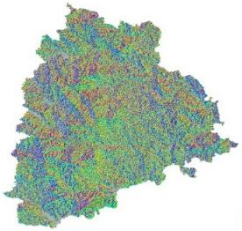
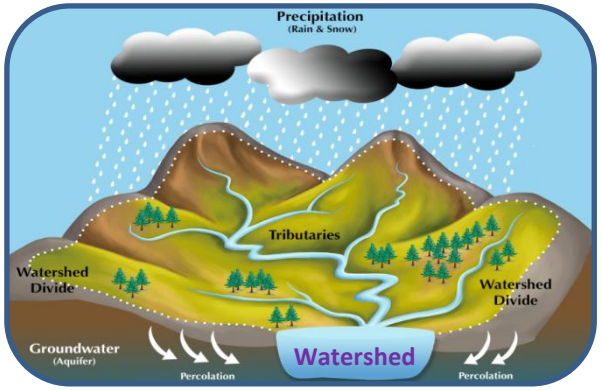
Government of Telangana – Forest Department

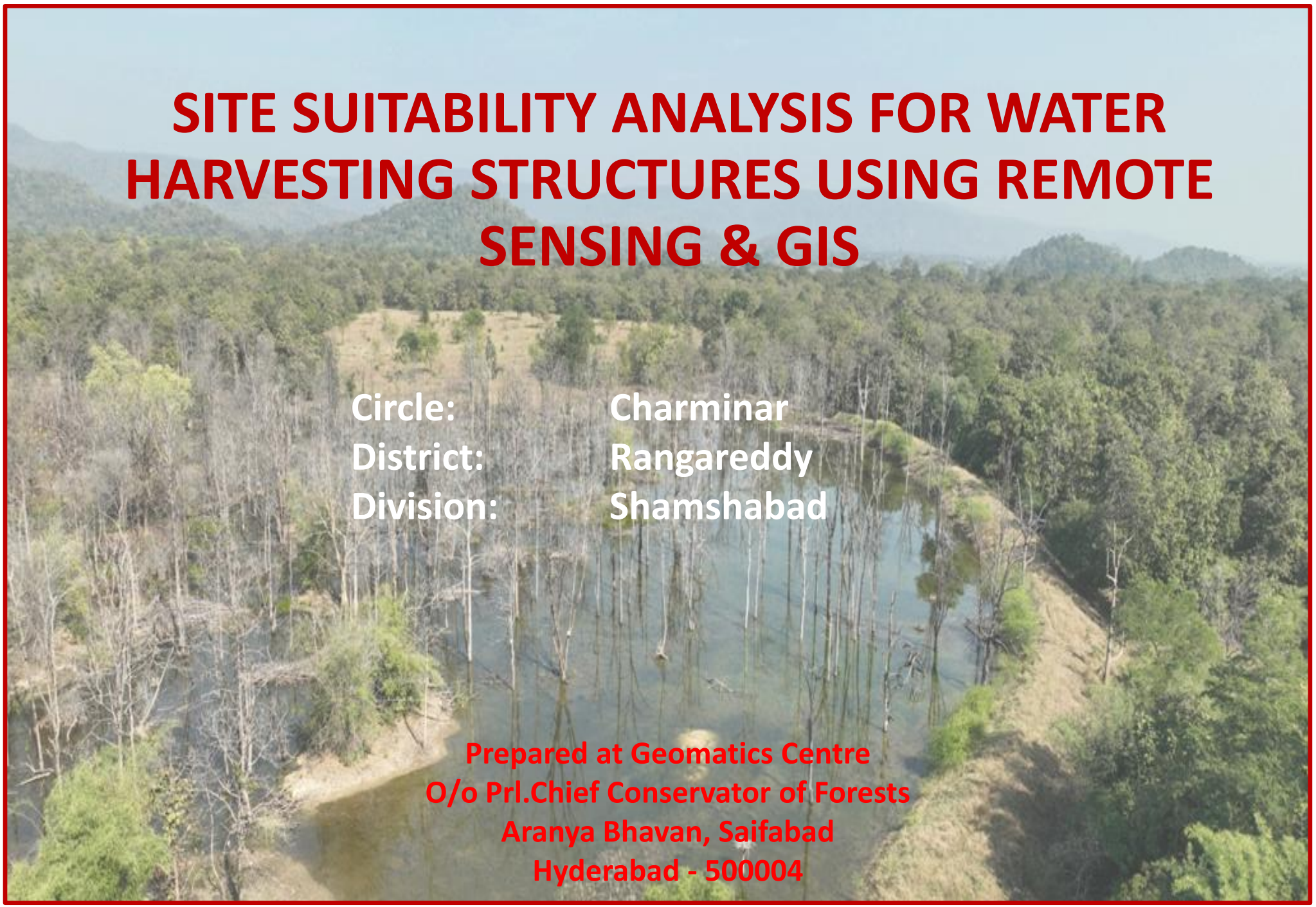


SITE SUITABILITY ANALYSIS FOR WATER HARVESTING STRUCTURES USING REMOTE SENSING & GIS



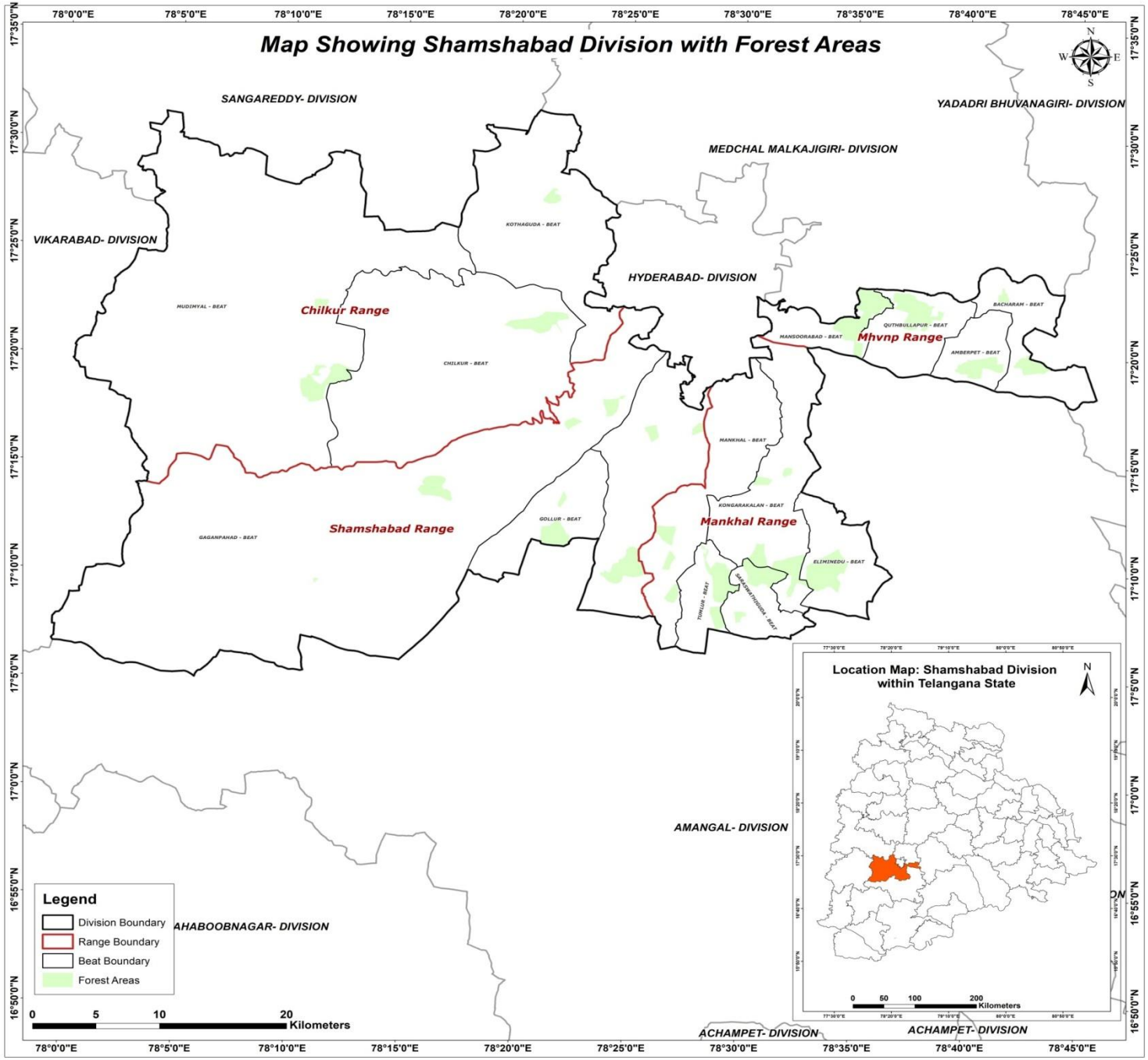
Prepared at Geomatics Centre
Office of Prl. Chief Conservator of Forests
Aranya Bhavan, Hyderabad - 04

SITE SUITABILITY ANALYSIS FOR WATER HARVESTING STRUCTURES USING REMOTE SENSING & GIS



Circle: Charminar
District: Rangareddy
Division: Shamshabad

Prepared at Geomatics Centre
O/o Prl.Chief Conservator of Forests
Aranya Bhavan, Saifabad
Hyderabad - 500004


Map Showing Shamshabad Division with Forest Areas
SANGAREDDY- DIVISION
YADADRI BHUVANAGIRI- DIVISION
MEDCHAL MALKAJIGIRI- DIVISION
VIKARABAD- DIVISION
HYDERABAD- DIVISION
AMANGAL- DIVISION
AHABOOBNAGAR- DIVISION
ACHAMPET- DIVISION
KOTHAGUDA - BEAT
MUDIMYAL - BEAT
Chilkur Range
CHILKUR - BEAT
GAGANPAHAD - BEAT
Shamshabad Range
GOLLUR - BEAT
MANKHAL - BEAT
KONGARAKALAN - BEAT
Mankhal Range
ELIMINEDU - BEAT
TIMMAPATHIGUDA - BEAT
TIMMAPATHIGUDA - BEAT
BACHARAM - BEAT
QUTHBULLAPUR - BEAT
MANSOORABAD - BEAT
Mhvnp Range
AMBERPET - BEAT
Legend
Division Boundary
Range Boundary
Beat Boundary
Forest Areas
0 5 10 20 Kilometers
Location Map: Shamshabad Division within Telangana State
0 50 100 200 Kilometers
78°0'0"E
78°5'0"E
78°10'0"E
78°15'0"E
78°20'0"E
78°25'0"E
78°30'0"E
78°35'0"E
78°40'0"E
78°45'0"E
17°35'0"N
17°30'0"N
17°25'0"N
17°20'0"N
17°15'0"N
17°10'0"N
17°5'0"N
17°0'0"N
16°55'0"N
16°50'0"N

METHODOLOGY

Various methods are available to evaluate the suitability of locations for Percolation Tanks and other SMC structures using Arc GIS.

- A common approach is to use Geographic Information System (GIS) tools to decide the suitability by analysing factors like topography, vegetation density, distance to water sources, and terrain slope.

- Data was gathered from various sources, including the Raster Sentinel data obtained from the Copernicus open access hub.

- Elevation values were applied to the raster data using the SNAP software to create a Digital Elevation Model (DEM).

- Using Arc GIS, streams were mapped based on DEM, and potential percolation tank sites were identified based on stream order.

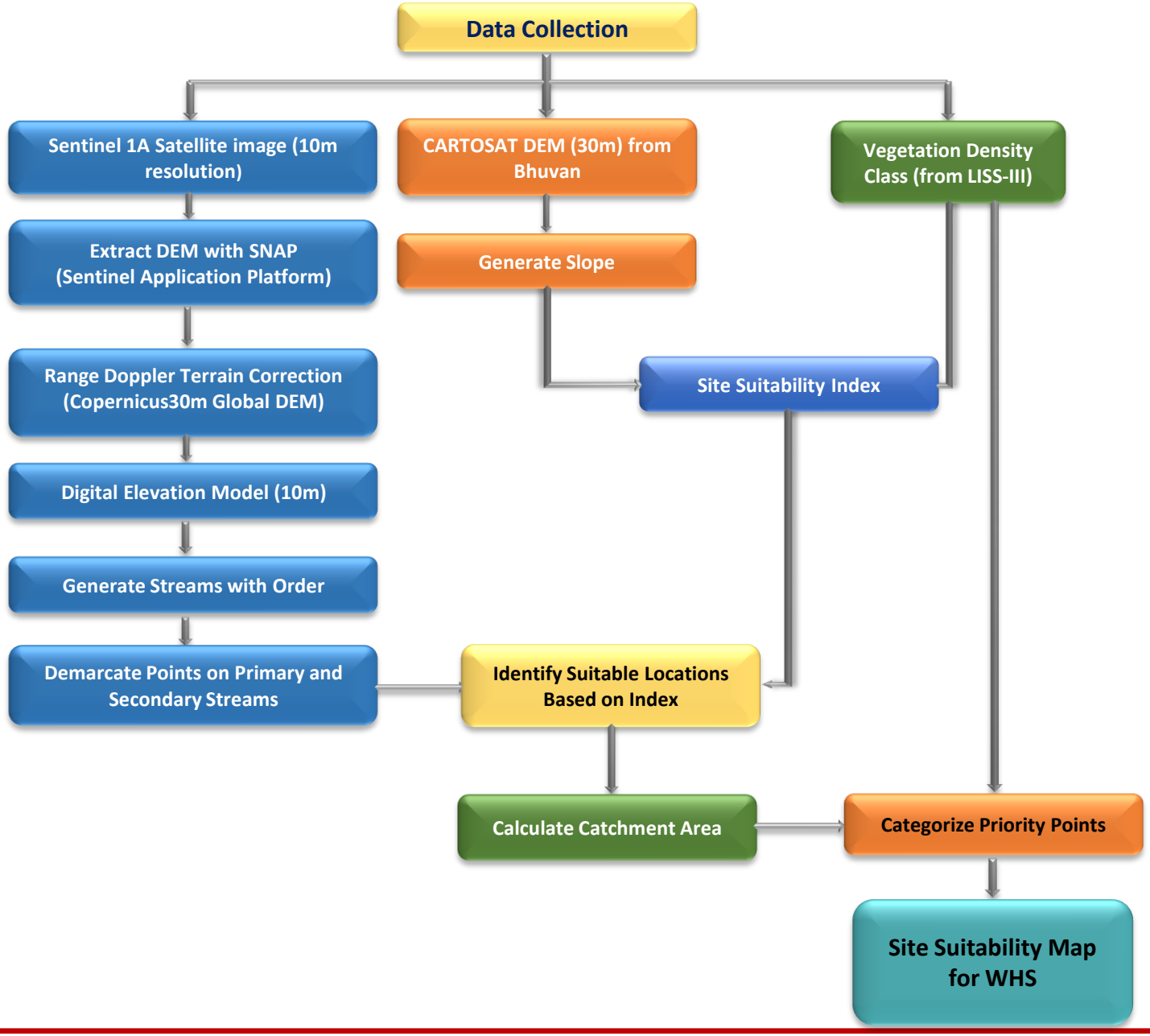
- Slope data generated from the CARTOSAT 30 m DEM (Source: Bhuvan) were also included in the analysis.

- By overlaying these spatial datasets and applying specific criteria, GIS can help identify optimal locations for building percolation tanks.

- Once the best location is identified, the catchment area is determined.

- The location is then ranked on the basis of catchment area and vegetation cover, with rankings ranging from I to V.

FLOW CHART FOR METHODOLOGY



Guidelines for building Percolation Tanks:

- Refer to the Site Suitability Map given by the GIS Cell for suitable locations

- Choose the best location for constructing a percolation tank based on the ranking priority. The priority for treatment of the watershed should be based on stream order, with primary streams taking precedence over secondary streams and secondary streams taking precedence over tertiary streams. This phased approach will ensure effective management of the watershed.

- Field conditions such as local climate, slope, vegetation and soil type must be considered when determining the location. It is important to move either upstream or downstream for a distance of about 50M, depending on the specific conditions of the site.

- It is essential to follow the priority given in the map. If no specific points are indicated, site suitability should be considered a determining factor.

- Encroached areas were not considered when demarcating points for constructing the Percolation tank.

- In the field, where streams are found at the optimal location, a percolation tank can be built if a point is missing on the map.

- The catchment area should also be considered when estimating the construction requirements like length of the bund, height of the bund, wear width etc., after verifying with the actual field conditions.

