori Beet	Harsil Block	7a	178.17	148.5
Uttarkashi Forest Division	Gangotri range	Bagori Beet	Harsil Block	7b	2703.87	2912.9
Uttarkashi Forest Division	Gangotri range	Cholvi Beet	Dharali Block	1a	243.74	225.4
Uttarkashi Forest	Gangotri range	Cholvi Beet	Dharali Block	1b	295.11	308

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Gangotri range	Cholvi Beet	Dharali Block	2a	225.28	144.1
Uttarkashi Forest Division	Gangotri range	Cholvi Beet	Dharali Block	2b	112.3	94.3
Uttarkashi Forest Division	Gangotri range	Cholvi Beet	Dharali Block	3a	224.95	113.7
Uttarkashi Forest Division	Gangotri range	Cholvi Beet	Dharali Block	3b	276.26	330.9
Uttarkashi Forest Division	Gangotri range	Cholvi Beet	Dharali Block	3c	544.54	456.2
Uttarkashi Forest Division	Gangotri range	Dharali-I Beet	Dharali Block	4a	47.5	244.8
Uttarkashi Forest Division	Gangotri range	Dharali-I Beet	Dharali Block	4b	338.66	350.4
Uttarkashi Forest Division	Gangotri range	Dharali-I Beet	Dharali Block	4c	1198.53	1294.6
Uttarkashi Forest Division	Gangotri range	Dharali-II Beet	Dharali Block	5a	157.26	122.6
Uttarkashi Forest Division	Gangotri range	Dharali-II Beet	Dharali Block	5b	255.99	165.1
Uttarkashi Forest Division	Gangotri range	Dharali-II Beet	Dharali Block	5c	1196.66	1230.3
Uttarkashi Forest Division	Gangotri range	Harsil-I Beet	Harsil Block	1	55.34	70
Uttarkashi Forest Division	Gangotri range	Harsil-I Beet	Harsil Block	2a	138.65	143.7
Uttarkashi Forest Division	Gangotri range	Harsil-I Beet	Harsil Block	2b	2852.51	2858.7
Uttarkashi Forest Division	Gangotri range	Harsil-II Beet	Harsil Block	4	59.62	54.2
Uttarkashi Forest	Gangotri range	Harsil-II Beet	Harsil Block	3a	190.21	118.2

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Gangotri range	Harsil-II Beet	Harsil Block	3b	5451.74	5768.8
Uttarkashi Forest Division	Gangotri range	Harsil-III Beet	Harsil Block	5	88.82	84.6
Uttarkashi Forest Division	Gangotri range	Harsil-III Beet	Harsil Block	6a	173.3	144.1
Uttarkashi Forest Division	Gangotri range	Harsil-III Beet	Harsil Block	6b	465.89	350.1
Uttarkashi Forest Division	Gangotri range	Harsil-III Beet	Harsil Block	6c	10378.7	10593.8
Uttarkashi Forest Division	Gangotri range	Jangala-I Beet	Jangala Block	1a	347.23	258.6
Uttarkashi Forest Division	Gangotri range	Jangala-I Beet	Jangala Block	1b	188.31	220.6
Uttarkashi Forest Division	Gangotri range	Jangala-I Beet	Jangala Block	2a	240.64	231.1
Uttarkashi Forest Division	Gangotri range	Jangala-I Beet	Jangala Block	2b	397.86	434.6
Uttarkashi Forest Division	Gangotri range	Jangala-I Beet	Jangala Block	3b	1599.3	1610.7
Uttarkashi Forest Division	Gangotri range	Jangala-II Beet	Jangala Block	3a	223.36	325.8
Uttarkashi Forest Division	Gangotri range	Jangala-II Beet	Jangala Block	4a	222.65	250.9
Uttarkashi Forest Division	Gangotri range	Jangala-II Beet	Jangala Block	4b	142.21	99.1
Uttarkashi Forest Division	Gangotri range	Jangala-II Beet	Jangala Block	5a	180.6	248.8
Uttarkashi Forest Division	Gangotri range	Jangala-II Beet	Jangala Block	5b	32.76	12.9
Uttarkashi Forest	Gangotri range	Jangala-III Beet	Dharali Block	8a	183.21	140.8

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Gangotri range	Jangala-III Beet	Dharali Block	9a	184.91	167.5
Uttarkashi Forest Division	Gangotri range	Jangala-III Beet	Dharali Block	9b	817.12	928.3
Uttarkashi Forest Division	Gangotri range	Jaspur Beet	Harsil Block	10a	269.22	273.3
Uttarkashi Forest Division	Gangotri range	Jaspur Beet	Harsil Block	10b	10117.6	10691
Uttarkashi Forest Division	Gangotri range	Jaspur Beet	Harsil Block	9a	382.15	281.3
Uttarkashi Forest Division	Gangotri range	Jaspur Beet	Harsil Block	9b	125.62	164.3
Uttarkashi Forest Division	Gangotri range	Jhala -I Beet	Harsil Block	11a	34.32	42.9
Uttarkashi Forest Division	Gangotri range	Jhala -I Beet	Harsil Block	11b	68.53	61.9
Uttarkashi Forest Division	Gangotri range	Jhala -I Beet	Harsil Block	11c	1287.1	1465
Uttarkashi Forest Division	Gangotri range	Jhala -II Beet	Harsil Block	11d	5873.59	6293.2
Uttarkashi Forest Division	Gangotri range	KedarGanga Beet	Gangotri	3a	43.04	48.2
Uttarkashi Forest Division	Gangotri range	KedarGanga Beet	Gangotri	4a	92.19	107.6
Uttarkashi Forest Division	Gangotri range	KedarGanga Beet	Gangotri	5a	270.88	258.6
Uttarkashi Forest Division	Gangotri range	KedarGanga Beet	Gangotri	6a	184.51	195.9
Uttarkashi Forest Division	Gangotri range	KedarGanga Beet	Karcha	1a	148.34	114.5
Uttarkashi Forest	Gangotri range	KedarGanga Beet	patangani	1a	101.53	106.8

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Gangotri range	KedarGanga Beet	patangani	2a	149.08	140.8
Uttarkashi Forest Division	Gangotri range	KedarGanga Beet	patangani	3a	174.22	141.6
Uttarkashi Forest Division	Gangotri range	KedarGanga Beet	patangani	4a	92.66	112.1
Uttarkashi Forest Division	Gangotri range	pachiyari-I Beet	Dharali Block	6a	211.17	187.8
Uttarkashi Forest Division	Gangotri range	pachiyari-I Beet	Dharali Block	6b	288.56	307.6
Uttarkashi Forest Division	Gangotri range	pachiyari-I Beet	Dharali Block	6c	605.13	685.5
Uttarkashi Forest Division	Gangotri range	pachiyari-II Beet	Dharali Block	7a	258.71	196.7
Uttarkashi Forest Division	Gangotri range	pachiyari-II Beet	Dharali Block	7b	77.8	111.7
Uttarkashi Forest Division	Gangotri range	pachiyari-II Beet	Dharali Block	8b	1626.96	1695.6
Uttarkashi Forest Division	Gangotri range	Songad Beet	Suki Block	3c	3465.7	3833.5
Uttarkashi Forest Division	Gangotri range	Songad Beet	Suki Block	4a	1300.55	1241.2
Uttarkashi Forest Division	Gangotri range	Suki-I Beet	Suki Block	2	210.09	261.4
Uttarkashi Forest Division	Gangotri range	Suki-I Beet	Suki Block	1a	45.11	57.5
Uttarkashi Forest Division	Gangotri range	Suki-I Beet	Suki Block	1b	585.44	600.6
Uttarkashi Forest Division	Gangotri range	Suki-I Beet	Suki Block	3a	370.46	304.3
Uttarkashi Forest	Gangotri range	Suki-I Beet	Suki Block	3b	50.05	197.6

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Gangotri range	Suki-II Beet	Suki Block	4b	3956.54	3915.7
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	6a	142.54	178.1
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	6b	10.44	11.7
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	6c	25.94	12.5
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	6d	78.14	74.9
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	7a	47.23	69.7
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	7b	218.19	241.1
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	8a	381.02	375.6
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	8b	32.92	57.5
Uttarkashi Forest Division	Mukhem range	Baragaddi-I Beet	Baragaddi Block	8c	213.31	185.9
Uttarkashi Forest Division	Mukhem range	Baragaddi-II Beet	Baragaddi Block	12	193.32	204.8
Uttarkashi Forest Division	Mukhem range	Baragaddi-II Beet	Baragaddi Block	10a	71.94	95.5
Uttarkashi Forest Division	Mukhem range	Baragaddi-II Beet	Baragaddi Block	10b	177.16	151.8
Uttarkashi Forest Division	Mukhem range	Baragaddi-II Beet	Baragaddi Block	11a	84.8	105.2
Uttarkashi Forest Division	Mukhem range	Baragaddi-II Beet	Baragaddi Block	11b	199.99	205.6
Uttarkashi Forest	Mukhem range	Baragaddi-II Beet	Baragaddi Block	9a	333.15	384.5

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Mukhem range	Baragaddi-II Beet	Baragaddi Block	9b	72.14	56.3
Uttarkashi Forest Division	Mukhem range	Baragaddi-II Beet	Baragaddi Block	9c	20.91	22.3
Uttarkashi Forest Division	Mukhem range	Baragaddi-II Beet	Baragaddi Block	9d	198.55	223.3
Uttarkashi Forest Division	Mukhem range	Baragaddi-III Beet	Baragaddi Block	13a	136.07	197.1
Uttarkashi Forest Division	Mukhem range	Baragaddi-III Beet	Baragaddi Block	13b	10.28	7.7
Uttarkashi Forest Division	Mukhem range	Baragaddi-III Beet	Nirakot Block	2	254.55	277.2
Uttarkashi Forest Division	Mukhem range	Baragaddi-III Beet	Nirakot Block	1a	195.72	188.6
Uttarkashi Forest Division	Mukhem range	Baragaddi-III Beet	Nirakot Block	1b	69.84	59.9
Uttarkashi Forest Division	Mukhem range	Dilasaaur-II Beet	Baragaddi Block	2	222.08	227.8
Uttarkashi Forest Division	Mukhem range	Dilasaaur-II Beet	Baragaddi Block	3	191.28	194.2
Uttarkashi Forest Division	Mukhem range	Dilasaaur-II Beet	Baragaddi Block	4	163.39	157.8
Uttarkashi Forest Division	Mukhem range	Dilasaaur-II Beet	Baragaddi Block	5	174.12	189
Uttarkashi Forest Division	Mukhem range	Dilasaaur-II Beet	Baragaddi Block	1a	236.24	227.4
Uttarkashi Forest Division	Mukhem range	Dilasaaur-II Beet	Baragaddi Block	1b	4.52	5.7
Uttarkashi Forest Division	Mukhem range	Jamak-I Beet	Siror Block	1	153.76	145.3
Uttarkashi Forest	Mukhem range	Jamak-I Beet	Siror Block	2a	33.62	16.2

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Mukhem range	Jamak-I Beet	Siror Block	2b	263.46	246.5
Uttarkashi Forest Division	Mukhem range	Jamak-I Beet	Siror Block	3a	120.75	131.5
Uttarkashi Forest Division	Mukhem range	Jamak-I Beet	Siror Block	3b	122.64	143.3
Uttarkashi Forest Division	Mukhem range	Jamak-I Beet	Siror Block	4a	287.99	289.8
Uttarkashi Forest Division	Mukhem range	Jamak-I Beet	Siror Block	4b	297.78	303.1
Uttarkashi Forest Division	Mukhem range	Jamak-II Beet	Jamak Block	1	116.89	121.8
Uttarkashi Forest Division	Mukhem range	Jamak-II Beet	Jamak Block	2a	211.06	192.2
Uttarkashi Forest Division	Mukhem range	Jamak-II Beet	Jamak Block	2b	49.1	59.6
Uttarkashi Forest Division	Mukhem range	Jamak-II Beet	Jamak Block	2c	266.19	266.2
Uttarkashi Forest Division	Mukhem range	Jamak-II Beet	Jamak Block	3a	229.92	218.7
Uttarkashi Forest Division	Mukhem range	Jamak-II Beet	Jamak Block	3b	145.34	185.2
Uttarkashi Forest Division	Mukhem range	Jamak-III Beet	Jamak Block	4a	89.23	82.2
Uttarkashi Forest Division	Mukhem range	Jamak-III Beet	Jamak Block	4b	672.21	737.1
Uttarkashi Forest Division	Mukhem range	Jamak-III Beet	Jamak Block	4c	285.78	206.2
Uttarkashi Forest Division	Mukhem range	Jamak-IV Beet	Jamak Block	5a	247.6	160.7
Uttarkashi Forest	Mukhem range	Jamak-IV Beet	Jamak Block	5b	120.61	359.8

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Mukhem range	Jamak-IV Beet	Jamak Block	6a	164.08	165.1
Uttarkashi Forest Division	Mukhem range	Jamak-IV Beet	Jamak Block	6b	181.41	12.2
Uttarkashi Forest Division	Mukhem range	Jamak-IV Beet	Jamak Block	6c	171.16	206
Uttarkashi Forest Division	Mukhem range	Jamak-IV Beet	Jamak Block	7a	36.08	56.1
Uttarkashi Forest Division	Mukhem range	Jamak-IV Beet	Jamak Block	7b	146.64	113.3
Uttarkashi Forest Division	Mukhem range	Jamak-IV Beet	Jamak Block	7c	29.83	3.2
Uttarkashi Forest Division	Mukhem range	Jamak-IV Beet	Jamak Block	7d	33.33	55.2
Uttarkashi Forest Division	Mukhem range	Sauragad-I Beet	Sauragad Block	1a	323.72	98.7
Uttarkashi Forest Division	Mukhem range	Sauragad-I Beet	Sauragad Block	1b	184.13	393.4
Uttarkashi Forest Division	Mukhem range	Sauragad-I Beet	Sauragad Block	2a	218.72	206.2
Uttarkashi Forest Division	Mukhem range	Sauragad-I Beet	Sauragad Block	2b	189.87	7.7
Uttarkashi Forest Division	Mukhem range	Sauragad-I Beet	Sauragad Block	2c	6.7	183.9
Uttarkashi Forest Division	Mukhem range	Sauragad-I Beet	Sauragad Block	3a	205.8	217.7
Uttarkashi Forest Division	Mukhem range	Sauragad-I Beet	Sauragad Block	3b	16.39	11.3
Uttarkashi Forest Division	Mukhem range	Sauragad-II Beet	Sauragad Block	4a	9.26	2
Uttarkashi Forest	Mukhem range	Sauragad-II Beet	Sauragad Block	4b	5.92	2.4

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Mukhem range	Sauragad-II Beet	Sauragad Block	4c	13.66	13.8
Uttarkashi Forest Division	Mukhem range	Sauragad-II Beet	Sauragad Block	4d	18.33	7.7
Uttarkashi Forest Division	Mukhem range	Sauragad-II Beet	Sauragad Block	4e	1106.4	1085.4
Uttarkashi Forest Division	Mukhem range	Sauragad-III Beet	Sauragad Block	4f	230.77	306.2
Uttarkashi Forest Division	Mukhem range	Sauragad-III Beet	Sauragad Block	4g	328.55	216.2
Uttarkashi Forest Division	Mukhem range	Sauragad-III Beet	Sauragad Block	4h	293.23	406.7
Uttarkashi Forest Division	Mukhem range	Sauragad-IV Beet	Sauragad Block	6	37.21	111.3
Uttarkashi Forest Division	Mukhem range	Sauragad-IV Beet	Sauragad Block	5a	255.21	137.5
Uttarkashi Forest Division	Mukhem range	Sauragad-IV Beet	Sauragad Block	5b	146.47	70
Uttarkashi Forest Division	Mukhem range	Sauragad-IV Beet	Sauragad Block	5c	105.56	107.6
Uttarkashi Forest Division	Mukhem range	Sauragad-IV Beet	Sauragad Block	5d	963.44	1115.9
Uttarkashi Forest Division	Mukhem range	Sauragad-IV Beet	Sauragad Block	7a	5.44	4
Uttarkashi Forest Division	Mukhem range	Sauragad-IV Beet	Sauragad Block	7b	19.21	24.3
Uttarkashi Forest Division	Taknaur range	Barsu Beet	Raithal Block	8	52.01	44.1
Uttarkashi Forest Division	Taknaur range	Barsu Beet	Raithal Block	5a	92.42	54.6
Uttarkashi Forest	Taknaur range	Barsu Beet	Raithal Block	5b	952.77	1022.6

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Taknaur range	Barsu Beet	Raithal Block	6a	52.36	65.3
Uttarkashi Forest Division	Taknaur range	Barsu Beet	Raithal Block	6b	663.41	720.8
Uttarkashi Forest Division	Taknaur range	Barsu Beet	Raithal Block	6c	36.81	37.5
Uttarkashi Forest Division	Taknaur range	Barsu Beet	Raithal Block	7a	900.6	908.5
Uttarkashi Forest Division	Taknaur range	Barsu Beet	Raithal Block	7b	166.27	218.1
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	1	1027.69	1007.7
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	2	753.64	800.5
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	3a	25.71	37.5
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	3b	153.93	131.5
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	3c	71.52	71.8
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	4a	269.73	231.2
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	4b	179.51	216.8
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	5a	74.97	99.6
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	5b	270.86	288.6
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	5c	348.1	381.2
Uttarkashi Forest	Taknaur range	Bhukki-I Beet	Bhukki Block	6a	105.42	112.1

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Taknaur range	Bhukki-I Beet	Bhukki Block	6b	157.23	143.7
Uttarkashi Forest Division	Taknaur range	Bhukki-II Beet	Bhukki Block	6c	2722.57	2058.6
Uttarkashi Forest Division	Taknaur range	Bhukki-III Beet	Bhukki Block	6d	1949.65	2377.9
Uttarkashi Forest Division	Taknaur range	Gangnani-I Beet	Gangnani Block	3	2844.59	2939.6
Uttarkashi Forest Division	Taknaur range	Gangnani-I Beet	Gangnani Block	1a	118.75	121
Uttarkashi Forest Division	Taknaur range	Gangnani-I Beet	Gangnani Block	1b	199.1	195.1
Uttarkashi Forest Division	Taknaur range	Gangnani-I Beet	Gangnani Block	2a	131.16	112.5
Uttarkashi Forest Division	Taknaur range	Gangnani-I Beet	Gangnani Block	2b	80.89	68.8
Uttarkashi Forest Division	Taknaur range	Gangnani-II Beet	Gangnani Block	4a	1176.55	1018.7
Uttarkashi Forest Division	Taknaur range	Gangnani-II Beet	Gangnani Block	4b	1005.96	1229
Uttarkashi Forest Division	Taknaur range	Huri-I Beet	Huri Block	2	83.04	70
Uttarkashi Forest Division	Taknaur range	Huri-I Beet	Huri Block	1a	423.15	373.5
Uttarkashi Forest Division	Taknaur range	Huri-I Beet	Huri Block	1b	790.39	788.3
Uttarkashi Forest Division	Taknaur range	Huri-I Beet	Huri Block	1c	1280.65	1344
Uttarkashi Forest Division	Taknaur range	Huri-I Beet	Huri Block	3a	21.2	17
Uttarkashi Forest	Taknaur range	Huri-I Beet	Huri Block	3b	258.34	367.7

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Taknaur range	Huri-I Beet	Huri Block	3c	177.37	145.4
Uttarkashi Forest Division	Taknaur range	Huri-I Beet	Huri Block	3d	440.43	368.7
Uttarkashi Forest Division	Taknaur range	Huri-II Beet	Huri Block	5	285.81	292.6
Uttarkashi Forest Division	Taknaur range	Huri-II Beet	Huri Block	4a	211.42	216.9
Uttarkashi Forest Division	Taknaur range	Huri-II Beet	Huri Block	4b	919.19	796
Uttarkashi Forest Division	Taknaur range	Huri-II Beet	Huri Block	4c	1081.67	1204.4
Uttarkashi Forest Division	Taknaur range	Huri-II Beet	Huri Block	6a	179.57	179.8
Uttarkashi Forest Division	Taknaur range	Huri-II Beet	Huri Block	6b	123.91	137.5
Uttarkashi Forest Division	Taknaur range	Huri-II Beet	Huri Block	7a	80.68	101.2
Uttarkashi Forest Division	Taknaur range	Huri-III Beet	Huri Block	9	200.18	204.8
Uttarkashi Forest Division	Taknaur range	Huri-III Beet	Huri Block	10	313.36	321.3
Uttarkashi Forest Division	Taknaur range	Huri-III Beet	Huri Block	11a	559.42	539.9
Uttarkashi Forest Division	Taknaur range	Huri-III Beet	Huri Block	7b	1138.34	1116.1
Uttarkashi Forest Division	Taknaur range	Huri-III Beet	Huri Block	8a	133.55	143.3
Uttarkashi Forest Division	Taknaur range	Huri-III Beet	Huri Block	8b	407.05	467.8
Uttarkashi Forest	Taknaur range	Huri-IV Beet	Huri Block	11b	3669.2	4394

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Taknaur range	Jalari-I Beet	Jalari Block	2	273.65	259
Uttarkashi Forest Division	Taknaur range	Jalari-I Beet	Jalari Block	1a	201.29	217.7
Uttarkashi Forest Division	Taknaur range	Jalari-I Beet	Jalari Block	3a	318.76	253.3
Uttarkashi Forest Division	Taknaur range	Jalari-I Beet	Jalari Block	3b	830.22	839.7
Uttarkashi Forest Division	Taknaur range	Jalari-I Beet	Jalari Block	4a	410.93	409.1
Uttarkashi Forest Division	Taknaur range	Jalari-I Beet	Jalari Block	4b	938.86	985
Uttarkashi Forest Division	Taknaur range	Jalari-II Beet	Jalari Block	1b	4898.9	4866.3
Uttarkashi Forest Division	Taknaur range	Pilang-I Beet	Pilang Block	1a	151.94	26.7
Uttarkashi Forest Division	Taknaur range	Pilang-I Beet	Pilang Block	1b	13.94	7.3
Uttarkashi Forest Division	Taknaur range	Pilang-I Beet	Pilang Block	1c	491.82	268.7
Uttarkashi Forest Division	Taknaur range	Pilang-I Beet	Pilang Block	1d	76.3	59.5
Uttarkashi Forest Division	Taknaur range	Pilang-I Beet	Pilang Block	1e	231.63	572.6
Uttarkashi Forest Division	Taknaur range	Pilang-I Beet	Pilang Block	2a	166.14	115.3
Uttarkashi Forest Division	Taknaur range	Pilang-I Beet	Pilang Block	2b	19.99	10.5
Uttarkashi Forest Division	Taknaur range	Pilang-I Beet	Pilang Block	2c	1837.54	1187.5
Uttarkashi Forest	Taknaur range	Pilang-II Beet	Pilang Block	2d	487.8	1286.4

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Taknaur range	Pilang-II Beet	Pilang Block	3a	50.68	37.2
Uttarkashi Forest Division	Taknaur range	Pilang-II Beet	Pilang Block	3b	546.42	7.7
Uttarkashi Forest Division	Taknaur range	Pilang-II Beet	Pilang Block	3c	21.79	5.7
Uttarkashi Forest Division	Taknaur range	Pilang-II Beet	Pilang Block	3d	21.32	6.5
Uttarkashi Forest Division	Taknaur range	Pilang-II Beet	Pilang Block	3e	200.48	253.7
Uttarkashi Forest Division	Taknaur range	Pilang-II Beet	Pilang Block	4a	233.63	206.2
Uttarkashi Forest Division	Taknaur range	Pilang-III Beet	Pilang Block	4b	12424.2	13196.1
Uttarkashi Forest Division	Taknaur range	Pilang-IV Beet	Pilang Block	4c	1323.86	1575.5
Uttarkashi Forest Division	Taknaur range	Pilang-IV Beet	Pilang Block	5a	111.89	94.4
Uttarkashi Forest Division	Taknaur range	Pilang-V Beet	Pilang Block	5b	2457.11	2524
Uttarkashi Forest Division	Taknaur range	Pilang-VI Beet	Pilang Block	6	533.3	571
Uttarkashi Forest Division	Taknaur range	Pilang-VI Beet	Pilang Block	5c	1214.22	1038.7
Uttarkashi Forest Division	Taknaur range	Raithal Beet	Raithal Block	1	88.84	98.3
Uttarkashi Forest Division	Taknaur range	Raithal Beet	Raithal Block	3	136.55	106
Uttarkashi Forest Division	Taknaur range	Raithal Beet	Raithal Block	2a	372.65	272.4
Uttarkashi Forest	Taknaur range	Raithal Beet	Raithal Block	2b	70.65	183.3

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Taknaur range	Raithal Beet	Raithal Block	4a	1395.33	1407.1
Uttarkashi Forest Division	Taknaur range	Raithal Beet	Raithal Block	4b	679.18	693.6
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Gangnani Block	5	428.09	436.3
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Gangnani Block	6	228.01	233
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	7	79.87	108.9
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	1a	152.52	173.6
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	1b	129.57	124.2
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	2a	64.31	83.3
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	2b	91.28	90.3
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	2c	63.13	74.9
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	3a	78	56.2
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	3b	44.35	45.7
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	3c	42.13	66.4
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	4a	78.35	68.8
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	4b	61.49	46.9
Uttarkashi Forest	Taknaur range	Tyar Beet	Tyar Block	4c	30.02	43.7

<b>DIVISION</b>	<b>NEW RANGE</b>	<b>NEW BEAT</b>	<b>BLOCK</b>	<b>COMPART-MENT</b>	<b>GIS Area (ha)</b>	<b>Notified Area (ha)</b>
Division						
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	5a	160.71	162.7
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	5b	377.63	409.5
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	6a	206.57	156.2
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	6b	90.2	159.5
Uttarkashi Forest Division	Taknaur range	Tyar Beet	Tyar Block	6c	297.9	268.7
					<b>Total RF Area</b>	<b>410690.5</b>

### 3. Fauna

#### **Wildlife species found in eco-sensitive zone**

There are many endangered species present in eco-sensitive zone. The area of eco-sensitive zone is adjoins with Govind National Park and Kedarnath musk deer sanctuary which has an important role for conservation and protection of endangered wildlife species. Main mammals, avifauna and butterfly species are as under.

#### **Mammals**

**Snow Leopard (*Uncia uncia*):** It is found between 3000-5500 Mts. altitude. It follows general downward migration of herbivores during winter but hardly comes below tree line. Size 100-130cm.



**Leopard (*Panthera pardus*):** Manages to co-exist with tigers by hauling the carcasses up trees in the foothills but in higher hills it dominates amongst the carnivores. It is found till 3000 Mts altitude. Size 185-215cm.

**Black Bear (*Ursus thibetanus*):** It inhabits the forested hills of the area. It exhibits seasonal altitudinal migration. Size 90-115cm.

**Brown Bear (*Ursus arctos*):** It is found in open peaks above tree line of the area. Size up to 245cm.

**Musk Deer (*Moschus chrysogaster*):** It generally occurs above 2700 Mts. altitude on precipitous rocky slopes in Birch, Rhododendron forests intermixed with alpine pastures. It does move downwards during winter. Height at shoulder- 50cm.

**Bharal (*Pseudois nayaur*) :** The blue sheep or Bharal lives in slate-blue shale country and has a light blueish coat to match. Gregarious in nature it is found between 3500 to 5500 Mts. Size 80-90cm.



**Himalayan thar (*Hemitragus jemlahicus*) :** It is deep copper-brown mountain goat which is found on precipitous rocky slopes between 2500 to 4400 Mts. Size 80-100cm.

**The serow (*Capicornis sumatraensis*) :** It has a goat like body with long donkey like ears and found between 1800 to 3000 Mts. in steep valleys.

**Himalayan Chetrole (*Mustela erminea*)** : It is found between 3200 to 4200 Mts. in steep valleys. Size 25-30cm.

**Red Fox (*Vulpes vulpes*)**: It is found between 1800 to 3000 m in steep valleys. Size 46-70cm.



**Yellow-Throated Marten (*Martes flavigula*)**: Observed at River side and most forests in the sub-tropical and temperate zone in the area.



**Royale's Pika, Large eared Pika (*Ochotona roylei*)**: It is most common pika of the Himalaya. It has a rufous grey body, a chestnut head. It does not burrow but moves underground through existing burrow system in rocky and scree slopes.

**Monal Pheasant (*Lophophorus impejanus*)**: It is a beautiful bird with square ft. short tail. It frequents Kharsu, birch and fir forests and comes down to upper deodar forest in winter. The head is metallic green upper pants are purple and the breast is black with a cimbaloms colored tail. Its call is whistling chuckle which it utters when alarmed.



**The Himalayan Snow Cock (*Tetrogallus himalayensis*)**: This is a large bird with mixed grey, where chestnut and black floorage. It is found above the tree limit and the snow line. It likes rocky areas and also frequents alpine pastures in search of tubers and shoots of grass. It is a shy bird and lives small parties.

**Bearded Vulture (*Gypatus baratus*)** : It hardly comes below 2200 m. It can be sighted in Gangotri & Gartang blocks of the Protected Area.

**Snow Partridge (*Lerwa lerwa*)**: It is found between altitudinal range 2500-5000 Mts. It was sighted at Nelapani and Tapovan area.

**West Himalayan Snow Pigeon (*Columba leuconota*)**: It is found at altitudinal range 1500-5000 Mts. It was sighted at Nandanvan, Arva Tal, Sonam, Jadung, KedarTal area of P.A.

**Yellow-Billed Chough** (1045) (*Pyrrhocorax graculus digitatus*): It is resident with altitudinal migrant found at altitude 1800-5000 Mts. and sighted at Tapovan & Near Seta glacier area of P.A.

**West Himalayan Red Billed Chough** (1046) (*Pyrrhocorax centralis*): It is resident with altitudinal migrant and found at altitude 1600-3500 Mts. and sighted at Naga, Sonam area of P.A.

### Butterflies

As per study report of Wildlife Institute of India done in 2009 an effort of 10.5 km in 9 hrs encountered a total of 760 individual butterflies from 18 species, 15 genera and five families across eight sampling sites during the survey. Species richness and abundance from each of the following butterfly families were recorded as Nymphalidae eight species, Pieridae three species, Lycaenidae three species, Papilionidae three species and Hesperidae with only one species.

Nymphalidae was found to be most abundant family with 491 individuals followed by Papilionidae (165), Lycaenids (55), Pieridae (48) and Hesperids with only one individual. Species richness was found to be decreasing with an increase in altitude.

#### List of some Butterflies found in Gangotri National Park.

S. No.	Common name	Scientific name
	<b>Papilionidae</b>	
1	Common Yellow Swallowtail	<i>Papilio machaon</i> Linnaeus
2	Common Red Apollo	<i>Parnassius epaphus</i> Oberthür
3	Common Blue Apollo	<i>Parnassius hardwickii</i> Gray
	<b>Pieridae</b>	
4	Large Cabbage White	<i>Peiris brassica</i> Linnaeus
5	Dark Clouded Yellow	<i>Colias electo fieldii</i> Menetries
6	Common Emigrant	<i>Catopsilia pomona</i> Fabricius
	<b>Nymphalidae</b>	
7	Queen of Spain Fritillary	<i>Issorea lathonia</i> Linnaeus
8	Red Admiral	<i>Vanessa indica</i> Herbst
9	Mountain Tortoiseshell	<i>Aglais urticae</i> Linnaeus
10	Common Sailor	<i>Neptis hylas</i> Moore
11	Himalayan Five-Ring	<i>Ypthima sakra</i> Moore
12	Common Four-Ring	<i>Ypthima hubenri</i> Kirby
13	Common Satyr	<i>Aulocera swaha</i> Kollar
14	Mountain Argus	<i>Erebia shallada</i> Lang
	<b>Lycanidae</b>	
15	Large Hedge Blue	<i>Celastrina huegelli</i> Moore
16	Common Copper	<i>Lycaena phlaeas</i> Linnaeus
17	Green Copper	<i>Lycaena kasyapa</i> Moore
	<b>Hesperidae</b>	
18	Himalayan Grass Dark Dart	<i>Taractrocera danna</i> Moore



*Papilio machaon* Linnaeus



*Parnassius hardwickii* Gray



*Parnassius epaphus* Oberthür



*Peiris brassica* Linnaeus



*Issorea lathonia*



*Vanessa indica*



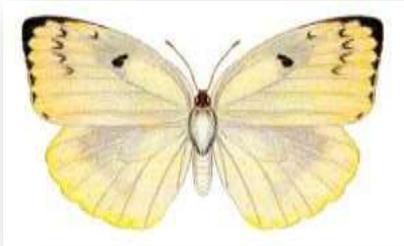
*Celastrina huegelli*



*Lycaena phlaeas lunnaeus*



*Ypthima sakra*



*Colias electo fieldii* Menetries



*Erebia shallada* Lang

*Aulocera swaha* Kollar



*Taractrocera damna* Moore

#### **4- Wildlife Conservation and Habitat Management**

##### **Zonation and Zone Plans**

**Core Zone:** The total area 2,39,002.40 Ha. of the Gangotri National Park, serves as core zone. The area will, however, be subject to change as per the awaited final notification.

**The major strategy for the entire National Park (core zone) will be protection. A small tourism zone would be identified with in this area for limited and regulated tourism.**

The entry into the Park for person other than the Protected Area/ ITBP or Indian Army staff will be permitted only by written permission from the Chief Wildlife Warden or Authorized Officer. The ITBP or Indian Army personnel other than the permanently stationed staff, would however require to take permission from CWLW which may be given in routine.

The area will be used for wild life education and research under the written permission of Chief Wildlife Warden, Uttarakhand Dehradun.

Eco-restoration works will be carried out and communication network will be developed. Significant no. of staff quarters do not exists inside the PA. It is thus difficult for them to monitor the activities inside Park. Staff quarters and touring huts need to be constructed at suitable location like Bhojbasa, Naga, Sonam, Neela Pani, Bhaironghati and Gangotri etc.

As per the Gazette Notification No. 4323/11-5-1985-20 (D.A) 85 Dated Nov 2, 1985, the area of the “Kopang Lanka Kshetra” lies in the NP. The activities in this area will be carried out with consensus between “Kopang Lanka Kshetra Vikas Pradhikaran” & the PA management.

**Buffer:** Remaining part of Bhagirathi Eco-sensitive Zone (excluding core zone) will be the Buffer Zone. The activities in the buffer zone will be carried out as per the prescriptions of the working plan of the division.

##### **Eco-restoration zone**

This zone includes the NP area as well as Buffer Zone. Eco-restoration works will be carried out and communication network will be developed. Significant no. of staff quarters do not exists inside ESZ. It is thus difficult for them to monitor the activities in the area. Staff quarters and touring huts need to be constructed at suitable locations.

The works proposed for Eco-restoration are soil & water conservation measures (mechanical as well as vegetative), fodder development, weed eradication, etc.

**Protection/ anti-poaching:** Owing to rugged terrain and unfavourable climatic condition in the area coupled with lack of staff and camping facilities in interior areas make the area vulnerable for poaching. In addition exit points are numerous without any check posts. This helps the offenders to escape safely. Hence creation of additional posts and construction of camping huts (snow huts) are needed.

## 5- Water Conservation

### Introduction

Water is the most vital element of all natural resources and is essential to life; Forests and woodlands have a close relationship with our water resources, and forest management and water quality are closely linked. Sustainable forest management is essential to ensure the supply of good-quality fresh water, to protect from natural hazards like floods, fire, to check soil erosion and to protect the needs of aquatic species.

It has been realized that water is the most important forest produce. Harvesting greater amount of this resource in efficient manner for increasing agriculture production and other activities is one the most important proposed initiative.

### 5.1 List of water source falling within eco-sensitive zone Uttarkashi Forest Division

S.No.	Range	Local Name of water source	Block and Comp.	Availability of water in water source	Condition of Catchment	Condition of soil erosion	Name of Villages benefitting
1-	Gangotri	Kedarganga	Patangani- 4a	Complete Year	Normal	Effectted	-
		Rudragaira	Patangani- 1a	-“-	-“-	-“-	-
		Ptangnigad	Patangani- 3a	-“-	-“-	-“-	-
		Gumgumnala	Jangla- 3a	-“-	-“-	-“-	Mukhwa
		Kadodagad	Harsil- 1,2,3	-“-	Need for treatment	-“-	Harsil
		Jalandrigad	Harsil- 4to8	-“-	-“-	-“-	Bagori
		Siyagad	Harsil- 9, 10	-“-	-“-	-“-	Bagori, Jaspur
		Tilgad	Dharali- 3a,b,c,	-“-	-“-	-“-	Dharali, Harsil
		Swarigad	Dharali- 4a,b,c,	-“-	-“-	-“-	Dharali
		Hatiyagad	Dharali- 5, 6	-“-	-“-	-“-	Dharali
		Songad	Sukki- 2	-“-	-“-	-“-	Sukki
2	Taknor	Dugdagad	Raithal- 6a	-“-	-“-	-“-	Raithal, Kyark
		Mahargad	Raithal- 8	-“-	-“-	-“-	Nateen, Bandrani
		Mahargad	Raithal- 7a	-“-	-“-	-“-	Bhatwari, Bandrani
		Swarigad	Raithal- 5a	-“-	-“-	-“-	Barsu, Pala
		Ghattugad	Gangnani- 4,5	-“-	-“-	-“-	Bhangel

S.No.	Range	Local Name of water source	Block and Comp.	Availability of water in water source	Condition of Catchment	Condition of soil erosion	Name of Villages benefitting
		Gunjagad	Gangnani- 6	-“-	-“-	-“-	Gunga
		Molyanigad	Tihar- 1, 2	-“-	-“-	-“-	Sunagar
		Helgugad	Tihar- 5,6	-“-	-“-	-“-	Tihar
		Chingad	Hurri- 4	-“-	-“-	-“-	Hurri
		Lemthagad	Hurri- 7, 8	-“-	-“-	-“-	Hurri
		Garamkund	Hurri- 5	-“-	-“-	-“-	Hurri, Gangnani
		Dingad	Bhukki- 6	-“-	-“-	-“-	Bhukki
		Charkhyagad	Bhukki- 4	-“-	-“-	-“-	Bhukki, Salang
		Pulagad	Bhukki- 2	-“-	-“-	-“-	Jalang
		Jalaggad	Bhukki- 1	-“-	-“-	-“-	Jalang
		Gawantokgad	Pilang- 1	-“-	-“-	-“-	Silla
		Panyasarigad	Pilang- 1	-“-	-“-	-“-	Panyasari
		Palamgad	Pilang- 2	-“-	-“-	-“-	Jadao
		Pilaggad	Pilang- 6	-“-	-“-	-“-	Pilang
3	Badahat	Bebrakhad	Dodital- 6	-“-	-“-	-“-	Agoda, Bhankoli
		Banjjadikhad	Dodital- 1	Rainy season	-“-	-“-	Naugaun
		Chaddanala	Dodital- 1	-“-	-“-	-“-	Seku
		Paniyarlog shrot	Dodital- 6	-“-	-“-	-“-	Dasda, Agoda
		Rikhera shrot	Dodital- 7	-“-	-“-	-“-	Naugaun
		Parikabenagad	Dodital- 9a	Complete year	-“-	-“-	Gajoli
		Kohrigad	Nald- 4b	-“-	-“-	-“-	Nald, Uttarkashi
		Paniyara nala	Nald- 1	-“-	-“-	-“-	Nald
		Rawada tok	Nald- 2b	-“-	-“-	-“-	Rawada, Gangori
		Pairigaun nala	Uttrao- 6	-“-	-“-	-“-	Uttron, Gangori
		Pathhon nala	Mahidanda- 1	-“-	-“-	-“-	Sangrali, Pata
		Nawa nala	Mahidanda- 1	-“-	-“-	-“-	Sangrali
		Jakhni nala	Maneri- 3	-“-	-“-	-“-	Aungi
		Thanda pani nala	Maneri- 5a	-“-	-“-	-“-	Maneri
		Haipta nala	Maneri- 8	-“-	-“-	-“-	Heena
		Nagni nala	Maneri- 1	-“-	-“-	-“-	Jakhol
		Nelu nala	Maneri- 2	-“-	-“-	-“-	Sanj
		Paniyari nala	Maneri- 6	-“-	-“-	-“-	Kumalti

S.No.	Range	Local Name of water source	Block and Comp.	Availability of water in water source	Condition of Catchment	Condition of soil erosion	Name of Villages benefitting
		Ganwada gad	Gawanda Gad-3b	-“-			Ganeshpur
		Khilyari nala	Gawanda Gad-1		-“-	-“-	Naitala

### Gangotri National Park

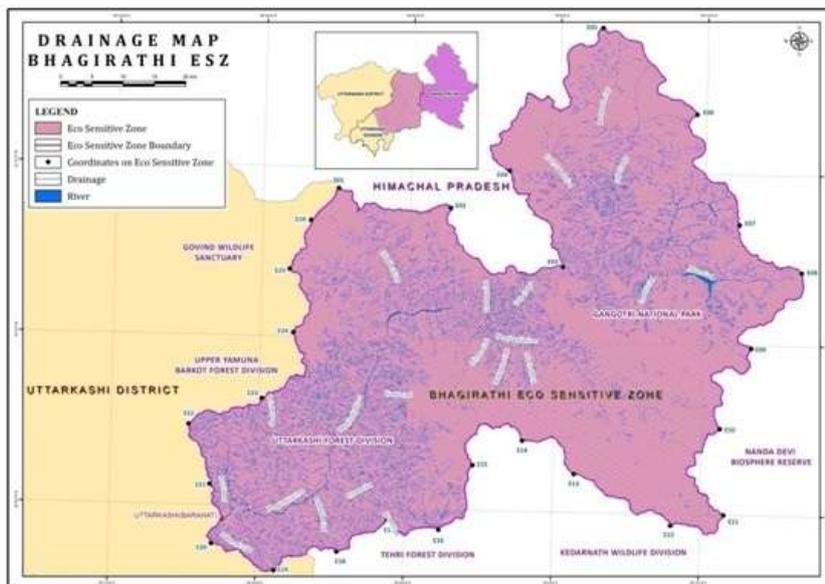
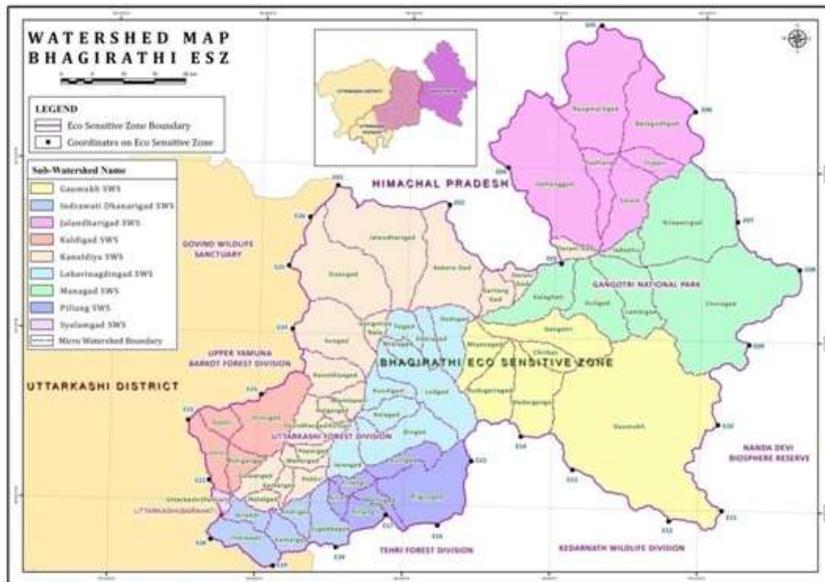
S.No.	Range	Local Name of water source	Block and Comp.	Availability of water in water source	Condition of Catchment	Condition of soil erosion	Name of Villages benefitting
1-	Patangani-3	Kedarganga	Patangani- 4b	Complete Year	Normal	Effectted	Gangotri Nagar Panchayat
2-	Patangani-1	Rudragaira	Patangani- 1b	-“-	-“-	-“-	-“-
3-	Patangani-2	Patangani Gad	Patangani- 3b	-“-	-“-	-“-	-“-
4-	Gangotri	Devrishi Nala	Gangotri- 2a,b	-“-	-“-	-“-	-“-
		Kankhu nala	Gangotri- 2a,b	Rainy Season	-“-	-“-	-“-
		Kakoda nala	Gangotri- 3b	Comlete year	-“-	-“-	-“-
5-	Bhagirathi	Hamkiya nala	Gangotri- 1a,b	-“-	-“-	-“-	-“-
		Devgad	Gangotri- 1a,b	-“-	-“-	-“-	-“-
		Bhanglubasa	Gangotri- 1a,b	Rainy Season	-“-	-“-	-“-
		Cheerbasa gad	Gangotri- 1a,b	-“-	-“-	-“-	-“-
		Bhujgadi	Gangotri- 1a,b	-“-	-“-	-“-	-“-
		Bhojbasa nala	Gangotri- 1a,b	Comlete year	-“-	-“-	-“-
		Bhojbasa nala- 2	Gangotri- 1a,b	-“-	-“-	-“-	-“-
		Bhojbasa nala- 3	Gangotri- 1a,b	-“-	-“-	-“-	-“-
		Gaumukh nala	Gangotri- 1a,b	-“-	-“-	-“-	-“-
6-	Jadganga	Karchha nala	Karcha- 1b	-“-	-“-	-“-	-“-

S.No.	Range	Local Name of water source	Block and Comp.	Availability of water in water source	Condition of Catchment	Condition of soil erosion	Name of Villages benefitting
		Kalagadi nala	Karcha- 4a, b	-“-	-“-	-“-	-“-
7-	Karcha	Pagal nala	Karcha-5a, b	-“-	-“-	-“-	-“-
		Girchu gad	Karcha-6a,b	-“-	-“-	-“-	-“-
8-	Neelapani	Karmoli nala	Karcha- 7b	-“-	-“-	-“-	-“-
		Dhenigad	Karcha- 7b	-“-	-“-	-“-	-“-
		Rigowa gad	Karcha- 7b	-“-	-“-	-“-	-“-
		Yala/Gully gad	Karcha- 7b	-“-	-“-	-“-	-“-
		Neelapani gad	Karcha- 7b	-“-	-“-	-“-	-“-
		Mana gad	Karcha- 7b	-“-	-“-	-“-	-“-
		Sonam nala	Karcha- 7b	-“-	-“-	-“-	-“-
		Old sonam nala- 1	Karcha- 7b	-“-	-“-	-“-	-“-
		Old sonam nala- 2	Karcha- 7b	-“-	-“-	-“-	-“-
		Angar nala	Karcha- 7b	Rainy Season	-“-	-“-	-“-
		Tripani purvi nala	Karcha- 7b	Complete year	-“-	-“-	-“-
9-	Gartang-1	Chorgad	Gartang- 1a, b	-“-	-“-	-“-	-
		Gartang Gailary gad	Gartang- 3a, b	-“-	-“-	-“-	-
10-	Jadung beat	Jadung nala	Gartang- 1c	-“-	-“-	-“-	-
		Jadung gad	Gartang- 1c	-“-	-“-	-“-	-
		Sukra gad	Gartang- 1c	-“-	-“-	-“-	-
		Rangmach gad	Gartang-1c	-“-	-“-	-“-	-

### 5.2 Guide lines for water conservation

- 1- Water conservation species ie. Banj, Kafal, Salix, Hill Poplar, Mehal, Pipal, Bargad etc. shall be planted with emphasis on upper part of water source.
- 2- No felling or lopping shall be permitted within 100mt. periphery of the water source.
- 3- Construction of harvesting tank & water hole shall be done in the upper part of the catchment of the water sources.
- 4- Biotic pressure ie. grazing, lopping, extraction of grass shall be strictly prohibited within 100mt. periphery of the water source.
- 5- In soil eroded / erosion areas, mechanical and vegetative treatment shall be done as per provisions of soil and moisture conservation.

- 6- Permission to extract water other than drinking and domestic purposes from forest areas will be regulated. The permission would be granted by the authorised officer.
- 7- The technique or system of harvesting of rainwater, at micro watershed level, including roof-top harvesting, for future use or for recharge of ground water shall be promoted.
- 8- Prescriptions made in working plan of the division shall conform to the Zonal Master Plan.



## **6- Soil and Moisture Conservation**

### Objectives

Soil and water conservation work aims to improve the livelihoods of the local communities & conserve biodiversity. For this, development of soil and water conservation structures is important to maintain the water regime and soil fertility of the area. Also, the structure contributes to the improvement of the water table and prevents the negative impact of natural disasters. The objective of these guidelines is to provide description of soil and moisture control structures, guidance on site selection, and other measures necessary for the development of soil and water conservation.

### 6.1 The factors causing soil erosion and modes of damage caused

Air and water are agencies of soil erosion. Soil erosion caused by air is more prominent in dry loose uncovered soils and slope is of less relevance however the areas of the division are prone to soil erosion caused by water. Problem begins with striking of soil particles attached to earth by the falling rain droplets. The kinetic energy present in droplets detaches the particles which are carried to the water streams, Nalas and rivers by the surface run-off. The coarse particles are deposited at nearer distance whereas finer particles are carried farther. In hill areas, coarse sediments are deposited on earth surface whereas finer sediments like silt or clay which are essential for land fertility are carried downwards. The open exposed steep slopes are more erosion prone in comparison to the areas covered by vegetation or which are having comparatively gentle slopes. Depending upon its intensity soil erosion is classified as sheet erosion, rill erosion, gully erosion and ravine formation.

### 6.2 Role of Vegetative Cover

Vegetative cover plays important role in reducing incidence of soil erosion because it gives cushioning effect to the falling rain droplets by forming a mat of leaves bushes and grasses over the earth surface. It causes mid-air obstruction for the falling raindrops which has striking effect on soil particles attached on earth surface. It makes water flow slow on surface of stems of the trees and shrubs (stem flow). It also increases infiltration capacity of soil by reducing velocity of water and reduced vapor-transpiration by providing cover. It is widespread root system in the soil which holds soil firmly thus preventing its erosion. Though water is the main agency which causes loss of soil by erosion, nevertheless, soil erosion is initiated and accelerated by various factors which can be classified as below:

- i. Natural causes of soil erosion.
- ii. Biotic causes of soil erosion.

### 6.3 Natural causes of soil erosion

Gravitational movement of water on earth surface leads to soil erosion and slope of the land surface is one of the basic factors in this process. More the slope more will be the damage done by flowing water. Another factor which has bearing on the rate of soil erosion is the land use pattern. If land is worked frequently and kept exposed then possibility of soil

erosion increases in comparison to the undisturbed covered soils. Because of this no agricultural activity should be recommended for lands having more than 25% slopes. Horticultural plantation are not recommended on slope more than 33° while as forestry activity should not be allowed above 45° of slope which should be ideally left in natural condition. Further, where there are more than 45° of slope felling of any type of trees should be totally balanced.

#### 6.4 Methods of soil and water conservation

The problem of soil erosion is because of variety of factors and hence diversified approach is necessary for its control following methodology and measures can be applied for conservation soil and water. 1. Providing vegetative cover to the land surface to the extent possible by protecting existing plants and trees and carrying out afforestation works. 2. The gullies and water channels should be plugged by various vegetative and engineering devices. 3. Treatment of Nalas and ravines by vegetative methods. 4. Suggesting local people to adopt appropriate land use in their private and public land. 5. Treatment of landslides/ land slips by engineering and vegetative methods. 6. Protection of road, buildings and other public assets with the help of vegetative and mechanical soil conservation techniques. 7. Controlling human activities which lead to soil erosion in and around forest areas by effective enforcement of rules, regulation and relevant laws.

#### 6.5 Measures for soil conservation

Following two measures can be taken up for reducing soil erosion and landslides:

- (a) Prevention measures
- (b) Remedial measures

##### 6.5.1 Preventive measures

‘Prevention is better than cure’ should be the guiding principle in control of soil erosion because the damage once done can only be partially recovered later on and that too with heavy costs. Following steps should be taken for preventing occurrence of soil erosion:

- (1) Steep slopes and the areas besides river, Nalas or waterfalls should have permanent green cover and felling may not be allowed in such places.
- (2) Rolling of logs should not be allowed on the hill slopes.
- (3) Immediate treatment work should be done in eroded areas so that channel and gully formation do not spread in adjoining areas.
- (4) Grazing should be controlled on the slopes prone to soil erosion and these should also be protected from fire.
- (5) The local people should be convinced to adopt such land use practices which are beneficial in long run and can provide economic benefits as well.
- (6) Strict enforcement of the rules, regulation and laws pertaining to land and soil conservation.

**6.5.2 Remedial measures**

Calculation of intensity of Erosion and Dimensions of Engineering Structures:

(a) Peak run-off

For this following formula is used:

$$Q = (C \times I \times A) / 360 \dots\dots\dots(1)$$

Where,

Q = Peak rate of run-off (cum/second)

C = Coefficient of run-off depends on vegetation cover, slope, soil and surface obstruction of a water shed.

I = Intensity of rainfall

A = Area of the water shed/sub-water shed etc.

(b) Notch length by rectangular cockpit notch

$$Q = C \times L \times (h)^{3/2} \dots\dots\dots(2)$$

Where,

Q = Peak rate of run-off (cum/second)

C = Coefficient of run-off

L = Notch length (metre)

H = Depth of water of at the notch (meter)

(c) Coefficient of run-off C'

$$C = (A_1 C_1 + A_2 C_2 + \dots\dots\dots \text{so on}) / A \dots\dots\dots (3)$$

Where,

A = Total area of the watershed/sub watershed A1, A2 etc. are different land use areas situated in different soil types and C1, C2 etc are co-efficient of run-off relating to these.

Depending upon the different land uses value of 'C' has been calculated in Table below:

**Table Different land uses value of 'C'**

Type of soil	Land/ Value of 'C'		
	Agricultural land	Grazing land	Forest land
1. Average high infiltration rate generally sandy and pebble mixed	0.29	0.15	0.10
2. Average normal infiltration rate silt loam etc. without clay	0.40	0.35	0.30
3. Average low infiltration rate heavy and clayey soils situated on hard rock's as thick layer	0.50	0.45	0.40

(d) Intensity of rainfall

$$I = \frac{K \times T \times A}{(T_1 + V)} \times N$$

Where,

- K = Coefficient of roughness for channel
- T = Time of return (in years)
- T1 = Period (in hours)
- V = Velocity of run-off (meter per second)
- N = Number of Rains

(e) Velocity of runoff According to Manning Formula

$$V = \frac{1.486(R)^{2/3} \times (S)^{1/2}}{K} \dots\dots\dots(5)$$

Where,

- V = Velocity of run off (meter per second)
- S = Gradient
- K = Roughness coefficient of channel
- R = Hydraulic radius (meter) = A/P

Where,

- A = Area of cross section
- P = Weighted parameter

(f) Time of concentration (T.O.C)

It is the maximum time taken by water to reach outlet from any point in the watershed. The main factors influencing T.O.C. are parameter of watershed, its shape and slope. It is calculated by following formula given by B. William

$$T = L / 1.5D \sqrt[5]{(m)^2 / f} \dots\dots\dots(6)$$

Where,

- T = Time of concentration (in hour)
- L = Time maximum distance covered by water up to exit point (Km.)
- D = Diameter of the circle which will have area equal to the area of watershed (in Km.)
- M = Actual area of the watershed (Sq. Km.)
- F = Mean velocity of main stream (meter per second)

Time of concentration may also be calculated by following formula:

$$T = 0.01947 \times K \times 0.770 \dots\dots\dots(7)$$

Where,

- K =  $\sqrt[3]{(L)/H}$
- L = is maximum length covered by water in meters
- H = the difference in height between highest and lowest points

(g) Length of spillway

Spill way should be of trapezoidal cross section and its average length (L) should be equal of safe width of bottom of gullies so that water does not overflow from margins.

(h) Width of spillway

Generally width of spillway should be kept as given in the **Table** below:

Table Width of Spillway as per width of Nala

Width of the Nala	Width of spillway
Up to three meters	1 meter
3 to 5 meters	2 meters
5 to 10 meters	3 meters
10 to 15 meters	4 meters
15 to 20 meters	5 meters

Gabion structures may also be formed in place of cheek dams. Gabion structures are also helpful in checking erosion of water stream of Nalas. In landslide affected areas retaining walls can be constructed by masonry works or by filling stones in wire mesh.

(i) Depth of 'spillway'

Depth of soil way should be calculated by following formula

$$D = (Q)^{2/3} / 1.65 \times L \dots\dots\dots(8).$$

Sides of spill way should be in the ratio of 1: 1

thus:

$$\text{Length of spill way top} \quad L_T = L + D$$

$$\text{Length of spill way bottom} \quad L_B = L - D$$

The above mentioned structures have different utility, hence these should be applied depending upon place & conditions.

(j) Apron design

It is necessary to make apron on lower surface of check dam to protect it from erosion. This is made as follows:

When slope of gully is  $< 8.5^0$

$$\text{Length of apron} = 1.5 \times \text{height of the Dam}$$

When slope of gully  $> 8.5^0$

$$\text{Length of Apron} = 1.75 \times \text{height of the Dam}$$

Thickness of Apron will be as per Table given below :

F = Over fall net prop

### 6.6 Description of three Models

The soil and water conservation work adopts integrated intervention. Which targets the whole area from the up-stream catchments to downstream command within the same micro-watershed in order to prevent erosion from up-stream slopes and also prevent sedimentation in the down-stream water bodies? For this purpose, three (3) models, namely: Model 1 (intervention upstream) , Model 2 (intervention in the middle part of the micro-watershed) and Model 3 (intervention in the downstream command areas) were developed to be adopted. For each model, installation structure is classified in to three components 1- embankment, 2- gully plugging and 3- catchment conservation. Briefs of three models are described table below.

Model Name	Terrain Conditions	Major Installation Structures
A Model 1 (intervention upstream)	<ul style="list-style-type: none"> <li>- Narrow valley</li> <li>- Steep slope (more than 20 %</li> <li>- Small catchment less than 5 ha</li> <li>- Water spread area around 2 ha</li> </ul>	<ol style="list-style-type: none"> <li>1) Embankment (if required) <ul style="list-style-type: none"> <li>-Small earthen check dam</li> </ul> </li> <li>2) Gully plugging <ul style="list-style-type: none"> <li>- Ave.5 nos: 3 pall siding work, 2 brush wood check dam</li> </ul> </li> <li>3) Catchment conservation <ul style="list-style-type: none"> <li>- plantation with staggered contour trench for 2 ha</li> <li>-Plantation with half moon terrace for 2 ha</li> <li>- Mulching</li> </ul> </li> </ol>
B Model 2 (Intervention for the middle part of the micro watershed)	<ul style="list-style-type: none"> <li>- Narrow valley</li> <li>- Steep to moderate slope 10- 20 %</li> <li>- Small catchment less than 10 ha</li> </ul>	<ol style="list-style-type: none"> <li>1) Embankment (short embankment less than 20m. surface water body less than 0.5 ha) <ul style="list-style-type: none"> <li>CC Core embankment</li> <li>Mud core embankment</li> <li>Submerged spillway</li> <li>Partially submerged spillway</li> </ul> </li> <li>2) Gully plugging <ul style="list-style-type: none"> <li>Ave. 5 nos: 3 pall siding work, 2 brush wood check dam every 50m in the stream</li> </ul> </li> <li>3) Catchment conservation <ul style="list-style-type: none"> <li>- Bench terracing 5600m</li> <li>- Plantation with half moon terrace</li> <li>- Staggered contour trenches</li> <li>- Plantation along rivers and stream banks</li> <li>- mulching</li> </ul> </li> </ol>
C Model 3	- wide valley	<ol style="list-style-type: none"> <li>1) Embankment (less than 20m, average 40m,</li> </ol>

- |   |  |   |
|---|--|---|
| (Intervention for the downstream command areas) | - Gentle slope (less than 10%)<br>- small catchment less than 20 ha<br>- water spread area around 2 ha | surface water body less than 2 ha.)<br>CC Core embankment<br>- Mud core embankment<br>- Submerged spillway<br>- Partially submerged spillway<br>2) Gully plugging<br>- Ave. 5 nos: 3 pall siding work, 2 brush wood check dam<br>3) Catchment conservation<br>- Contour bunding for 1000m<br>- Plantation around water body and along rivers/stream banks<br>- mulching |
|---|--|---|

Conceptual Design of micro – watershed base soil and moisture conservation

Stream – Upper reaches

Model 1

Narrow valley, steep slope > 20% small catchment < 5ha Gully plugging: 5nos. (pall siding work, small earthen check dam)

Plantation with half – moon terrace, staggered contour trench

Model 2

Narrow valley, steep slope > 20% small catchment < 10ha

Short embankment : <20m

Surface of water body : < 0.5 ha

Gully plugging 5 nos.

Brushwood terrace /bench terrace : 500m

Plantation on slops with half – moon terrace, staggered contour trench

Plantation along rivers / stream banks.

Model 3

Narrow valley, gentle slope > 10% small catchment < 20ha

long embankment : <40m

Surface of water body : < 2 ha

Gully plugging 5 nos.

Contour bunding : 1000m

Plantation around water body and along rivers / stream banks

Construction of Embankment (Water Harvesting Structure )

Purpose	Check dams are constructed to harvest water and cut peak flows in order to moderate floods, meet critical irrigation needs, provide sediment
---------	--

	<p>storage, and store water for live stock use, environment improvement through on site and off site effects.</p>
Necessary work	<p>Required earthen embankments with spillways and planting around water bodies</p>
Earthen embankments (Model 2 and 3)	<p>On wide Valleys with gentle slopes (&lt;10%), Long earthen embankments will be constructed with relatively large water surface (&lt;2.0 ha.) on narrow valleys with moderate slopes (10-20% ) small earthen embankments will be constructed with relatively small water bodies (&lt;0.5 ha.)</p> <p>Key trenches should be excavated into impervious foundation structures to prevent embankments from collapsing.</p> <p>Impermissible core walls will be introduced to prevent seepage and collapsing of embankments. While concrete-type core walls are sometimes adopted. Mud core walls would be considered at sites where suitable soils for impermeable core walls are easily obtained, types of core wall can be decided from the results of soil surveys at the detailed design stage.</p> <p>Spillways will be lined with brick mortars to prevent erosion form the slopes. Down-stream side slopes of the embankment will be covered by grass turfing. Up-stream side slope surface of the embankment will be lined with vegetative materials, such as bamboo net with mud/cement plaster, to reduce seepage and prevent scouring by run-off water pine needle will be introduced to the bottom of down – stream side slopes of the embankment as water weeping material.</p> <p>Water harvesting structures will be maintained in the same way as for maintenance / reinforcement of earthen embankments and de-siltation of water bodies. Yearly maintenance will be conducted from the 2<sup>nd</sup> year to the 5<sup>th</sup> year, in which includes earth work on the embankment and slope to tackle the rills, rain cuts. Reinforcement of vegetation viz. grass turfing will be also carried out wherever necessary to prevent the erosion over the soil surface. De-siltation of water bodies will be carried out in the 5<sup>th</sup> year in order for water bodies to keep volume of water storage.</p>
Planting around water bodies (Model 2 and 3)	<p>Around water bodies, bamboo /ringal plantations and NTFP plantations will be established to reduce the amount of soil flowing from the slopes into the water and to prevent sedimentation.</p>
Remarks	<p>Following should be considered and carried out in the detailed design of earthen embankments,</p>

- drawing up of both longitudinal sections of the site at 10mt. intervals and cross sections need to design adequate sided embankments,
- surveying of the soils at the sites to decide kinds of core walls,
- calculation of water discharge and designing of adequate sided and designed spillway,
- consideration of possibility of seepage of water from the embankment basement and embankment itself, and,
- Checking of characteristics of the earth for embankment.