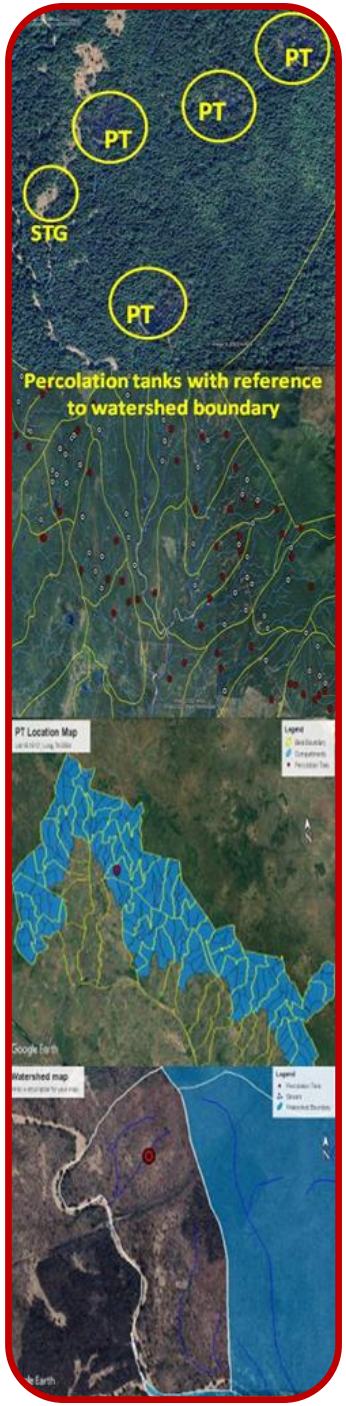
- Planting native vegetation around the tank can stabilize the soil, prevent erosion, and improve water absorption. Use plants that are well suited to the local environment.

Suitability criteria for Check-Dams and Percolation Tanks (SITE SUITABILITY INDEX)

Index	Slope(Degrees)	Density Class
Highly suitable	0-5	Blank & Scrub
Moderately suitable	0-5	Open Forest
Least suitable	0-5	Dense Forest

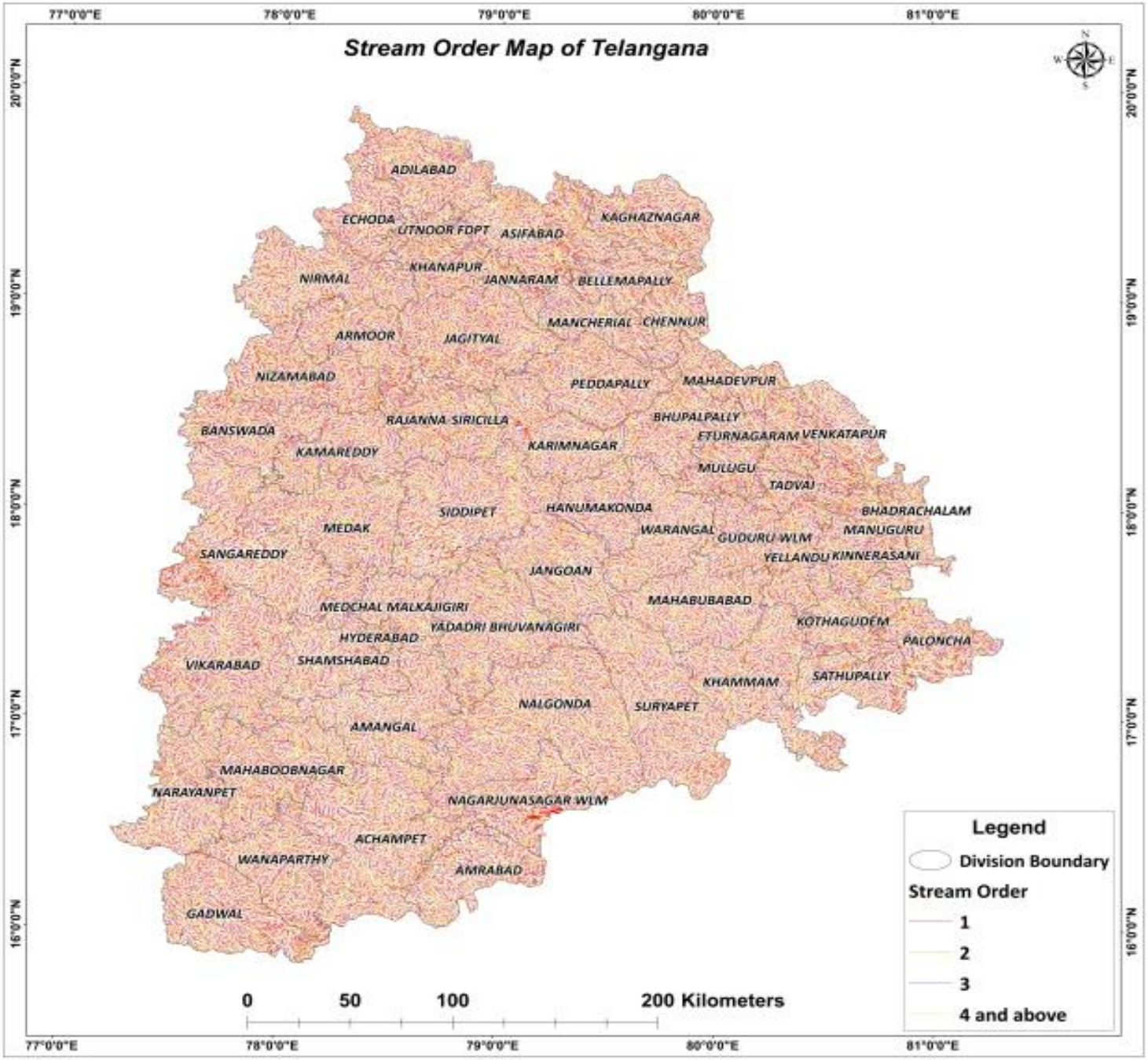
Suitability criteria for Continuous/Staggered contour trenches

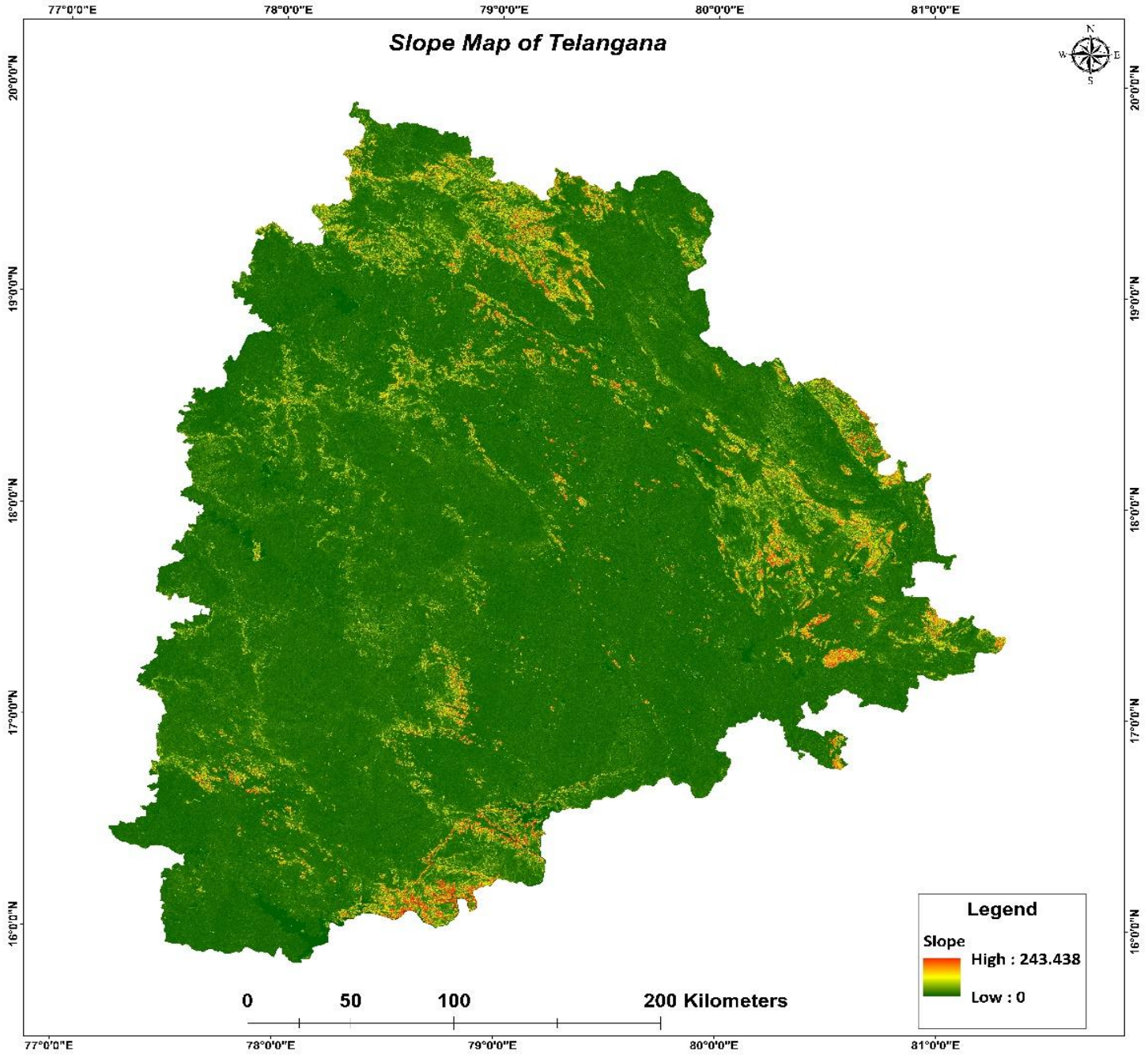
Rank	Slope classes (Degrees)	Density Classes
Highly Suitable	>5 and <= 10	Blanks
Moderately Suitable	>5 and <= 10	Scrub forest
Least suitable	>5 and <= 10	Open forest
	> 10 and < 25	Blanks & scrubs
MPTs and SGPs	>5 and <= 10	Dense Forest
	> 10 and < 25	Open and Dense forest



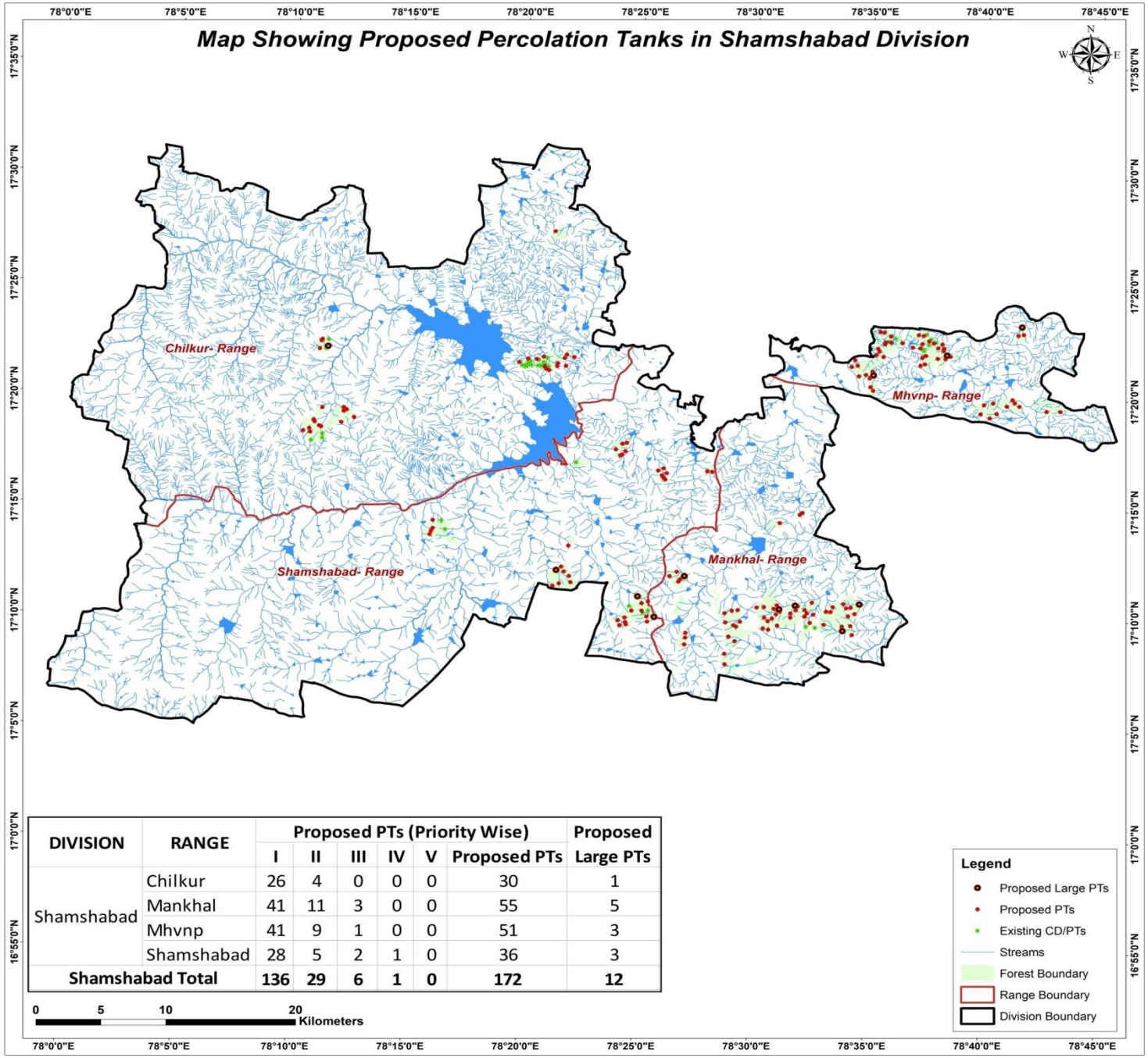
PRIORITY CLASSES FOR PERCOLATION TANK

Priority	Catchment Area(Ha)	Density Class
1	0-25 0-25	Scrub Blank
2	0-25 25-50	Open Forest Blank
3	25-50 >50	Open Forest Scrub & blank
4	0-25 >50	Dense Forest Open Forest
5	25-50 >50	Dense Forest Dense Forest


Stream Order Map of Telangana
77°0'0"E
78°0'0"E
79°0'0"E
80°0'0"E
81°0'0"E
20°0'0"N
19°0'0"N
18°0'0"N
17°0'0"N
16°0'0"N
ADILABAD
ECHODA
UTNOOR FDPT
ASIFABAD
KAGHAZNAGAR
KHANAPUR
NIRMAL
JANNARAM
BELLEMAPALLY
MANCHERIAL
CHENNUR
ARMOOR
JAGITYAL
NIZAMABAD
PEDDAPALLY
MAHADEVPUR
RAJANNA SIRICILLA
BHUPALPALLY
BANSWADA
ETURNAGARAM
VENKATAPUR
KAMAREDDY
KARIMNAGAR
MULUGU
TADVAI
SIDDIPET
HANUMAKONDA
BHADRACHALAM
MEDAK
WARANGAL
MANUGURU
GUDURU WLM
SANGAREDDY
YELLANDU
KINNERASANI
JANGOAN
MAHABUBABAD
MEDCHAL MALKAJIGIRI
KOTHAGUDEM
YADADRI BHUVANAGIRI
HYDERABAD
PALONCHA
VIKARABAD
SHAMSHABAD
KHAMMAM
SATHUPALLY
NALGONDA
SURYAPET
AMANGAL
MAHABOOBNAGAR
NARAYANPET
NAGARJUNASAGAR WLM
ACHAMPET
WANAPARTHY
AMRABAD
GADWAL
0
50
100
200 Kilometers
Legend
Division Boundary
Stream Order
1
2
3
4 and above

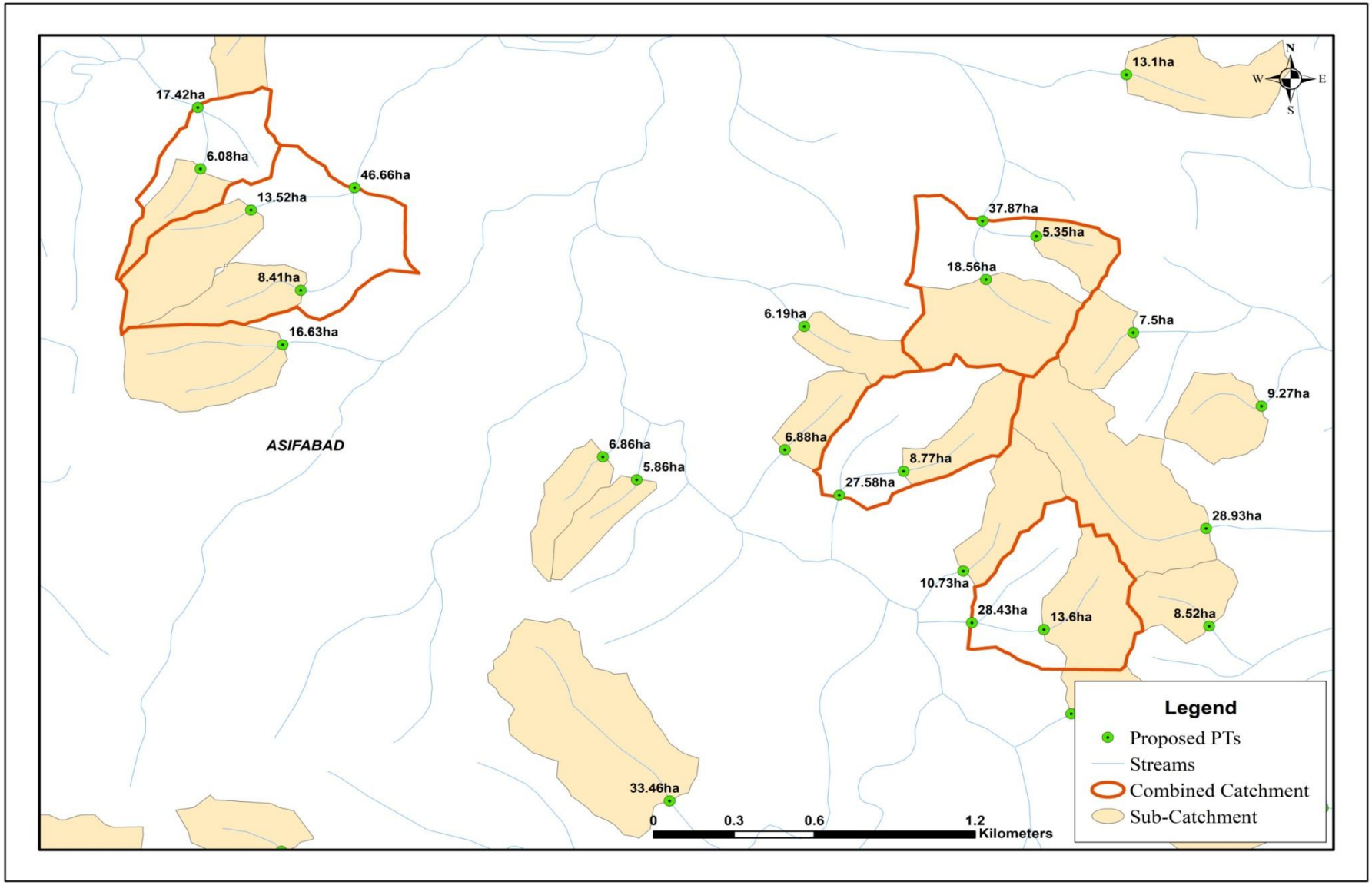

Slope Map of Telangana
77°0'0"E
78°0'0"E
79°0'0"E
80°0'0"E
81°0'0"E
20°0'0"N
19°0'0"N
18°0'0"N
17°0'0"N
16°0'0"N
N
W
E
S
Legend
Slope
High : 243.438
Low : 0
0
50
100
200 Kilometers

Map Showing Proposed Percolation Tanks in Shamshabad Division

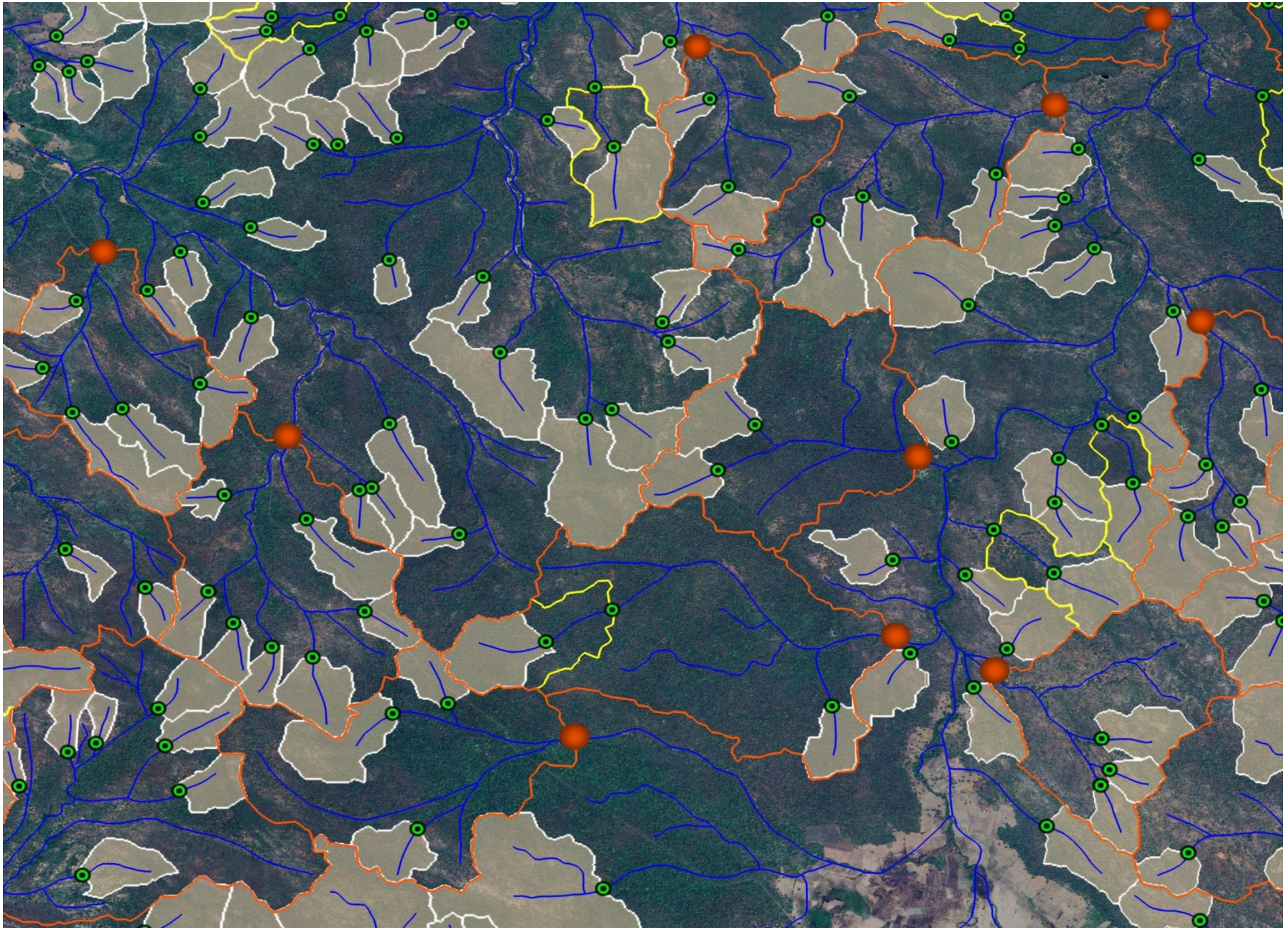


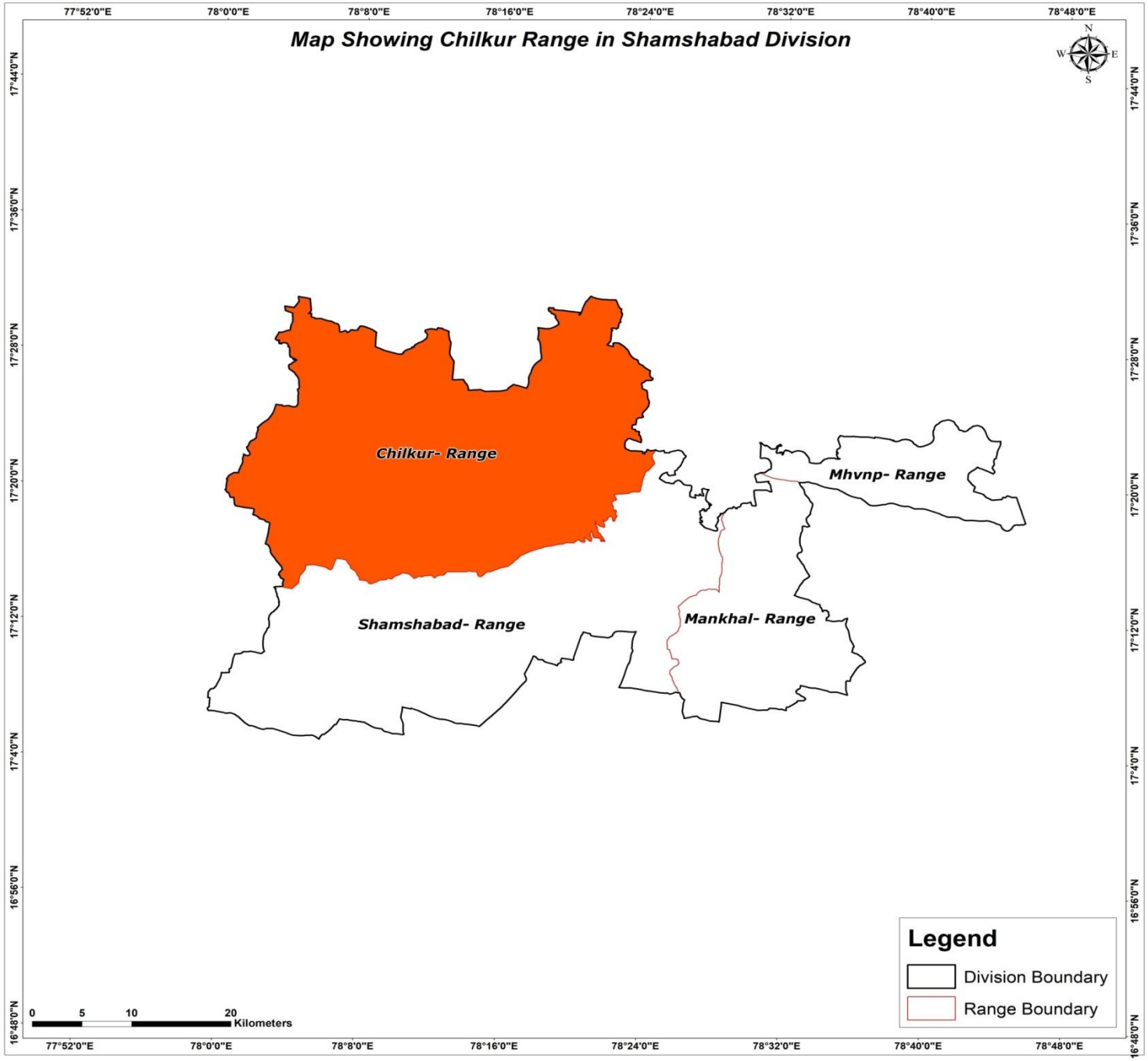
DIVISION	RANGE	Proposed PTs (Priority Wise)						Proposed
		I	II	III	IV	V	Proposed PTs	Large PTs
Shamshabad	Chilkur	26	4	0	0	0	30	1
	Mankhal	41	11	3	0	0	55	5
	Mhvnp	41	9	1	0	0	51	3
	Shamshabad	28	5	2	1	0	36	3
Shamshabad Total		**136**	**29**	**6**	**1**	**0**	**172**	**12**