### Gully plugging work

Purpose	Gully plugging work is required for reduction of runoff velocities within permissible limits and for controlling gully erosion of micro-watersheds. Appropriate gully plugging works would be selected from brush wood check dams, pallasiding works, gabion structures, sunken pits, etc.
Necessary work	Required gully plugging works include pallasiding work by using bamboos, brushwood check dams and small earthen check dams.
Pallasiding work (Model 1, 2 and 3)	Pallasiding works will be constructed out of locally available bamboo/ wooden posts supported by bamboo / wooden stakes.
Brushwood check dams (Model 1, 2 and 3)	Brushwood check dams will be constructed by using locally available brushwood supported by wooden stakes, brushwood check dams can be installed with adequate strength.
Small earthen check dams (Madel 1, 2 and 3)	Small earthen check dams will be constructed out of local soil across the stream to check soil erosion and flow of water.
Remarks	Vegetative stabilization of gully banks and both upstream and downstream of structures needs to be ensured with planting of local grass / vertiver (khus grass) and other indigenous species.

### Catchment Conservation

Purpose	For steep slopes (<20%), runoff is considerably higher than for other slopes, Accumulation of runoff could be used for growing trees in such a way that each tree has its own micro-catchment area. Depending on choice of species various configurations can be given to micro-catchment by appropriate land shaping. Catchment conservation is required to prolong the life span of water harvesting structures, such as check dams, its intent is to minimize the soil erosion around the water bodies.
Necessary work	Catchment conservation requires construction of half-moon terraces, staggered contour trenches; brushwood terraces/bench terraces, contour

	bunding and /or planting along river / stream banks. This work, except for plantations around water bodies, can be accompanied by bamboo planting, NTFP planting, and other plantation work.
Half-moon terraces (Model 1 and 2)	On moderate slopes (10-20%) and steeper slopes (>20% ), half-moon terraces (60cm diameter and 30cm in depth) will be established for water harvesting purposes at the top side of hills. Economic tree species. NTFP species and other species will be planted in the basins.
Staggered contour trenches (Model 1 and 3)	On moderate slopes (10-20%) and steeper slopes (>20%) . staggered contour trenches (5-10m long. 40cm width at the base and 40cm deep, with horizontal intervals between rows of 3-5m) will be established for water harvesting purpose at the lower side of hills. Fuel trees, fodder trees and other trees may be planted just down below the trenches.
Bench Terraces (Model 2)	Bench terraces can be constructed on slopes up to 33% under Local conditions inward sloping terraces would be more effective on account of high rainfall. Spaces between terraces are determined by the planting distance between trees, further main tree crops are planted in basins, and vegetative cover, viz. grass, legumes, etc. is planted / sown in the spaces.
Brushwood terraces (Model 2)	Brushwood terraces can be constructed on moderate slopes (10-20%) and steeper slopes (>20%) by using locally available brushwood supported by wooden stakes. Spaces between terraces are determined by the planting distance between trees, further main tree crops are planted in basins, and vegetative cover, viz. grass, legumes, etc. is planted / sown in the spaces.
Contour bunding (Model 3)	On gentle slopes (<10%) contour bunding will be established along the contour. Economic tree species. NTFP species and other species will be planted between the bundings.
Plantations along the river / stream banks (Model 1, 2 and 3)	Along the river and stream banks, bamboo and NTFP can be planted in order to reduce soil flowing from slopes into rivers and streams.
Remarks	Fuel, fodder trees with an economics purpose and other trees should be planted alongside/ between catchment conservation works for vegetative reinforcement and establishments.

## 6.7 List of soil erosion affected areas falling within Eco-sensitive zone

### Uttarkashi Forest Division

Name of Range	Block and Comp.		Area in Hectare		Length of nalas effected from soil erosion (m)	Remarks	
			Total	Estimated area effected from soil erosion			
1	2		3	4	5	6	
Gangotri	Jangla	4 a	250.90	2.00	200	Due to heavy rain and steep slops	
		4 b	99.10	5.00	250		
		5 a	240.80	7.00	180		
		5 b	12.90	4.00	400		
	Gangotri	3 a	48.20	5.00	400		
		4 a	107.60	10.00	250		
		5 a	258.60	5.00	200		
		6 a	195.90	5.00	350		--^^--
	Patangani	1 a	106.80	5.00	300		--^^--
		2 a	140.80	4.00	250		--^^--
		3 a	141.60	10.00	550		--^^--
4 a		112.10	5.00	1200	--^^--		
Harsil	1	70.00	5.00	1000	--^^--		
	2 a	143.70	7.00	750	--^^--		
	8 a	83.00	2.00	250	--^^--		
	9 a	281.30	5.00	1000	--^^--		
	11 a	42.90	10.00	2000	--^^--		
Sukki	1 a	57.50	5.00	200	--^^--		
	2	261.40	10.00	1500	--^^--		
	3a,	304.30	7.00	1200	--^^--		
	4 a	1241.20	10.00	1800	--^^--		
Dharali	1 a	225.40	2.00	250	--^^--		
	2 a	144.10	10.00	1500	--^^--		
	5 a	122.60	5.00	1800	--^^--		
	5 b	165.10	2.00	200	--^^--		
	6 a	187.80	5.00	700	--^^--		
	6 b	307.60	2.00	300	--^^--		
	7 a	196.10	5.00	1500	--^^--		
	7 b	111.70	2.00	350	--^^--		
	<b>Total-</b>	<b>5661.00</b>	<b>161.00</b>	<b>20830</b>	--^^--		
Taknor	Raithal	5 a	56.60	10.00	1000	Due to heavy rain and steep slops	
		6 a	65.30	10.00	2000		
		7 a	908.50	5.00	1500		
	Gangnani	3	2939.60	100.00	2000		
		4 a	1018.70	100.00	2500		
	Tihar	1 a	173.60	30.00	200		
		2 a	83.30	30.00	200		

		3 b	45.60	5.00	100	--''--	
	Hurri	5	292.60	5.00	200	--''--	
	Jalari	4 a	409.10	50.00	1000	--''--	
	Bhukki	1	1007.70	10.00	200	--''--	
		2	800.50	30.00	100	--''--	
		4 a	231.20	10.00	100	--''--	
		5 a	99.50	15.00	80	--''--	
	Pilang	3 a	37.20	2.00	1000	--''--	
		2 a	115.30	5.00	400	--''--	
		6	571.00	10.00	1500	--''--	
		<b>Total-</b>	<b>8855.30</b>	<b>427.00</b>	<b>14080</b>	--''--	
Badahat	Dodital	2 a	213.70	50.00	250	--''--	
		2 b	765.70	50.00	250	--''--	
			3 b	1416.00	50.00	500	--''--
			3 c	173.20	50.00	500	--''--
			5 c	364.50	20.00	1000	--''--
			4 b	1799.70	50.00	2000	--''--
			8 a	953.00	2.00	300	--''--
			8 c	372.30	1.00	300	--''--
			9 a	1218.50	7.00	1000	--''--
		Nald	1	192.00	50.00	1000	--''--
			2 a	241.20	80.00	1000	--''--
			2 b	142.00	30.00	500	--''--
		Uttron	6	278.40	60.00	500	--''--
			7	189.00	20.00	300	--''--
		Mahidanda	1	205.00	80.00	800	--''--
			2 b	108.50	10.00	700	--''--
			2 c	40.00	8.00	200	--''--
	2 d		8.00	4.00	500	--''--	
		3	217.70	80.00	1200	--''--	
	Maneri	3	196.30	122.00	500	--''--	
		6	336.70	166.30	1200	--''--	
		7	264.30	176.00	1500	--''--	
		8	261.40	124.20	1000	--''--	
		5 a	175.60	110.90	700	--''--	
	Gawada	1	246.10	207.60	500	--''--	
		2	186.20	115.40	700	--''--	
		3 a	86.60	51.80	200	--''--	
		4 a	114.10	73.20	300	--''--	
		5 a	276.40	212.00	500	--''--	
	Nismor	3 a	101.60	2.00	700	--''--	
		5 a	96.70	7.00	600	--''--	
		3 b	6.50	1.00	500	--''--	
		<b>Total-</b>	<b>11246.90</b>	<b>2071.40</b>	<b>21700</b>	--''--	

**Gangotri National Park**

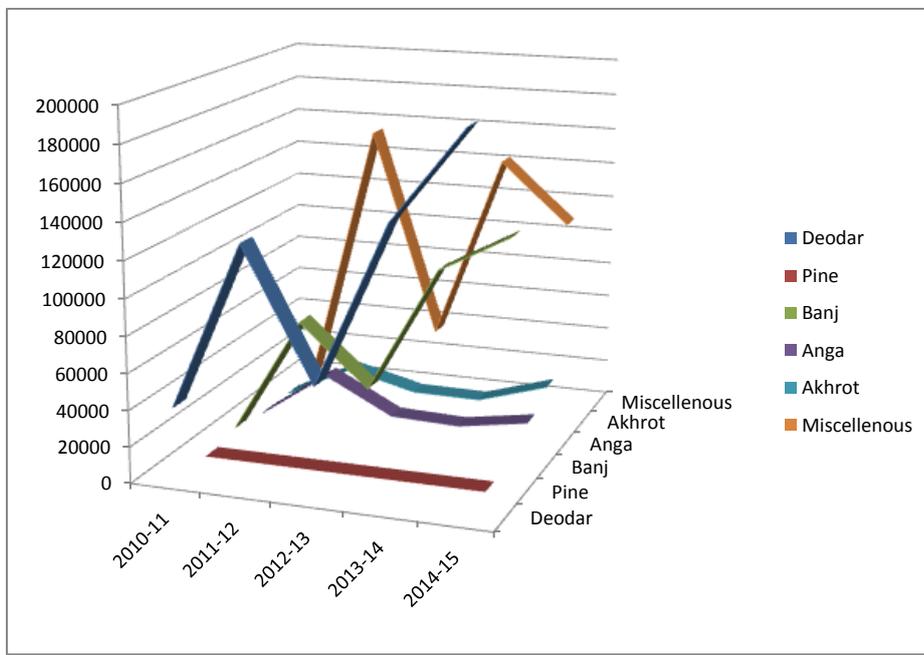
Name of Range	Block and Comp.	Area in Hectare		Length of nalas effected from soil erosion (m)	Remarks
		Total	Estimated area effected from soil erosion		
1	2	3	4	5	6
Gangotri	Gangotri- 1a	138.00	45.98	3065	Due to heavy rain and steep slops
	Gangotri- 1b	53,718.40	446.40	39,855	--“--
	Gangotri- 2a	65.20	11.02	940	--“--
	Gangotri- 3b	480.00	13.50	2,700	--“--
	Patangani- 1b	473.10	10.85	1,550	--“--
	Patangani- 3b	6,369.40	54.50	10,900	--“--
	Patangani- 4b	6,381.10	40.80	12000	--“--
	Patangani- 5a	109.30	5.00	200	--“--
	Patangani- 6a	205.60	7.00	750	--“--
	Karchha- 3a	115.30	3.00	1000	--“--
	Karchha- 3b	110.1	2.00	2500	--“--
	Karchha- 4a	107.60	10.00	900	--“--
	Karchha- 4b	715.90	5.00	1,750	--“--
	Karchha- 5a	133.90	20.00	1,450	--“--
	Karchha- 5b	681.9	5.00	2,500	--“--
	Karchha- 6a	105.60	20.00	2,250	--“--
	Karchha- 6b	3,209.60	3.50	500	--“--
	Karchha- 7a	229.00	6.00	1400	--“--
	Karchha- 7b	84,373.00	1,850.50	1,07,130	--“--
	Gartang- 1c	45,823.10	100.00	5,500	--“--
	Gartang- 1a	158.20	12.00	800	--“--
	Gartang- 3a	47.80	5.00	1,300	--“--
	Gartang- 4a	170.80	2.00	200	--“--
	<b>Total-</b>	<b>2,04,244.40</b>	<b>2,679.05</b>	<b>1,01,141.00</b>	--“--

### 7- Plantation

Suitable areas that include natural blanks, under stocked areas, badly burnt areas and areas in which natural regeneration has either been poor or failed to come up for one reason or another, will be taken for plantations. Eco-sensitive zone notification provides that plantation of pine species and exotic species shall be regulated. The plantation statics (table given below) from the year 2010-11 to 2014-15 indicate that no pine or exotics species has been planted within Eco-sensitive area and in future also the plantation of pine and exotic species shall be regulated / discouraged.

#### List of species planted from 2010-11 to 2014-15 within Eco-sensitive zone

S. No.	Year	Name and No. of species planted						Total
		Deodar ( <i>Cedrus deodara</i> )	Pine ( <i>Pinus roxburghii</i> )	Banj ( <i>Quercus incana</i> )	Anga ( <i>Fraxinus floribunda</i> )	Akhrot ( <i>Juglans regia</i> )	Misc.	
1	2010-11	4280	0	3720	0	0	1000	9000
2	2011-12	131229	0	69024	26817	19002	153328	399400
3	2012-13	60500	0	35310	7200	9500	35600	148110
4	2013-14	148119	0	105083	5890	9130	141308	409530
5	2014-15	197900	0	126300	12200	21025	107275	464700



### **7.1 Plantation Guide Lines**

1. The Plantation activities shall be as per the provisions of Divisional Working Plan and Working Plan Shall also conforms with the Zonal Master Plan.
2. Areas which are suitable i.e. natural blanks, under stocked areas, badly burnt areas and areas where natural regeneration has failed to come up will be taken for plantation of suitable species.
3. The plantation of pine trees shall be regulated/ discouraged.
4. The plantation of exotic species shall be regulated/ discouraged.
5. The plantation of broad leaved and miscellaneous tree, shrub and herb species shall be promoted with emphasis on to meet the needs of local people.

## **8- Eco-Tourism**

### **Preamble**

Healthy natural ecosystems are critical to the ecological well-being of all living entities, and especially for the economic security of people. Ecotourism has the potential to enhance wilderness protection and wildlife conservation, while providing nature-compatible livelihoods and greater incomes for a large number of people living around natural ecosystems. This can help to contribute directly to the protection of wildlife or forest areas, while making the local community stakeholders and beneficiaries in the process.

For the purpose of *the development, implementation and monitoring of ecotourism in eco-sensitive zone*, “Ecotourism Plans” have to be developed by the concerned authorities. Roles and responsibilities are enumerated for different stakeholders: viz., State Government, Protected Area management Committees, tour operators, local communities, temple boards and public in general.

### **8.1 The need for Eco-tourism guidelines**

- 1 Ecotourism is defined as ‘responsible travel to natural areas that conserves the environment and improves the well-being of local people’. Such tourism is low-impact, recreational, educational and conserves the environment while directly benefiting the economic development of local communities.
- 2 Most of the wilderness areas in the zone are fragile ecosystems that provide a whole host of ecosystem services to local residents and people living downstream; and are important tourist attractions. However, unplanned tourism in such landscapes can destroy the very environment that attracts such tourism in the first place. Hence, there is a need to move towards a model of tourism that is compatible with these fragile landscapes.
- 3 Ecotourism, when practiced correctly, is an important economic and educational activity. It has the scope to link to a wider constituency and build conservation support while raising awareness about the worth and fragility of such ecosystems in the public at large. It also promotes the non-consumptive use of wilderness areas, for the benefit of local communities living around, and dependent on these fragile landscapes.
- 4 In recent years, the mushrooming of tourist facilities around protected areas has led to the exploitation, disturbance and misuse of fragile ecosystems. It has also led to misuse of the term ‘ecotourism’, often to the detriment of the ecosystem, and towards further alienation of local people and communities.

### **8.2 Principles of Ecotourism**

Those who implement and participate in ecotourism activities should practice the following:

- Adopt low-impact tourism that protects ecological integrity of wilderness areas, secures wildlife values of the destination and its surrounding areas.
- Highlight the heritage value of wilderness and protected areas and build environmental and cultural awareness and respect for such areas.
- Facilitate the sustainability of ecotourism enterprises and activities. Provide livelihood opportunities to local communities.
- Use indigenous, locally produced and ecologically sustainable materials for tourism

activities.

**8.3 Local Advisory Committee (hereinafter referred to as LAC) must be constituted for eco-sensitive zone area by the state govt. The LAC will have the following mandate:**

- To review the State Ecotourism Strategy with respect to the Protected Area and make recommendations to the State government.
- To advise local administration and state government on issues relating to development of ecological-tourism in non-forest areas of ecological-tourism zones etc.
- To monitor all tourist facilities falling within 5 km of a Protected Area vis-à-vis environmental clearance, area of coverage, ownership, type of construction, number of employees etc, for suggesting mitigation/retrofitting measures if needed.
- To monitor activities of tour operators to ensure that they do not cause disturbance to animals while taking visitors into the Protected Area.

**8.4 Composition of proposed LAC:**

- District Collector (Chairman)
- Territorial DFO (Member Secretary)
- PA Manager (Deputy Director Gangotri National Park member)
- Official of State Tourism Department (member)
- Block Development Officer (member)
- 02 Members of Local Panchayats
- 02 Local conservationists

**8.5 Guidelines for Ecotourism**

It is important to involve all stakeholders in implementing ecotourism guidelines. Synergy and collaboration amongst all the stakeholders including hospitality sector, State Forest Department, Protected Area management, and local communities and civil society institutions is vital for ensuring successful implementation of the guidelines.

- 1- No new tourist facilities are to be set up on forest lands. This is in compliance with the Wildlife (Protection) Act, 1972, and the directives of the Honorable Supreme Court.
- 2- The State Government must develop a system by which gate receipts from Protected Areas should be collected and utilized by the Protected Area management. This will ensure that resources generated from tourism can be earmarked for protection, conservation and local livelihood development.
- 3- The State Forest Department should be the arbiter in case of any dispute regarding the ecological advisability of any tourism plans, whether Protected Area Management, private entity, temple board or community, as the welfare of wildlife and Protected Areas/ biodiversity takes precedence over tourism.
- 4- The PA manager of the protected area shall develop a monitoring mechanism, estimate carrying capacity. Delineate tourism zones, and decide the area open to

tourism on the basis of objective, scientific criteria.

- 5- Financial assistance/ incentives should be provided for communities/individuals who own lands outside the protected areas, to convert such lands to forest. The value of such lands for wildlife will be enhanced, even as it improves the income of the landowner from ecotourism.

### **8.6 Protected Area Management**

Identify (using GIS) and monitor the ecologically sensitive areas surrounding PAs, in order to ensure the ecological integrity of corridor/buffer areas, and prevent corridor pinching/destruction

- i) Assess carrying capacity of the Protected Area, at three levels: physical, real and effective/permmissible carrying capacity of visitors and vehicles (See Annexure II)
- ii) Set a ceiling level on number of visitors allowed to enter a Protected Area at any given time, based on the carrying capacity of the habitat.
- iii) Indicate the area open to tourism in the reserves to be designated as 'eco-tourism zone'.
- iv) Develop a participatory community-based tourism strategy, in collaboration with local communities, to ensure long-term local-community benefit-sharing, and promotion of activities run by local communities
- v) Develop codes and standards for privately-operated tourist facilities located in the vicinity of eco-sensitive zones, with a view to, inter alia, ensure benefit and income to local communities.
- vi) Develop monitoring mechanisms to assess impact of tourism activities
- vii) Develop generic guidelines for environmentally acceptable and culturally appropriate practices, and for all new constructions
- viii) Do's and Don'ts for visitors

All ecotourism activities should take place only in 'ecotourism zones' delineated in the ecotourism plan.

- Tourism infrastructure must conform to environment-friendly, low-impact architecture, including solar energy, waste recycling, rainwater harvesting, natural cross-ventilation, reduced used of asbestos, controlled sewage disposal, and merging with the surrounding habitat
- Protected Area authorities must ensure that all facilities within a 5 km radius of core/critical wildlife habitats/PAs/reserves must adhere to all environmental clearances, noise pollution norms, and are non-polluting, blending in with surroundings. Severe penalties must be imposed for non-compliance.
- There shall be a complete ban on burying, burning or otherwise disposing non-biodegradable or toxic waste in the tourism area.
- Protected Area authorities must delineate a minimum area for the visitor facility,

which should be in a site-specific manner.

- Residential tourist facilities (number of beds) should be in conformity with the carrying capacity of the eco-sensitive zone.
- Tourism infrastructure must conform to environment-friendly, low-impact architecture; renewable including solar energy, waste recycling, rainwater harvesting, natural cross-ventilation, no use of asbestos, controlled sewage disposal, and merging with the surrounding landscape.
- All tourist facilities falling within 5 km of a protected area must be reviewed regularly by the Local Advisory Committee vis-à-vis environmental clearance, area of coverage, ownership, type of construction, number of employees, etc, for suggesting mitigation/retrofitting measures if needed.
- All tourism facilities located within five km. of a Protected Area must adhere to noise pollution rules under ‘The Noise Pollution (Regulation and Control) Rules’, 2000, and ‘The Noise Pollution (Regulation and Control) (Amendment) Rules’, 2010 issued by the Ministry of Environment and Forests.
- All tourist facilities, old and new must aim to generate at least 50% of their total energy and fuel requirements from alternate energy sources that may include wind, solar and biogas.
- There shall be a complete ban on burning or disposing non-biodegradable waste within the Protected Area or in surrounding eco-sensitive zone or buffer area.
- The use of wood as fuel shall be prohibited,
- In order to allow free passage to wildlife, development should be sensitive to the conservation of flora and fauna, and the corridor value of the area.
- Tourist facilities/tour operators must not cause disturbance to animals while taking visitors on nature trails.
- Temple/Pilgrimage Boards
- Pilgrim sites located inside Protected Areas must be designated as sacred groves, with strict building and expansion controls, in accordance with the Forest Conservation Act, 1980 and the Environment Protection Act, 1986.
- All transit camps and places of stay for such pilgrimage must be restricted to nominated days in a year.
- All rules that apply to tourism facilities including noise, building design, use of alternate energy and free passage to wildlife will apply to such pilgrim facilities.

#### **Local Communities**

- The first benefit from ecotourism must go to the local people, and in the long-run, capacity-building should be carried out to forge a sustainable partnership between the forest department, tourism professionals and local communities

#### **Public / Visitors**

Public / Visitors must abide by the code of conduct, and ‘Do’s and Don’ts, as developed by the Protected Area Management. Model “Do’s and Don’ts” are detailed in Annexure I.

### 8.7 Do's and Don'ts for Visitors

Awesome, serene and inspiring snow bound Himalayas are one of nature's most beautiful gifts to mankind. In general, as a visitor, please make sure to maintain harmony, and protect this majestic environment; and respect local tradition and culture. Specific do's and don'ts that visitors shall respect as part of efforts made towards achieving a tourism development that is safe, sustainable, and compatible with ecological sensitivity requirements and leads towards meeting the objectives of climate-resilient tourism development in a difficult & treacherous Himalayan terrain are incorporated herewith (*as consolidated from several do's & don'ts published currently by several departments as mentioned in the Bibliography section*):

- **Do's**
  - Appreciate the colours and sounds of nature, i.e. Please enjoy the Nature without disturbing it and be an ambassador back home.
  - Treat the protected area/wilderness area with respect.
  - Help conserve habitats of flora and fauna, and any site–natural or cultural, which may be affected by tourism.
  - Limit deforestation, make no open fires, smoke or light campfires in the forest areas, and discourage others from doing so (ensure burning cigarette butts are extinguished, if any). Please extinguish fire after cooking and any campfire. Accidental fires can destroy a wonderful jungle in no time, and thus cause irreparable damage. Please inform immediately about happening of fire incident to the nearest Forest Department personnel and help them to curb it.
  - Choose accommodation that uses kerosene or fuel efficient wood stoves, and use of firewood should be minimized. Similarly, for expeditions, the team shall ensure carriage of a sufficient quantity of kerosene and LPG for cooking and heating purposes, as the use of firewood is strictly prohibited during the expedition.
  - Dispose waste responsibly and help keep the protected areas pollution-free. While trekking inside these protected areas, please put your entire non-biodegradable litter (tin cans, plastic, glass bottles, metal foils, and crush plastic water bottles and used wrappers etc.) into your rucksack/any bag provided at designated entrance/check-points, and dispose-off it on your way out (i.e. leave campsites litter-free before departing/clean after use, as remember that another party will be using the same camp site after your departure). Deposit plastic etc. in your place of stay/Hotel or at a plastic storage centre/plastic waste collection centers. Used plastics should never be littered in mountains, disposed-off in valleys, buried or burnt or washed away in rivers. Prevent water from getting polluted. You shall undertake to abide by such terms & conditions as may be further stipulated in this regard by the State Government.
  - Avoid using polythene. If you do, do not throw it away, but collect it separately.

- This efforts of your shall be a big contribution in keeping the Devbhumi clean and protected. You can definitely help in conserving the Environment! You can do it!

*e/; izfr Lor% lpkZpeZ !*

*gsrqukua dqar;k txr~foifjorZrs A ¼xhrk½*

*“Arjuna, with me as the Supervisor, Nature brings forth the whole creation both animate and inanimate: It is due to this cause that the wheel of Samsara is revolving.” (Gita)*

- Treat the mountains with respect. Do not attempt to 'conquer' them or show-off physical fitness or over-exert. Fatigue can lead to cold and more serious problems, especially at high altitudes.
- Walk at a steady, rhythmic pace. Walk with a companion as a safety measure against sudden sickness and accidents.
- Keep away from high conical rocks.
- If at a lower altitude, take shelter under a lone tree or on top of a hill. It is safer to sit out in the open.
- Carry enough heavy woolen clothes, including sweaters, trousers, woolen thermal body warmers, mufflers monkey-caps and other cold-resistant apparels. Also include windcheaters, sleeping bags, raincoats, waterproof shoes with grips, blankets, small waterproof tents, walking sticks and a torch with sufficient batteries should also be carried. Females should wear the body hugging clothes. And remember to cover your head with the woolen clothes while at high altitude to avoid hill-sickness and feeling of faintness.
- Avoid wearing one or two very thick woolen layers. Instead, wear loose clothes in several layers with an outer wind covering.
- Get at least two pairs of good trekking shoes and practise walking with these shoes before the high altitude mountain trekking for adventure tourism or for pilgrimage/yatra.
- Wear two pairs of socks (cotton and woollen) inside the climbing boots.
- Ensure to keep feet dry. Use dusting powder before wearing socks and change into dry socks soon after reaching the transit camp. Use of wet socks or wet shoes causes extreme discomfort, blisters and skin ailments. It is therefore advisable to carry extra pairs of socks.
- Wear well-fitting gloves to protect hands and fingers. Hands, feet, ears and nose must be protected against extreme cold. Continuous exposure of hands and feet can bring down the body temperature drastically and cause high altitude pulmonary oedema.
- Carry dry eatables such as biscuits, candies, sugar, chocolates, assorted dry fruits, milk powder, lemons, honey and tinned foods and other items suiting your tastes. Also carry water bottles, cups, spoons, saucers and plates.
- For Chardham Yatra tap water is available everywhere, but use only boiled water. You can get boiled water from a local tea-shop for free whilst trekking.
- Drink lot of water and fluids during trekking. Take liberal amounts of hot, sweet fluids and enough nourishment to provide energy for body.

- It's a good idea to keep sweet candy in your mouth and use some sort of glucose with water whilst trekking.
- Carry sufficient money for your personal expenses during the trip and it is always wise to carry your own personal medical and first aid kit containing painkiller tablets, Vicks or Antiseptic Ointment, Bandages and any other medicines prescribed by your doctor, particularly if you suffer from high blood pressure or any other medical problems.
- Use good quality tinted snow-glasses or dark sun-glasses to protect eyes against snow blindness. Avoid use of cheap, poor quality sun-glasses.
- Apply sun cream or calamine lotion to exposed parts of the body to avoid sun burn, particularly during the trekking or Parikramas.
- Take bath in a High Altitude Lake (e.g. Hemkunt Sahib, Mansarovar etc.) only if body can sustain low temperature in the area.
- Take prompt treatment for minor cuts, blisters and ulcers.
- Move fingers, toes and facial muscles, and exercise limbs during periods of immobility by wiggling the toes and fingers and wrinkling the face muscles at intervals. Keep in motion to remain warm.
- Trek in small groups. If there is heavy snowfall or snow storms, stay close to each other and avoid being separated.
- If you stand on the valley-side, you may be pushed down by the pony coming from the opposite direction, which can cause serious injury, so trek or stand on the hill-side only.
- Only an authorized *pony-walla*, *dandy man* or porter should be hired as they are available for pre-fixed tariffs. Ponies carrying belongings should remain with you at all times and ensure that you are constantly in touch with your luggage carrying ponies to avoid any loss of luggage and be sure to tie it on properly.
- Ensure that the batch commences the day's trekking early in the morning and sticks to the departure time.
- Whilst trekking, move slowly and avoid any kind of walking competition and maintain discipline.
- Follow instructions of the Liaison Officer properly for any adventure tourism. Also, the commands of Yatra officer should be followed for your own safety and respect the customs of the locals.
- Expedition teams shall abide by the relevant laws of the State during their stay in Uttarakhand.
- It shall be mandatory for all expedition teams to travel only along the permitted route. Permission for deviation from the permitted route shall be given by the CWLW, only under exceptional circumstances. The team leader must bring any such deviation to the notice of the local DFO at the first opportunity.
- The expedition team shall refrain from polluting waters with human and kitchen waste.
- The expedition team shall carry sufficient quantity of bags/containers for bringing bag all non-biodegradable waste back from transit camps and base camp to be deposited on return.