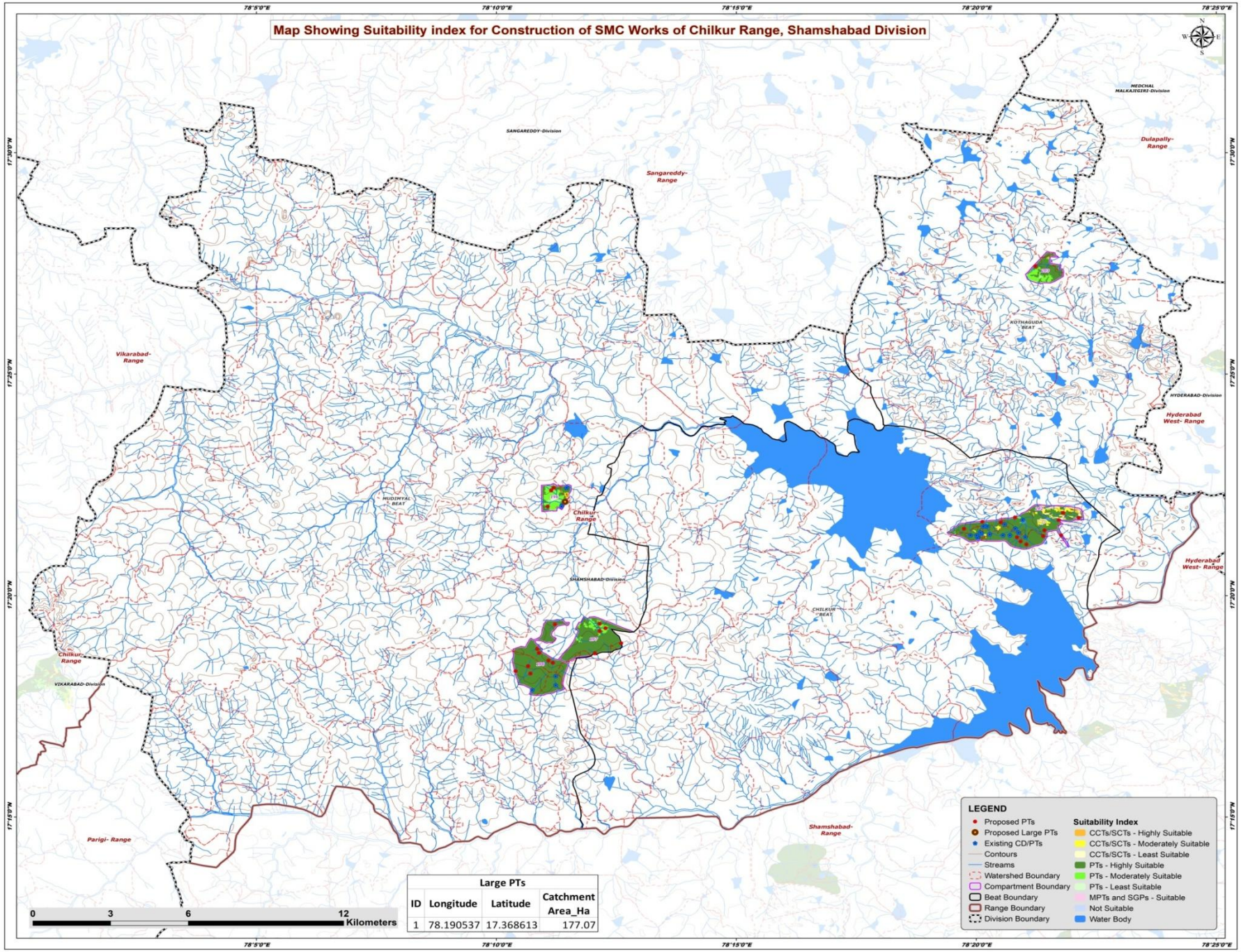
CATCHMENT AREA

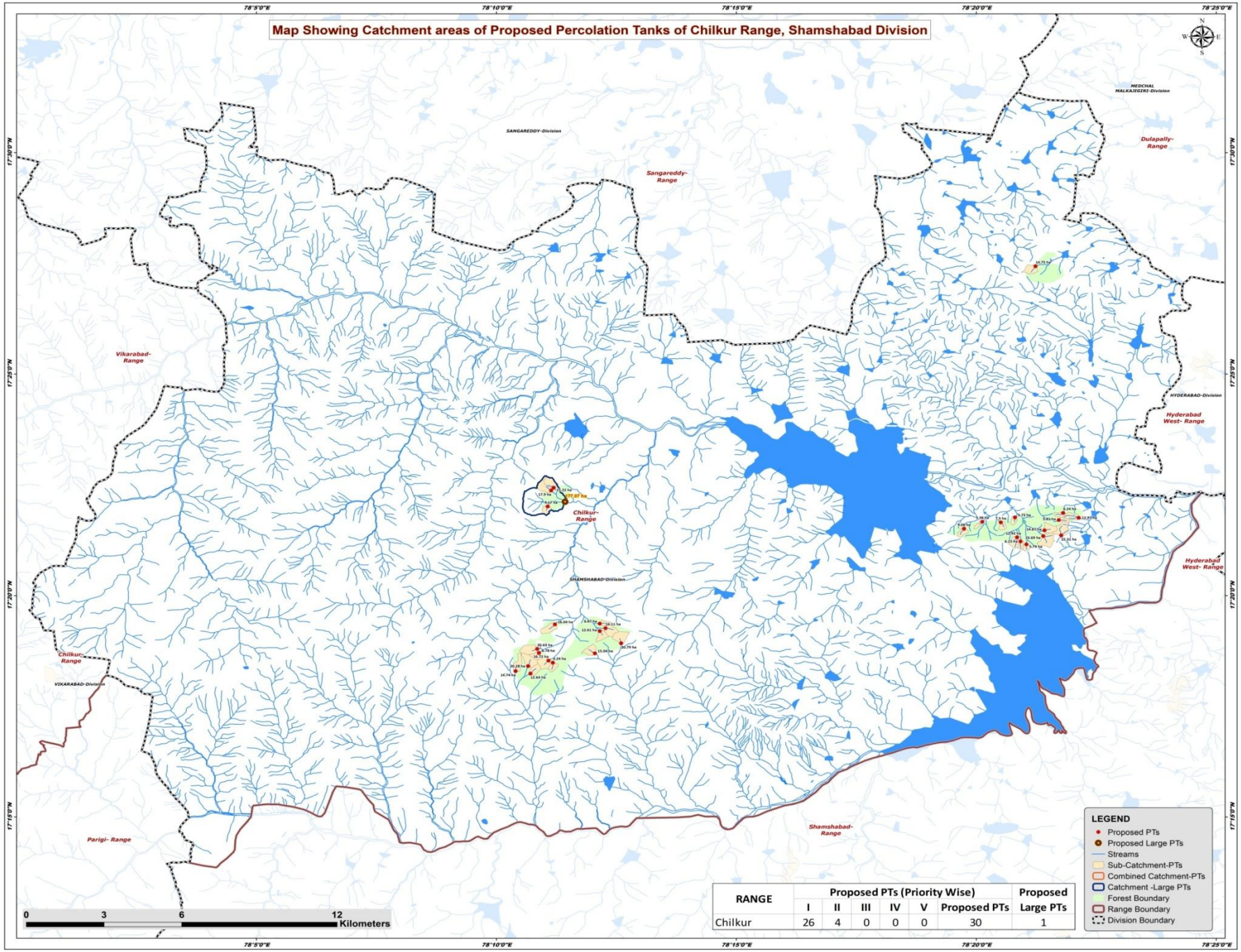


Sample Catchment Map




Map Showing Chilkur Range in Shamshabad Division
77°52'0"E
78°0'0"E
78°8'0"E
78°16'0"E
78°24'0"E
78°32'0"E
78°40'0"E
78°48'0"E
17°44'0"N
17°36'0"N
17°28'0"N
17°20'0"N
17°12'0"N
17°4'0"N
16°56'0"N
16°48'0"N
N
W
E
S
Chilkur- Range
Mhvnp- Range
Shamshabad- Range
Mankhal- Range
Legend
Division Boundary
Range Boundary
0 5 10 20
Kilometers


Map Showing Suitability index for Construction of SMC Works of Chilkur Range, Shamshabad Division
78°5'0"E
78°10'0"E
78°15'0"E
78°20'0"E
78°25'0"E
17°30'0"N
17°25'0"N
17°20'0"N
17°15'0"N
N
S
E
W
SANGAREDDY-Division
Sangareddy- Range
MEDCHAL MALKAJGIRI-Division
Dulapally- Range
KOTHAGUDA BEAT
Vikarabad- Range
HYDERABAD-Division
Hyderabad West- Range
MUDIMYAL BEAT
Chilkur- Range
SHAMSHABAD-Division
CHILKUR BEAT
Hyderabad West- Range
Chilkur- Range
VIKARABAD-Division
Parigi- Range
Shamshabad- Range
0
3
6
12
Kilometers
Large PTs
ID
Longitude
Latitude
Catchment Area_Ha
1
78.190537
17.368613
177.07
LEGEND
Proposed PTs
Proposed Large PTs
Existing CD/PTs
Contours
Streams
Watershed Boundary
Compartment Boundary
Beat Boundary
Range Boundary
Division Boundary
Suitability Index
CCTs/SCTs - Highly Suitable
CCTs/SCTs - Moderately Suitable
CCTs/SCTs - Least Suitable
PTs - Highly Suitable
PTs - Moderately Suitable
PTs - Least Suitable
MPTs and SGPs - Suitable
Not Suitable
Water Body



RANGE	Proposed PTs (Priority Wise)						Proposed
	I	II	III	IV	V	Proposed PTs	Large PTs
Chilkur	26	4	0	0	0	30	1

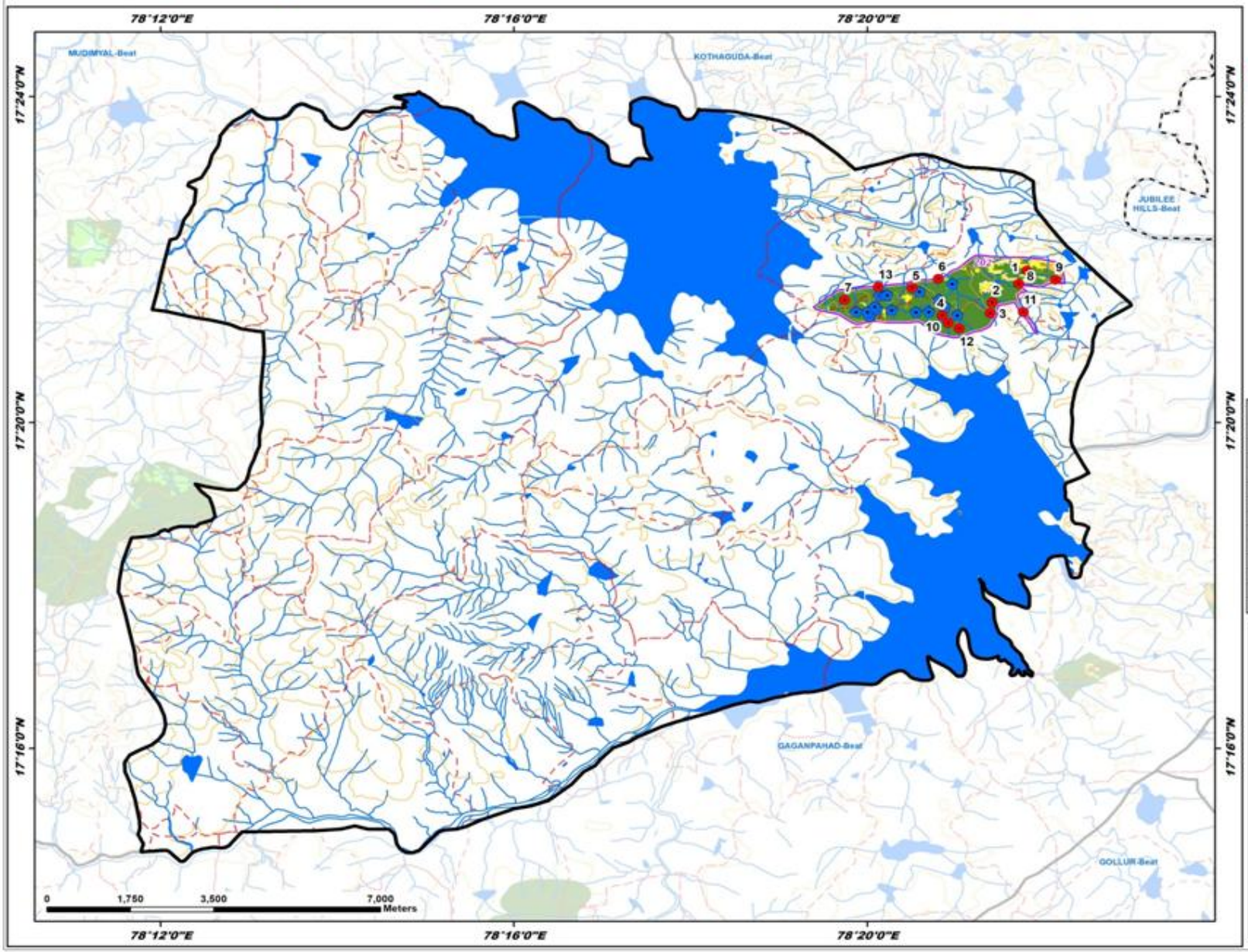
Beat wise Abstract of Proposed PT's – Chilkur Range

S. No.	Beat	Proposed PT's
1	CHILKUR	13
2	KOTHAGUDA	1
3	MUDIMYAL	16
	Total	**30**

List of Proposed PTs – Chilkur Range

ID	Latitude	Longitude	Catchment Area_Ha	Priority	Beat
1	17.364416	78.363515	6.24	I	CHILKUR
2	17.357885	78.357028	14.87	I	CHILKUR
3	17.355703	78.356598	23.69	I	CHILKUR
4	17.355256	78.347547	12.92	I	CHILKUR
5	17.360873	78.341867	7.50	I	CHILKUR
6	17.362741	78.346808	5.73	I	CHILKUR
7	17.358453	78.329093	9.08	I	CHILKUR
8	17.361757	78.361986	5.81	I	CHILKUR
9	17.362593	78.368909	12.97	I	CHILKUR
10	17.353698	78.348712	6.15	I	CHILKUR
11	17.355989	78.362836	22.31	I	CHILKUR
12	17.352587	78.350757	5.79	I	CHILKUR
13	17.361121	78.335476	5.38	I	CHILKUR
14	17.457229	78.353939	14.75	I	KOTHAGUDA
15	17.304914	78.173353	14.74	I	MUDIMYAL
16	17.308072	78.186329	9.24	I	MUDIMYAL
17	17.311728	78.181476	8.78	I	MUDIMYAL
18	17.373919	78.186582	15.22	I	MUDIMYAL
19	17.313244	78.180886	20.63	I	MUDIMYAL
20	17.306763	78.177711	20.28	I	MUDIMYAL
21	17.311572	78.200897	15.04	I	MUDIMYAL
22	17.304003	78.178522	12.64	I	MUDIMYAL
23	17.308856	78.184803	16.72	I	MUDIMYAL
24	17.322480	78.187015	16.04	I	MUDIMYAL
25	17.315384	78.209998	20.79	I	MUDIMYAL
26	17.319973	78.202561	12.61	I	MUDIMYAL
27	17.366847	78.184530	9.17	II	MUDIMYAL
28	17.321058	78.204581	16.11	II	MUDIMYAL
29	17.372866	78.185695	17.90	II	MUDIMYAL
30	17.322790	78.202593	6.87	II	MUDIMYAL

Map Showing Suitability Index for Construction of SMC Works of Chilkur Beat



Division : Shamshabad
Range : Chilkur

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
1	17.364416	78.363515	6.24	I
2	17.357885	78.357028	14.87	I
3	17.355703	78.356598	23.69	I
4	17.355256	78.347547	12.92	I
5	17.360873	78.341867	7.50	I
6	17.362741	78.346808	5.73	I
7	17.358453	78.329093	9.08	I
8	17.361757	78.361986	5.81	I
9	17.362593	78.368909	12.97	I
10	17.353698	78.348712	6.15	I
11	17.355989	78.362896	22.31	I
12	17.352587	78.350757	5.79	I
13	17.361121	78.335476	5.38	I

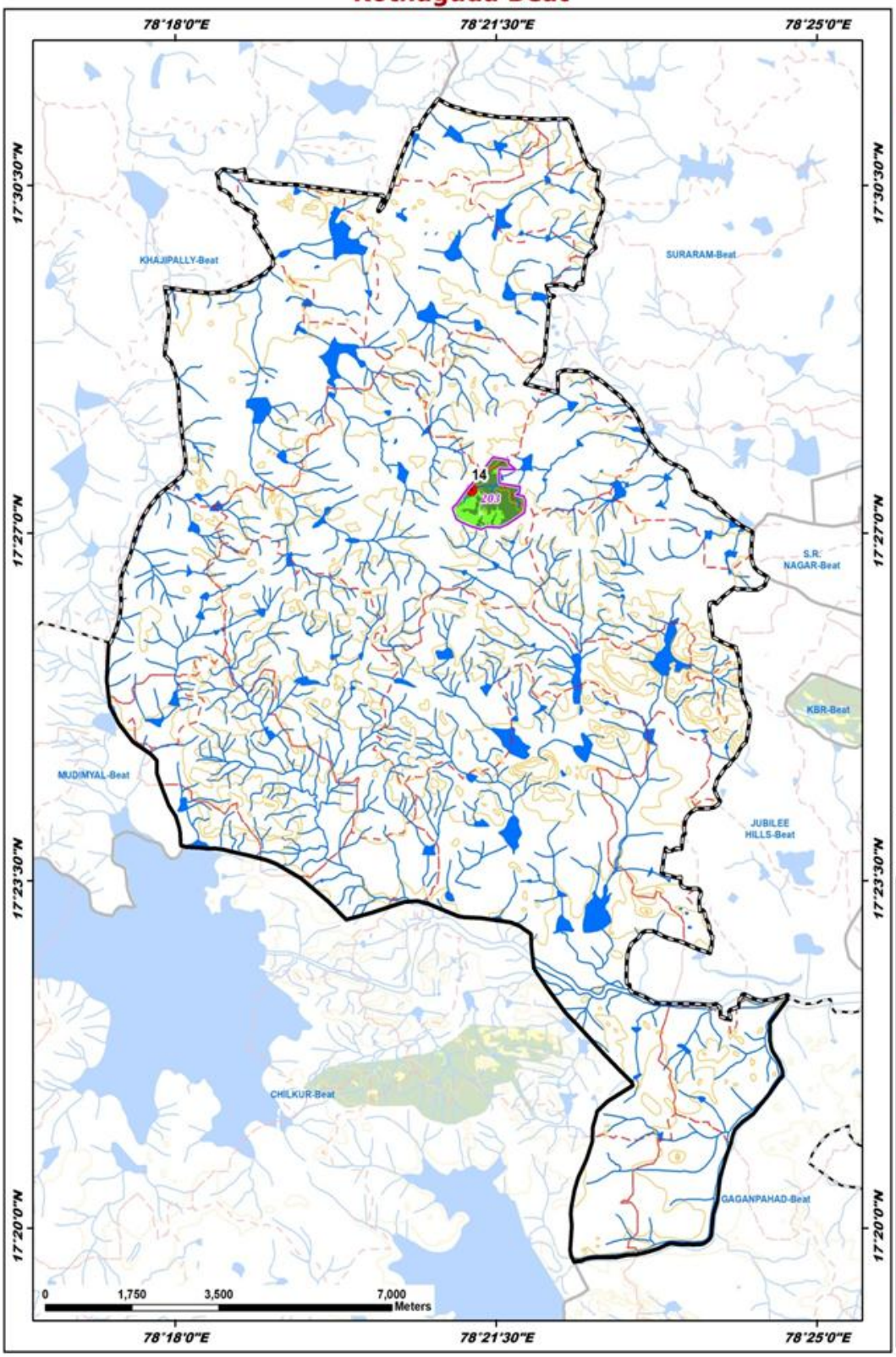
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Kothaguda Beat



Division : Shamshabad
Range : Chilkur

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
14	17.457229	78.353939	14.75	I

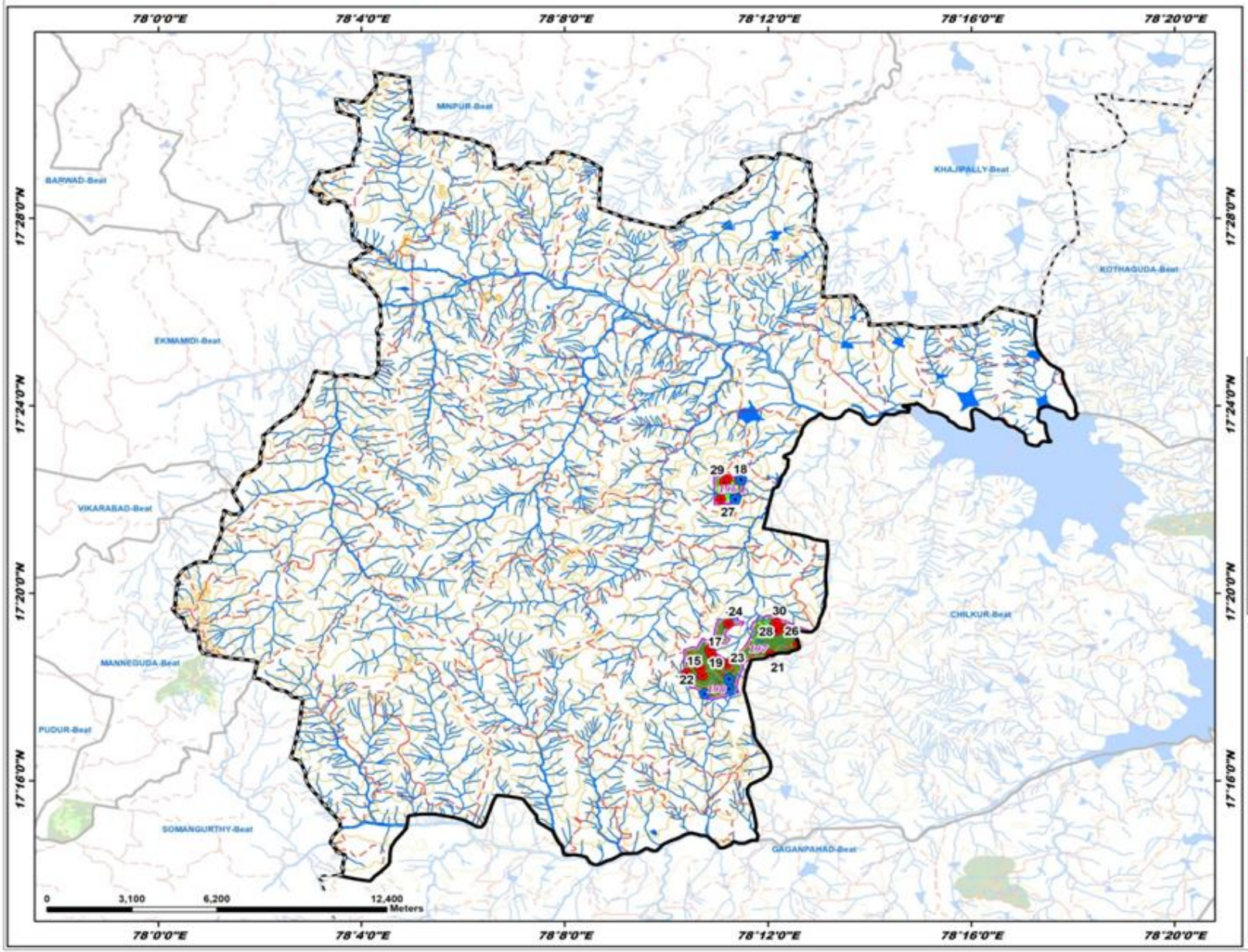
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Mudimyal Beat



Division : Shamshabad
Range : Chilkur

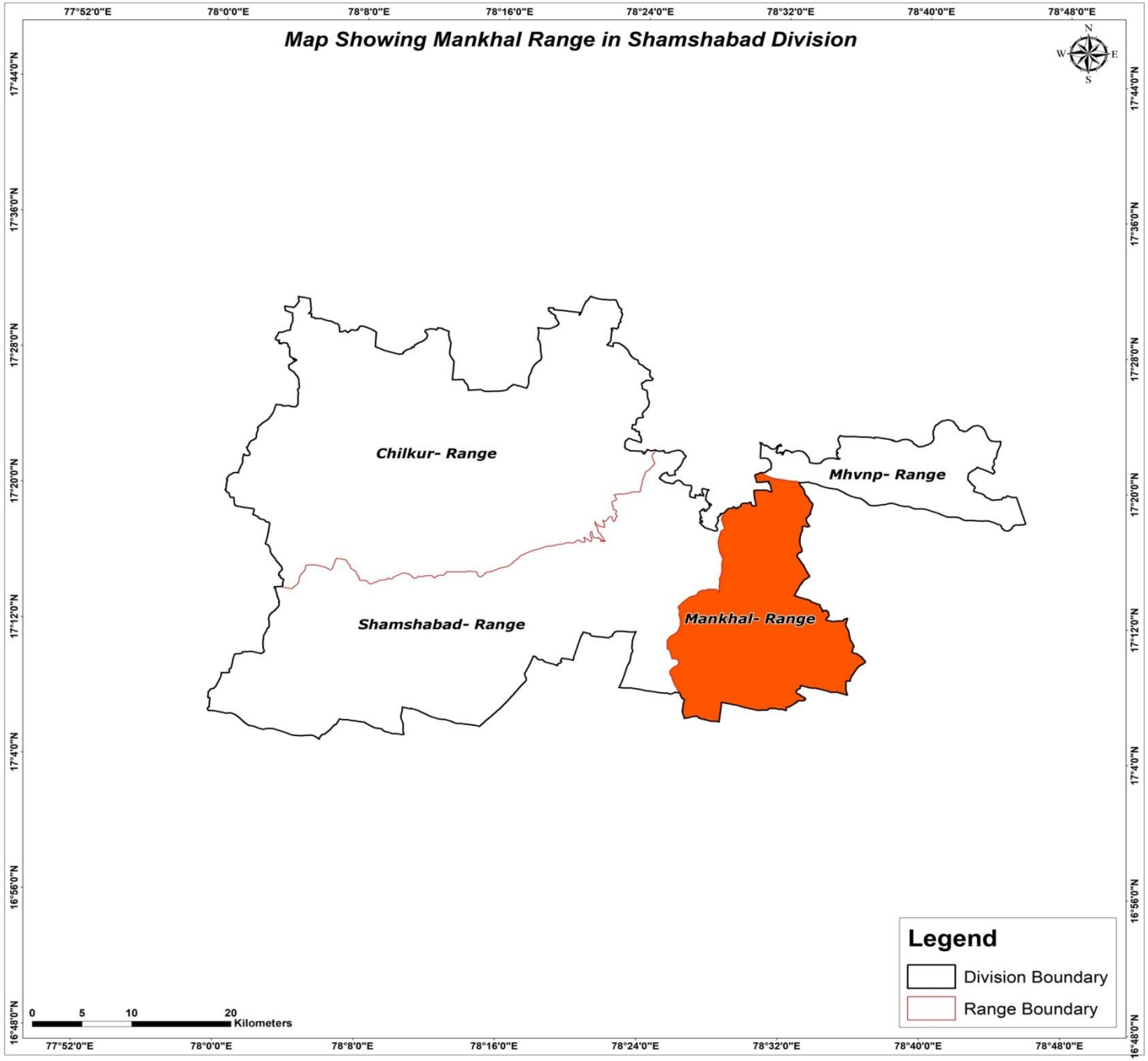
ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
15	17.304914	78.173353	14.74	I
16	17.308072	78.186329	9.24	I
17	17.311728	78.181476	8.78	I
18	17.379919	78.186582	15.22	I
19	17.313244	78.180886	20.63	I
20	17.306763	78.177711	20.28	I
21	17.311572	78.200897	15.04	I
22	17.304003	78.178522	12.64	I
23	17.308856	78.184803	16.72	I
24	17.322480	78.187015	16.04	I
25	17.315384	78.209998	20.79	I
26	17.319973	78.202561	12.61	I
27	17.366847	78.184530	9.17	II
28	17.321058	78.204581	16.11	II
29	17.372866	78.185695	17.90	II
30	17.322790	78.202593	6.87	II

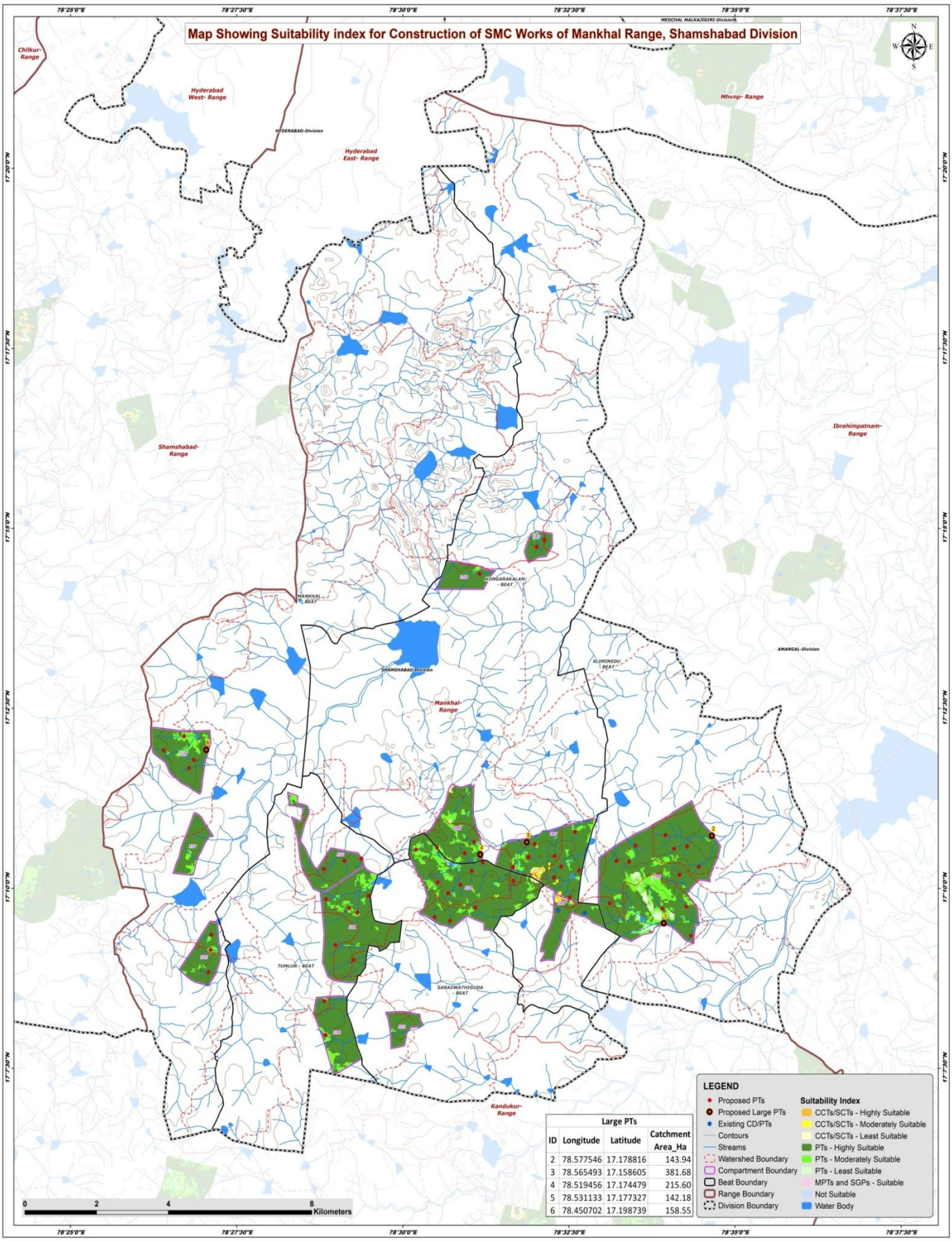
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

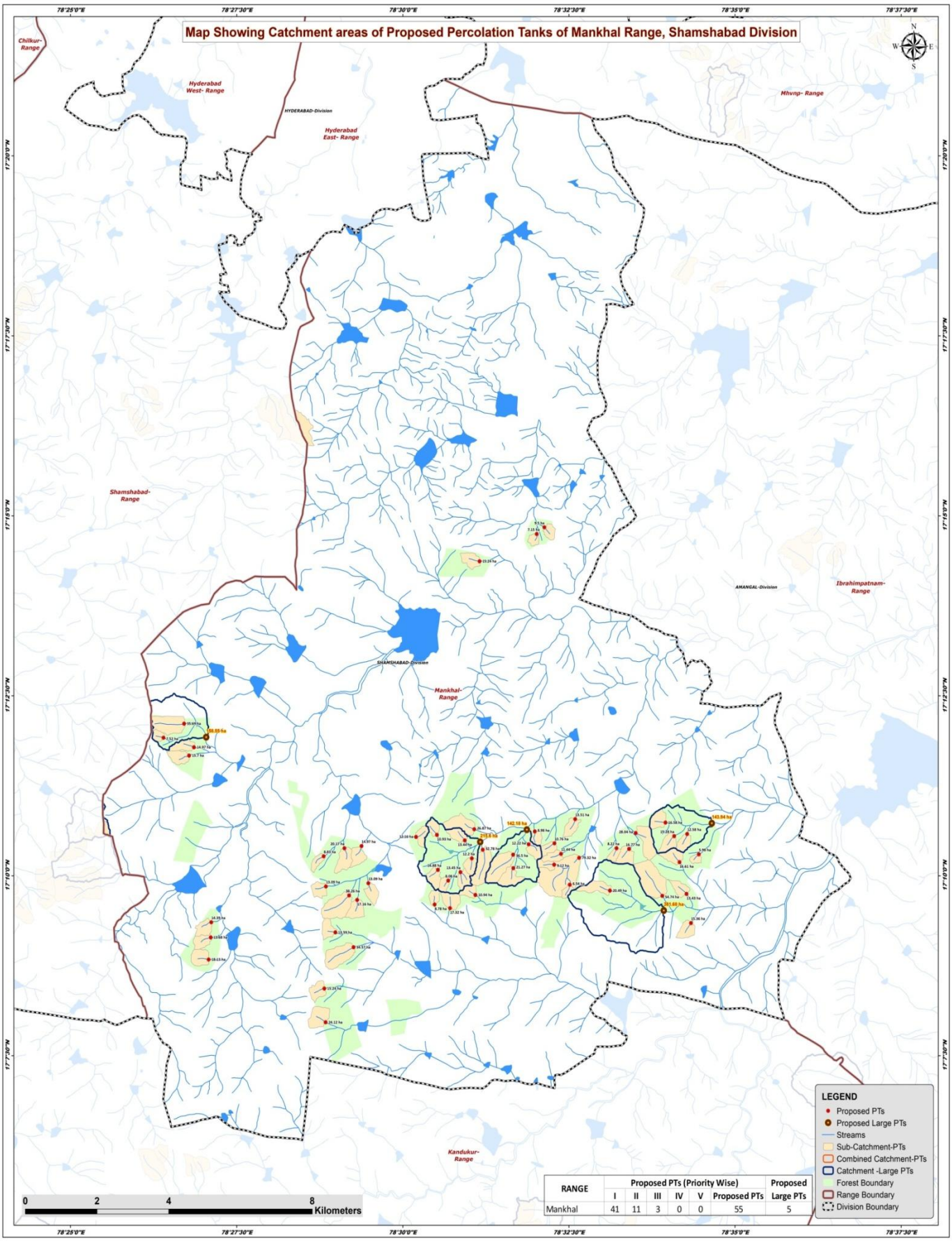
Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body


Map Showing Mankhal Range in Shamshabad Division
77°52'0"E
78°0'0"E
78°8'0"E
78°16'0"E
78°24'0"E
78°32'0"E
78°40'0"E
78°48'0"E
17°44'0"N
17°36'0"N
17°28'0"N
17°20'0"N
17°12'0"N
17°4'0"N
16°56'0"N
16°48'0"N
N
W
E
S
Chilkur- Range
Mhvnp- Range
Shamshabad- Range
Mankhal- Range
Legend
Division Boundary
Range Boundary
0 5 10 20
Kilometers



Large PTs			
ID	Longitude	Latitude	Catchment Area_Ha
2	78.577546	17.178816	143.94
3	78.565493	17.158605	381.68
4	78.519456	17.174479	215.60
5	78.531133	17.177327	142.18
6	78.450702	17.198739	158.55



RANGE	Proposed PTs (Priority Wise)						Proposed
	I	II	III	IV	V	Proposed PTs	Large PTs
Mankhal	41	11	3	0	0	55	5