- The expedition team is advised to avail of all infrastructure facilities (boarding, lodging and transport available with the State Government, such as Tourist Rest Houses, Forest Rest House, and Home Stay facilities available in the villages' enroute.
- Ecotourists should ensure your entry in the register of check-in and check-out and take receipt against payment.
- Of all the high altitude porters, helpers, and guides being used by the expedition, ensure that at least 50% of them comprise local persons.
- Observe the rules and regulations while visiting holy sites, and observe the sanctity of holy sites (do not touch or remove religious objects). Respect the natural and cultural heritage of the area, and respect/follow local customs and local etiquette, and behave decently with them. Your behaviour reflects your identity.
- Respect privacy of individuals, and ask permission and use restraint in taking photographs of local inhabitants.
- Enter the protected areas (biosphere reserves, national park, sanctuary, etc.) only after taking the necessary permits and follow all the rules.
- Obtain services of Nature/Eco-Guides that the protected areas authorities have trained for your benefit. They are of great help to you in spotting wildlife and ensuring that you do not lose your way in the forest. (e.g. Nature guide or Naturalist is compulsory on all excursions within the Corbett Tiger Reserve).
- Visitors are required to switch-off lights, fans and water taps when not in use (i.e. be fair while using water and energy), and park their vehicles only at designated places in national parks/sanctuaries/reserves.
- Drive slowly if permitted in the protected areas. In this way you can see, observe and enjoy the most, without disturbing wildlife.
- For movement, keep to the specified roads and trails/trek paths and thus stay on track while trekking (e.g. Visitors are prohibited from taking vehicles off the designated routes in Corbett Tiger Reserve). When driving/walking off-track you may trample growing trees or other flora and/or cause disturbance to resting animals and their young.
- Respect the wild animals, maintain a reasonably safe distance from them, and do not provoke them. Remember, you are in their home and they get first priority in their habitat.
- Listen to the music of the forest instead of your car stereo or transistor. The quieter you are, the more the chances of your seeing wildlife.
- The protected areas are not a zoo; so don't expect to see wildlife everywhere. These protected areas are breath-taking even in their scenery and serenity.
- Do not be disappointed if you don't see a reserve animal that you came particularly for. There are many other interesting creatures that are to be seen and cherished.
- Please co-operate with Forest Department in environment conservation activities following forest regulations.

- Propagate and pursue conservation by help to follow conservation measures along with satisfactory visitor-experience in cooperation with fellow tourists, tourist guides/eco-guides/mountain guides & porters, etc. Do not allow cooks and porters to throw garbage in streams or rivers.
- Allow the flora/fauna to flourish in its natural environment.
- Wear dull-coloured clothes, as bright colours alarm most wild animals and they flee i.e. dress in colours that blend with the natural environment (khaki, olive green or other dull colours).
- Strictly follow the guidelines for personal safety and security, and always take your precautions and safety measures, i.e. Be cautious about safety of yourself and your belongings. Tourism Department/Forest Department/Any other Government will not be responsible for any loss of yours.
- **Don'ts**
  - Entry in reserved forest without permission from competent authority is restricted.
  - Do not pitch tents except at the earmarked site for the purpose.
  - To go beyond the earmarked area for tourists inside forest area is not advisable and restricted.
  - Walking inside forest area from 5.00 p.m. to 7.00 a.m. during winter and from 7.00 p.m. to 6.00 a.m. during summer is not advisable and restricted.
  - Any act detrimental to environment conservation, flora and fauna along with medicinal plant is restricted.
  - Outsider trekking guides are not allowed.
  - Don't litter the mountains while travelling.
  - Don't leave any eatables along the road side for wild animals.
  - Don't let the caterer of your travel agent leave any eatables behind for wild animals. Make sure that utensils are not washed in the stream but through collection water in a bucket or a jerry can. Water gradient is not to wash-off the left over food.
  - Don't spit in water stream while brushing.
  - Don't try to wash hands or clothes in the rivers/streams/water springs on the way. Avoid using pollutants such as detergents in rivers, streams or springs. If no toilet facilities are available, try to relieve yourself at least 30 meters away from water sources and bury or cover the waste. Never discharge saponified water in water sources.
  - Don't leave your undergarments behind after bath as the colours and nylon, synthetic fiber in cloth is a pollutant.
  - Don't defecate or urinate near river banks and spring beds.
  - Don't throw wrappers of biscuits, candies etc. on the road/trek paths during the expedition. It is better to use dustbins, if possible or else keep them in your pocket and throw away when you find any dustbin.
  - Don't litter green *pattal donas* here and there. Bury them in soil.
  - Don't litter plastic crockery like plates, donas, spoons and glasses. Collect them in a big bag and dispose them in plastic storage center/plastic waste collection centers.

- Don't dispose-off one time used rain coats, chappals and shoes in valleys or mountain slopes. Collect them and dispose-off in plastic storage/waste collection centers.
- Abstain from graffiti and contribute in keeping the environment clean.
- Taking away plants/plant-cuttings, seeds and roots is illegal in many parts of the Himalayas.
- Do not get separated from fellow pilgrims/yatris. If there is heavy snowfall or snow storms, stay close to each other and avoid being separated.
- Do not trek in one's or two's. Don't get separated from the main group of trekking and ensure that the person in the front remains in sight.
- Don't overstrain on sheer slopes, and places where caution signs are fixed should not be used for taking a rest.
- Do not attract lightning during electric storms by putting up pointed objects like ice-axes or wireless aerials.
- Do not neglect to consume sufficient food and fluids. Do remember that pilgrims suffer from loss of appetite at high altitudes. So, per force consume enough nourishment.
- Do not wear climbing boots that leak or are tight.
- Do not wear wet socks or permit socks to wrinkle inside the boots, as this will cause blisters.
- Do not neglect minor injuries like cuts, blisters and ulcers as these may become frost-bitten.
- Do not sleep with boots on.
- Do not carry too heavy a load.
- Heavy jewellery should be avoided during the trip.
- Do not consume alcoholic beverages and non-vegetarian food during the pilgrimage/yatra. Alcohol is strictly banned. Visitors are not allowed to carry and use any kind of intoxicants, drugs, and other narcotics etc.
- Don't carry guns. Feel free to shoot with a camera instead (i.e. take pictures, but without disturbing wildlife). However, in case of any heritage areas that possesses heat-sensitive historical painted surfaces, avoid using camera flash.
- Don't break traffic regulations or overtake any vehicle or drive an overloaded vehicle. And whatever you do, do not try to win or race with the local vehicles or drivers whilst driving as they know the territory better than you!
- Don't get off your vehicle at any point in the protected areas except where it's allowed. This is for your own safety and the safety of wildlife.
- Do not get out of the vehicle or approach wild animals in general and specifically do not approach animals closer than 15 m or disturb them while they are resting.
- Please do not disturb or chase wild animals for better look or an 'ultimate photograph.'
- Never come between a parent animal and its kids.
- When in a vehicle, remember wild animals have right of way. Keep to the speed limit, don't use the horn, and do not startle animals, including not talking loudly or playing loud music.

- To feed wild animals is not allowed.
- Please do not make noise inside forest and at camping site.
- Use of search light at camping site as well as inside forest area is prohibited.
- The expedition team shall not carry any weapons and/or injurious substances, which can injure, harm or kill any wildlife or destroy their habitat. The visitors should be aware that carrying of guns, fire arms, inflammable materials are strictly prohibited as per the provisions of The Wildlife (Protection) Act, 1972, and is punishable by law.
- The expedition team shall not poach; kindle fire or leave burning embers; destroy, deface or remove any wildlife, trees, herbs, shrubs, sign-posts etc. during the expedition.

### **State of tourism in Gangotri National Park**

#### **1. Bhagirathi valley**

The primary objective of management is the conservation of biodiversity of the PA. The tourism has to be managed in such a way as to supplement the primary objective. As such the whole Protected Area cannot be made a thorough fare for tourists. This requires confinement of tourists to a particular zone called tourism zone. Entry fee, Camping fee etc. are taken as per Uttarakhand Govt. Order 3917/X-2-2009-12 (7)/2003 Dated December 2009.

The main tourism places and the routes connecting these places from Uttarkashi-Gangotri motor road are

- 1- Gangotri: Situated on the at an altitude of 3100 mts. on the boundary of the PA at about 100 km from Uttarkashi is a well known pilgrim center. It is one of the four dhams of Uttarakhand. The religious Ganga Temple and the Gaurikund falls are situated here. Thousands of tourists and pilgrims come to visit this place every year.
- 2- Gaumukh : The Gaumukh glacier known as the origin of the river Ganga is situated at an altitude 4000 mts. at a distance of 18 km from Gangotri. Bridle path constructed and maintained by forest Department connects Gaumukh from Gangotri. Thousands of people come to enjoy the spectacular beauty of this place every year. The tourism visiting Gaumukh are regulated and only a maximum of 150 are allowed every day during the open period of the Park as per Uttarakhand Govt. Order No. 564/XVIII-(2)/08-13(1)/2008 Dated 21-04-2008.
- 3- Bhojwasa: It is situated in between Gangotri and Gaumukh at a distance of 14 km from Gangotri. The altitude of this place is 3800 mts. the glaciers & snow clad peaks look very nice from this place. The Bhagirathi peaks dominate the landscape. The visitors going to Gaumukh make a night halt at this place.
- 4- Kedar tal: It is situated a about 16 km from Gangotri. The altitude of this place is approximately 3900 m. The natural tal is very beautiful and the state flower “Brahma

kamal” is abundantly found here. The alpine meadows spread around the tal are prime habitat for Himalayan Musk deer & Snow leopard.

## 2. **Nelong (Jad Ganga valley)**

Gangotri National Park (GNP), located in Uttarkashi district is the largest national park of Uttarakhand and famous for Gaumukh glacier, Bhagirathi group of peaks and Shivling peak. Gangotri National Park is also abode for many endangered species like snow leopard, brown bear and Himalayan black bear. Bharal or Blue Sheep, Musk deer, Monal and red fox are other species of interest in the park.

GNP has two major valley systems viz. Bhagirathi valley and Jad Ganga (or Jahanvi)valley. Bhagirathi valley is a destination for visiting Gaumukh glacier by religious and trekking tourists, with Bhagirathi peaks, Shivling and Kedar dome serve as popular destinations for mountaineers. The famous Kalindi trek popular among foreign and Indian trackers also passes through this valley.

Jad valley, named after Jad Ganga and represent trans-Himalayan system. Whole valley is above tree line and except few scrub species look like cold desert. Jad valley has a well maintained road network developed primarily for strategic purposes.

While on one hand Bhagirathi valley caters to religious and adventure tourism, on the other hand Jad valley is untouched by tourism activities. This valley has a unique value as the true trans-Himalayan ecosystem in Uttarakhand. The vast barren hill slopes with icy-blue waters of Jad Ganga and its tributaries, make it a uniquely attractive landscape. This valley also has importance for national security.

For the first time in the history of GNP, a group of tour operators was permitted in the month of September 2014 to explore the valley for future potential eco-tourism activities.

Many suggestions came from the group of tour operators and local MLA from Uttarkashi to promote Jad valley for providing livelihood options to local people through nature based tourism initiatives.

After having in-house brain storming sessions and discussions with-in the forest department and other stake-holders, regulated vehicle safari came out as a potential activity.

Many national park and sanctuaries are allowing regulated Vehicle Safaris by local youths. Number of vehicles are restricted and timings and duration of trip is fixed.

Taking lessons from the experience of other PAs where Vehicle safari operation are in operation, following guidelines are proposed for providing livelihood opportunities to local people in Gangotri National Park.

1. Initially on experimental basis six Bharat IV compliant four wheel drive vehicles are being permitted since May 2015 to operate in between Bhairoghati and Nelong in Jadganga valley, a distance of approximately 20 km. This is to ensure the minimum disturbance to the fragile

ecosystem of GNP and also for considerations of visitor safety since the roads are very narrow and dangerous and river gorge precipitous.

2. The tourism season for Jadganga valley of GNP would be from 1st May to 31st October every year. This may be revised by the Chief Wildlife Warden Uttarakhand if the weather condition so warrant. Three vehicles will be permitted in the morning session in between 7.00 AM and 12.00 pm and three in the afternoon from 1.00 PM and 5.00 PM.

3. Trained registered guides who have knowledge of fauna, flora and history of the area will accompany each vehicle. Till the time guides are not trained, a forest staff will accompany the vehicle during entire trip.

4. Nature guide training course will be conducted by forest department for eligible local youths. A test will be carried in the end of course. Only those trainees who will pass the test will be registered with forest department to accompany the vehicle.

5. No private vehicle other than six vehicles registered with forest department will be permitted to enter in the Jad valley tourism zone of GNP.

6. Nature guide fee, vehicle fee will be decided by Chief Wildlife warden in consultation with CCF(Ecotourism).

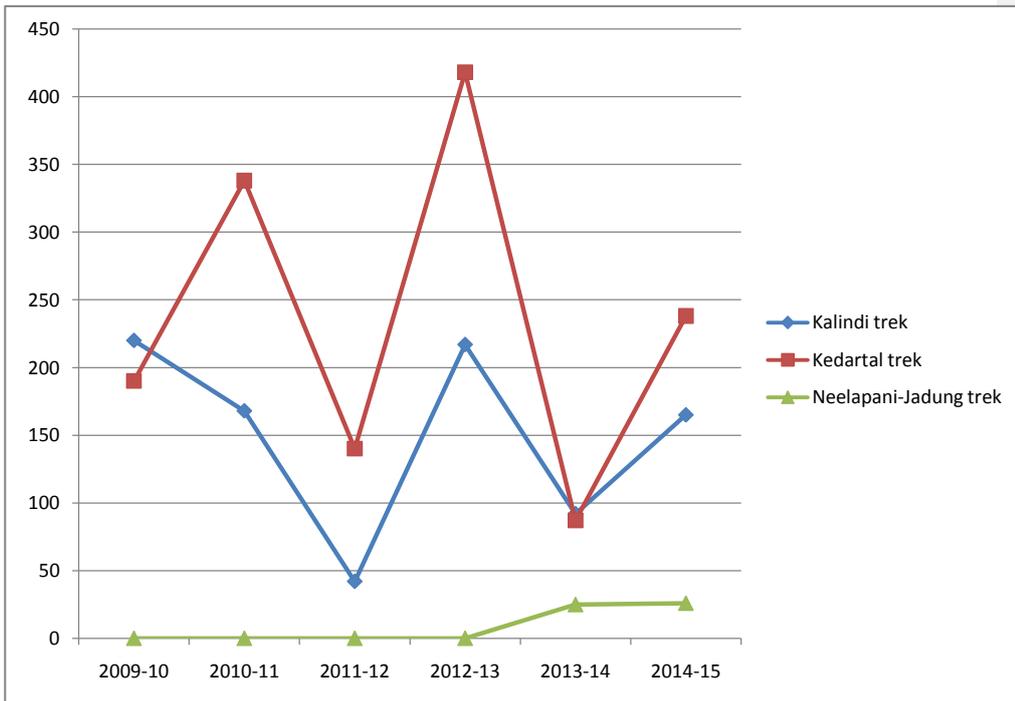
7. Visitors and drivers will not be allowed to get down from the vehicle except at designated places.

8. Agencies involved in national security will be taken in confidence before initiating vehicle Safari in GNP on a regular basis.

### 9- Trekking

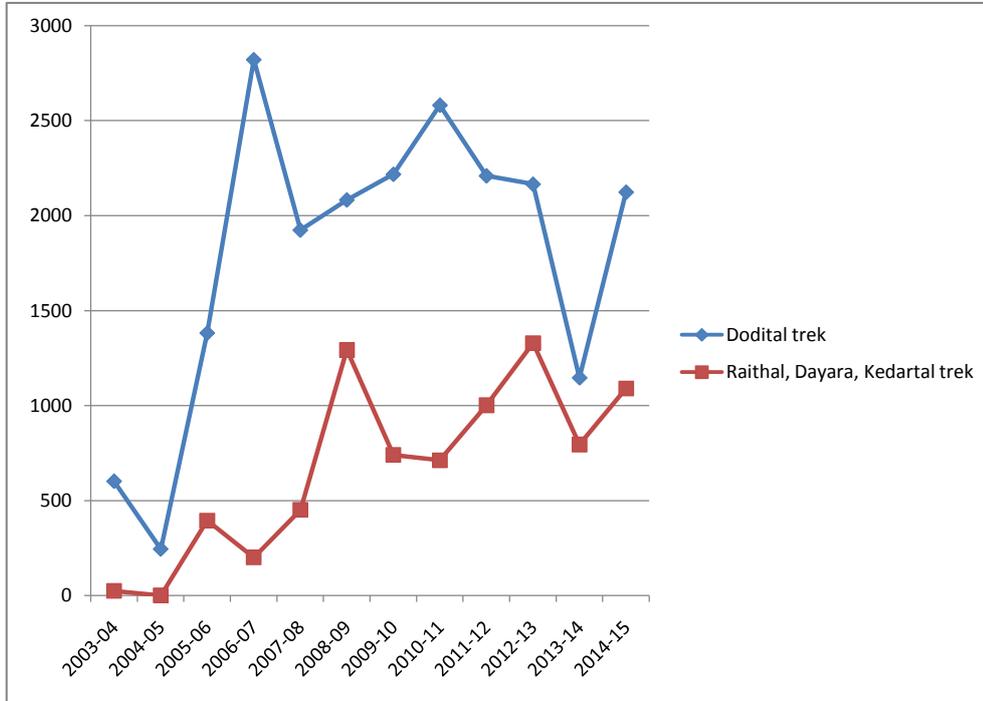
#### Trekking Tourism Statistics (Gangotri National Park)

S. No.	Year	Name of Route and No. of Trekkers arrived									Total Revenue (Rs.)
		Kalindi			Kedar Tal			Neelapani- Jadung			
		Indian	Fore-igner	Total	Indian	Fore-igner	Total	Indian	Fore-igner	Total	
1	2009-10	211	9	220	172	18	190	0	0	0	78,235
2	2010-11	149	19	168	321	17	338	0	0	0	1,32,000
3	2011-12	42	0	42	140	0	140	0	0	0	35,600
4	2012-13	194	23	217	409	9	418	0	0	0	1,54,400
5	2013-14	90	2	92	83	4	87	25	0	25	57,550
6	2014-15	150	15	165	219	19	238	26	0	26	1,13,000



**Trekking Tourism Statistics (Uttarkashi Division)**

S. No	Year	Name of Route and No. of Trekkers arrived						Total Revenue (Rs.)
		Dodital Trek Route			Raithal, Dayara, Kedartal			
		Indian	Foreigner	Total	Indian	Foreigner	Total	
1	2003-04	572	29	601	23	0	23	11,605.00
2	2004-05	2497	147	244	0	0	0	71,690.00
3	2005-06	1144	238	1382	394	0	394	73,400.00
4	2006-07	2481	341	2822	144	56	200	85,170.00
5	2007-08	1659	265	1924	310	141	451	1,26,945.00
6	2008-09	1883	200	2083	1204	89	1293	1,53,990.00
7	2009-10	2054	164	2218	709	31	740	1,19,255.00
8	2010-11	2423	159	2582	635	77	712	2,15,200.00
9	2011-12	2098	112	2210	876	126	1002	2,26,330.00
10	2012-13	2097	69	2166	1226	103	1329	2,63,875.00
11	2013-14	1098	48	1146	707	88	795	1,49,195.00
12	2014-15	1952	172	2124	1066	24	1090	2,89,243.00
<b>Total -</b>		<b>21958</b>	<b>1944</b>	<b>23302</b>	<b>7294</b>	<b>735</b>	<b>8029</b>	<b>17,85,898.00</b>



### 9.1 List of Walking path Falling within Uttarkashi Division

S.No.	Walking path	Length (Km.)	Name of Range
1-	Harsil to Saat Tal	3	Gangotri Range
2-	Harsil to Kyarkoti	40	-“-
3-	Jaspur to Brahmatal	12	-“-
4-	Sukki to Kandara	5	-“-
5-	Songad to Bandarpunch	20	-“-
6-	Jhala to Awana	10	-“-
7-	Gangnani to Gidara	14	-“-
8-	Malla to Sahastratal via kush Kalyan and Kyarki Bugyal	48	-“-
9-	Bhukki to Khedatal	20	-“-
10-	Nateen to Goi	7	Taknor Range
11-	Jodaw to Sahastratal via Kyarki Bugyal	25	-“-
12-	Hurri to Khedatal	20	-“-
13-	Jodaw to kush Kalyan via Pilang	12	-“-
14-	Gorshali to bakariya top	10	-“-

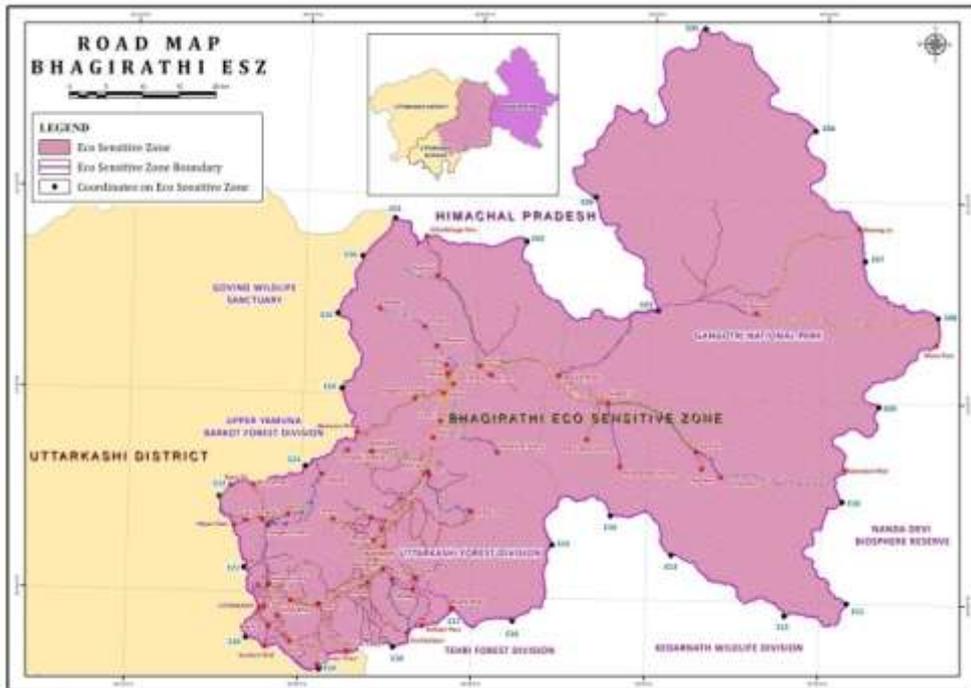
15-	Bhukki market to tihar	6	-“-
16-	Jhala to Awana Bugyal	10	-“-
17-	Salang to khedatal via devkund	18	-“-
18-	Pilang to masuri tok bugyal via khaneri tok	25	-“-
19-	Bhatwari to Dayara via Raithal	14	-“-
20-	Bhatwari to Dayara via Barsu	14	-“-
21-	Barsu to Syari	15	-“-
22-	Thirang to Bhu-top Bugyal via Salang	15	-“-
23-	Sangamchatti to Dodital	22	-“-
24-	Dadittal to Darwa top	6	-“-
25-	Satkadi majhi to devkundh	10	-“-
26-	Seku to morsana Satkadi	15	-“-
27-	Agoda to bakariya top	15	-“-
28-	Naugaon to Aucha	8	-“-
29-	Dodittal to Bakariya tal	20	-“-
30-	Agoda to Gonsala Bugyal	10	-“-
31-	Manjhi to Darwa top	5	-“-
33-	Chapa to Chauladoni	4	-“-
34-	Nakuri to Dontdhar	15	-“-
35-	Bandarkot to dontdhar	12	-“-
36-	Dunda to Balla	20	-“-
37-	Dauntari to chaurangidhar	8	Mukhem Range
38-	Joshiyada to Sankurnadhar	8	-“-
39-	Aleth to Harota Bugyal	8	-“-
40-	Saura to Belak	10	-“-
41-	Belak to Sahastra tal	10	-“-
42-	Dhauntari to Ayarkhan	13	-“-
43-	Joshiyada to Panyula	10	-“-
44-	Kamad to Ayarkhan	10	-“-
45-	Thandi to Belak	10	-“-
46-	Siror to Jamak	6	-“-
47-	Jagadgaun Bankot to Sem Nagraja Temple	35	-“-
48-	Jamak to Kamar	10	-“-

### 9.2 List of Walking path Falling within Gangotri National Park

S. No.	Name of Walking path	Length (Km.)
1-	Gangotri to Vasuki tal – Kalindi – Badrinath	112
2-	Gangotri to Kedartal, Gangotri peak- 1, 2 and thaley Sagar	20
3-	Gangori to Rudragaira-Udankhol	21
4-	Neelapani to Managad and Badrinath	115
5-	Bhujgadi to Matrapeak	10
6-	Gangotri to Gaumukh	18
7-	Gaumukh to Tapovan	06
8-	Gaumukh to Nandanvan	11

### 9.3 List of Motor road falling within Gangotri National Park

Name of Road	Length (Km.)	Remarks
Baironghati Nelong to Naga	32	Strategic for National Security
Naga to Sonam	12	
Naga to Neelapani	10	
Naga to Jadung	06	
Sonam to Tripani to P.D.A.	14	



**9.4 Activities prohibited for the visitors:**

1. Not more than 150 people per day enter inside the Gaumukh area (Gangotri National Park)
2. Night movement inside the PA.
3. Carrying firearms
4. Catching/ feeding wild animals
5. Lighting fire or damaging flora & fauna.
6. Playing music through tape records, transistors or other gadgets
7. Spreading garbage/ non-biodegradable substances in the P.A.

**9.5 Advice to visitors :**

- 1- They should enter the PA with due permission of the Dy. Director Gangotri National Park Uttarkashi.
- 2- The firearms, if any, should be deposited in nearby police station before entering the PA.
- 3- They should record their experience about the PA in the register kept at the exit point.

**Carrying capacity of the PA:** This will be assessed on the basis of visitors' statistics and available infrastructural facilities in the following context.

**Authorized Capacity by Uttarakhand Govt. :** Govt. has permitted only 150 person per day inside the Gaumukh area.

**Recreational carrying capacity:** This will be assessed on the basis of the number of visitors and the facilities available.

**Physical carrying capacity:** This will be assessed on the basis of damaged caused to flora & fauna of the PA.

**Social carrying capacity:** This will be assessed on the basis of visitor's crowd and resulting sound pollution etc.

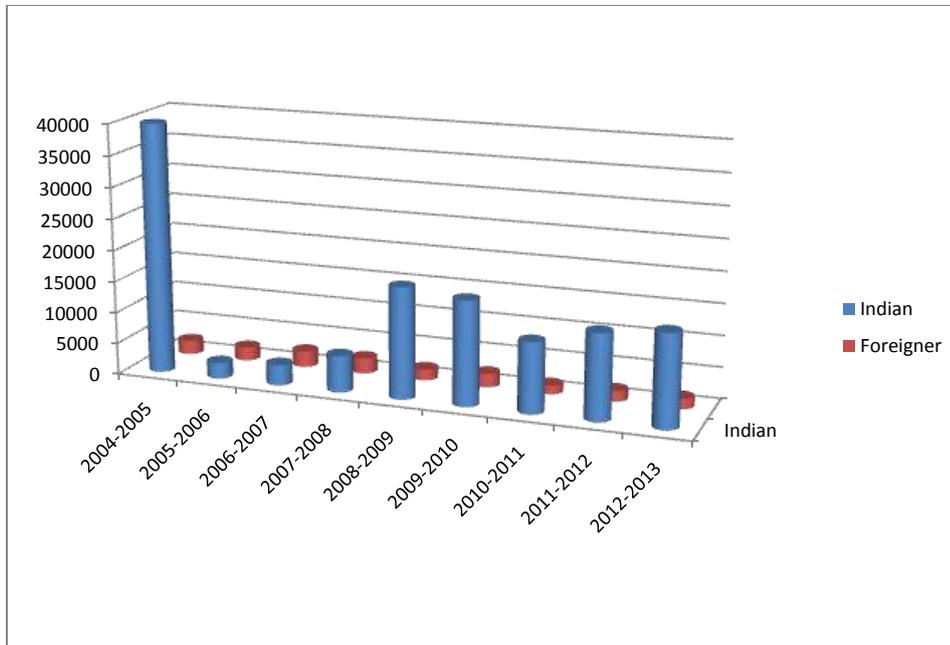
#### 9.6 Tariff (Gangotri National Park)

S.No.	Activities	Fee (in Rs.)		Remarks
		Indian	Foreigner	
1	Entry Fee			1- Free up to 5 year kids 2- 5 to 18 year old students shall be permitted to pay ¼ of entry fee after providing school identity card. 3- More than 18 years old students shall also be permitted to pay ½ of entry fee after providing school identity card of affiliated collage by state or central govt. 4- the person residing on sark country shall be treated as Indian resident.
	1- For Three days per person	150.00	600.00	
	2- After three days extra charges per day/ person	50.00	250.00	
2	Photography Fee			
	1- Steel camera / video camera (for personnel use)	Free	Free	-
	2- Steel camera / video camera (for commercial use)	500.00	1500.00	-
3	Stay Fee (per tent/night)			Up to 15 Small tent shall be permitted only at Chirbasa and Bhojbasa
	1- Small Tent (Capacity 2 person)	50.00	100.00	
	2- Medium Tent	100.00	200.00	

S.No.	Activities	Fee (in Rs.)		Remarks
		Indian	Foreigner	
	(Capacity 4 person) 3- Kitchen Tent 4- Tent Pitching	100.00 50.00	200.00 100.00	
4	Film Making per day 1- Feature Film 2- Documentary Film	1,00,000.00 10,000.00	2,00,000.00 30,000.00	Security money 1- Feature film Rs. one lakh for Indian & Rs. Two lakh for foreigner 2- Documentary film Rs, fifty thousand for Indian and Rs. One lakh for foreigner
5	Horse /Mule	25.00	25.00	Only 15 horse /mule shall be permitted in the park.

**Details of Tourists/Visitors and revenue released during last year**

S. No.	Year	Indian	Foreigner	Total	Total fees
1-	2004-2005	39882	2217	42099	5.80
2-	2005-2006	2529	2141	4670	5.59
3-	2006-2007	3299	2551	5850	7.03
4-	2007-2008	5811	2473	8224	9.72
5-	2008-2009	17630	1745	19375	16.92
6-	2009-2010	16615	2160	18775	15.93
7-	2010-2011	11210	1416	12626	28.04
8-	2011-2012	13675	1692	15367	38.15
9-	2012-2013	14763	1623	16386	39.093



#### 9.7 List of Forest Rest House, accommodation and Tarrif

Name of Forest Rest House	Accommodation (Room)	Tariff		Catering
		Indian	Foreigner	
Harsil	2	1500	3000	Self Management
Baironghati	2	1000	2000	Self Management
Gangotri (Pre-fabricate Hut)	3	1250	2500	Self Management
Gangotri (Old Cabin)	2	1000	2000	Self Management
Gangotri (New Cabin)	1	1000	2000	Self Management
Bhatwari	2	1000	2000	Self Management
Kotbanglow	2	1000	2000	Self Management
Agoda	1	1000	2000	Self Management
Dodital	2	1000	2000	Self Management

## 10. Mountaineering

37 mountain peaks including Bhagirathi-I, II, III, Chaukhamba I, II, III, IV, Gangotri I, II, III, Jogin I, II, III, Satopanth, Kedardom, Basuki Parwat, Sudarsan Parwat, Rudragaira etc. are open for mountaineering in Gangotri National Park as per Uttarakhand Govt. Order no. 997/CS/MT/2004 dated 03-07-2004.

### **10.1 Mountain peaks falling within Gangotri National Park**

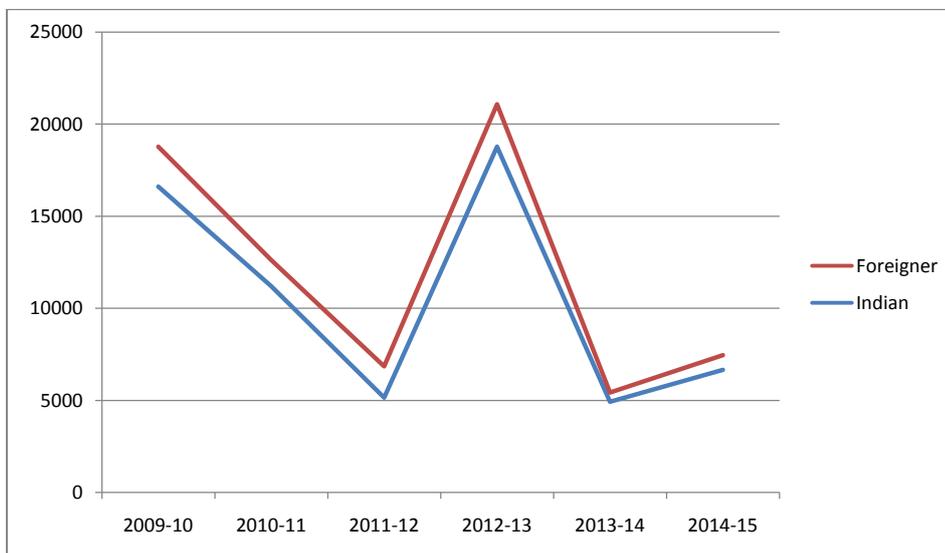
<b>Name of Mountain Peaks</b>	<b>Altitude (mt.)</b>
<b><u>Above 7000 mt.</u></b>	
1- Chaukhamba -I	7138
2- Satopanth	7083
3- Chaukhamba-II	7070
<b><u>Between 6500 to 7000 mt.</u></b>	
4- Chaukhamba-III	6995
5- Thaley Sagar	6984
6- Kedarnath	6940
7- Bhagirathi – I	6856
8- Chaukhamba- IV	6854
9- Kedardom	6830
10- Devban	6820
11- Vasuki Parwat	6792
12- Bhragu Panth	6772
13- Swachand	6721
14- Gangotri-I	6672
15- Meru South	6660
16- Jaunli	6632
17- Karchha Kund	6632
18- Gangotri –II	6590
19- Bhartekhunta	6578
20- Gangotri – III	6577
21- Manda	6568
22- Sivling	6543
23- Bhagirathi –II	6512
24- Sudarshan Parwat	6507
<b><u>Below 6500 mt.</u></b>	
25- Jogin	6465
26- Bhagirathi – III	6454
27- Meru North	6450
28- Meru west	6361
29- Bandarpunch	6316
30- Keerti Stambh	6285

31- Saifi	6167
32- Shri Kantha	6133
33- Jogin	6116
34- Thelu	6000
35- Rudragaira	5819
36- Lamkhaga	5764
37- Jogin – II	4363

#### Statistics of mountaineering

Frequency of peaks being scaled, no of Mountaineer, revenue realized-

S. No.	Year	Indian			Foreigner			Total	Revenue realized (Rs.)
		M	F	Total	M	F	Total		
1-	2009-10	15402	1213	<b>16615</b>	1388	672	<b>2160</b>	18775	15,88,590.00
2-	2010-11	9623	1587	<b>11210</b>	858	558	<b>1416</b>	12626	28,04,375.00
3-	2011-12	3683	1472	<b>5155</b>	946	746	<b>1692</b>	6847	38,03,861.00
4-	2012-13	16544	2237	<b>18781</b>	1189	1113	<b>2302</b>	21083	39,09,075.00
5-	2013-14	4222	703	<b>4925</b>	276	229	<b>505</b>	21083	15,40,188.00
6-	2014-15	6248	409	<b>6657</b>	481	322	<b>803</b>	7460	19,46,405.00



### 10.2 Mountaineering Fee for foreigner (in Rs.)

Altitude of peak	Peak Fee payable to State Govt.	Camping site fee and trail management fee	Environmental levy*	Service/ Handling the charge of State Govt.	Total
Above 7001 mt.	40000	10000	20000	10000	80000
Between 6501 to 7000 mt.	25000	10000	20000	10000	65000
Below 6500 mt.	20000	10000	20000	10000	55000

### Mountaineering Fee for Indian (in Rs.)

Altitude of peak	Peak Fee payable to State Govt.	Camping site fee and trail management fee	Environmental levy*	Service/ Handling the charge of State Govt.	Total
Above 7001 mt.	6000	3000	2000	3000	14000
Between 6501 to 7000 mt.	4000	3000	1500	3000	11500
Below 6500 mt.	3000	3000	1500	3000	10500

### 10.3 Guidelines for mountaineering expeditions in Uttarakhand

- 1- 37 mountain peaks falling within Eco-sensitive zone have been kept open for the purpose of mountaineering.
- 2- The Chief Wildlife Warden has been authorized to conduct mountaineering activities and to provide necessary clearances to mountaineering expeditions through a single window system on behalf of the State Government. Accordingly a coordination mechanism has been established with the IMF for granting permissions through a single window system.
- 3- An upper limit of the number of expeditions in a calendar year has been prescribed and a monthly calendar of expeditions has been decided upon. In addition, maximum limit of the number of members in an expedition has also been fixed.
- 4- For the convenience of the mountaineers, provision has been made that the inner line permit as well as other permissions granted by the sub divisional Magistrate and the Deputy Director Gangotri National Park will be automatically issued once any mountaineering expedition is granted no objection by the IMF.
- 5- Efforts have been made to link the mountaineering activity with the livelihood of local communities.
- 6- Special provisions have been made for evaluative studies and research of the carrying capacity of the upper Himalayan region.

- 7- A Provision has been made for collection and disposal of non biodegradable waste generated by the mountaineering expeditions, through the Forest Department for which provision of security deposit has been kept.

#### **10.4 Guidelines for regulation of local tour operators providing services to Mountaineering Expeditions**

- 1- The Local tour operator must be domiciled in the district of operation.
- 2- Character verification is a must.
- 3- The local tour operator will pledge a security of Rs. 1000/- to the concerned Deputy Director Gangotri National Park during registration annually. A minimal annual registration fee of 100/- per operator will be payable.
- 4- It will be the responsibility of the local tour operator to register the porters/ guides/ helpers as the Deputy Director Gangotri National Park office and renew the registration annually, by February –end.
- 5- Only registered porters/ guides/ helpers shall be allowed to accompany mountaineering expeditions.
- 6- The local tour operator will group insure all the porters/ guides/ helpers.
- 7- Porters/ guides/ helpers will not be paid below the rate fixed by the local District Magistrate for any particular year.
- 8- The local tour operator will ensure proper clothing, insurance, rations and fuel for their porters/ guides/ helpers.
- 9- The porters/ guides/ helpers need not pay any registration fee to the FD. It shall be mandatory for the local tour operator to ensure the training – cum- orientation of all porters/ guides/ helpers. The FD will organize the required orientation / refresher workshops for porters/ guides/ helpers before the start of the mountaineering season in every calendar year, and from time to time, as and when required, conduct other capacity-building workshops.
- 10- The cost of organizing these training workshops will be borne form the Expedition fee remitted to the State Government. The minutes of these workshops will be recorded in the DFO’s office and will be circulated to all the district level officers of stakeholder departments.
- 11- Every local tour operator should have an office with a clearly designated address.
- 12- Local tour operators will be liable for the violation of any rules, acts and lows, by the porters/ guides/ helpers.

## **11. People involvement**

### **11.1 Van Panchayats**

The Uttarakhand region lies in the Central Himalayan zone of the Hindukush Himalayan Range and extending from the Gangetic Plain, it rises to around 4,500 meters. Despite the limited availability of arable land in the region, agriculture is the main occupation as majority of the population (78.30%) is in the rural areas. It is subsistence oriented typified by low productivity and based on coarse grains cultivated under rainfed conditions.

Forests in region are a source of livelihood for rural residents and provide resources such as fodder, fuelwood, green manure, and construction timber. These resources are critical to the household economy. In their absence, effective household incomes would decline substantially. In such a context, determining how forests can be collectively and appropriately managed is vitally important.

Van Panchayats in Uttarakhand were born out of conflicts and compromises that followed the settlements and reservations of forests in the hills at turn of the last century. The first government approved Van Panchayat was thus formed in 1921. According to recent estimates, there are more than 12000 Van Panchayats managing about 15% of total forest area in the state. Most of these have been carved out of civil (protected) forests under the jurisdiction of the Revenue Department.

It may be mentioned here that Community forests managed in accordance with Van Panchayat Act is a hybrid of state ownership and community responsibility. In its efforts to manage and control community forest use Forest committees are guided by Revenue Department rules and by the technical advice of the Forest Department. In contrast to civil forests, community forests or Panchayati forests as they are popularly known are not 'open' forests. Access and use of forests is guided by rules elaborately designed and implemented by the communities. In fact four identifiable working rules exist relating to Use, Monitor, Sanctions and Arbitration. Though only notionally or nominally owned by the communities, community forests are in a very real sense common property with an identifiable user group, have finite subtractive benefits and are susceptible to degradation when used beyond a sustainable limit. However what is more important is that the local users consider them as their collective property and in real sense they are not actually divisible. These forests though are not completely immune from misuse and the condition of the forests varies from poor to very good.

#### **11.1.1 Van Panchayat Rules 2005**

The Van Panchayat Rules 2005 prescribe how Van Panchayats (Councils) can be formed. The objective is to protect the forest areas and to ensure that the forest products are being distributed among the right holders in an equitable manner. The Van Panchayat Rules lay down the broad parameters of management practices to be followed.

The main function of Van panchayats are as follows:

- a) To develop and protect forests by preventing indiscriminate felling of trees and to fell only those which are marked for by the forest deptt. and are useful from the point of view of silviculture.
- b) To ensure that there is no encroachment on Van Panchayati land and that no rules are being violated that are being enacted under Kumaon and Sodic Land Act of 1948 and that no land should be encroached for agricultural practices.

- c) To construct and fix boundary pillars and to maintain them
- d) To carry out the directives of the Sub-Divisional Magistrate in developing and protecting forests.
- e) To distribute its produce amongst right holders in an equitable manner.
- f) 20% of the area of the forest must be closed for grazing every year.

#### 11.1.2 The Punitive Powers

- a) They can levy fines upto Rs. 500 with the prior approval of the Deputy Commissioner
- b) They can seize intruding cattles and impound them under the cattle trespass act of 1871.
- c) They can forfeit the weapons of the offender.

#### 11.1.3 The Administrative and financial powers

- a) They can sell grass, fallen twigs and stone slates to local people.
- (b) The income realised from resin, timber and fees is distributed as follows.
  - i) Management Committee is given 30% for creating and maintaining communittee based infrastructure.
  - ii) Management Committee is given 40% for local development schemes
  - iii) The remaining 30% is given for maintenance of local scheme which are usefull for local people.

#### 11.2 List of Van Panchayat village falling with in Eco-sensitive Zone

S.No.	Name of Village	Formation of Van panchayat (Yes/ No)	Formation of Biodiversity Management Committee (Yes/ No)	Selected under I.W.M.P Scheme (Yes/ No)	Area (in Ha)
1	Agoda	Yes	-	-	3.822
2	Aleth	Yes	-	-	3.790
3	Bagori	Yes	Yes	-	184.3
4	Bagyal Gaon	Yes	-	-	1.350
5	Bandrani	Yes	Yes	Yes	11.288
6	Barsu	Yes	Yes	Yes	3.256
7	Bayana	Yes	-	-	6.090
8	Bhangeli	Yes	Yes	-	6.781
9	Bhankoli	Yes	Yes	-	22.589
10	Bhatwari	Yes	-	Yes	2.364
11	Bhela Tipri	Yes	-	-	5.643
12	Bhukki	Yes	-	-	2.933
13	Bonga	Yes	-	-	5.699
14	Dwari	Yes	Yes	-	16.459
15	Didsari	Yes	-	-	1.445
16	Gajoli	Yes	Yes	-	19.464
17	Gawana	Yes	-	Yes	25.611
18	Gorshali	Yes	Yes	Yes	25.940

S.No.	Name of Village	Formation of Van panchayat (Yes/ No)	Formation of Biodiversity Management Committee (Yes/ No)	Selected under I.W.M.P Scheme (Yes/ No)	Area (in Ha)
19	Gyanja	Yes	-	-	1.007
20	Hinna	Yes	-	Yes	5.004
21	Hurri	Yes	Yes	-	7.202
22	Harsil	-	-	-	124.2
23	Jakhol	Yes	-	Yes	9.730
24	Jaspur	Yes	Yes	-	4.058
25	Jhaala	Yes	Yes	-	3.936
26	Kyark	-	-	Yes	
27	Laata	Yes	-	-	14.206
28	Malla	Yes	-	Yes	15.112
29	Mandou	Yes	-	-	8.519
30	Maneri	Yes	-	Yes	22.860
31	Mukhawa	Yes	-	-	2.046
32	Nald Bodhhar	Yes	-	-	15.248
33	Natin	Yes	-	Yes	4.285
34	Nalang	Yes	-	-	
35	Netala	Yes	Yes	Yes	10.290
36	Nirakot	Yes	-	-	0.840
37	Nesmor	Yes	Yes	-	9.730
38	Ongee	Yes	-	Yes	3.766
39	Pahi	Yes	-	Yes	18.448
40	Pala Maradi	Yes	-	Yes	4.221
41	Paata	Yes	-	-	5.106
42	Pilang	Yes	Yes	-	7.098
43	Purali	Yes	Yes	-	3.54
44	Raithal	Yes	Yes	Yes	3.22
45	Sald	Yes	-	-	0.663
46	Salang	Yes	Yes	-	12.696
47	Saalu	Yes	-	-	8.569
48	Sangrali	Yes	-	-	
49	Saari	Yes	-	-	8.348
50	Saura	Yes	Yes	Yes	3.541
51	Seku	Yes	Yes	-	8.140
52	Silla	Yes	-	-	12.949
53	Sukki	Yes	-	-	2.714
54	Sungar	Yes	-	-	4.789
55	Syaba	Yes	-	-	5.901
56	Thalan	Yes	Yes	-	0.887
57	Tihar	Yes	-	-	8.087

## **12- Eco-Development Strategy**

Eco-development is a strategy in which PA officials and PA dependent villagers act together in a participatory manner to reduce negative biotic impact so as to conserve the biodiversity of the PA & Forest. Alternatively, it is conservation oriented rural development designed with participation of the local people for the purpose of reconciling genuine needs of the people compatible with PA & Forest management objectives.

### **12.1 Government Resolution**

The Eco-development programme will be implemented in accordance with the provisions made in “Government Resolution for eco-development in Uttar Pradesh” Which is annexed in the list of appendices.

**Objectives:** The Eco-development programme will have the following objectives:

- i. To provide suitable alternatives the dependent villagers living the E.S.Z. so as to protect Reserve Forest and P.A. resources.
- ii. To ensure people’s participation in biodiversity conservation.
- iii. To reduce damage by wildlife to human life and property.
- iv. To reduce conflicts between the peoples and the Reserve Forest and P.A. to minimize dependence and pressure on the said resources.
- v. To improve Reserve Forest and P.A. management capabilities and enhance protection of protected area resources.
- vi. To develop capacity in the PA dependent villagers to plan and implement sustainable modes of development through eco-development programme.
- vii. To promote land use practices compatible with the objectives of biodiversity conservation in the surrounds of the PA.

### **12.2 Broad strategies**

To achieve the objectives enumerated above, the following strategies are proposed:

### **12.3 Village level site specific strategies**

Village eco-development committees will be constituted in all villages situated within Eco- sensitive zone in accordance with the government resolution to this effect. Site specific plan for every village will be prepared by the village eco-development committee with the help of spearhead of the PA. It has been observed that PA dependent village during interaction demand for road, electricity, health care, education facilities involving huge investment which is beyond the ambit of micro-planning. The spearhead team should, however, endeavor to develop consensus during micro planning on the following broad issues.

#### **12.4 Reduction in fuel wood consumption**

It has been observed that consumption of fuel wood is relatively high in temperate zone in absence of dead fallen twigs; the villagers chop branches and also cut down young poles to meet out there fuel wood. The villagers should be persuaded to use alternative energy sources viz cooking gas, solar cookers and also fuel efficient devices.

#### **12.5 Development of horticultural activities**

It has been observed that agricultural practices in PA and RF dependent villages are traditional, yield is low and crop is often damaged by wild animals. Not much provision exists for compensation of crop damages except by wild animals. The villagers should be perusable to go for horticultural activities which would fetch high return and damage by wild animals will also be minimized.

#### **12.6 Encouraging alternate income generating sources**

PA and RF dependent villagers practice marginal agriculture and remain idle for most of the time in the year except for few getting seasonal employment from works carried out by Govt. department. Lack of job opportunity and growing population attract them to activities viz. illegal herbs collection and poaching of wild animals. To curb these illegal activities local arts crafts should be developed.

**12.6.1 Cultivation of medicinal plants:** Suitable climatic conditions exist for cultivation of medicinal plants on agricultural land in villages situated on the PA and RF surround. The villagers should be trained and assisted to take up cultivation of medicinal plants. This will not only enhance their income but also bring down illicit poaching incidences. The “Herbal Research and Development Institute, Gopeshwar” has identified suitable species for cultivation.

#### **12.7 Monitoring and evaluation:**

Monitoring and evaluations is an important component for successful implementation of the eco-development program. This will bring up the strength and weaknesses of the systems and suggest mid-term corrective measures as and when required. The following records will be maintained.

- i. Resolution of formation of VFC.
- ii. Minutes of meetings.
- iii. Village register.
- iv. Account of VFC.
- v. Annual Audit register.

### **13- Conservation of Natural Heritage**

The cultural and natural heritage is among the priceless and irreplaceable assets, not only of each nation but of humanity as a whole. The loss through deterioration or disappearance of any these most prized assets constitute and impoverishment of the heritage of all the people of world. Part of the heritage because of their exceptional qualities, can be considered to be of “outstanding universal value” and as such worthy of special protection against the danger which increasingly threaten them. The protections of the natural and cultural heritage are significant to sustainable development.

#### **13.1 Bugyals**

Bugyals are alpine pasture lands, or meadows, in higher elevation range between 3,300 meters (10,800ft) and 4,000 meters (13,000ft) of the Himalayas in the Indian state of Uttarakhand, where they are called “nature’s own gardens”. The topography of the terrain is either flat or sloped. The surface of these bugyals is covered with natural green grass and seasonal flowers. During the winter season the alpine meadows remain snow covered. During summer months, the Bugyals present a riot of beautiful flowers and grass. As bugyals constitute very fragile ecosystems, particular attention needs to be given for their conservation.

Medicinal species ie. *Aconitum heterohpyllum*, *Nardostachys jatamansi*, *Betula utilis*, *Podophyllum hexandrum*, *Swertia chirayta*, *Dactylorhiza hetagirea*, *Saussurea lappa*, *Potentilla fulgens*, etc. and grasses ie. *Phelum alpinum*, *Phelum paniculatum*, *Avena ludovicinea*, *Deschampsia ceaspitosa*, *Helictotrichon pretense*, *Koeleria argentea*, *Koeleria cristata*, *Trisetum aeneum*, *Bromus himalaicus*, *Festuca lucida*, *Festuca ovina*, *Poa himalayana*, *Poa pratensis*, *Sporobolus diander* and *Stipa himalaica* etc. are occurred in Bugyals.

#### **13.1.1 List of Bugyals falling within Eco-Sensitive Zone-**

<b>S.No.</b>	<b>Name of Bugyals</b>	<b>Remarks</b>
1	Dayara Bugyal	Situated at an elevation of about 3048 Mt., covering an area of about 406 Hec. This vast meadow is second to none in natural beauty. This bugyal along with its twin Gidara Bugyal is perhaps one of most beautiful alpine meadow in india. During winter it provides excellent ski slope over an area of 28sq. km. the panoramic view of the Himalayas from here is breathtaking.
2	Bakra Top Bugyal	Situated at an elevation of 3050Mt. covering an area of about 200 Hec.
3	Belak Bugyal	Situated at an elevation of 2400Mt. covering an area of about 293 Hec.
4	Kush Kalyan Bugyal	Situated at an elevation of 2400Mt. covering an area of about 107.6 Hec.
5	Sahastratal Bugyal	Situated at an elevation of 3048Mt. covering an area of about

		225 Hec.
6	Khedatal Bugyal	Situated at an elevation of 2400Mt. covering an area of about 150 Hec.
7	Bhujangal Bugyal	Situated at an elevation of 3048Mt. covering an area of about 692.3 Hec.
8	Gidara Bugyal	Situated at an elevation of 2400Mt. covering an area of about 200 Hec.
		<b>Gangotri National Park</b>
9	Tapovan Bugyal	Situated at an elevation of 4300Mt. covering an area of about 130 Hec.
10	Nandan Bugyal	Situated at an elevation of 4400Mt. covering an area of about 250 Hec.
11	Sundarvan Bugyal	Situated at an elevation of 5000Mt. covering an area of about 77Hec.
12	Raktvan Bugyal	Situated at an elevation of 4470Mt. covering an area of about 185 Hec.
13	Bhojbasa Bugyal	Situated at an elevation of 3832Mt. covering an area of about 54 Hec.
14	Bhujgadi Bugyal	Situated at an elevation of 3726Mt. covering an area of about 4.7 Hec.
15	Neelapani Bugyal	Situated at an elevation of 4300Mt. covering an area of about 55 Hec.
16	Jadung Bugyal	Situated at an elevation of 4300Mt. covering an area of about 500 Hec.
17	Jadung Table top Bugyal	Situated at an elevation of 4300Mt. covering an area of about 1000 Hec.
18	Sukhatal Bugyal	Situated at an elevation of 52250Mt. covering an area of about 150 Hec.
19	Janaktal Bugyal	Situated at an elevation of 4100Mt. covering an area of about 35 Hec.
20	Kyarkoti Bugyal	Situated at an elevation of 4130Mt. covering an area of about 2000 Hec.
21	Rangmanch Bughyal	Situated at an elevation of 4200Mt. covering an area of about 820 Hec.
22	Badaguddi Bugyal	Situated at an elevation of 5300Mt. covering an area of about 750 Hec.
23	Mandi Bugyal	Situated at an elevation of 4500Mt. covering an area of about 150 Hec.
24	T-Sang chokla Bugyal	Situated at an elevation of 4585Mt. covering an area of about 1260 Hec.
25	Sumla Table Top Bugyal	Situated at an elevation of 5500Mt. covering an area of about 5000 Hec. It is strategic for national security.

26	Thangla –I Bugyal	Situated at an elevation of 4850Mt. covering an area of about 3500 Hec.
27	Himadrithach Chaudhar Bugyal	Situated at an elevation of 4270Mt. covering an area of about 681.61 Hec.
28	Himadrithach Chorgad Bugyal	Situated at an elevation of 4300Mt. covering an area of about 564.50 Hec.
29	Himadrithach Syuriya Bugyal	Situated at an elevation of 4110Mt. covering an area of about 328.2 Hec.
30	Himadrithach Maina Bugyal	Situated at an elevation of 2400Mt. covering an area of about 474.1 Hec.
31	Himadrithach Maina Rudragaira Bugyal	Situated at an elevation of 3960Mt. covering an area of about 1185.70 Hec.
32	Himadrithach Budragaira Kedarganga Bugyal	Situated at an elevation of 3960Mt. covering an area of about 509.50 Hec.
33	Himadrithach Kedartal Bugyal	Situated at an elevation of 3960Mt. covering an area of about 374.80 Hec.

### 13.2 Guide line for conservation of Bugyal

- 1- Steps should be taken to regulate and reduce the intensity of grazing. Effort should also be made to introduce rotational or periodic grazing.
- 2- Number of cattle shall be regulated.
- 3- Number of visitors shall be regulated.
- 4- Construction of Hotels, Resorts, in one kilometer periphery of the bugyals shall be prohibited.
- 5- Camping site in the bugyal except for research study and official work shall be prohibited.
- 6- Camping site should be situated near the periphery of bugyal in the form of tents, bamboo hut.
- 7- Soil erosion control measure shall be carried out as per provisions prescribed in soil moisture conservation.
- 8- Naturally regenerated, unwanted weeds shall be regulated/ eradicated in bugyal.

### 13.3 Lakes

Lakes are an important feature of the Earth's landscape. They are not only a significant Source of precious water, but often provide valuable habitats to plants and animals, moderate the hydrological extreme events (drought and floods), influence microclimate, enhance the aesthetic beauty of the landscape and extend many recreational opportunities. The lakes provide a wide diversity of values & uses ranging from ecological goods & services to direct production values. These can be categorised as direct use values with consumptive & non-consumptive uses such as drinking, irrigation, fishing, eco-tourism etc. Indirect use values with

beneficiary located away from the lake, potential future use & non-use social benefit of availability of a healthy water resource for future generation.

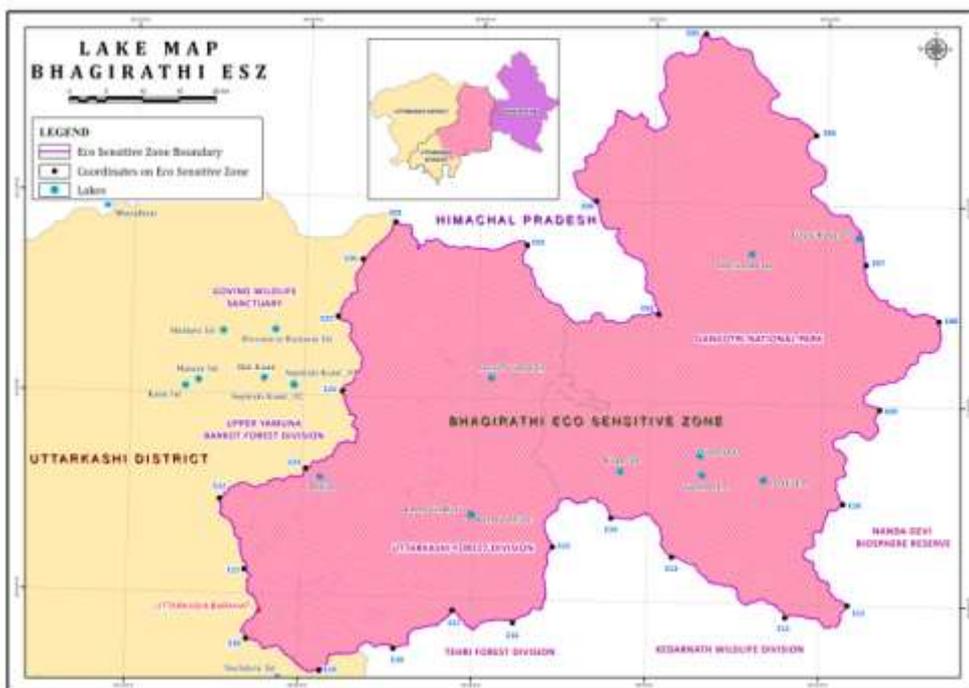
### 13.3.1 List of Tal falling within Eco-Sensitive Zone

S.No.	Name of Tal	Remarks
1	Dodi Tal	Dodi Tal is an emerald lake nestled amidst high mountains at an altitude of 3,310mts above seal level. With its serene setting and tranquil environs, Dodi Tal is arguably one of the most beautiful high altitude lakes of North India. Dodi Tal is named after the rare Himalayan Trout's known as Dodi in local language. This lake is one of the very few water bodies where Himalayan Trout's are found. On one corner of the lake a beautiful temple is dedicated to lord Ganesha. According to mythology this is the place where Lord Ganesha was born.
2	Nachiketa Tal	Nachiketa Tal is the most attractive lake situated centrally in Garhwal Himalayan zone. It is small but beautiful lake situated at an altitude of 2453mt. east of Uttarkashi. The lake is surrounded by Oak, Pines and rhododendron trees. The lake is named after Nachiketa, son of Saint Uddalak. Nachiketa is said to have created this lake, hence the name. there is a small temple of Nag Devta.
3	Kheda Tal	It is situated at Hurri Compartment No. 1b. and Bhuki 4b.
4	Sahashtra Tal	It is situated at Dharali Compartment No. 4b. and 3 km. far from Village Dharali.
5	Braham Tal	It is situated at Sukhi Compartment No.1.
6	Bhu Tal	It is situated at Sukhi Compartment No. 4b.
7	Barnala Tal	It is situated at an elevation of 6500 ft. and 3km. far from village Barsu.
8	Gaumukh	Gomukh, the terminus or snout of the Gangotri Glacier from where Bhagirathi River originates, is one of the primary sources of the Ganges River. The place is situated at a height of 13,200 ft. It is one of the largest in the Himalayas with an estimated volume of over 27 cubic kilometers. It is a popular Hindu pilgrimage site, along with Gangotri, as well as trekking destination.
9	Vasuki Tal	It is situated at an elevation of 5230 mt. covering an periphery of 520 mt. and 11 km. far from Gaumukh.
10	Tapovan Neelatal	Tapovan is an ideal location for the tourists looking for peace and adventure. Tapovan is located on an altitude of 4463m / 14640ft above sea level.
11	Kedar Tal	Kedartal is an immaculate lake holding crystal clear water. The picturesque Kedartal is situated at the base of the Thalay Sagar (6,904 mts) and Brigupanth Peak (6,772 mts). The view of the reflections of Thalay Sagar peak on Kedartal is truly enchanting. Kedartal is one of the highest lakes in Uttarakhand, situated at an

		astounding altitude of 4,912 mts above sea level in. This emerald lake is the source of Kedar Ganga, an important tributary of Bhagirathi River.
12	Janak Tal	It is situated at an elevation of 4115 mt. covering an periphery of 365 mt.
13	Tabul Top (Sukha Tal)	It is situated at an elevation of 5225 mt. covering an periphery of 210 mt.
14	Old Sonam Tal	It is situated at an elevation of 5362 mt. to 5373 mt.

### 13.3.2 Guide lines for lake conservation

1. Discharge of domestic waste water, dumping of solid waste, other non point source of pollution, and flow of heavy silt loads in the lake catchment shall be prohibited.
2. Increasing the lake depth through de-siltation does have an impact on its flora and fauna and may lead to destruction of habitat for migratory birds. De-siltation component of the lake as per the standard methodology and its planning and execution to be carried out scientifically under expert guidance
3. Engineering works in respect of bund should be minimized with naturalization of bund as a preferred option.
4. The lake shores to be naturalized as far as possible by planting macrophytes on the lake slope rather than providing hard stone pitching.



## **14- Man Made Heritage**

Temple situated within Eco-sensitive zone are as under

### **14.1 Kashi Vishwanath Temple Uttarkashi**

Temple of the religious town of Uttarkashi Situated on the banks of River Bhagirathi is an important pilgrim centre which is often equated with Kashi (**Varanasi**). It is situated at an elevation of 1150 meters. During **Magh Mela**, people visit Uttarkashi to take a holy dip in Bhagirathi along with their village deity. Dedicated to Lord Shiva, Kashi Vishwanath Temple is an ancient and the most famous temple in Uttarkashi. It is said to have initially been built by Sage Parshuram and which was later renovated by Maharani Khaneti, wife of Sudarshan Shah in 1857. The Shivling is 60 cms in height and 90 cms in circumference. This is the most important shrine of Uttarkashi and should not be missed if you are traveling to this part of the country.