Beat wise Abstract of Proposed PT's – Mankhal Range

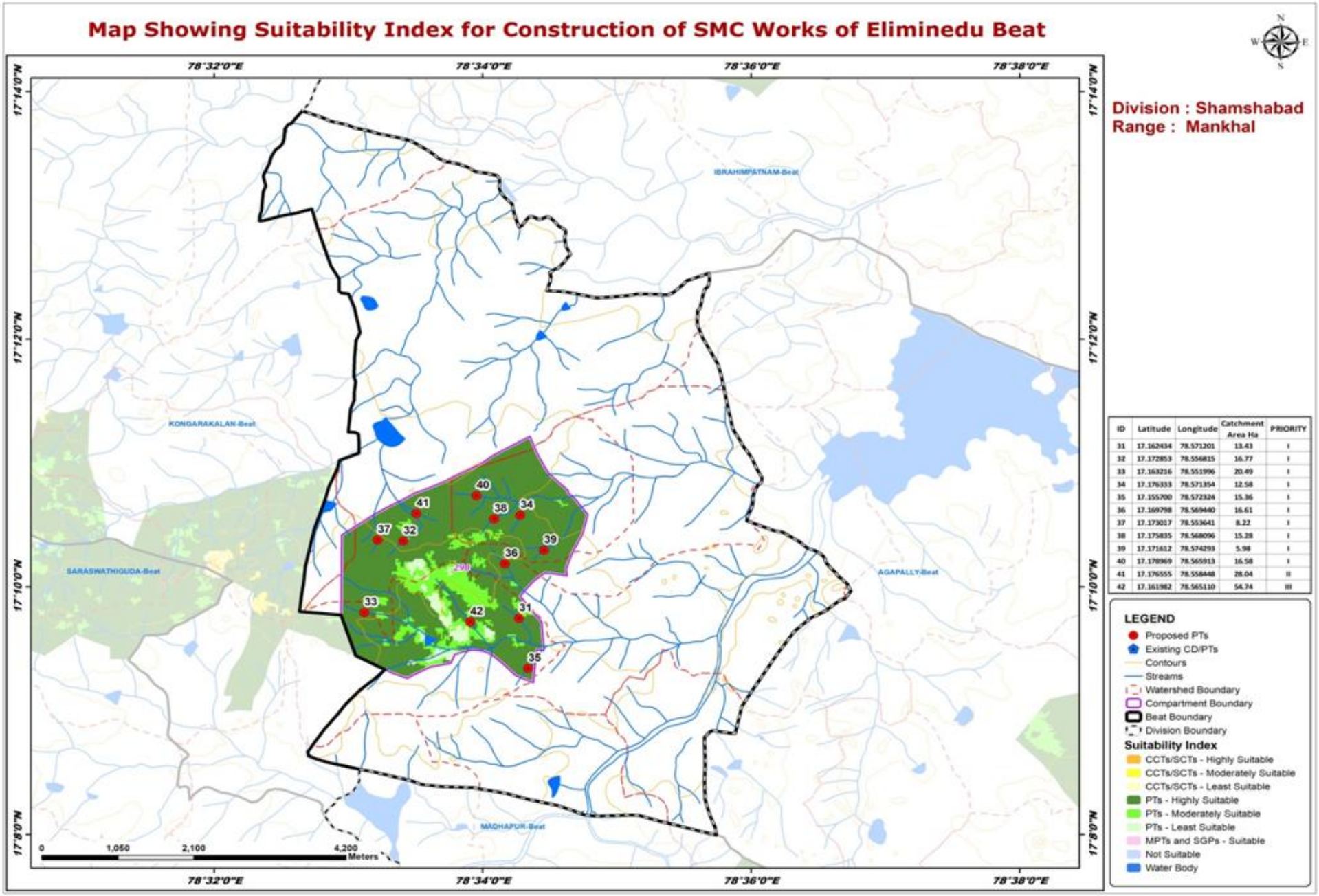
S. No.	Beat	Proposed PT's
1	ELIMINEDU	12
2	KONGARAKALAN	15
3	MANKHAL	7
4	SARASWATHIGUDA	10
5	TUMLUR	11
	Total	**55**

List of Proposed PTs – Mankhal Range

ID	Latitude	Longitude	Catchment Area_Ha	Priority	Beat
31	17.162434	78.571201	13.43	I	ELIMINEDU
32	17.172853	78.556815	16.77	I	ELIMINEDU
33	17.163216	78.551996	20.49	I	ELIMINEDU
34	17.176333	78.571354	12.58	I	ELIMINEDU
35	17.155700	78.572324	15.36	I	ELIMINEDU
36	17.169798	78.569440	16.61	I	ELIMINEDU
37	17.173017	78.553641	8.22	I	ELIMINEDU
38	17.175835	78.568096	15.28	I	ELIMINEDU
39	17.171612	78.574293	5.98	I	ELIMINEDU
40	17.178969	78.565913	16.58	I	ELIMINEDU
41	17.176555	78.558448	28.04	II	ELIMINEDU
42	17.161982	78.565110	54.74	III	ELIMINEDU
43	17.171712	78.539717	11.44	I	KONGARAKALAN
44	17.164566	78.541902	6.54	I	KONGARAKALAN
45	17.245773	78.533630	7.15	I	KONGARAKALAN
46	17.174827	78.515585	13.44	I	KONGARAKALAN
47	17.173928	78.531594	12.22	I	KONGARAKALAN
48	17.174161	78.538070	10.76	I	KONGARAKALAN
49	17.179756	78.543281	13.51	I	KONGARAKALAN
50	17.239470	78.519281	15.24	I	KONGARAKALAN
51	17.247314	78.535551	9.50	I	KONGARAKALAN
52	17.169208	78.537999	9.12	I	KONGARAKALAN
53	17.171542	78.527717	36.50	II	KONGARAKALAN
54	17.177415	78.517944	26.87	II	KONGARAKALAN
55	17.176111	78.508596	10.93	II	KONGARAKALAN
56	17.176909	78.533130	8.98	II	KONGARAKALAN
57	17.170821	78.544249	79.32	III	KONGARAKALAN
58	17.162216	78.518244	10.94	I	SARASWATHIGUDA
59	17.167476	78.514476	13.45	I	SARASWATHIGUDA
60	17.159989	78.508008	8.78	I	SARASWATHIGUDA
61	17.168410	78.527768	21.27	I	SARASWATHIGUDA
62	17.159153	78.511874	17.32	I	SARASWATHIGUDA
63	17.168022	78.508841	14.88	I	SARASWATHIGUDA
64	17.165533	78.511431	8.08	I	SARASWATHIGUDA
65	17.170694	78.517333	12.20	I	SARASWATHIGUDA
66	17.175636	78.503342	12.16	II	SARASWATHIGUDA
67	17.172684	78.520094	32.78	II	SARASWATHIGUDA
68	17.147262	78.451329	18.13	I	MANKHAL
69	17.155901	78.451984	14.39	I	MANKHAL
70	17.198598	78.439988	7.52	I	MANKHAL

ID	Latitude	Longitude	Catchment Area_Ha	Priority	Beat
71	17.194490	78.446419	15.70	I	MANKHAL
72	17.196405	78.447653	14.97	I	MANKHAL
73	17.152377	78.451849	13.68	II	MANKHAL
74	17.201871	78.445182	35.69	III	MANKHAL
75	17.132719	78.480667	24.12	I	TUMLUR
76	17.164936	78.491395	13.09	I	TUMLUR
77	17.140552	78.480357	15.24	I	TUMLUR
78	17.164173	78.480745	13.09	I	TUMLUR
79	17.171154	78.480196	8.83	I	TUMLUR
80	17.173034	78.485381	20.17	I	TUMLUR
81	17.153541	78.483111	13.59	I	TUMLUR
82	17.173536	78.489677	14.97	I	TUMLUR
83	17.161057	78.488594	17.16	II	TUMLUR
84	17.162105	78.486568	38.26	II	TUMLUR
85	17.150094	78.487669	34.57	II	TUMLUR

Map Showing Suitability Index for Construction of SMC Works of Eliminedu Beat



Division : Shamshabad
Range : Mankhal

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
31	17.162434	78.571201	13.43	I
32	17.172853	78.556815	16.77	I
33	17.163216	78.551996	20.49	I
34	17.176333	78.571354	12.58	I
35	17.155700	78.572324	15.36	I
36	17.169798	78.569440	16.61	I
37	17.173017	78.553641	8.22	I
38	17.175835	78.568096	15.28	I
39	17.171612	78.574293	5.98	I
40	17.178969	78.565913	16.58	I
41	17.176555	78.558448	28.04	II
42	17.161982	78.565110	54.74	III

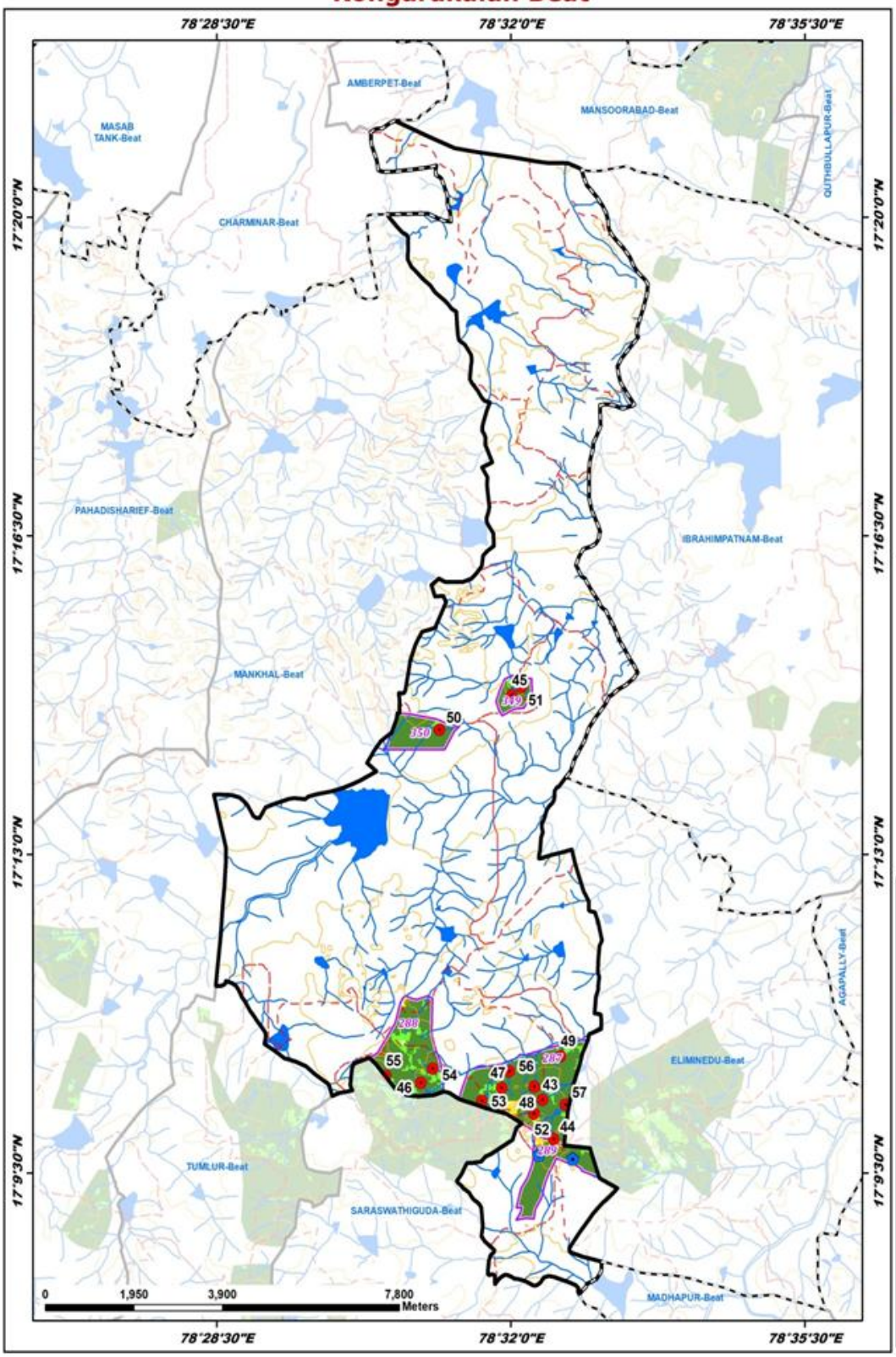
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Kongarakalan Beat



Division : Shamshabad
Range : Mankhal

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
43	17.171712	78.539717	11.44	I
44	17.164566	78.541902	6.54	I
45	17.245773	78.533630	7.15	I
46	17.174827	78.515585	13.44	I
47	17.173928	78.531594	12.22	I
48	17.174161	78.538070	10.76	I
49	17.179756	78.543281	13.51	I
50	17.239470	78.519281	15.24	I
51	17.247314	78.535551	9.50	I
52	17.169208	78.537999	9.12	I
53	17.171542	78.527717	36.50	II
54	17.177415	78.517944	26.87	II
55	17.176111	78.508596	10.93	II
56	17.176909	78.533130	8.98	II
57	17.170821	78.544249	79.32	III

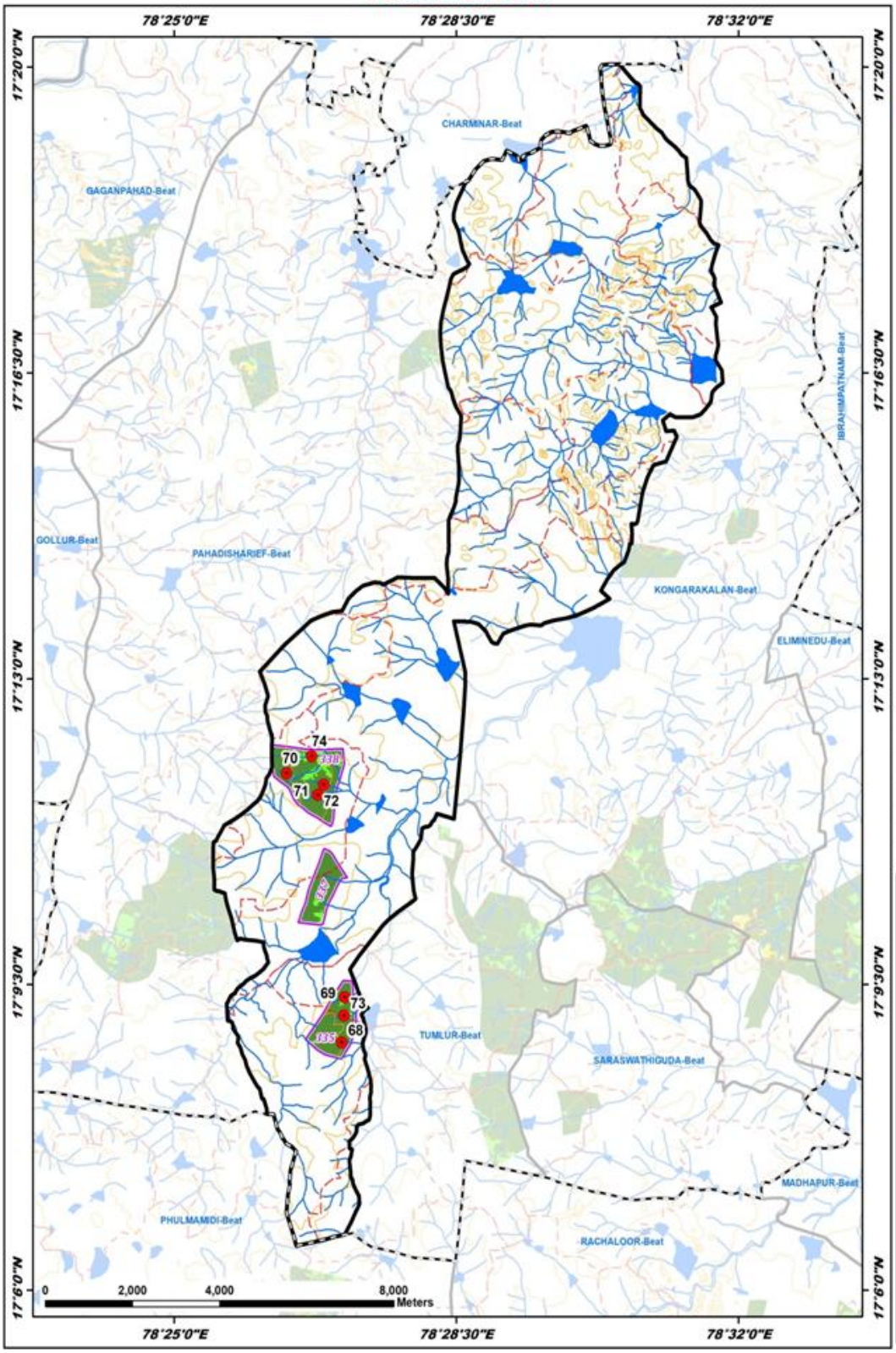
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Mankhal Beat



Division : Shamshabad
Range : Mankhal

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
68	17.147262	78.451329	18.13	I
69	17.155901	78.451984	14.39	I
70	17.198598	78.439988	7.52	I
71	17.194490	78.446419	15.70	I
72	17.196405	78.447653	14.97	I
73	17.152377	78.451849	13.68	II
74	17.201871	78.445182	35.69	III

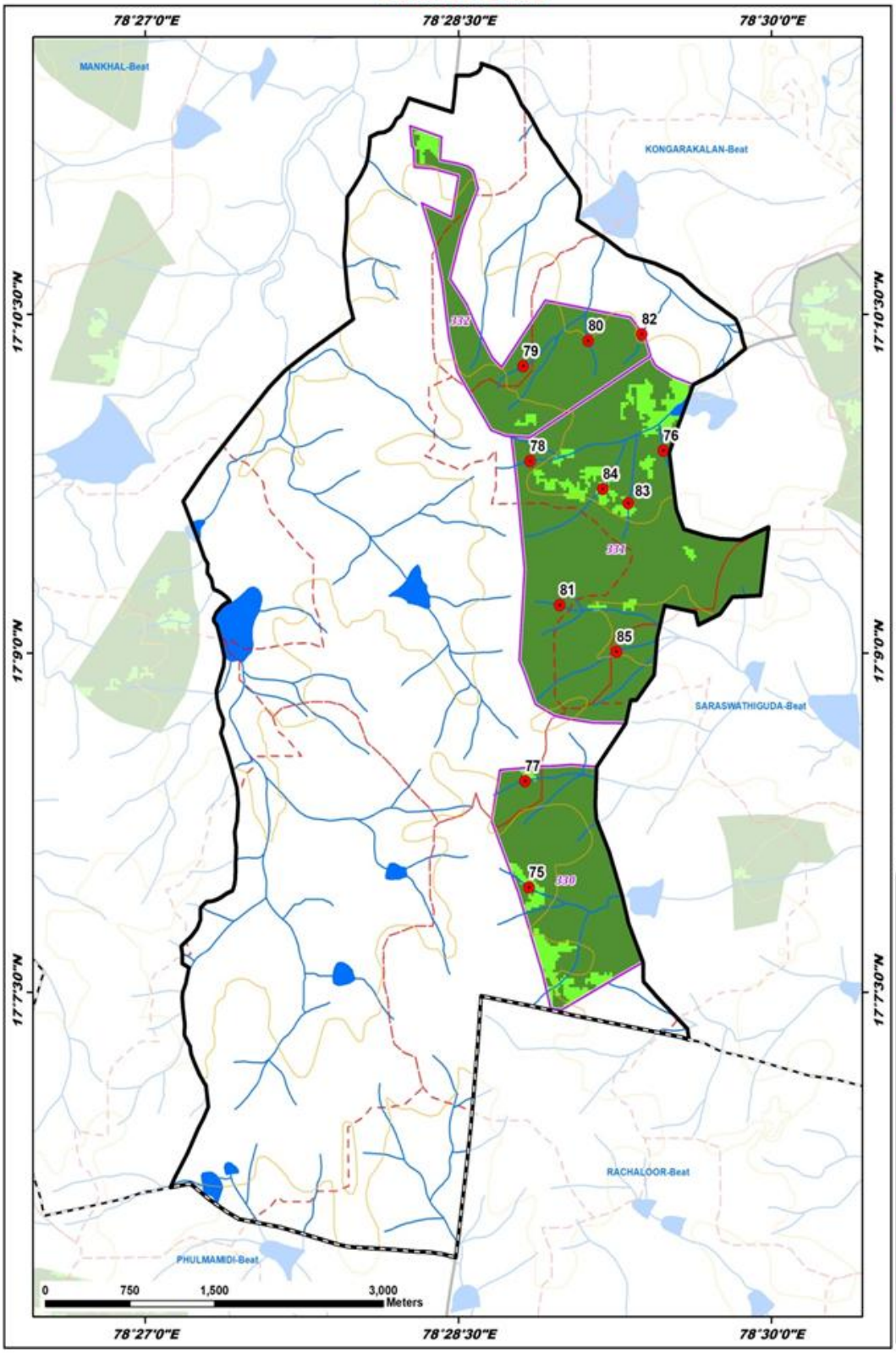
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Tumlur Beat



Division : Shamshabad
Range : Mankhal

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
75	17.132719	78.480667	24.12	I
76	17.164936	78.491395	13.09	I
77	17.140552	78.480357	15.24	I
78	17.164173	78.480745	13.09	I
79	17.171154	78.480196	8.83	I
80	17.173034	78.485381	20.17	I
81	17.153541	78.483111	13.59	I
82	17.173536	78.489677	14.97	I
83	17.161057	78.488594	17.16	II
84	17.162105	78.486568	38.26	II
85	17.150094	78.487669	34.57	II

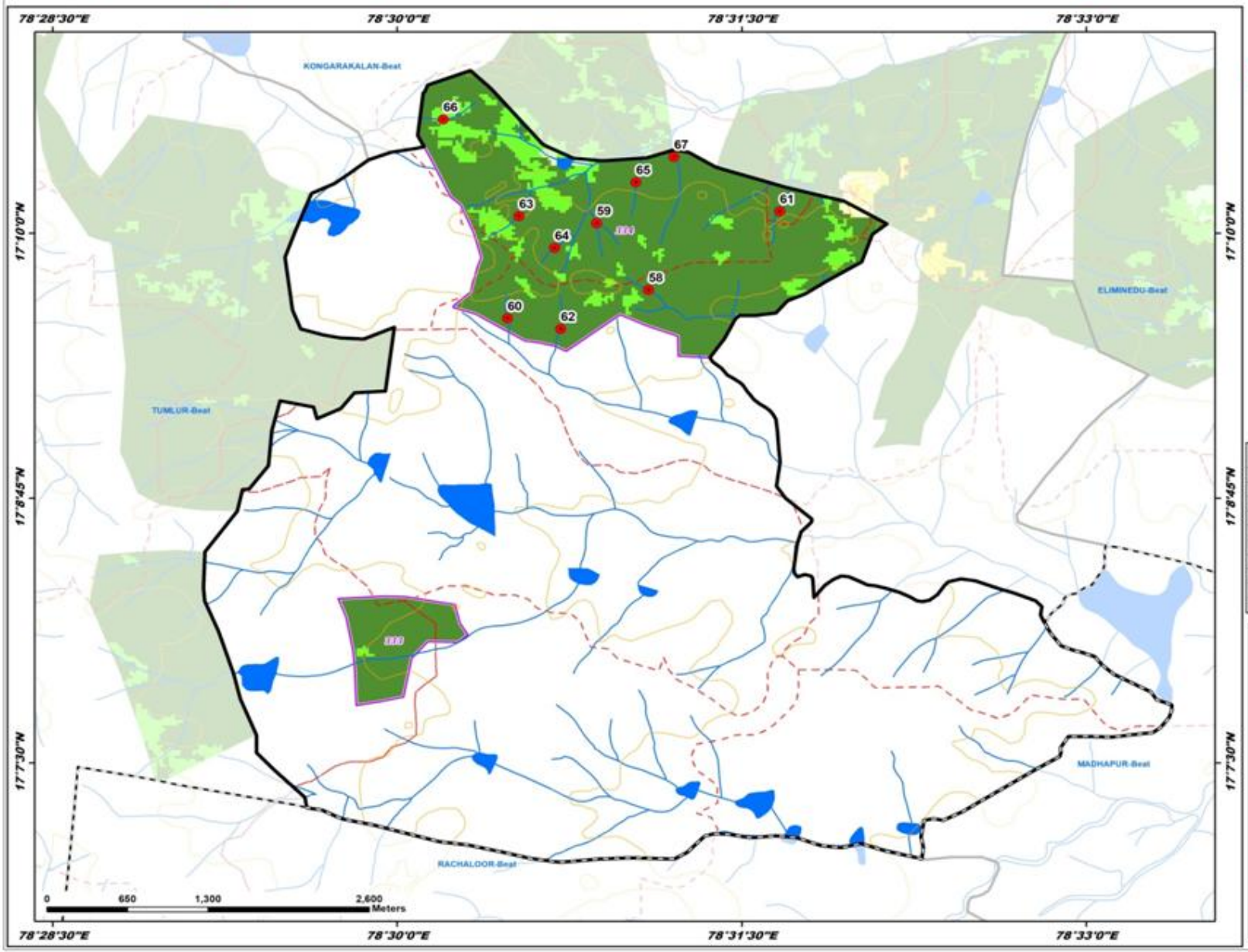
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Saraswathiguda Beat



Division : Shamshabad
Range : Mankhal

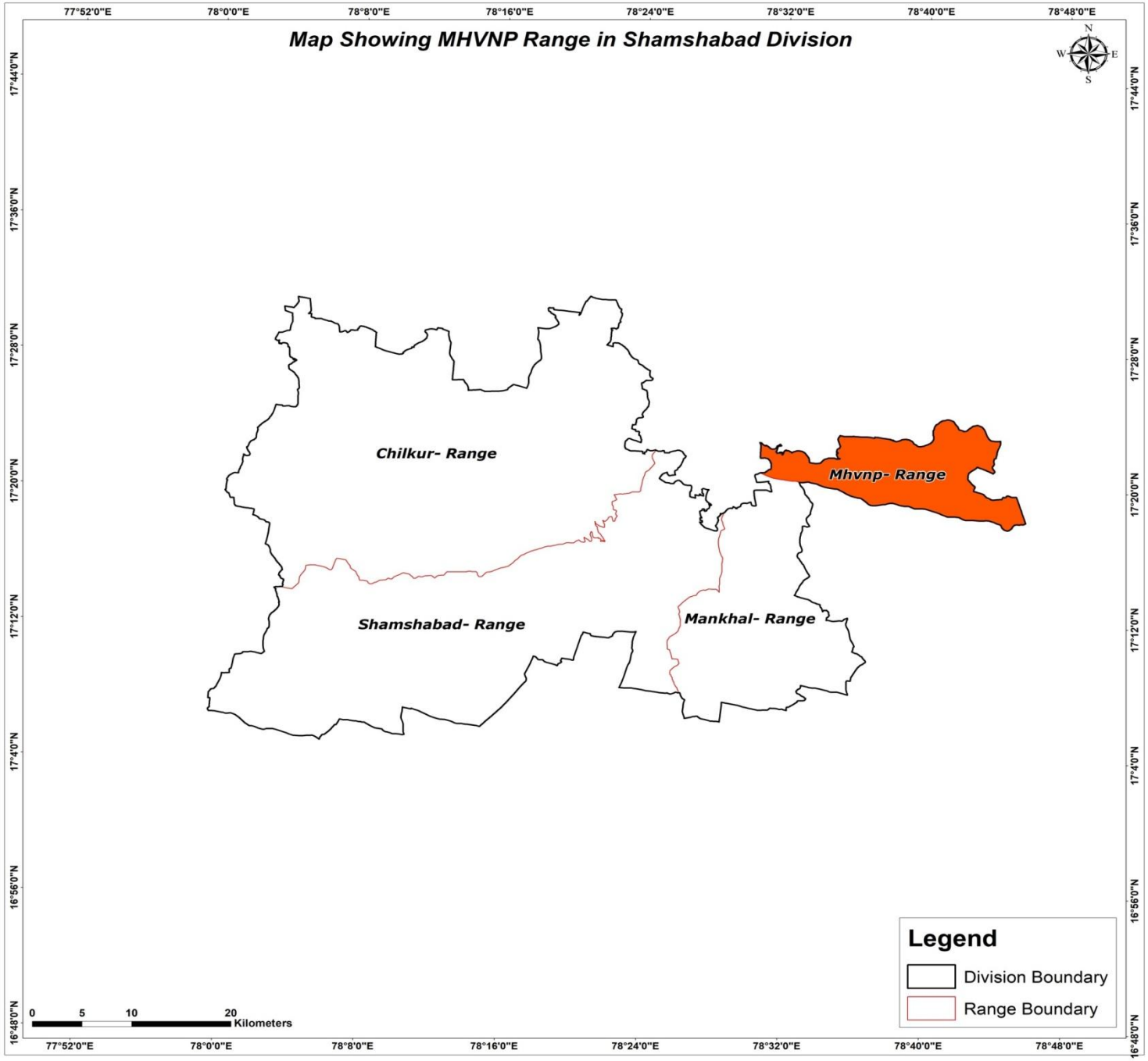
ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
58	17.162216	78.518244	10.94	I
59	17.167476	78.514476	13.45	I
60	17.159989	78.508008	8.78	I
61	17.168410	78.527768	21.27	I
62	17.159153	78.511874	17.32	I
63	17.168022	78.508841	14.88	I
64	17.165533	78.511431	8.08	I
65	17.170694	78.517333	12.20	I
66	17.175636	78.503342	12.16	II
67	17.172684	78.520094	32.78	II

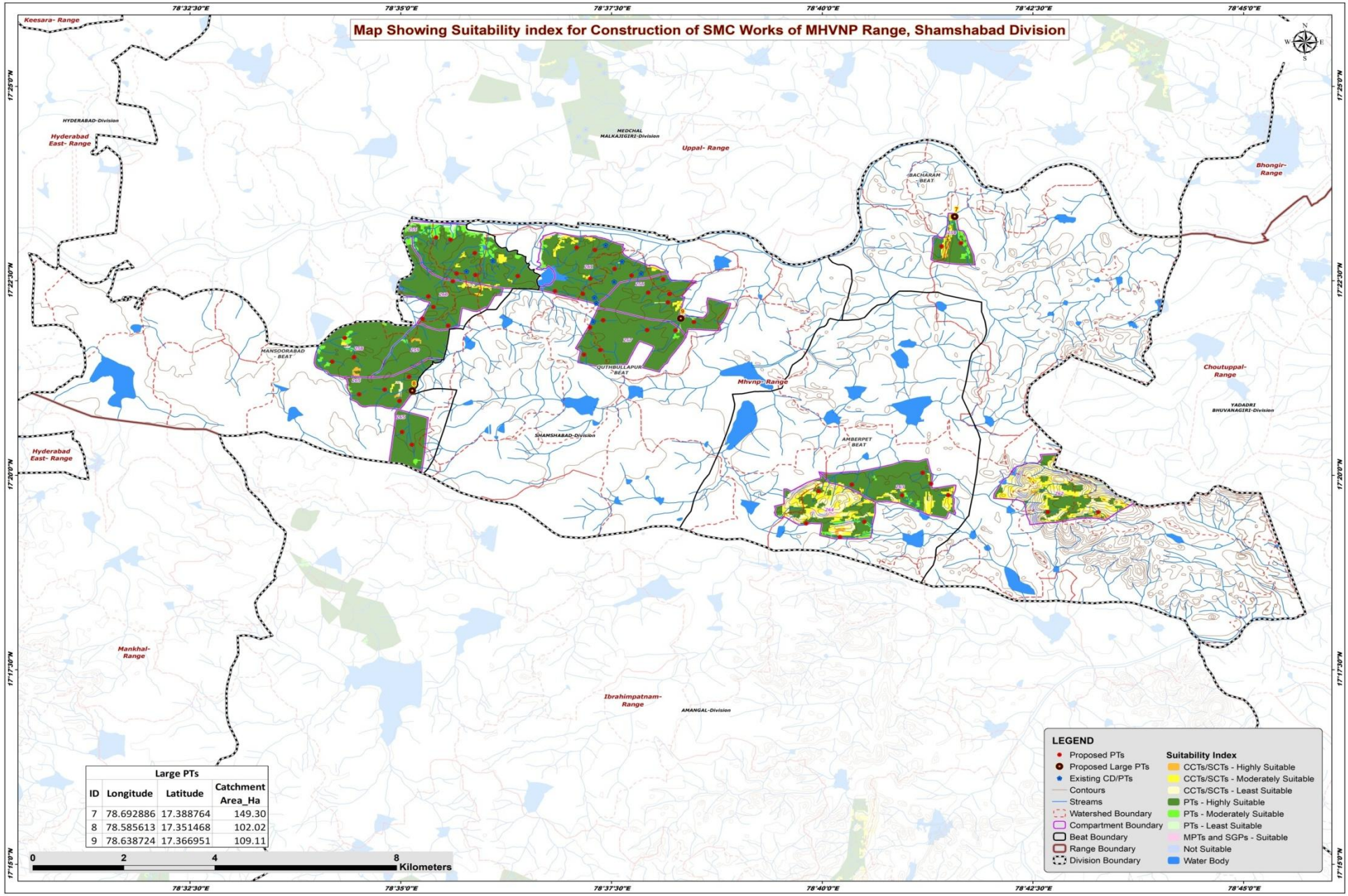
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