### **14.2 Shakti Temple**

Shakti Temple is Just opposite to the Vishwanath temple. The main attraction here is a huge and heavy trishul (trident) - 6 meters in height and 90 cms at the bottom which was thrown at the devils by Goddess Durga. The trishul, as the priest told us, is made of iron in the upper part and copper in the lower part and is revered as a form of Shakti. One amazing feature of the trishul is that it cannot be moved with your entire body force but it vibrates the moment you apply pressure with one of your fingers! That was indeed some kind of magic.

### **14.3 Gangotri Temple**

Gangotri, the origin of the River Ganges and seat of the goddess Ganga, is one of the four sites in the Chota Char Dhampilgrimage circuit. The original Gangotri Temple was built by the Gurkha general Amar Singh Thapa. The river is called Bhagirathi at the source and acquires the name *Ganga* (the Ganges) from Devprayag onwards where it meets the Alaknanda. The origin of the holy river is at Gaumukh, set in the Gangotri Glacier, and is a 19 km trek from Gangotri. According to Hindu history, Goddess Ganga took the form of a river to absolve the sins of King Bhagiratha's predecessors, following his severe penance of several centuries.

### **14.4 Bhairon Temple**

Temple of Bhairon Devta appointed by Lord Shiva to safeguard the region which also gives the region its name. It is said that visiting this temple is a must after visiting the Gangotri Temple.

### **14.5 Mukhba Temple**

Mukhba (Mukhwa) is a small village in the town of Harsil, on the banks of Bhagirathi, on the way to the pilgrimage of Gangotri. It is situated at an altitude of 2620 mt. above the sea level. Heavy snowfall. Every year on the auspicious of Diwali the idol of Ganga is brought down to a temple in Mukhba with a procession of devotees and the army band of Garhwal Rifles, now devotees can also visit Mukhba as a part of winter char dham as the Uttarkhand government has planned to open all the Char Dhams Shrine for winters also.

## **15- Rights and Concessions**

The forest rights and concessions are governed mainly by the erstwhile Tehri state Darbar circular no. 21 of 1930 with certain amendments made by the govt. from time to time. The rules are incorporated in the Tehri Garhwal Rajya Forest manual published under chief Secretary, Tehri Garhwal state's order No. M.O.B. No. 5/8-C/XIX-F-23, Dated 27<sup>th</sup> July 1940.

Hon'ble Apex court by an order dated 21<sup>st</sup> January 1998 permitted only 32000cu.mt. annual free grant for building timber to the entire Uttarakhand State. In compliance of the order passed by Hon'ble Apex court chief conservator of forest Garhwal region vide its letter no. B-976/17-2 dated 06<sup>th</sup> April 1998 allocated 2488 cu.mt. per year free grant to Uttarkashi Forest Division. So accordingly free grant timber are being given to the villages falling Uttarkashi Forest Division.

### **15.1 The procedure for the annual free grant**

- A- Every year the Gram Sabhapati will apply to the Range Officer concerned in the prescribed form for the free grant for his villages, latest by 31<sup>st</sup> March. The application received after the said date will not be considered.
- B- The Range Officer should submit the indents to the Divisional Forest Officer and obtain his approval by 15<sup>th</sup> May.
- C- The trees will be marked from June to September every year.
- D- The Range Officer should submit the list of marking to the Divisional Forest Officer for sanction as soon as marking in a particular area is complete but latest by 31<sup>st</sup> August.
- E- The Divisional Forest Officer or his assistant should inspect the marking, as far as possible, between 1<sup>st</sup> December and 31<sup>st</sup> October and accord his sanction.
- F- The Range Officer should send the list of trees marked to the Gram Pradhan concerned by 1<sup>st</sup> November.
- G- The villagers should remove the marked trees by 31<sup>st</sup> of March next year as per orders issued under G.O.No. 365/XIV-515/1949 dated 08 February 1952.
- H- According to Hon'ble Apex court Order such claim shall be made only from dead, diseased, uprooted trees. In case any new decision/order passed by Hon'ble Apex court in future such right shall be deviate accordingly.
- I- Accordingly to the decision taken in 51<sup>st</sup> meeting of the Forest Fact Finding Committee on 29<sup>th</sup> January 1964 the Gram Pradhan shall maintain a register showing therein the details of the timber received in the free grant and its distribution to the individual villagers. Panchayat secretary shall submit the account of the timber of annual free grant to the Range Officer concerned. If proper account is not maintained by the Gram Pradhan the free grant for the next year shall not be given.

### **15.2 Fuel, fodder Grasses, crew leaves and litter**

- 1- Fodder grass and litter can be removed from areas not closed for regenerations or plantation. The Divisional Forest Officer can allow cutting of grass in the areas closed for regeneration or plantation under the supervision of Forest Officials provided that no damage is caused to such areas by the villagers.
- 2- The villagers can remove the fallen leaves if no damage is caused to the forests.
- 3- Removal of dry fallen wood for fuel is permitted.

- 4- Lopping of kokot and banj trees for green leaves in the areas open for the purpose can be done according to the prescriptions of the working plan.

### 15.3 Grazing

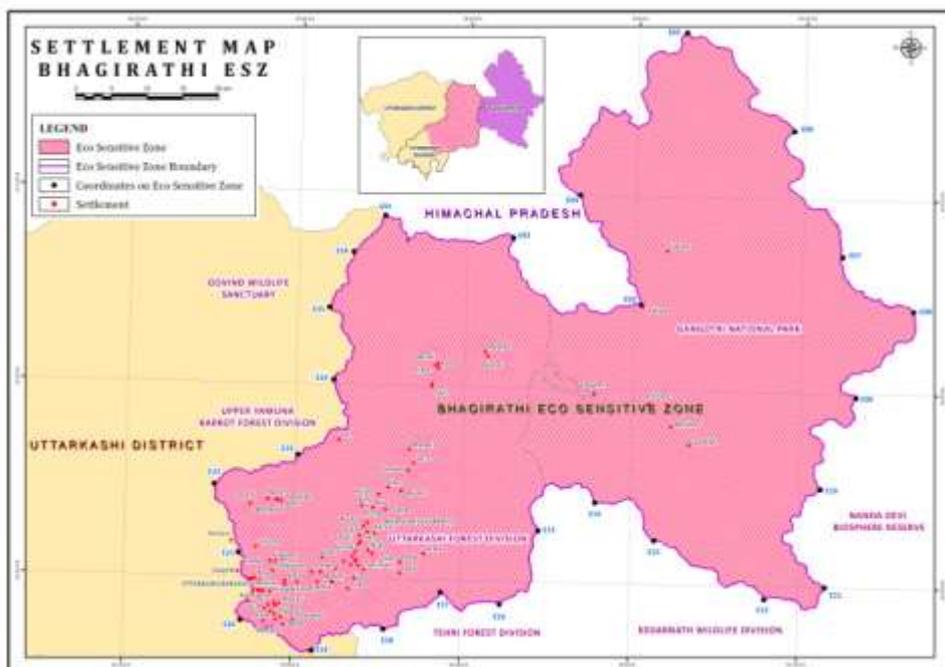
Cattle including goats and sheep maintained by the villagers for their bonafide requirement are allowed free grazing within a radius of 8 kilometer of the village concerned.

### 15.4 Annual free grant given to the villages falling eco-sensitive area are as under.

S. No.	Village/Town name	Name of Range	No. of House hold	Rights per year (m <sup>3</sup> )	Avg. rights per House hold per year (m <sup>3</sup> )
1	2	3	4	5	6
1.	Agoda	Badahat	46	9.20	0.2
2.	Aleth	Mukhem	26	5.20	0.2
3.	Bagori	Gangotri	2	0.396	0.198
4.	Bagyal Gaon	Badahat	28	5.6	0.2
5.	Bandrani	Taknor	38	7.524	0.198
6.	Barsu	-“-	35	6.930	0.198
7.	Bayana	Mukhem	56	11.20	0.2
8.	Bhangeli	Taknor	42	8.316	0.198
9.	Bhancoli	Badahat	52	10.4	0.2
10.	Bhatwari	Taknor	22	10.296	0.198
11.	Bhela Tipri	Mukhem	25	5.00	0.2
12.	Bhukki	Taknor	16	3.168	0.198
13.	Bonga	Mukhem	110	22.2	0.2
14.	Bongari	Mukhem	43	8.600	0.2
15.	Dandalka	Badahat	6	1.2	0.2
16.	Dandsa	Badahat	16	3.20	0.2
17.	Dhanpur	Mukhem	32	6.40	0.2
18.	Dharali	Gangotri	20	3.960	0.198
19.	Dwari	Taknor	55	10.890	0.198
20.	Didsari	Mukhem	36	7.2	0.2
21.	Dovah	Mukhem	36	7.2	0.2
22.	Gajoli	Badahat	52	10.4	0.2
23.	Gangotri	Gangotri	4	0.792	0.198
24.	Gawana	Badahat	58	11.6	0.2
25.	Gorshali	Taknor	130	25.740	0.198
26.	Gyanja	Badahat	33	6.6	0.2
27.	Hinna	Badahat	31	6.20	0.2
28.	Hurri	Taknor	30	5.940	0.198
29.	Harsil	Gangotri	30	5.940	0.198
30.	Jakhol	Badahat	46	9.20	0.2
31.	Jamak	Mukhem	34	6.8	0.2
32.	Jaspur	Gangotri	16	3.168	0.198
33.	Jhala	-“-	69	13.662	0.198
34.	Jodaw	Taknor	10	1.980	0.198
35.	Jokani	-“-	13	2.574	0.198
36.	Joshiyara	Mukhem	28	5.6	0.2
37.	Kamar	Mukhem	28	5.6	0.2
38.	Kaneth	Badahat	1	0.2	0.2
39.	Kankrari	Mukhem	42	8.4	0.2

S. No.	Village/Town name	Name of Range	No. of House hold	Rights per year (m <sup>3</sup> )	Avg. rights per House hold per year (m <sup>3</sup> )
1	2	3	4	5	6
40.	Kishanpur	-“-	115	23.0	0.2
41.	Kotiyal Gaun	-“-	25	5.0	0.2
42.	Kumalti	Badahat	30	6.00	0.2
43.	Kansain	Mukhem	39	7.8	0.2
44.	Kuroli	Mukhem	79	15.8	0.2
45.	Kyark	Taknor	51	10.098	0.198
46.	Ladari	Mukhem	44	8.80	0.2
47.	Lata	-“-	57	11.4	0.2
48.	Malla	Taknor	107	21.186	0.198
49.	Mando	Mukhem	44	8.80	0.2
50.	Maneri	Badahat	50	10.00	0.2
51.	Manpur	Mukhem	71	14.2	0.2
52.	Mastari	-“-	12	2.40	0.2
53.	Mukhawa	Gangotri	30	5.940	0.198
54.	Nald Bodhhar	Badahat	60	12.00	0.2
55.	Natin	Taknor	20	3.960	0.198
56.	Naugaon	Badahat	52	10.40	0.2
57.	Netala	Badahat	61	12.2	0.2
58.	Nirakot	Badahat	-	-	-
59.	Nesmor	Badahat	53	10.6	0.2
60.	Ongee	-“-	28	5.6	0.2
61.	Pahi	Taknor	48	9.504	0.198
62.	Pala Maradi	-“-	22	4.356	0.198
63.	Pata	Badahat	52	10.4	0.2
64.	Pilang	Taknor	60	11.880	0.198
65.	Purali	Gangotri	27	5.346	0.198
66.	Raithal	Taknor	137	27.126	0.198
67.	Sald Urph Maja Gaon	Badahat	72	14.4	0.2
68.	Sanj	-“-	77	15.4	0.2
69.	Salang	Taknor	67	13.266	0.198
70.	Salu	Mukhem	40	8.00	0.2
71.	Sangrali	Badahat	33	6.6	0.2
72.	Sada	Mukhem	20	4.00	0.2
73.	Sadaga	-“-	8	1.60	0.2
74.	Sari	-“-	58	11.6	0.2
75.	Saura	-“-	70	14.0	0.2
76.	Seku	Badahat	56	11.2	0.2
77.	Silla	Taknor	60	11.88	0.198
78.	Silyan	Mukhem	11	2.2	0.2
79.	Siror	-“-	67	13.4	0.2
80.	Sukki	Gangotri	67	13.266	0.198
81.	Sungar	Taknor	10	1.980	0.198
82.	Syaba	Mukhem	46	9.20	0.2
83.	Thalan	-“-	75	15.0	0.2
84.	Tehar	Taknor	72	14.256	0.198

S. No.	Village/Town name	Name of Range	No. of House hold	Rights per year (m <sup>3</sup> )	Avg. rights per House hold per year (m <sup>3</sup> )
1	2	3	4	5	6
85.	Tiloth	Mukhem	40	8.00	0.2
86.	Uttarkashi	Badahat	-	-	-
87.	Uttron	Badahat	77	15.4	0.2



## **16- Biodiversity conservation and Development**

Biodiversity implies all plants and animals found in the earth. As per estimates by scientists there are 10 to 15 million species of plants and animals in the planet. Out of these 1.8 million species have been discovered so far. The majority of the species are insects. The Biodiversity found on the earth is a result of evolution taken place in approximately 3.5 billion years. The Biodiversity is a web of life on which entire humanity depends for its survival. It was around 10,000 years back that various species of plants and animals were started to be domesticated by man. Thus biodiversity includes variety of species, genetic variation found in a particular species and the variety of habitats in which various plants and animals are found. For example the diversity of plants and animals that are found in various habitats like mountains, deserts, forests, lakes, rivers, wetlands, agricultural landscape has evolved due to interaction of living components and non living components like soil, water and atmosphere of these habitats

Biodiversity provides us pure water and air which are the fundamental basis of our existence. Similarly development of soil and recycling of nutrients is possible because of biodiversity. In addition to this the biological resources that are necessary for our economy and for various industries like agro base industry, food processing industry, cosmetics, pharmaceuticals, paper industry, construction industry, horticultural based industry are available to because of biodiversity. The existence and development of tourism industry is possible if sufficient biodiversity is there. Thus biodiversity has both consumptive and non consumptive value. That is why our survival is total dependent on biodiversity. In the 20<sup>th</sup> Century there has been uncontrolled growth of population and industrial activities have also grown rapidly. On account of this there has been a sharp increase in various goods for consumption and this has resulted in unprecedented pressure on biological resources.

In view of the rapid depletion of biological resources due to human intervention United Nations Conference on Environment and Development (UNCED), known as Earth Summit was held in 1992 in Rio-de-Janeiro (Brazil). As a result of this Convention of Biological Diversity (CBD) came into existence and was effective from 29<sup>th</sup> December, 1993. At present 196 Countries are members of this. India became a party of this in February, 1994.

India being a party of this convention and its international obligation, Government of India in compliance to the convention, enacted the Biological Diversity Act, 2002 which became operational from 05<sup>th</sup> February, 2003. As per the spirit of CBD the Biological Diversity Act, 2002 has following three pillars as the main objectives:-

1. Conservation of biological diversity,
2. Sustainable use of its components and
3. Fair and equitable sharing of the benefits arising out of utilization of biological resources and associated knowledge.

The act envisages following tripartite institutional structure for implementation:-

1. National Biodiversity Authority (NBA), Chennai established by the Central Government.
2. State Biodiversity Boards (SBB) at State Level established by respective State Governments.

### 3. Biodiversity Management Committees (BMC) at local bodies' level.

All the three institutions are statutory autonomous bodies with specific mandates. The function of NBA is mainly to regulate use of biological resources for research, commercial use, bio survey, bio utilization, transfer of results of research on biological resources to non-Indians and Intellectual Property Right (Patent).

The functions of the State Biodiversity Board are as under:-

- (a) advise the State Government, subject to any guidelines issued by the Central Government, on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of the benefits arising out of the utilization of biological resources;
- (b) regulate by granting of approvals or otherwise requests for commercial utilization or bio-survey and bio-utilization of any biological resource by Indians;
- (c) perform such other functions as may be necessary to carry out the provisions of this Act or as may be prescribed by the State Government.

'Biological resources' means plants, animal, micro-organisms or their parts with genetic material (except value added products and human genetic material). Under section 41 of the act every local body shall constitute a Biodiversity Management Committee within its area for the purpose of promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity. Presently Uttarakhand Biodiversity Board is in the process of formation of BMCs at the level of Gram Sabha. Thus the main function of BMC is to prepare People's Biodiversity Register (PBR) which contains detailed information on local biological resources, their medicinal and other uses and traditional knowledge associated with them. Besides this a Bio-cultural Community Protocol (BCP) is also prepared which contains procedure/protocol governing access to local biological resources and associated knowledge and benefit sharing.

Under section 37 of the act the State Government in consultation with the local bodies may notify the areas of biodiversity importance as biodiversity heritage sites. The State Government, in consultation with the Central Government, may frame rules for the management and conservation of all the heritage sites. The act says that the State Government shall frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification. These areas shall be managed by BMC.

The Ministry of Environment and Forests (MoEF) has issued a draft notification no. 2429 dated 18.12.2012 for maintenance of environmental flow and ecology of the river Bhagirathi from Gaukukh to Uttarkashi with a total area of 4179.59 sq. km. covering the entire watershed of about 100 km. stretch of river Bhagirathi declaring it as eco-sensitive zone. According to decisions taken in the meeting held on 22.08.2015 under the chairmanship of Principal Chief Conservator of Forests (HoFF) following activities are being proposed under the theme biodiversity as per Biological Diversity Act, 2002:-

### 16.1 Formation of Biodiversity Management Committee (BMC)

As per the provisions of Biological Diversity Act, BMCs have to be formed at the level of local bodies. For this purpose the Head of the local body convenes a meeting of general body in which six members of BMC are unanimously elected. Out of these six members there should be at least two women and one from SC/ST community. In the same meeting these six members elect the Chairperson. In case of tie the Chairperson has to cast the decisive vote. The local territorial Divisional Forests Officer has been nominated as Nodal Officer of the BMCs in his/her jurisdiction by the Uttarakhand Government. As per this Government order the DFO has to nominate a nearby forest guard/forester/deputy ranger as the secretary of the BMC.

In addition to preparation of the People's Biodiversity Register (PBR), the BMCs are mandate to ensure following :-

- ❖ Conservation and sustainable utilization of biological resources
- ❖ Eco-restoration of the local biodiversity
- ❖ Proper feedback to the SBB in the matter of IPR, Traditional Knowledge and local Biodiversity issues, wherever feasible and essential feedback to be provided to the NBA.
- ❖ Management of Heritage Sites including Heritage Trees, Animals/ Micro organisms etc., and Sacred Groves and Sacred Water bodies.
- ❖ Regulation of access to the biological resources and/ or associated Traditional Knowledge, for commercial and research purposes.
- ❖ Sharing of usufructs arising out of commercial use of bio- resources
- ❖ Conservation of traditional varieties/breeds of economically important plants/animals.
- ❖ Biodiversity Education and Awareness building.
- ❖ Documentation, enable procedure to develop bio- cultural protocols.
- ❖ Sustainable Use and Benefit Sharing.
- ❖ Protection of Traditional Knowledge recorded in PBR

Details of BMCs to be formed at the level of Gram Panchayat/Nagar Panchayat/Nagar Palika as per notification no. 2429 dated 18.12.2012 of Bhagirathi Eco-Sensitive Zone.

S.No.	Village Name as per notification no. 2429	Gram Panchayat		Villages under Gram Panchayat
1.	Agoda	1.	Agoda	1. Agoda 2. Dadsa (16) 3. Dandalka (15)
2.	Aleth	2.	Aleth	Aleth
3.	Bagori	3.	Bagori*	Bagori
4.	Bagyal Gaon	4.	Bagyal Gaon	Bagyal Gaon
5.	Bhandrani	5.	Bhandrani*	Bhandrani
6.	Barsu	6.	Barsu*	Barsu
7.	Bayana	7.	Bayana	Bayana
8.	Bhangeli	8.	Bhangeli*	1. Bhangeli

S.No.	Village Name as per notification no. 2429	Gram Panchayat	Villages under Gram Panchayat
			2. Sungar (82)
9.	Bhancoli	9. Bhancoli*	Bhancoli
10.	Bhatwari	10. Bhatwari	Bhatwari
11.	Bhela Tipri	11. Bhela Tipri	Bhela Tipri
12.	Bhukki	12. Bhukki*	Bhukki
13.	Bonga	13. Bonga	Bonga
14.	Bongari	14. Bongari	Bongari
15.	Dandalka	Gram Panchayat S.No. 1	
16.	Dansra	Gram Panchayat S.No. 1	
17.	Dhanpur	15. Dhanpur	Dhanpur
18.	Dharali	16. Dharali*	Dharali
19.	Dhwari	17. Dhwari	Dhwari
20.	Didsari	18. Didsari	Didsari
21.	Dovah	19. Thalan	1. Thalan (84) 2. Dovah
22.	Gajoli	20. Gajoli*	Gajoli
23.	Gangotri	21. Nagar Panchayat	
24.	Gawana	22. Gawana	Gawana
25.	Gorshali	23. Gorshali*	1. Gorsali 2. Jokani
26.	Gyanja	24. Gyanja	Gyanja
27.	Hinna	25. Hinna	Hinna
28.	Hurri	26. Hurri*	Hurri
29.	Jadung	Military Area	
30.	Jakhhol	27. Jakhhol	Jakhhol
31.	Jamak	28. Jamak	Jamak
32.	Jaspur	29. Jaspur (Tak)*	Jaspur (Tak)
33.	Jhala	30. Jhala*	Jhala
34.	Jodaw	31. Pilang*	1. Pilang (65) 2. Jodaw
35.	Jokani	Gram Panchayat S.No. 25	
36.	Joshiyara	32. Joshiyara	Joshiyara
37.	Kamar	33. Kamar	Kamar
38.	Kanath	Gram Panchayat S.No. 50	
39.	Kankrari	34. Kankrari	Kankrari
40.	Kishanpur	35. Kishanpur	Kishanpur
41.	Kotiyalgaon	36. Kotiyalgaon	Kotiyalgaon
42.	Kumalti	37. Lata	1. Lata (47) 2. Kumalti
43.	Kunjan	38. Kunjan*	Kunjan
44.	Kuroli	39. Kuroli	1. Kuroli 2. Sadag (74)
45.	Kyark	40. Kyark	Kyark
46.	Ladari	41. Ladari	Ladari
47.	Lata	Gram Panchayat S.No. 42	
48.	Malla	42. Malla	Malla
49.	Mando	43. Mando	Mando

S.No.	Village Name as per notification no. 2429	Gram Panchayat		Villages under Gram Panchayat
50.	Maneri	44.	Maneri*	1. Maneri 2. Kanath (38) 3. Ongee (61)
51.	Manpur	45.	Manpur	Manpur
52.	Mastari	Gram Panchayat S.No. 14		
53.	Mukhawa	46.	Mukhawa	Mukhawa
54.	Nalda Urph Bodhhar	47.	Nalda	Nalda
55.	Natin	48.	Natin	Natin
56.	Naugaon	49.	Naugaon	Naugaon
57.	Nalang	Military Area		
58.	Netala	50.	Netala*	Naitala
59.	Nirakot	51.	Jaspur (Ba.)	1. Jaspur (Ba) 2. Nirakot 3. Silyan (79)
60.	Nesmor	52.	Nesmor*	Nesmor
61.	Ongee	Garam Panchayat S.No. 50		
62.	Pahi	53.	Pahi	Pahi
63.	Pala Maradi	54.	Pala	Pala
64.	Pata	55.	Pata	Pata
65.	Pilang	Gram Panchayat S.No. 34		
66.	Purali	56.	Purali*	Purali
67.	Raithal	57.	Raithal*	Raithal
68.	Sald Urph Maja Gaon	58.	Sald	Sald
69.	Sanj	59.	Sanj	Sanj
70.	Salang	60.	Salang*	Salang
71.	Salu	61.	Salu	Salu
72.	Sangrali	62.	Sangrali	Sangali
73.	Sara	63.	Sara	Sara
74.	Sarag	Gram Panchayat S.No. 44		
75.	Sari	64.	Sari	Sari
76.	Saura	65.	Saura	Saura
77.	Seku	66.	Seku*	Seku
78.	Silla	67.	Silla*	Silla
79.	Silyan	Gram Panchayat S.No. 59		
80.	Siror	68.	Siror	Siror
81.	Sukki	69.	Sukki*	Sukki
82.	Sungar	Gram Panchayat S.No. 8		
83.	Syawa	70.	Syawa	Syawa
84.	Thalan	Gram Panchayat S.No. 21		
85.	Tehar	71.	Tehar*	Tehar
86.	Tiloth	72.	Tiloth	Tiloth
87.	Uttarkashi	73.	Nagar Palika Parishad	
88.	Uttron	74.	Uttron	Uttron

\* BMCs to be operationalized.

Thus 74 BMCs (72 at Gram Panchayat level, 1 (Gangotri) at Nagar Panchayat level and 1 (Uttarkashi) at Nagar Palika level) will be formed/operationalized. As per the guidelines for operationalization of BMCs issued by National Biodiversity Authority in 2013 each BMC will be provided an amount of Rs. 60,000/-. Thus an expenditure of Rs. 44,40,000/- is proposed for formation/ operationalization of BMCs.

### **16.2 Peoples Biodiversity Register (PBR)**

The main function of BMC is preparation of People's Biodiversity Register (PBR) for documentation of Biodiversity and associated traditional knowledge in the areas under its jurisdiction. The PBR is an important document from technical/legal angle for which detailed guidelines have been issued by National Biodiversity Authority for preparing the PBR. Technical Supports Groups (TSG) identified/suggested by the board provide necessary assistance. The TSGs are also provided necessary training for assisting the BMC in the task of preparing PBR. The process of preparing PBR is as under:-

First phase: Formation of BMC

Second phase: Sensitizing local people on study, survey and prospective management

Third phase : Training/capacity development of members on identification of biological resources and compilation of data and traditional knowledge.

Fourth phase: Compilation of data; review of available literature on natural resources of the district, Participatory Rural Appraisal at village level, interview with families, knowledgeable persons, head of family, heads of Panchayati Raj Institutions, Non Governmental Organizations etc. conducting direct field observations.

Fifth phase : Analysis and validation of data by consultation with BMC and TSG.

Sixth phase: Preparation of PBR in the format prescribed by National Biodiversity Authority.

Seventh phase: Computerization of information and biological resources.

The above process begins with familiarising the villagers with the objectives and factual information in a meeting in the village. The data is collected through participatory methods after identifying groups of various communities of the village. In addition to this data are also collected through circulating detailed questionnaire among the knowledge holders and focussed group discussions. The PBR containing detailed information on *Vaidyas*, herbal healers, practitioners of traditional medicine, agro biodiversity, domesticated biodiversity, wild biodiversity and urban biodiversity (as applicable) makes it a very significant document

Besides PBRs various ethnic groups/knowledge groups/tribal groups found in Bhagirathi Eco-Sensitive Zone will be identified for preparing Bio-cultural Community Protocol (BCP).

As per the rates prescribed by NBA for preparing PBR an amount of Rs. 1,50,000/- will be given to each BMC. Thus total amount of Rs. 1,11,00,000/- for preparing 74 PBRs is being proposed. This work will be completed in two years.

### 16.3 Biodiversity Heritage Sites (BHS)

Section 37 of Biological Diversity Act, 2002 provides for notification by State Government of areas of Biodiversity importance as Biodiversity Heritage Sites (BHS). Traditionally local people have been conserving some biodiversity areas based on their cultural values. To strengthen and promote the biodiversity conservation in traditionally managed areas and to stem the rapid loss of biodiversity in intensively managed areas BHS are identified. These areas also represent a positive interface between nature, culture, society and technologies. This provision enables the State Government to promote biodiversity conservation in traditionally managed areas like sacred groves without influencing the livelihood of people. The creation of BHS may not put any restriction on the prevailing practices of conservation and usages by the local communities other than those voluntarily decided by them. As per the guidelines for identification, notification and management of BHS the process of declaring BHS is as under:-

1. The State Biodiversity Board may invite suggestions from BMCs and other relevant community institutions including Gram Sabha, Panchayats, Urban Wards, Forest Protections committees or prepare a proposal on the basis of its own knowledge.
2. Wide spread dissemination of information relating to provisions of proposed BHS among rural communities, NGOs, farmers, Tribal associations, urban groups, research institutions, Government agencies and other organizations in concerned local body and public discussions on proposal for declaring BHS and implications of such declaration on resource use. By doing this an effort will be made to bring on board various sections of society with gender and social representation.
3. After approval by the concerned local body SBB will issue a preliminary notification specifying the boundaries of the BHS after surveying and mapping the area. This notification will also contain any restrictions that may be required for management of the BHS. This notification will be published in the local media inviting suggestions and objections from the interested parties/stakeholders particularly in case of lands owned by communities and individuals.
4. Based on the suggestions and objections raised a twelve member team chair by the person of local community will be formed for conducting studies to gain a clear understanding of the BHS. The compositions of the team will be as under:-
  - I. Knowledgeable or experienced women and men representing all socio-economic groups of the concerned communities, nominated by the relevant rural/urban local bodies.
  - II. One or more NGOs/institutions focusing on ecology / conservation (including conservation biologists familiar with the flora and fauna of the particular BHS).
  - III. One or more NGOs/institutes working on social (gender, livelihood, etc.) issues.
  - IV. One or more NGOs/institutes focusing on agriculture.

- V. Research wing of the agriculture, forest or other relevant department (where appropriate and possible).
  - VI. Representatives of Botany and Zoology departments of resident College/ University.
5. The above team will conduct a study (over a period of 3 to 6 months) in consultation with the concerned community irrespective of occupation gender or social strata. Such consultations should inevitably include groups such as forest dwellers, farmers and pastoral community (ies) and / or other relevant occupations. The study on the following aspects needs to be carried out with the use of community-based PBRs/PRA, participatory mapping and other possible tools that are considered appropriate by the concerned communities.
  6. Report of the study may be submitted by the team to the BMCs or other relevant local institutions linked to the local bodies in case BMC does not exist, which before submitting it to the SBB may disseminate the findings of the team (in local languages), along with the proposal for declaring the BHS, to the concerned communities and to all stakeholders.
  7. SBBs may review the document submitted by BHS survey group or BMCs or other relevant local institutions linked to the local bodies in case BMC does not exist within a period of 3 months, including feedback if any to the relevant community. Final decision on the proposal may be made by the SBBs in a joint sitting of all stakeholders at the proposed site.
  8. Draft notification and announcement for declaring the BHS may be made at the state level in an appropriate manner giving wide media coverage particularly in the local language.
  9. After 30 days of the draft notification of the BHS, the BMCs or other relevant local institutions linked to the local body (ies) in case BMC does not exist along with the Local body (ies) may conduct a Public Hearing where all the details about the BHS should be placed and the comments received from the public recorded and attempts made to remove impacts, if any, that they may have on the consequences of declaring the area as BHS. The local community should be taken in to confidence assuring that by declaring the BHS their traditional rights and privileges will not be affected.
  10. Declaration of the BHS and its communication by the SBB to all the concerned Government departments regarding the establishment/notification of the BHS.

While the above process is desirable in all situations, it should be noted that in many situations communities may not be in a position to follow them in view of the urgency for declaration as a BHS to ward off a threat, or for other reasons. In some cases proposals may be coming from a community that has already had a proven track record of conservation, and urgently requires the BHS status to consolidate its position. In such situations, the requirement for these detailed studies may be waived for the purpose of the notification, but should be applied subsequent to the notification and no relocations and restrictions to access will be declared till then other than what the community is already imposing upon itself.

Uttarakhand Biodiversity Board proposes to notify two areas of biodiversity importance in the Bhagirathi Eco-Sensitive Zone as Biodiversity Heritage Sites. An amount of Rs. 10,00,000/- is proposed for this purpose.

In addition to the above 15% of the total amount proposed for various activities as mentioned above will be required for operational support.

In view of the above physical and financial target for various activities under biodiversity component of the zonal master plan of Bhagirathi Eco-Sensitive Zone is summarized below :-

S.No.	Name of Activity	Physical Target		Financial Target		Total Expenditure (Rs.)
		01 <sup>st</sup> Year	02 <sup>nd</sup> Year	01 <sup>st</sup> Year	02 <sup>nd</sup> Year	
1.	Formation of Biodiversity Management Committees a) Gram Panchayat level Biodiversity Management Committees 72 @ 60,000/- b) Nagar Panchayat level Biodiversity Management Committee 1 @ 80,000/- c) Municipality level Biodiversity Management Committee 1 @ 1,00,000/-	74	-	45,00,000		45,00,000
2.	Preparation of People's Biodiversity Registers (74 @ 1,50,000/-)	30	44	45,00,000	66,00,000	1,11,00,000
3.	Notification of Biodiversity Heritage Sites	01	01	5,00,000	5,00,000	10,00,000
4.	Operational support (15% of expenditure at Sl. No. 1, 2 and 3)			14,25,000	10,65,000	24,90,000
				<b>1,09,25,000</b>	<b>81,65,000</b>	<b>1,90,90,000</b>

#### Classification of Activities to be Prohibited, Regulated, Promoted

S. No	Activity	Prohibited	Regulated	Promoted	Remarks
1	River valley project	Setting up of new hydro-electric power plants (dams, tunneling, and construction of reservoir) and expansion of	Micro or mini hydel power projects, which would serve the energy needs of the local communities, subject to consent of the	-	-

S. No	Activity	Prohibited	Regulated	Promoted	Remarks
		existing plants on the river Bhagirathi and all its tributaries from Gaumukh to Uttarkashi	gramsabha and all other requisite clearances;		
2	Abstraction of river water for any new industrial purposes	Yes	-	-	-
3	Mining of Minerals and stone quarrying and crushing	Yes	For the domestic needs of <i>bona fide</i> local residents	-	<i>Bona fide</i> local residents means someone who is residing in that area for an uninterrupted period and who is on the electoral roll as on date of this Notification, together with his minor children.
4	Commercial felling of trees and setting up of any wood based industry	Yes	Local needs and livelihoods	-	Local needs and livelihoods include wood collection, cottage industry like bamboo basket subject to consent of the gramsabha and all other requisite clearances.
5	Setting up of saw mills	Yes	-	-	
6	Commercial use of firewood	Yes	-	-	
7	Any new highly polluting industries and expansion of existing such industries	Yes	-	-	
8	Discharge of untreated sewage and industrial effluents	Yes	-	-	treated sewage and industrial effluents meeting the water quality standard shall be permitted
9	Use of plastic bags in shops,	Yes	-	-	

S. No	Activity	Prohibited	Regulated	Promoted	Remarks
	commercial establishments, tourist spots				
10	Industries processing the hazardous waste	Yes	-	-	As provided in the Hazardous Wastes (Management and Handling) Rules, 1989 as amended from time to time
11	sale of ground water	-	Yes	-	with the prior approval of the State Ground Water Board; (2) all-steps, shall be taken to prevent contamination or pollution of water including from agriculture
12	Extraction of ground water	-	Yes	-	only for the agricultural and domestic consumption of the <i>bona fide</i> occupier of the plot
13	felling of trees	-	Yes	-	As provided in the tree protect Act, 1976 (in case of private land)
14	Defence installations and any other infrastructure development related to national security	-	Yes	-	-
15	Plantation of pine trees	-	Yes	-	-
16	Introduction of exotic species	-	Yes	-	-
17	Establishments of hotels and resorts.	-	Yes	-	-
18	Erection of electric cables.	-	Yes	-	As per forest conservation Act, 1980 and as amended from time to time order by govt. of India.
19	Drastic change of agricultural	-	Yes	-	

S. No	Activity	Prohibited	Regulated	Promoted	Remarks
	systems				
20	Sign boards and hording	-	Yes	-	
21	Noise pollution	-	Yes	-	As per the provisions of the Air (prevention and Control of Pollution) Act, 1981.
22	Air Pollution	-	Yes	-	As per the provisions of the Air (prevention and Control of Pollution) Act, 1981.
23	Discharge of effluents	-	Yes	-	The treated effluent shall meet the provisions of the Water (Prevention and Control of Pollution) Act, 1974
24	Hydro-electric power plants	-	Yes	-	The existing hydro-electric power projects shall continue to operate with strict environmental compliance and social audit
25	Solid Wastes	-	Yes	-	As per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 issued by the central Government vide notification number - S.O, 908 (E), dated the' 25th September 2000 and amended from time to time.
26	Biomedical Waste	-	Yes	-	As per the provisions of the. Bio-Medical Waste (Management and Handling) Rules, 1998 issued by the Central Government vide Notification No. - S.O. 630(E), date the. 20th July, 1998 and amended from time to time
27	Vehicular Traffic	-	Yes	-	Specific provisions shall be laid down
28	Trekking	-	Yes	-	-

S. No	Activity	Prohibited	Regulated	Promoted	Remarks
	between Gangotri and Gaumukh.				
29	Rain Water harvesting	-	-	Yes	
30	Organic farming	-	-	Yes	
31	Green technology	-	-	Yes	
32	Walking tourism	-	-	Yes	
33	Micro hydel projects for local use.	-	-	Yes	
34	Solar energy for local use.	-	-	Yes	
35	Local bio-resource based industry	-	-	Yes	

**17- Saw-mill falling within Eco-sensitive zone**

Name of Range	Name and address of saw-mill owner	Licence No.	Location	Remark
Badahat Range	Shri Munendra Singh Matuda s/o Shri. Yogendra Singh Matuda Kapoor Mohalla, Main Market Uttarkashi	5446/35-1 dt 30.04.1979	Sahajvilla Hotel Complex Gyansu Uttarkashi	In Running order
Badahat Range	Garhwal Mandal Vikas Nigam Ganeshpur Uttarkashi	6348/35-1, dt 12.06.1979	Ganeshpur (Gawanda) Uttarkashi	Closed
Badahat Range	Shri Sanjeev Kumar Narang s/o Shri. Charandas Residense of Kandola Band Gyansu Uttarkashi	318/35-1, dt 20.07.1985	Kandola Band Gyansu Uttarkashi	In Running order



18- Appendices

Appendix-1

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egksn;

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laosnu'khy i;kZoj.kh; {ks=ksa esa ekuoh; gLr{ksi U;wure fd;s tkus dh vko';drk ds n`fVxr ,d izHkkoh ekWMy fodflr fd;s tkus rFkk bls izFke pj.k esa xksej[k {ks=kUrxZr fØ;kfUor fd;k tk;A

xksej[k {ks= esa orZeku o"nZ ls rhFkZ ;kf=;ksa, i;ZVdksa ,oa vU; dk vkokxeu fu;fU=r fd;s tkus ds mn~ns'; ls Hkkjrh; ou vf/kfu;e, 1972 o oU; tho laj{k.k vf/kfu;e, 1976 dh lqlaxr /kkjkvksa dk mi;ksx djrs gq;s izfrfnu dsoy 150 O;fDr;ksa dks gh bl {ks= esa izos'k djus dh vuqefr iznku dh tk;sA

mDr vuqefr LFkkuh; izkf/kdkjh ds LFkku ij eq[; oU; tho izfrikyd ds Lrj ls fuxZr fd;s tkus dh O;oLFkk lqfuf'pr dh tk; vkSj bl gsrq ns; izos'k 'kqYd esa o`f) dh tkus dh dk;Zokgh ;Fkk'kh?kz lEiUu dh tk;sA

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Hkkjrh; dkWoM+ egkla?k ds izfrfuf/k;ksa dks bl fo'k; esa fo'okl esa fy;s tkus dh dk;Zokgh Hkh lqfuf'pr dj yh tk;A

mDr izko/kkuksa ds izHkkoh fØ;kUo;u gsrq ftykf/kdkjh }kjk LFkkuh; Lrj ij leLr lEcfU/kr foHkkxksa ds e/; leUo;u lqfuf'pr fd;k tk;SA

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fofHkUu iznw"kd dkjdxsa ds fy;s vf/kdre ekud (benchmark) r; dj fy;s tk;SA xaxks=h ls vxks vkokxeu dks fofu;fer djus gsrq ou foHkkx }kjk etcwr cSfj;j cuk;k tk;SA lkFk gh ou rFkk iqfyl dh pkSfd;ksa dks Hkh lqn`< fd;k tk;SA ;k=k lhtu esa ftyk iqfyl }kjk i;kZIr iqfyl cy izorZu gsrq miyC/k djok;k tk;SA

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ftykf/kdkjh] peksyhA  
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peksyhA  
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Appendix-2

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fo'ks"kdk;Zdkjh] ek0 eq[;ea=h] mRrjk[k.MA

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vf/k'kklh vf/kdkjh] uxj iapk;r] xaxks=h mRrjdk'khA  
vij eq[; vf/kdkjh] ftyk iapk;r] mRrjdk'khA

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**mRrjdk'khA**

**Appendix-3**

**List of Flora & Founa**

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
<b>Tree species</b>		
v[kjksV	tqxykal jsft;k	<i>Juglans regia</i> Linn.
vaxÅ@vaxks	;wfuel ySljl	<i>Euonymus lacerus</i> Hom.
vaxw	ÝSfDlul ekbZØSaFkk	<i>Fraxinus micrantha</i> Linn.
vathj@csM+w	Qkbdl ikesVk	<i>Ficus palmata</i> Forsk.
vukj@nkfM+e	I;wfudk xzsusVe	<i>Punica granatum</i> Linn.
veykjk@frrjhZ	jl iUtkcsfUll	<i>Rhus punjabensis</i> Stewart
veyrkl	dSfl;k fQLpqyk	<i>Cassia fistula</i> Linn.
veh@pwd	fgliksQh lSfylhQksfy;k	<i>Hippophae salicifolia</i> Don.
v;kj	yk;ksfu;k vksosyhQksfy;k	<i>Lyonia ovalifolia</i> (Wall) Drude
vj[kksy@vj[kksbZ	jl oSyhphvkbZ	<i>Rhus wallichii</i> Stewart
vkM+w	izwul iflZdk	<i>Prunus persica</i> Benth.&Hook.
vke	eSUthQsjk bfUMdk	<i>Mangifera indica</i> Linn.
vkyw cww[kkjk	izzwul dE;wful	<i>Prunus communis</i> Hodgson
vkoayk	,Ecfydk vkSQhlhusfyl	<i>Emblica officinalis</i> Gaerth.
mrhl	,Yul usikysfUll	<i>Alnus nepalensis</i> D.Don
mM+krk@cM+kyk	LVjdfy;k foykslk	<i>Sterculia villosa</i> Roxb.ex D. Don
dkdM+@ddjk	fiLVsfl;k pkbZusfUll	<i>Pistacia chinensis</i> Stocks
dpukj@DoSjky	ckSghfu;k osjhxsVk	<i>Bauhinia variegata</i> Linn.
dVksalk@dVksat	dSLVSuksfll V <sup>a</sup> kbZC;wykWbZfMl	<i>Castanopsis tribuloides</i> A. DC.
dBdkasd.k@HkEcsyk	;wfuel isUMqyl	<i>Euonymus pendulus</i> Wall.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
dBHkkst@dBHkqat	csVqqyk ,yukWbfMl	<i>Betula alnoides</i> Ham.
dBegok@dBekyw@dBekSok	XykSdhfM;kWu osY;wfVue	<i>Glochidion velutinum</i> Wight.
dUMs:@dUMsyk	vkbZySDI Mk;ikbZjsuk	<i>Ilex dipyrena</i> Wall
desyk@jksfg.kh	eSyksVI fQfyikbZusfUll	<i>Mallotus philippinensis</i> Muellary
doklh	,lj dSisMksflde	<i>Acer cappadocicum</i> Gled.
dkapqyk	,lj lhft;e ¼eSiy½	<i>Acer caesium</i> Wall.
dkty	,lj ,D;wfeusVe ¼eSiy½	<i>Acer acuminatum</i> Wall.
dkQy	ek;fjdk ukxh	<i>Myrica nagi</i> Thunb.
fdnekjk@fgejh	vYel oSfyfp;kuk	<i>Ulmus wallichiana</i> Planch.
fdjeksyk@iqryh	,lj vkWCykaxe	<i>Acer oblongum</i> Wall.
dhew	eksjl lsjkVk	<i>Morus serrata</i> Roxb.
dquhl	,Yul fufVMk	<i>Alnus nitida</i> Endl.
dqedqe	vkbZySDI MksfM;kuk	<i>Ilex doniana</i> DC.
dqEgkj	dkSfydkikZ vkjcksfj;k	<i>Callicarpa arborea</i> Roxb.
dqlqe	Lykbpjsjk vkscy;kslk	<i>Schleichera oleosa</i> (Lour.) Oken.
dSy	ikbZul oSyhfp;kuk	<i>Pinus wallichiana</i> A.B.J.
dkSÅ	vksfy;k Qs:thfu;k	<i>Olea ferruginea</i> Royle.
dkSyk	eSdskbZyl vkSMksjSVhlhek eSdskbZyl MqFkhhbZ	<i>Machilus odoratissima</i> Nees. <i>Machilus duthiei</i> . King ex Hook. F. Kostern
daxw@daMbZ	¶lySdksflZ;k bfUMdk	<i>Flacourtia indica</i> Merr.
daNh@ikiM+h	cDll oSyhfp;kuk	<i>Buxus wallichiana</i> Baill.
[kfM+d	ISfYVI vkSLV <sup>a</sup> sfyl	<i>Celtis australis</i> Linn.
[kj]lw	Dosjdl lsehdkihZQksfy;k	<i>Quercus semicarpifolia</i> Smith.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
[kxllh@[kxllk	LohMk eSØksfQyk	<i>Swida macrophylla</i> Wall.
[khuk@f[kUuk@P;wuk	lsfi;e buflXuh	<i>Sapium insigne</i> Trin.
[kqekuh@pqyw	izwul vkfeZfu;sdk	<i>Prunus armeniaca</i> Linn.
[kSuk@[kkuw@[kukbZ	QkbZdl lsehdkWMsZVk	<i>Ficus semicordata</i> Hom.
[kSj	,dsf'k;k dVspw	<i>Acacia catechu</i> Willd.
x<+ihiy@fr:@dSapyh	,lj fiDVe	<i>Acer pictum</i> Gled.
x<+HkSl@cSal	ISfyDI oSyhfp;kuk	<i>Salix wallichiana</i> Anders.
x<+egok@x<+ekyw	,UtygkM~Zfl;k dksyczwfd;kuk	<i>Engelhardtia colebrookiana</i> Lindl. Ex Wall.
x<+esgy	LV <sup>a</sup> suosfl;k XyksdslSUI	<i>Stranvaesia glaucescens</i> Lindl.
xqj;ky@DoSjky	ckSfgfu;k ijL;wfj;k	<i>Bauhinia purpurea</i> Linn.
xwyj	QkbdL XyksejsVk	<i>Ficus glomerata</i> Roxb.
xsBh	cksgesfj;k jksxqykslk	<i>Boehmeria rugulosa</i> Wedd.
xkSnk@xksbZ	fefy;kslek fMysuhQksfy;k	<i>Meliosma dilleniaefolia</i> Bl.
pe[kfM+d	dkikZbul foehfu;k	<i>Carpinus viminea</i> Wall.
pejksM+	,gjh'f'k;k ysfol	<i>Ehretia laevis</i> Roxb.
phM+	ikbul jkSDlc?kkZbZ	<i>Pinus roxburghii</i> Sarg.
phyk	dSthfj;k VksesUVkslk	<i>Casearia tomentosa</i> Roxb.
teuksbZ@teksbZ	izwul dkWU;wZVk ¼cMZ psjh½	<i>Prunus cornuta</i> Wall.
tkequ	lkbthft;e D;wfeuh	<i>Syzygium cumini</i> (L.)Skeels.
f>axu	ySfu;k dksjkseSUMsfydk	<i>Lannea coromandelica</i> (Houtt.)Merril
fVcjh@vj[kksbZ@nlfeyk	jl lsehykVk	<i>Rhus semialata</i> Murray.
MsdU@cdSu	ehfy;k tkMsjsd	<i>Melia azadarach</i> Linn.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
<kd@iykl	C;wfv;k eksuksLieKZ	<i>Butea monosperma</i> Lamk.
freyk	Qkbdl vkSjhdqykVk	<i>Ficus auriculata</i> Wall.
frykSat@eks:	DoSjdl ¶jyksjhcUMk	<i>Quercus floribunda</i> Rehdr.
rqu	rquk flfy,Vk	<i>Toona ciliata</i> Roem.
Fkqusj	VSDll cdkVk	<i>Taxus baccata</i> Linn.
njyh@nyhZ	rquk fljsVk ¼fgy rqu½	<i>Toona serrata</i> (Royle)Roem.
nkyphuh@rstikr	flUuseksee rekyk	<i>Cinnamomum tamala</i> Fr.Nees.
nq/kyk	QkbZdl useksjSfyl	<i>Ficus nemoralis</i> Wall.
nsonkj	lhM <sup>al</sup> nsonkj	<i>Cedrus deodara</i> Loud.
/kkeu	xzhfo;k ,f'k;kfVdk	<i>Grewia asiatica</i> Royle.
/kkSyk <kd@eknj	,fjFkzkbZuk lqcsjkslk	<i>Erythrina suberosa</i> Roxb.
uj[kk@lq:M+	fyV~fl;k vEcjkslk	<i>Litsea umbrosa</i> Nees.
ukjaxh	lkbV <sup>al</sup> vkSjfUV;e	<i>Citrus aurantium</i> Linn.
uk'kikrh	ikbjl dE;wful	<i>Pyrus communis</i> Linn.
uhcw	lkbV <sup>al</sup> esfMdk	<i>Citrus medica</i> Linn.
igkM+h ihiy@ou ihiy	ikWiqyl flfy,Vk	<i>Populus ciliata</i> Wall.
ine@Qkttk	izwul lsjSlksbfMl	<i>Prunus cerasoides</i> D.Don.
ikadM@fiykxw	Qkbdl ohjsUl	<i>Ficus virens</i> Ait.
ikVy	LVhfj;ks Lize lkok;ksysUl	<i>Stereospermum suaveolens</i> D.C.
ikaxj@ gkSIZ pSLVuV	,Ldqyl bfUMdk	<i>Aesculus indica</i> Colebr.
ikFkk@ikikesgy	lksjcl yukVk	<i>Sorbus lanata</i> (D. Don) S.Chauer
iqryh	,lj ysfoxsVe	<i>Acer laevigatum</i> Wall
QY;kaV@ckuh	DoSjdl XykSdk	<i>Quercus glauca</i> Thunb.
cgsM+k	VfeZusfy;k csysfjdk	<i>Terminalia belerica</i> Roxb.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
ckWat@cku	DoSjdl Y;wdksV <sup>a</sup> ksbZdksQksjk	<i>Quercus leucotrichophora</i> Camus
cqjkal	jksMksMsUM <sup>a</sup> ksu vkjcksfj;e	<i>Rhododendron arboreum</i> Smith
cwlk@cq{kqv	fefyvksLek flEIyhflQksfy;k	<i>Meliosma simplicifolia</i> Wall.
csfp;k	ISfyDI byhxSUI	<i>Salix elegans</i> Wall.
Hkeksjk@Hkeksj	csUFkkfefM;k dSfiVkvk	<i>Benthamidia capitata</i> (Wall) Hara
Hk[ksj@flj]	vfYcft;k twfyfczflu	<i>Albizia julibrissin</i> , Durazz.
Hk.Mhj	vfYcftvk LVhiqysVk	<i>Albizia stipulata</i>
Hkhey	xzhfo;k vkWIVhok	<i>Grewia optiva</i> Roxb.
Hkksi=@Hkqt	csVqyk ;wVhfyl	<i>Betula utilis</i> D.Don.
HkksfV;k cknke	dksjkbZyl tSdekSuf <sup>k</sup> ;kbZ	<i>Corylus jacquemontii</i> Decne.
etuw	ISfyDI cschyksfudk	<i>Salix babylonica</i> Linn
esgy	ik;jl ik <sup>f</sup> ;k;k	<i>Pyrus pashia</i> Buch-Ham.
ekSfjUMk@jkxk@Qj	,cht fiUM <sup>a</sup> ks ¼flYoj Qj½	<i>Abies pindrow</i> Spach.
jbZ@Liwzl	ihfl;k LehFk;kuk	<i>Picea smithiana</i> Boiss.
jrsUnw, jfRu;yh	MsSQuhfQYye fgeky;uls	<i>Daphniphyllum himalayense</i> Muell. Arg.
jhBk	ISihUMI E;wdksjkslh¼lksi uV½	<i>Sapindus mukorossi</i> Gaerth.
yEifr;k	Uh;ksfyV~fl;k ykuwftukslk	<i>Neolitsea lanuginosa</i> (Nees) Gamble
fyNksbZ@vaxkÅ@ekseM+h	b;ksfuel ySljl	<i>Euonymus lacerus</i> Buch-Ham.
ykss/k@yksFkw	flEIyksdksl pkbZuSfUll	<i>Symplocos chinensis</i> Lour.
'kgrwr	eksjl vYck ¼eYcjh½	<i>Morus alba</i> Linn.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
'kh'ke	MycftZ;k fLLw	<i>Dalbergia sissoo</i> Roxb.
'kq;j@fpjM+	fyVfl;k vEcjkslk	<i>Litsea umbrosa</i> Nees.
lkUtuk@lSatu	eksfjaxk vksyhQsjk ¼M <sup>a</sup> efLVd½	<i>Moringa oleifera</i> Lamk.
lkUnu	vkSthfu;k vkSthuSfUll	<i>Ougeinia oojeinensis</i> (Roxb.)Hoch.
flfjl dkyk	,Ychft;k fycSd	<i>Albizia lebbek</i> Benth.
lqjbZ@Y;wjh	D;wizsll Vks:ykslk ¼lkbizl½	<i>Cupressus torulosa</i> D.Don
lsey	ckSEcsDI lhok ¼n jsM dkWVu V <sup>a</sup> h½	<i>Bombax ceiba</i> Linn.
lsc	ik;jl eSyl	<i>Pyrus malus</i> Linn.
gjM+	VfeZusfy;k pscqyk	<i>Terminalia chebula</i> Retz.
ggjpk@/kwi@inek{kk	twfuisjl esdzksiksMk	<i>Juniperus macropoda</i> , Beiss
<b>Shrubs species</b>		
vNkbZ	:cl ckbZ¶yksjl	<i>Rubus biflorus</i> Buch-Ham.
vtokbZu@ou vtokbZu	FkkbZel ljQkbZye	<i>Thymus serphyllum</i> Linn.
vrhl	,dksSfuVe gsVjksQkbye	<i>Aconitum heterophyllum</i> Wall.
vikekxZ@fpjprk	,dkbjSUFkl vLijk	<i>Achyranthes aspera</i> Linn.
vfeYnk@fHkyeksM+k	j;wesDI gsLVsVl	<i>Rumex hastatus</i> D.Don.
vesyk	iksyhxksue pkbZuUl	<i>Polygonum chinense</i> Linn.
vlsM@ou rEckdww	lksysue ojCSlhQksfy;e	<i>Solanum verbascifolium</i> Linn.
vkd	dSyksV <sup>a</sup> ksfiDI izkslsjk	<i>Calotropis procera</i> . (Willd.) Dryanl ex W.Ait
vkpkZ	fj;we osfc,ue	<i>Rheum webbianum</i> Royle.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
dt:ok@dSLok@lrkoj@lrewyh	,LiSjxkl jSfleksll	<i>Asparagus racemosus</i> Willd.
dM+oh	fiDjkLek DoSflvkWbZfMl	<i>Picrasma quassioides</i> Bennett.
daMkyh@fcPNw	vfVZdk ikohZ¶yksjk	<i>Urtica parviflora</i> Roxb.
diwj dpjh	gSMhfp;e LikbZdsVe	<i>Hedychium spicatum</i> Smith
dju@ fdeksdksfy;k	jkbcI :cze	<i>Ribes rubrum</i> Linn.
djkSnk	dSfjlk Likbusje	<i>Carissa spinarum</i> Linn.
dkyk fglkj@fglkyw	:cl ySfl;ksdkiZl	<i>Rubus lasiocarpus</i> Smith
fdYeksM+k@fdaxksjk@dleksbZ	cjcsfjl ,fjLVsSVk	<i>Berberis aristata</i> D.C.
sdq[kjgh	M;wfV;k dEisDVk	<i>Deutzia compacta</i> . Craib
dqtksbZ	jkstk eLdkVk	<i>Rosa moschata</i> Mill.
dqtksbZ @dqUtk@Hkksujk	jkstk eSØksfQyk	<i>Rosa macrophylla</i> Lindl
dqVdh	fizdksjkbtk dqjksZvk	<i>Picrorhiza kurroa</i> Royle.
dqFk@dqB	lkSlksfj;k ylik	<i>Saussurea lappa</i> C.B.Clark
dqj[kk	IysDVªSUFkl #xksll	<i>Plectranthus rugosus</i>
dqfjUtk@frrikrh@iklh	vkVhZehfl;k uhyxfjdk	<i>Artemisia nilgirica</i> Pampanini
dqjh	ySUVkuk dSekjk	<i>Lantana camara</i> Linn.
dqjhZ@gjflaxkj	ukbZVsufFkl vjcksjfvªlfVl	<i>Nyctanthes arbor-tristis</i> . Linn
dsnkjkrh@uSj	Ldhfe;k ykSfjvksyk	<i>Skimmia laureola</i> Seib.&Zucc.
[ktwj	QksfuDI áwfefyl	<i>Phoenix humilis</i> Royle.
[katw	ysLisMstk lsjhfl;k	<i>Lespedeza sericea</i> Miq.
x<+ jksUl@HkjkSyk	lkfyDI ,D;wVhQksfy;k	<i>Salix acutifolia</i> Willd
xU/ksyk@f/kuw	eqjkZ;k dksuhxkbZ	<i>Murraya koenigii</i> Spreng.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
xqb;ka@f/kUuk	okbcjue xzsUMhQksfy;e	<i>Viburnum grandifolium.</i> Wall. ex D.C
xqXrh@/kq/krkbZ	fM;qft;k LVSehfu;k	<i>Deutzia staminea</i> R.Br.
xksbZ	fefyvksLek fMysuhQksfy;k	<i>Meliosma dilleniaefolia</i> Wall.
xqXxy	tqjhfu;k eSØkslsQkyk	<i>Jurinea macrocephala</i> Benth.
xqyouLQk@oullk	ok;ksyk dSuhlSUI ok;ksyk ljiSUI	<i>Viola canescens</i> Wall. <i>Viola serpens</i>
f?ka?kk:	ik;jsdSUFkk ØsuqysVk	<i>Pyracantha crenulata</i> D.Don.
f?ka?kk: NksVk	jSafM;k VsV <sup>a</sup> kLiekZ	<i>Randia tetrasperma</i> Roxb.
perqaxyk@tyrqaxk	jl dksVhul	<i>Rhus cotinus</i> Linn.
peZ:bZl	dksVksfuvkLVj oSlhysfjl	<i>Cotoneaster bacillaris</i> Wall.
peykbZ@erksbZ	MsLeksfM;e ,fyxSUI MsLeksfM;e fVfyQksfy;e	<i>Desmodium elegans</i> Don. <i>Desmodium tiliaefolium</i>
pEcbZ@pefy;k	fMiyksejQk dSfulSUI	<i>Diplomorpha canescens</i> (Meissn.) Mayer
p;k@calr@isaMyh	gkbZisfjde vksoyk;xhQksfy;e	<i>Hypericum oblongifolium</i> Choisy.
pesyh@pEcbZ	tlfeue I;wchlsUI	<i>Jasminum pubescens</i> Willd.
pYeksM+k@fHkYeksM+k	j~;wesDI gSLVSVI	<i>Rumex hastatus</i> Don.
fpjk;rk	LokflZ;k fpjk;rk	<i>Swertia chirayta</i> Buch-Ham.
pkSykbZ@ejlk	vejSUFkl iSfudqysVI	<i>Amaranthus paniculatus</i> Linn.
NsM+qyk@tbZ	tlfeue vkjcksjhlsUI	<i>Jasminum arborescens</i> Roxb.
NsMqyk@pM;wy	jSeul ojxsVk	<i>Rhamnus virgata</i> Roxb.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
tVkekalh	ukMksZLVSfdl xzSaMh¶yKsjk	<i>Nardostachys grandiflora</i> DC.
tkuw@fteyk	LVkSfoysUFkl oSyhphvkbZ	<i>Strobilanthes wallichii</i> Nees.
>wyk	tjcsjk xkslhfiuk	<i>Gerbera gossypina</i> Royle
rxhkl@rxklk@flejl	jksMksMsUM <sup>a</sup> ksu ysihMksVe	<i>Rhododendron lepidotum</i> Wall.
r:M+	dSfl;k ySohxsVk	<i>Cassia laevigata</i> Willd.
rdkbZ@dB:bZl	LikbZfj;k dSuhlsUl	<i>Spiraea canescens</i> Don.
rkyhfljh	jksMksMsUM <sup>a</sup> ksu ,sUFkksiksxsksu	<i>Rhododendron anthopogon</i> D.Don.
frresyk@frrk@freqfy;k	okbZcjue dksfj,fl;e	<i>Viburnum coriaceum</i> Blume
frre;k	jkS;fyvk lkbusfjvk	<i>Roylea cinerea</i> (D.Don) Baill.
frfynzh@ify;kyh	lkdkSzdksdk lSfyXuk lkdkSzdksdk izwfuQkWfeZl	<i>Sarcococca saligna</i> Muell-Arg. <i>Sarcococca pruniformis</i>
frewj	tSUFkkstkbye ,ykVe	<i>Zanthoxylum alatum</i> Roxb.
rqx@rqaxyk@perqax	jl ikfoZ¶yKsjk	<i>Rhus parviflora</i> Roxb.
rqefj;k	buqyk dqqlksbZMkVk	<i>Inula cuspidata</i> (DC) C.B.
rq';kj@L;k:	Msczhxsfl;k osY;qfVuk	<i>Debregeasia velutina</i> Gaud.
rksrj	cjcfjl ykbZfl;e	<i>Berberis lycium</i> Royle
Fkslkjh@L;k#	Msczhxhfl;k ykaxhQksfy;k	<i>Debregeasia longifolia</i> Burnt.
Fkkdy	QksfuDl ,dksSfyl	<i>Phoenix acaulis</i> Buch.
FksYdk	jkbcI XySfl;sy	<i>Ribes glaciale</i> Wall.
nM+fc;k	okbZcjue uokZsle	<i>Viburnum nervosum</i> Don.
nkfM+e	I;qfudk xzsusVe	<i>Punica granatum</i> Linn.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
nkM+fe;k	jSeul izksdEcsUl	<i>Rhamnus procumbens</i> Edgew.
nqjdqat	jkstk lsjhfl;k	<i>Rosa sericea</i> Lindl.
nS;k	dSfydkikZ eSØksfQyk	<i>Callicarpa macrophylla</i> Vahl.
nqf/k;k	VsjsDISde vkSQhlhusy	<i>Taraxacum officinale</i> Qiggers.
nqf/kyk	,Dldksdsfj;k ,ljhQksfy;k	<i>Excoecaria acerifolia</i> F.Didriche.
/krwj	MsV~;wj	<i>Datura metel</i> Linn.
/kkSyk	oqMQksfMZ;k ÝwVhdkslk	<i>Woodfordia fruticosa</i> Kurz.
fujfclh	MsYQhfue;e MsU;qMsVe	<i>Delphinium denudatum</i> Wall.
iR;wM+k	VsjkdSUFkl vUxLVhQksfy;k	<i>Pteracanthus angustifolia</i>
inyj	b;wj;k ,D;wfeusVk	<i>Eurya acuminata</i> DC.
ikrh	vkVhZehfl;k oYxsfl	<i>Artemisia vulgaris</i>
ik"kk.k Hksn	lSDlhÝsxx fyxqysVk	<i>Saxifraga ligulata</i> Wall.
fiUMkjk@iFksjk	ySIVksMfeZl ySfUl;ksysVk	<i>Leptodermis lanceolata</i> Wall.
ihyhtbZ@'kkutbZ	tlfeue gw;wekby	<i>Jasminum humile</i> Linn.
fi;wyh@iSaxqy	fjuokfVvk	<i>Reinwardtia indica</i> Dumor
iqej	tquhissjl lwMkslchuk	<i>Juniperus pseudo-sabina</i> Fisch.
iksnhuk	esUFkk flYosfLV <sup>a</sup> l	<i>Mentha sylvestris</i> Linn.
cp	,dksjl dSykel	<i>Acorus calamus</i> Linn.
cdjNk	izsEuk ckjcsVk	<i>Premna barbata</i> Wall.
ctznUrh	iksVsfUlyk QYtsUl	<i>Potentilla fulgens</i> Wall.
cuoku	felhZu vÝhdkuk	<i>Myrsine africana</i> Linn.
cM+vk@lriqM+k	MS¶uh isikbZjsfl;k	<i>Daphne papyracea</i> Wall. ex Steud

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
cukM+	dSfl;k vkSDlhMsUVSfyl	<i>Cassia occidentalis</i> Linn.
ckflaxk	v/kkVksMk oSfldk	<i>Adhatoda vasica</i> Nees.
Czkāh udyh	lSUVsyk ,fl;kfVdk	<i>Centella asiatica</i> Linn.
fcPNw@daMkyh	ftjkmZfu;k gsVjksfQyk	<i>Girardinia heterophylla</i> Dene
fcPNw@daMkyh	vfVZdk Mk;ksdk	<i>Urtica dioica</i>
fcUnw	dksyscwzfd;k viksftVhQksfy;k	<i>Colebrookia oppositifolia</i> Smith
fcyxkM+k@csyxw	¶ySdksfZ;k bfUMdk	<i>Flacourtia indica</i> (Burm.f.) Merr.
csj@csjh	ththQl ekSjhfl;kuk	<i>Zizyphus mauritiana</i> Lamk.
csjM+	,deSUFksjk VksesUVkslk	<i>Aechmanthera gossypina</i> Nees.
cSjkM+k	lkbMk ,D;wVk	<i>Sida acuta</i> Burm.
cksusj	MSLeksfM;e ekbØksQkbye	<i>Desmodium microphyllum</i> DC.
HkVddM+h	lksysue okbysfl;e	<i>Solanum violaceum</i> Ortega
HkVdqM+k	yksuhlsjk fDouDohyK;wysfjl	<i>Lonicera quinquelocularis</i> Hardw.
HkVqyk	¶ySfefUt;k ÝwVhdqykslk	<i>Flemingia fruticulosa</i> Wall.
Hkkax	dSUukfcl lSVkbok	<i>Cannabis sativa</i> Linn.
fHkyksdk	LikbZfj;k lkWchZQksfy;k	<i>Spiraea sorbifolia</i> Linn.
HkqrksbZ	okbcuZe dksVhuhQksfy;e	<i>Viburnum cotinifolium</i> Don.
Hkwrds'k	lshue VsuqbZQksfy;e	<i>Selinum tenuifolium</i> Wall.
Hksady@Hksdqyk	fizfUlfi;k ;wVhfyl	<i>Prinsepia utilis</i> Royle.
HkSa'kjk@cSljksbZ	lSfyDI Ms¶uksbfMI	<i>Salix daphnoides</i> Villars.
e[kksVk@pkpjh	QkbdL LdSUMsUl	<i>Ficus scandens</i> Roxb.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
euqvk	DysjksMsUM <sup>a</sup> ku foLdksle	<i>Clerodendron viscosum</i> . Vent
eUlwjh@dejksyh ejksbZ	dksfj,fj;k usikySfUll	<i>Coriaria nepalensis</i> Wall.
eejh@eesjh	FkSfyDV <sup>a</sup> e Qksfy;ksyksle	<i>Thalictrum foliolosum</i> DC.
ehBk fo"k@ekSjk	,dksfuVe ckyQksjkbZ	<i>Aconitum balfourii</i> Stepf
ejpqyk@ekjppqY;k	eqjkZ;k iSuhdqysVk	<i>Murraya paniculata</i> Linn..
ejksbZ@ e'kuksbZ	VsjkdSUFkl vfVZlhQksfy;l	<i>Pteracanthus urticifolius</i> Bremek.
ejksM+Qy	gsfyDVsfjl vkbtksjk	<i>Helicteres isora</i> Linn..
egkesnk	iksyhxksusVe oVhZlhysVe	<i>Polygonatum verticillatum</i>
egkohj	;wQksfcZ;k beksMh	<i>Euphorbia emodi</i> Hook.
eklh@/kwi	tquhisjl fjdokZ tquhisjl LdwwkekVk	<i>Juniperus recurva</i> Hamm. <i>Juniperus squamata</i>
jrutksr	,uheksu vkWCV~;wlhQksfy;k	<i>Anemone obtusiloba</i> D.Don.
jkeckal	vxso vesfjdkuk	<i>Agave americana</i>
:bZl	dksVksfuvkLVj ,D;wfeusVl	<i>Cotoneaster acuminatus</i> Lindl.
:ghl	jSeul ijI;qfj;l	<i>Rhamnus purpureus</i> Edgew.
ouddM+h	iksMksQkbZye beksMh	<i>Podophyllum emodi</i> Wall.
fo"k@ehBk fo"k	,dksfuVe QkYdksusjh	<i>Aconitum falconeri</i> Stap.
ldhuk@dkBh	bfUMxksQsjk gsVjsUFkk bfUMxksQsjk dSftvkWbfMl bfUMxksQsjk Mkslqvk,	<i>Indigofera heterantha</i> Wall <i>Indigofera cassioides</i> RDC <i>Indigofera dosua</i> Ham.

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1	2	3
lesj@flokylh@lseykw	okbZVSDl fux.Mw	<i>Vitex nigundo</i> Linn.
lQsn eqlyh	,LijSxl ,MlsUMsUl	<i>Asparagus adscendens</i> Roxb.
ljuksbZ	,LijSxl fQyhlhul	<i>Asparagus filicinus</i> Buch-Ham.ex D.Don
lkye iatk	MkDVSyksjkbT+k grktfM;k	<i>Dactylorhiza hatagirea</i>
lkye feJh	b;qyksfQ;k dkEisfLV <sup>a</sup> l	<i>Eulophia campestris</i> Wall.
flyQksM+k	cthZfu;k flfy,Vk	<i>Berginia ciliata</i> Haw.
fle:@lse#	jksMksMsUM <sup>a</sup> ku dEiSuqysVe	<i>R. campanulatum</i> Don.
lqxU/kckyk@leks;k@lesok	oSysfj;kuk gkMZfodvkbZ	<i>Valeriana hardwickii</i> Wall.
lq:	;wQksfcZ;k jkW;fy;kuk	<i>Euphorbia royleana</i> Bois.
lkseyrk@leyrk	bQsM <sup>a</sup> +k ftjkmZ;kuk	<i>Ephedra gerardiana</i> Wall.
fgalkyw	:cl bfyfIVdl	<i>Rubus ellipticus</i> Smith
fgalkyw dkyk	:cl ySfl;ksdkiZl	<i>Rubus lasiocarpus</i> Smith
<b>Climber species</b>		
vxkyh@vxyh@cuksbZ	lkbtSUM <sup>a</sup> k xzSUMh¶yksjk	<i>Schizandra grandiflora</i> Hook.
vlksyh@ ikuhcsy	,EisykslkbZll ySVhQksfy;k	<i>Ampelocissus latifolia</i> Planch.
vkdk'k csy	dLD;wVk js¶ysDlk	<i>Cuscuta reflexa</i> Roxb.
bUnzkfj;u@bykMw	V <sup>a</sup> kbdksISUFkl ikesVk	<i>Trichosanthes palmata</i> Roxb.
daMkj	okbfVl lsehdkSMZsVk	<i>Vitis semicordata</i> Wall.
daVqyk@dBwyk	:cl iSuhdqysVl	<i>Rubus paniculatus</i> Smith
dBr:M+@xsBh	Mk;ksLdksfj;k MsYVkW;fM;k	<i>Dioscorea deltoidea</i> Wall.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
dQ yxqyk	gksyElfdvksyfMvk luxqfu;k	<i>Holmskioldia sanguinea</i> . Retz.
fdaxkjh@vM+h	lhthyihfu;k MsdkfiVsyk lhthyihfu;k lsiSfj;k	<i>Caesalpinia decapetala</i> Roxb. <i>Caesalpinia sepiaria</i> Roxb
dqdqjnM+k@dqdqjnkuk	LekbysDI ikohZQksfy;k	<i>Smilax parvifolia</i> Wall.
dqat@dQutk	jkstk czwuksukbZ	<i>Rosa brunonii</i> Mill.
dqVtw	I;wjsfj;k FkUcftZ;kuk	<i>Pueraria thumbergiana</i>
dsfu;k@dkSfu;k@dkSatk	DyheSfVI eksUVkuk	<i>Clematis montana</i> Ham.
dkSa.khokyh	DyheSfVI dksukVk	<i>Clematis connata</i> DC.
[kqnsjk@etsBh	:fc;k dkWMhZQksfy;k	<i>Rubia cordifolia</i> Linn.
fxyks;@fxyksfj@xqfj;k	fVuksLiksjk dkWMhZQksfy;k	<i>Tinospora cordifolia</i> Merr.
xksQyk@taxyh 'kjhQk	gksYcksfy;k ySVhQksfy;k	<i>Holboellia latifolia</i> Wall.
xkSt	feysf'k;k vkSjhdqykVk	<i>Milletia auriculata</i> Baker.
fpikjh@fNikjh	okbZfVI eSØksQkbyk	<i>Vitis macrophylla</i> Maiden.
fla/kkuh, ls/kk, fla/kh	fØIVksysfil cqduh	<i>Cryptolepis buchanani</i> Roem. & Sch.
nq/kh&csy	osySfjl lksysusfl;k	<i>Vallisneria spiralis</i> (L.) Roth & Schmidt.
iM+h@nk[k fufcZlh	flsEisyksl ijsjk	<i>Cissampelos pareira</i> Linn.
iqfy;kuk@iqnhuk	okbZfVI ySukVk	<i>Vitis lanata</i> Roxb.
ekyw@eky>u	ckSghfu;k oSgykbZ	<i>Bauhinia vahlii</i> Benth.
efB;kjh@efFk;kjh	gsMjk gsfyDI, gsMjk usikysfUll	<i>Hedera helix</i> Linn. <i>Hedera nepalensis</i> K. Koch.
fljkSyk	I;wjsfj;k V~;wcjkslk	<i>Pueraria tuberosa</i> DC.
<b>Bamboo</b>		
xksy fjaxky@x<+ fjaxky	vjqf.Musfj;k QYdkVk	<i>Arundinaria falcata</i> Nees.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
tewjk fjaxky	vjqf.Musfj;k tkSulkjsfUll	<i>Arundinaria jaunsarensis</i> Gamble.
Fkke fjaxky	FkSEuksdSykel LiSfFk¶yksjl	<i>Thamnocalamus spathiflorus</i> (Trin.) Munro
nso fjaxky	FkSEuksdSykel Qkydks.ksjh	<i>Thamnocalamus falconeri</i> Hook.f.
ckal	MsUM <sup>a</sup> ksdSykel fLV <sup>a</sup> DVI	<i>Dendrocalamus strictus</i> Nees.
<b>Grasses</b>		
vatu	lsUØl lhfyvfjl	<i>Cenchrus ciliaris</i> Linn.
vkSpkbZ ?kkl	MSDVkbfyl XyksejsVk	<i>Dactylis glomerata</i> Linn..
myk dqesafj;k	FkhsesMk v:UMhusfl;k	<i>Themeda arundinacea</i> Roxb.
dkal	lSdsje LikWUVsfu;e	<i>Saccharum spontaneum</i> Linn.
fddq;w	iSuhflVe DySUMsfLVue	<i>Pennisetum clandestinum</i> Hochst.
dqfefj;k@dqejk	gsVjksiksxkSu dkWUVksVZl	<i>Heteropogon contortus</i> Linn.
dq'k@lkyyek@lkyye	ØkbZlksiksxkWu xzkbZyl	<i>Chrysopogon gryllus</i> Linn.
fxUuh ?kkl	iSfude eSDlhee	<i>Panicum maximum</i> Jacq.
xksYM@xksfj;k	ØkbZlksiksxkWu QYol	<i>Chrysopogon fulvus</i> Linn.
tkbZUV LVkj	lkbuksMkWu IySDVksLVSfd;l	<i>Cynodon plectostachyus</i> Pilger
rpyk@rNhyk@Nkjh	,IY;wMk E;wfVdk	<i>Apluda mutica</i> Linn.
rqrufy;k@lqbuk@foPNkjr	v:fUMusyk usikySfUll	<i>Arundinella nepalensis</i> Trin.
nwc	lkbuksMksu MsDVhykSu	<i>Cynodon dactylon</i> Pers.
ujdqy	ÝSxekbfVl dkdkZ	<i>Phragmites karka</i> (Retz.)Trin.

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
uyljk@uolqjk	usjkSfUM;k v:fUMusfl;k	<i>Neyraudia arundinacea</i> Linn.
uyh	MkbZdSfUFk;e ,U;wysVe	<i>Dichanthium annulatum</i> Stapf.
uky	v:UMks MksukDI	<i>Arundo donax</i> Linn.
uSfi;j gkbZfczM	iSuhflVe ijI;wfj;e	<i>Pennisetum purpureum</i> Schumach.
iaxksyk	fMthVsfj;k fMdEcsUl	<i>Digitaria decumbens</i>
fifj;k	FkhesMk vukFksjk	<i>Themeda anathera</i> (Nees.)Hack.
iSjk?kkl	czSfl,fj;k E;wfVdk	<i>Brachiaria mutica</i> (Forssk.)Stapf.
cktjk	lkWj?ke gsSyhisUl	<i>Sorghum halepense</i> Linn.
ckfcyk@ckcyk	flEcksiksxkWu ekfVZuh	<i>Cymbopogon martinii</i> Stapf.
cSo@HkkHkM+	;wySfy;ksflll ckbusVk	<i>Eulaliopsis binata</i> C.E.Hubb.
eqjfd;k@?kqysjh	v#fUMusyK IVkslk	<i>Arundinella setosa</i> .
ewat	lSdje csUxkysUl	<i>Saccharum bengalense</i>
flVsfj;k ?kkl	flVsfj;k LQSflykVk	<i>Setaria sphacelata</i>
fl: ?kkl	bEisjsVk flfyfUM <sup>a</sup> dk	<i>Imperata cylindrica</i> Linn.
<b>¼6½ ijthoh ¼iSjklkbVI½</b>		
vkdk'k csy@vej csy	dLD;wVk js¶ysDlk	<i>Cuscuta reflexa</i> Roxb.
pqqycUMk	foLde vYce	<i>Viscum album</i> Linn.
Mkyeh	vkWflfjl okbZVh;kuk	<i>Osyris wightiana</i> Wall. Ex Wight
ikUM	VSDlhyl oLVhVI	<i>Taxillus vestitus</i> (Wall.) Benser
cUMk	yksjsUFkl Lislht	<i>Loranthus spp.</i>
cq)w	foLde vkfVZdqysVe	<i>Viscum articulatum</i> Burm.
<b>¼7½ ykbZdsu</b>		
>wyk	dSesLVhdSMSfyl Lislht	<i>Kamastychadalis spp.</i>
<b>¼8½ ijLFkkfud ¼ ,DtWkfVd½</b>		
vkbySUFkl	vkbySUFkl DlsYlk	<i>Ailanthus excelsa</i>

Local Name in Hindi	Botanical Name in Hindi	Botanical Name in English
1	2	3
xqyeksgj	MsyksfuDl jsft;k	<i>Delonix regia</i>
tSdjsUMk	tSdjsUMk ekbZeksLhQksfy;k	<i>Jacaranda mimosaeifolia</i>
ckWVvy czq'k	dSfyfLVekWu ySfUl;kysvL	<i>Callistemon lanceolatus</i>
;wdsfyIVl@xe	;wdsfyIVl Xyksqcyl	<i>Eucalyptus globulus</i>
jkschfu;k	jkschfu;k L;wMvdsf'k;k	<i>Robinia pseudacacia</i>
okVy	vdsfl;k ekWyhlhek, vdsfl;k fMdjsUl, vdsfl;k Mh;kyokVk	<i>Acacia mollissima</i> <i>Acacia decurans</i> <i>Acacia dealbata</i>
flYoj vkSD	xzsosfy;k jksclVk	<i>Grevillia robusta</i>

lzks=& ou o/kZfud, mRrjk[k.M+, uSuhrky ds i=kad 838@Vh&1&,,fnukad 30@6@2007 }kjk vuqeksfnrA

¼c½ mÜkjdk'kh ou izHkkx esa ik;s tkus okys oU; tUrqvks, if{k;ksa,

**Ifj'iksa ,oa eRL;ksa dh lwph**

Ø0 10	fgUnh uke	vaxzsth uke ¼vaxzsth esa½	oSKkfud ¼vaxzsth esa½
<b>d&amp; Lruiks"kh</b>			
1	bf.M;u eksy jSV	The Indian Mole Rat	<i>Bandicota bengalensis</i>
2	bf.M;u xjchyh	Indian Gerbille	<i>Tatera indica</i>
3	mn~fcyko	common otter	<i>Lutra Lutra</i>
4	mM+u fxygjh	Red Flying Squirrels	<i>Petaurista petaurista</i>
5	dLrwjh	Small indian civet	<i>Viverricula indica</i>
6	dLrwjk	Himalayan Musk Deer	<i>Moschus moschiferus</i>
7	dkdM+	Barking Deer	<i>Moschus moschiferus</i>
8	dkyk Hkkyw ;k jhN	Himalayan Black Bear	<i>Ursus arctos</i>
9	dqjlkyk	Himalayan Weasel	<i>Mustela kathiah</i>
10	[kjxks'k	Indian Hare	<i>Ochotona roylei</i>
11	xa/kjkt	Common palm civet	<i>Paradoxurus ermaproditus</i>
12	xhnM+	jackal	<i>Canis aureus</i>

<b>Ø0 10</b>	<b>fgUnh uke</b>	<b>vaxzsth uke ¼vaxzsth esa½</b>	<b>oSKkfud ¼vaxzsth esa½ uke</b>
13	xqynkj ;k rsanqok	Panther or Leopard	<i>Panthera pardus</i>
14	?kqjy	Goral	<i>Hemitragus jemlahicus</i>
15	pexknM+	Fulvous Fruit Bat	<i>Rousettus leschenaulti</i>
16	fprjkSyk	Himalayan yellowthroated marten	<i>Martes flavigula</i>
17	pwgk	Indian Field Mouse	<i>Mus booduga</i>
18	pwgk	The House Mouse	<i>Mus musculus</i>
19	pwgk	Common House Rat	<i>Rattus rattus</i>
20	V <sup>a</sup> h ekml	Longtailed Tree Mouse	<i>Vandeleuria oleracea</i>
21	pwgk [kjxks'k	Himalayan Mouse-Hare	<i>Ursus thibetanus</i>
22	NqNqUnj	Grey Musk Shrew	<i>Suncus murinus</i>
23	taxyh fcYyh	Jungle cat	<i>Felis chaus</i>
24	taxyh lqvj	Indian Wild Boar	<i>Sus scrofa cristatus</i>
25	Fkkj	Himalayan Tahr	<i>Pseudois nayaur</i>
26	usoyk	common mongoose	<i>Herpestes edwardsi</i>
27	Hkjy@cjM+	Himalayan Blue Sheep	<i>Cervus unicolor</i>
28	Hkwjk Hkkyw	Brown Bear	<i>Capricornis sumatraensis</i>
29	cSUMhdwV jSV	Bandicota indica	<i>Altilcola roylei</i>
30	cUnj	Monkey	<i>Macaca mulatta</i>
31	eN fcYyh	Fishing cat	<i>Felis viverrina</i>
32	eqjUn	Himalayan Marmot	<i>Marmota bobak</i>
33	jkS;Yl oksy	Royle's Vole	<i>Hystrix indica</i>
34	ykseM+h	Indian fox	<i>Vulpes bengalensis</i>
35	ou foyko@phrk fcYyh	Leopard cat	<i>Felis bengalensis</i>
36	fge rsnqok	Snow leopard	<i>Panthera uncia%</i>
37	yaxwj	Common Langur	<i>Presbytis entellus</i>
38	yky ykseM+h	Red Fox	<i>Vulpes vulpes montana</i>
39	lsjko	Serow	<i>Nemorhaedus goral</i>
40	lsgh	Indian Porupine	<i>Lepus nigricollis nigricollis</i>

<b>Ø0 10</b>	<b>fgUnh uke</b>	<b>vaxzsth uke ¼vaxzsth esa½</b>	<b>oSKkfud ¼vaxzsth esa½</b>	<b>uke</b>
41	lkaHkj ;k tM+ko	Sambar	<i>Muntiacus muntjak</i>	
<b>[k&amp; i{kh</b>				
1	vcyd >kM+h &fin~nk	Pied Bushchat	<i>Saxicola caprata</i>	
2	dkyk fx)	Cinereous Vulture	<i>Aegypius monachus</i>	
3	dkYgd Qk[rk	Oriental Turtle Dove	<i>Streptopelia orientalis</i> S.o. <i>meena</i> & <i>S.o. agricola</i>	
4	dkQy iDdk	(The Indian Cuckoo)	<i>Cuculus micropterus</i>	
5	dksdykl	Koklass Pheasant	<i>Purcraasia macrolopha</i>	
6	dksSfjYyk fdyfdyk	Pied Kingfisher	<i>Ceryle rudis</i>	
7	[kqjik &iwWN gfj;y	Wedge-tailed Green Pigeon	<i>Trero sphenura</i> –	
8	?kjsyw xksjS;k	House Sparrow	<i>Passer</i>	
9	pej fx)	White –rumped Vulture	<i>Gyps bengalensis</i>	
10	pdksj	Chukar	<i>Alectoris chukar</i>	
11	fpryh v[kjksVQksM+k	Spotted Nutcracker	<i>Nucifraga caryocatactes</i> N.c. mltipunctata & N.c. hemispila	
12	fpfr;k nqeQkaV	Spotted Forktail	<i>Enicurus maculates</i>	
13	phj	Cheer Pheasant	<i>Catreus wallichil</i>	
14	pksVh iRFkj fpjVk	Crested Bunting	<i>Melophus lathami</i>	
15	NksVh pksap jktyky	Short-billed Minivet	<i>Pericrocotus brevirostris</i>	
16	NksVk fdyfdyh	Common Kingfisher	<i>Alcedo atthis</i>	
17	tVk;q fx)	Lammergeier	<i>Gypaetus barbatus</i>	
18	taxyh eSuk	Jungle Myna	<i>Acridotheres fuscus</i>	
19	Vqba;k rksrk	Plum-headed Parakeet	<i>Psittacula cyanocephala</i>	
20	igkM+h dcwrj	Hill Pigeon	<i>Columba rupestris</i>	
21	ifNeh flj irQqndh	Western Crowned Warbler	<i>Phylloscopus occipitalis</i>	
22	fiiysV irQqndh	Tickell's Leaf Warbler	<i>Phylloscopus affinis</i>	
23	fiyisV gjh&rwrh	Yellow-breasted Greenfinch	<i>Carduelis spinoides</i>	
24	cM+ iwWNh Nidk	Large-tailed Nightjar	<i>Caprimulgus macrurus</i>	

<b>Ø0 10</b>	<b>fgUnh uke</b>	<b>vaxzsth uke ¼vaxzsth esa½</b>	<b>oSKkfud ¼vaxzsth esa½</b>	<b>uke</b>
25	cM+k cVsj	Common Quail	<i>Coturnix coturnix</i>	
26	cM+h vckchy	Alpine Swift	<i>Tachymarpti melba</i>	
27	=sgks cIUfkk	Great Barbet	<i>Megalaima virens</i>	
28	fnokjjsaxuh	Wallcreeper	<i>Tichodroma muraria</i>	
29	nslh eSuk	Common Myna	<i>Acridotheres tristis</i>	
30	nslh uhyd.B	Indian Roller	<i>Coracisa benghalensis</i>	
31	/koj Qk[rk	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	
32	/kkjhisV dBQksM+k	Scaly- Bellied Woodpecker	<i>Picus squamatus</i>	
33	/kkfj;ka MqUMy	Asian Barred Owlet	<i>Glaucidium cuculoides</i>	
34	/kkjhiwWN r#jsaxuh	Bar-tailed Treecreeper	<i>Certhia himalayana</i>	
35	;wjf'k;kbZ fx)	Eurasian Griffon	<i>Gyps fulvus</i>	
36	jxM+ mdkc	Steppe Eagle	<i>Aquila nipalebnis</i>	
37	jktfx)	Red -Headed Vulture	<i>Sarcogyps calvus</i>	
38	yEcpksap dkSok	Large-Billed Crow		
39	yyNrh Qwypqdh	Fire-breasted Flowerpecker	<i>Dicaeum ignipectus</i>	
40	yky pksap yEciwWfN;k	Red-billed Blue Magpie	<i>Urocissa erythrorhyncha</i>	
41	yky taxyh eqxhZ	Red Junglefowl	<i>Gallus gallus</i>	
42	ykyNkSag ou&mYyw	Tawny Owl	<i>Strix aluco</i> <i>S.a.nivivola</i> & <i>S.a. biddulphi</i>	
43	ykyxky gafl;kpksap &pj[kh	Rusty-Cheeked Scimitar Babbler	<i>Pomatorhinus erythrogegens</i>	
44	fge dcwrj	Snow Pigeon	<i>Columba leuconota</i>	
45	fgeky;h&eksuky	Himalayan Monal	<i>Lophophorus impejanus</i>	
46	fgeky;h cQZ dqDdqV	Himalayan Snowcock	<i>Falco peregrinus</i> <i>F.P. peregrinator</i> , <i>F.p. babylonicus</i> & <i>F.p. calidus</i>	
47	fgeky;h dBQksfM+;k	Himalayan Woodpecker	<i>Dendrocopos himalayensis</i>	
48	fgeky;h dytsB	Blue Whistling Thrush	<i>Myophonus caeruleus</i>	

<b>Ø0 10</b>	<b>fgUnh uke</b>	<b>vaxzsth uke ¼vaxzsth esa½</b>	<b>oSKkfud ¼vaxzsth esa½</b>	<b>uke</b>
	dLrwjk			
49	fgeky;h fx)	Himalayan Griffon	<i>Gyps Himalayensis</i> &	
50	fgeky;h cqycqy	Himalayan Bulbul	<i>Pycnonotus leucogenys</i>	
51	lQsn [katu	White Wagtail	<i>Motacilla alba</i>	
52	lQsn fx)	Egyptian Vulture	<i>Neophron percnopterus</i>	
53	lQsn &pksVh dyht	Kalij Pheasant	<i>Lophura leucomelanos</i>	
54	lQsn xyk crklh	White-throated Needletail	<i>Hirundapus caudacutus</i>	
55	';key dhVekj	Dark-sided Flycatcher	<i>Muscicapa sibirica</i>	
56	Lo.kZ ihyd	Eurasian Golden Oriole	<i>Oriolus oriolus</i>	
57	lQsn iwWN fljh	White- tailed Nuthatch	<i>Sitta himalayensis</i>	
58	lQsndaB fpyfpy	White-throated Laughingthrush	<i>Garrulax albogularis</i>	
59	lkekU; phy	Black Kite	<i>Milvus migrans</i>	
60	'kkghu	Peregrine Falcon		
61	lkekU; l;kSjk	Hill Partridge	<i>Arborophila torqueola</i>	
62	lkekU; dcwrj	Rock Pigeon	<i>Columba livia</i>	
63	flysVh flj rksrk	Slaty-Headed Parakeet	<i>Psittacula himalayana</i>	
64	flysVh Hkqtaxk	Ashy Drongo	<i>Dicrurus leucophaeus</i>	
65	flysVh jkexaxjk	Grey-crested Tit	<i>Parus major</i>	
66	flysVhij fpyfpy	Variiegated Laughingthrush	<i>Garrulax variegates</i>	
67	lqugjk mdkc	Golden Eagle	<i>Aquila chrysaetos</i>	
68	lksuijh rwrh	European Goldfinch	<i>Carduelis carduelis</i>	
69	lksuflij dBQksfM+;k	Brown-Fronted Woodpecker	<i>Dendrocopos auriceps</i>	
<b>x&amp; ljh`i 1&amp; fytkMZ</b>				
1	fxjfxV	Indian Garden Lizard	<i>Calotis versicolor</i>	
2	xksg	Common Indian Monitor	<i>Varanus bengalensis</i>	
3	fNidyh	Kashmir Agama	<i>Agama tuberculata</i>	
4	fNidyh	Brooks Becko	<i>Hemidactylus brooki</i>	
<b>2&amp;liZ</b>				
1	vtxj	Indian Python	<i>Python molurus</i>	

<b>Ø0 10</b>	<b>fgUnh uke</b>	<b>vaxzsth uke ¼vaxzsth esa½</b>	<b>oSKkfud uke ¼vaxzsth esa½</b>
2	djSr	Common Indian Krait	<i>Bungarus caeruleus</i>
3	/kkeu	Rat Snake	<i>Ptyas mucosus</i>
4	ukx	Cobra	<i>Naja-naja</i>
5	fgeky;u fiV okbij	Himalayan Pit Viper	<i>Agkistorodo himalayanus</i>
<b>?k&amp; eRL;</b>			
1	dkeudkiZ	lkbizhul dkfiZ;ksa	<i>Cyprinus carpio</i>
2	egklhj	Mahaseer	<i>Tor tor</i>
3	jsucks V <sup>a</sup> kmV	lyeksa xSMZusjh	<u><i>Salmo girdnari</i></u>
4	lqugjk egk'ksj&d yh	Vksj I;wVhVksjk	<i>Tor putitora</i>