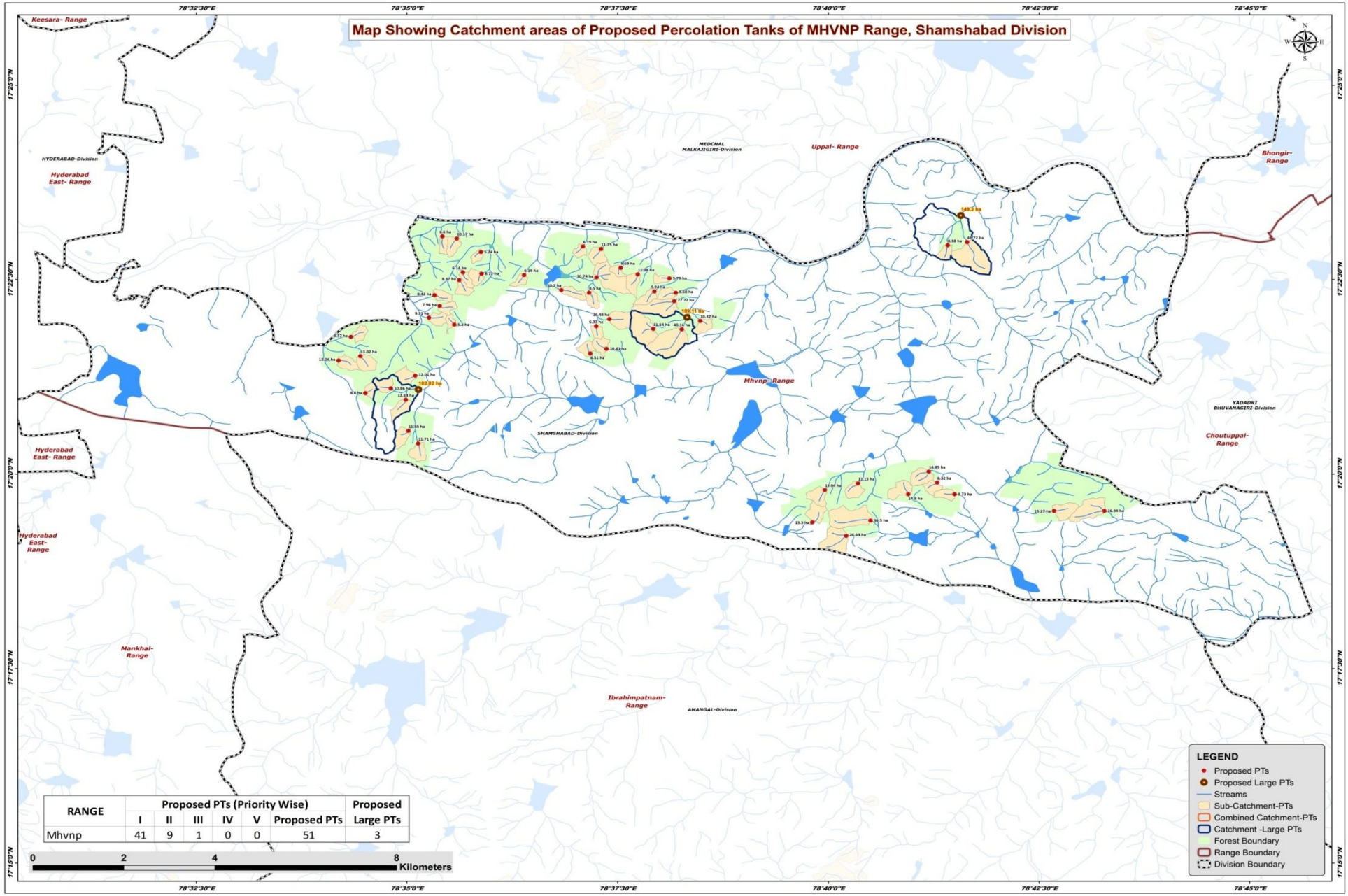
Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body


Map Showing MHVNP Range in Shamshabad Division
77°52'0"E
78°0'0"E
78°8'0"E
78°16'0"E
78°24'0"E
78°32'0"E
78°40'0"E
78°48'0"E
17°44'0"N
17°36'0"N
17°28'0"N
17°20'0"N
17°12'0"N
17°4'0"N
16°56'0"N
16°48'0"N
N
S
E
W
Chilkur- Range
Mhvnp- Range
Shamshabad- Range
Mankhal- Range
Legend
Division Boundary
Range Boundary
0 5 10 20
Kilometers



Large PTs			
ID	Longitude	Latitude	Catchment Area_Ha
7	78.692886	17.388764	149.30
8	78.585613	17.351468	102.02
9	78.638724	17.366951	109.11


Map Showing Catchment areas of Proposed Percolation Tanks of MHVNP Range, Shamshabad Division
78°32'30"E
78°35'0"E
78°37'30"E
78°40'0"E
78°42'30"E
78°45'0"E
17°25'0"N
17°22'30"N
17°20'0"N
17°17'30"N
17°15'0"N
Keesara- Range
HYDERABAD-Division
Hyderabad East- Range
MEDCHAL MALKAJIGIRI-Division
Uppal- Range
Bhongir- Range
Mhvnp- Range
SHAMSHABAD-Division
YADADRI BHUVANAGIRI-Division
Choutuppal- Range
Ibrahimpatnam- Range
AMANGAL-Division
Mankhal- Range
148.3 ha
109.31 ha
102.92 ha
RANGE
Proposed PTs (Priority Wise)
I
II
III
IV
V
Proposed PTs
Proposed Large PTs
Mhvnp
41
9
1
0
0
51
3
0
2
4
8
Kilometers
LEGEND
Proposed PTs
Proposed Large PTs
Streams
Sub-Catchment-PTs
Combined Catchment-PTs
Catchment -Large PTs
Forest Boundary
Range Boundary
Division Boundary

Beat wise Abstract of Proposed PT's – MHVNP Range

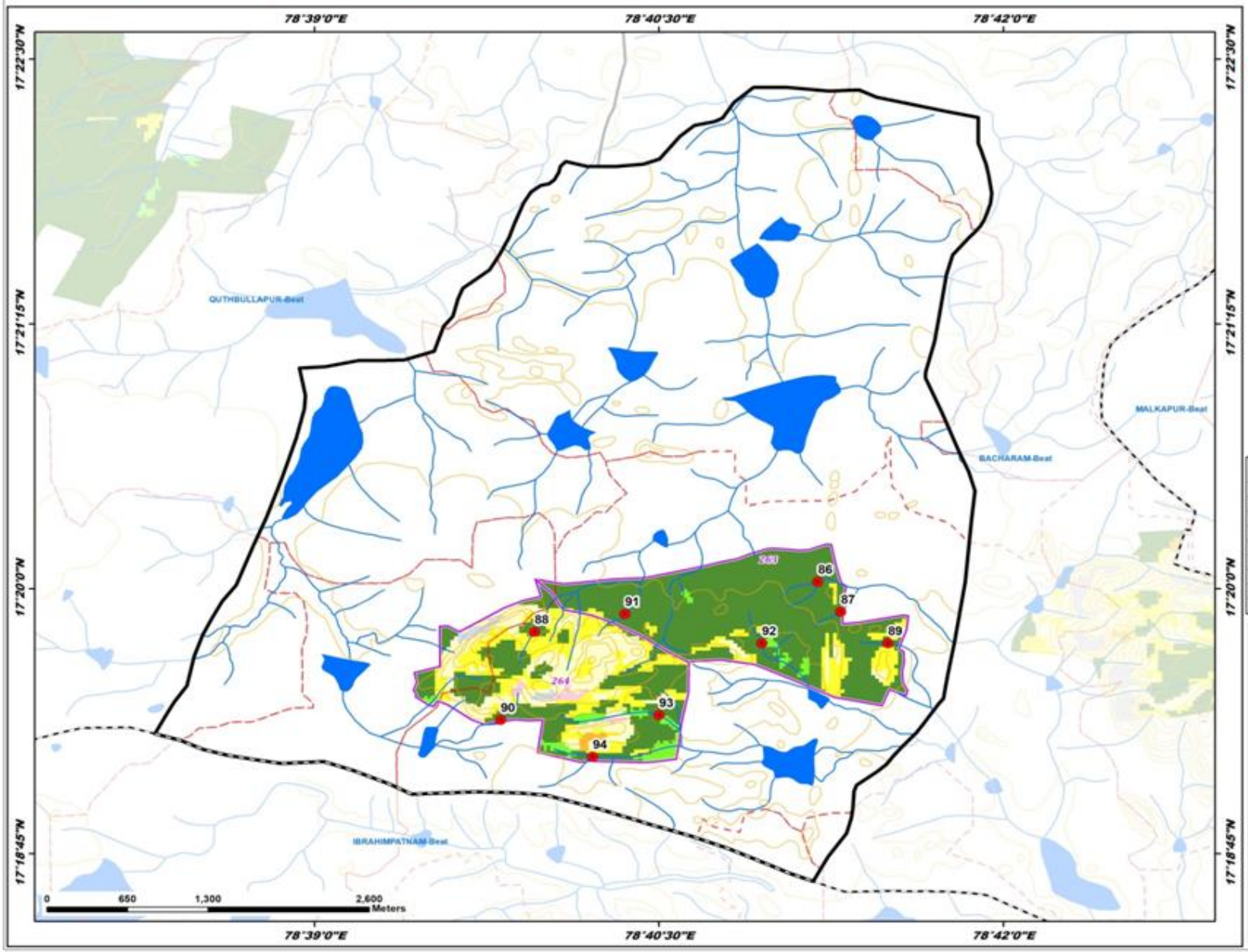
S. No.	Beat	Proposed PT's
1	AMBERPET	9
2	BACHARAM	4
3	MANSOORABAD	20
4	QUTHBULLAPUR	18
	Total	**51**

List of Proposed PTs – MHVNP Range

ID	Latitude	Longitude	Catchment Area_Ha	Priority	Beat
86	17.333888	78.686543	14.85	I	AMBERPET
87	17.331524	78.688207	8.32	I	AMBERPET
88	17.329948	78.665977	13.04	I	AMBERPET
89	17.329056	78.691634	8.73	I	AMBERPET
90	17.323014	78.663513	13.50	I	AMBERPET
91	17.331361	78.672536	11.15	I	AMBERPET
92	17.329062	78.682485	14.80	I	AMBERPET
93	17.323396	78.675017	36.50	II	AMBERPET
94	17.320121	78.670199	26.64	II	AMBERPET
95	17.325472	78.711302	15.27	I	BACHARAM
96	17.382381	78.690283	8.38	I	BACHARAM
97	17.325480	78.721253	26.94	II	BACHARAM
98	17.383069	78.694121	41.72	II	BACHARAM
99	17.376016	78.606501	6.19	I	MANSOORABAD
100	17.376284	78.598111	8.72	I	MANSOORABAD
101	17.354449	78.584986	12.01	I	MANSOORABAD
102	17.365388	78.592708	5.10	I	MANSOORABAD
103	17.349276	78.583095	12.63	I	MANSOORABAD
104	17.374913	78.593659	8.97	I	MANSOORABAD
105	17.357688	78.569809	11.06	I	MANSOORABAD
106	17.371678	78.588798	8.42	I	MANSOORABAD
107	17.342614	78.583617	11.85	I	MANSOORABAD
108	17.358643	78.574111	13.02	I	MANSOORABAD
109	17.366862	78.587676	9.31	I	MANSOORABAD
110	17.350689	78.575115	6.60	I	MANSOORABAD
111	17.369382	78.589818	7.96	I	MANSOORABAD
112	17.383833	78.593189	10.17	I	MANSOORABAD
113	17.351694	78.580158	10.86	I	MANSOORABAD
114	17.376573	78.594407	6.14	I	MANSOORABAD
115	17.380954	78.597987	5.24	I	MANSOORABAD
116	17.339907	78.585548	11.71	I	MANSOORABAD
117	17.384294	78.590344	6.60	II	MANSOORABAD
118	17.362751	78.572266	8.37	II	MANSOORABAD
119	17.365043	78.620767	6.33	I	QUTHBULLAPUR
120	17.381608	78.621734	11.75	I	QUTHBULLAPUR
121	17.376149	78.628989	11.38	I	QUTHBULLAPUR
122	17.359192	78.619592	8.51	I	QUTHBULLAPUR
123	17.377549	78.625622	5.69	I	QUTHBULLAPUR
124	17.372227	78.619354	8.50	I	QUTHBULLAPUR
125	17.360200	78.622799	10.41	I	QUTHBULLAPUR

ID	Latitude	Longitude	Catchment Area_Ha	Priority	Beat
126	17.382150	78.618135	6.19	I	QUTHBULLAPUR
127	17.375297	78.635237	5.79	I	QUTHBULLAPUR
128	17.366191	78.641325	10.32	I	QUTHBULLAPUR
129	17.372191	78.636496	8.68	I	QUTHBULLAPUR
130	17.372487	78.632284	9.94	I	QUTHBULLAPUR
131	17.372781	78.613853	10.20	I	QUTHBULLAPUR
132	17.366570	78.623362	16.48	I	QUTHBULLAPUR
133	17.364461	78.632062	31.54	II	QUTHBULLAPUR
134	17.370406	78.636204	27.72	II	QUTHBULLAPUR
135	17.375480	78.620825	30.74	II	QUTHBULLAPUR
136	17.364378	78.637682	40.16	III	QUTHBULLAPUR

Map Showing Suitability Index for Construction of SMC Works of Amberpet Beat



Division : Shamshabad
Range : MHVNP

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
86	17.333888	78.686543	14.85	I
87	17.331524	78.688207	8.32	I
88	17.329948	78.665977	13.04	I
89	17.329056	78.691634	8.73	I
90	17.323014	78.669513	13.50	I
91	17.331361	78.672536	11.15	I
92	17.329062	78.682485	14.80	I
93	17.323396	78.675017	36.50	II
94	17.320121	78.670199	26.64	II

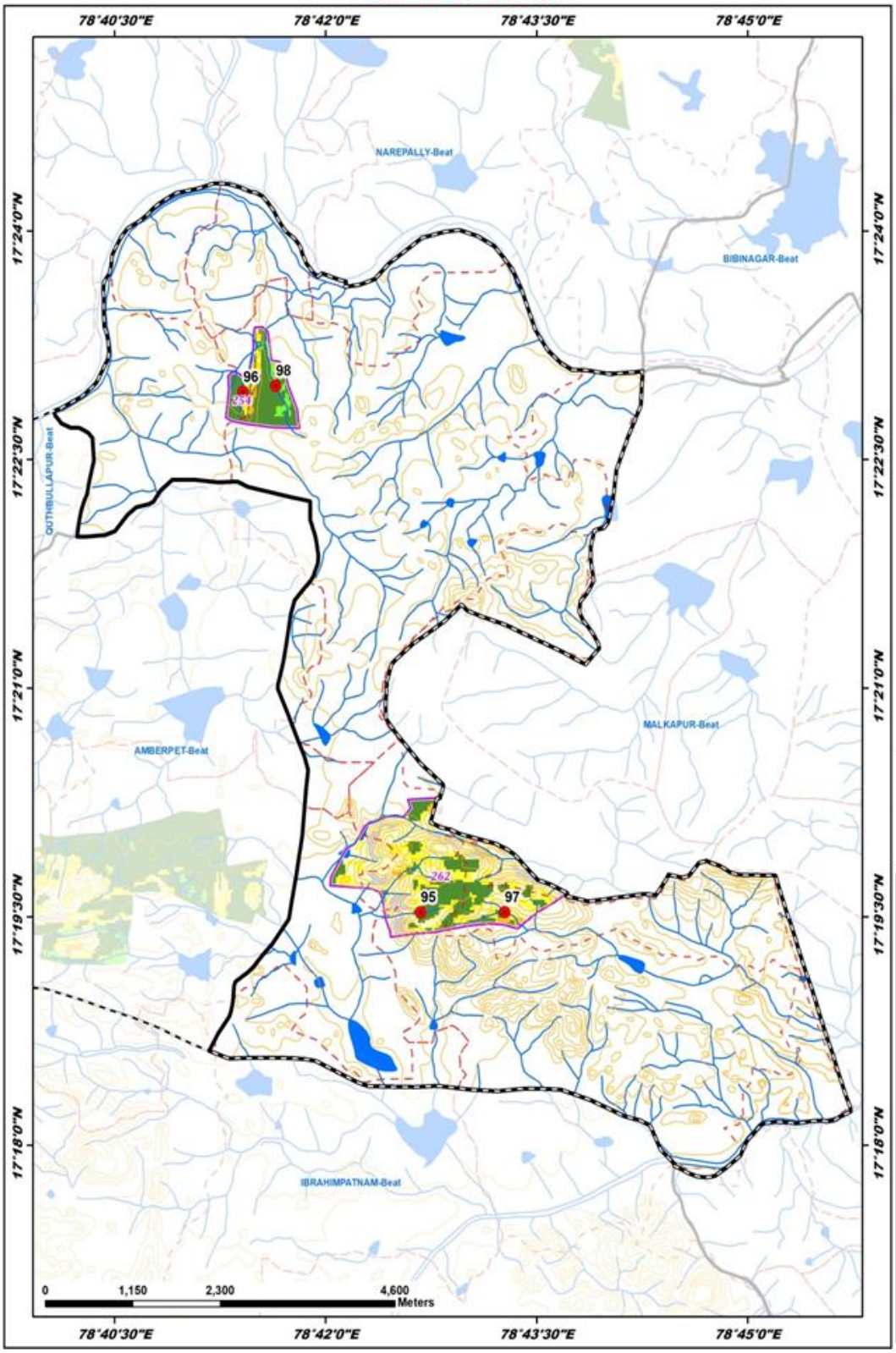
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Bacharam Beat



N
W E
S

Division : Shamshabad
Range : MHVNP

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
95	17.325472	78.711302	15.27	I
96	17.382381	78.690283	8.38	I
97	17.325480	78.721253	26.94	II
98	17.383069	78.694121	41.72	II

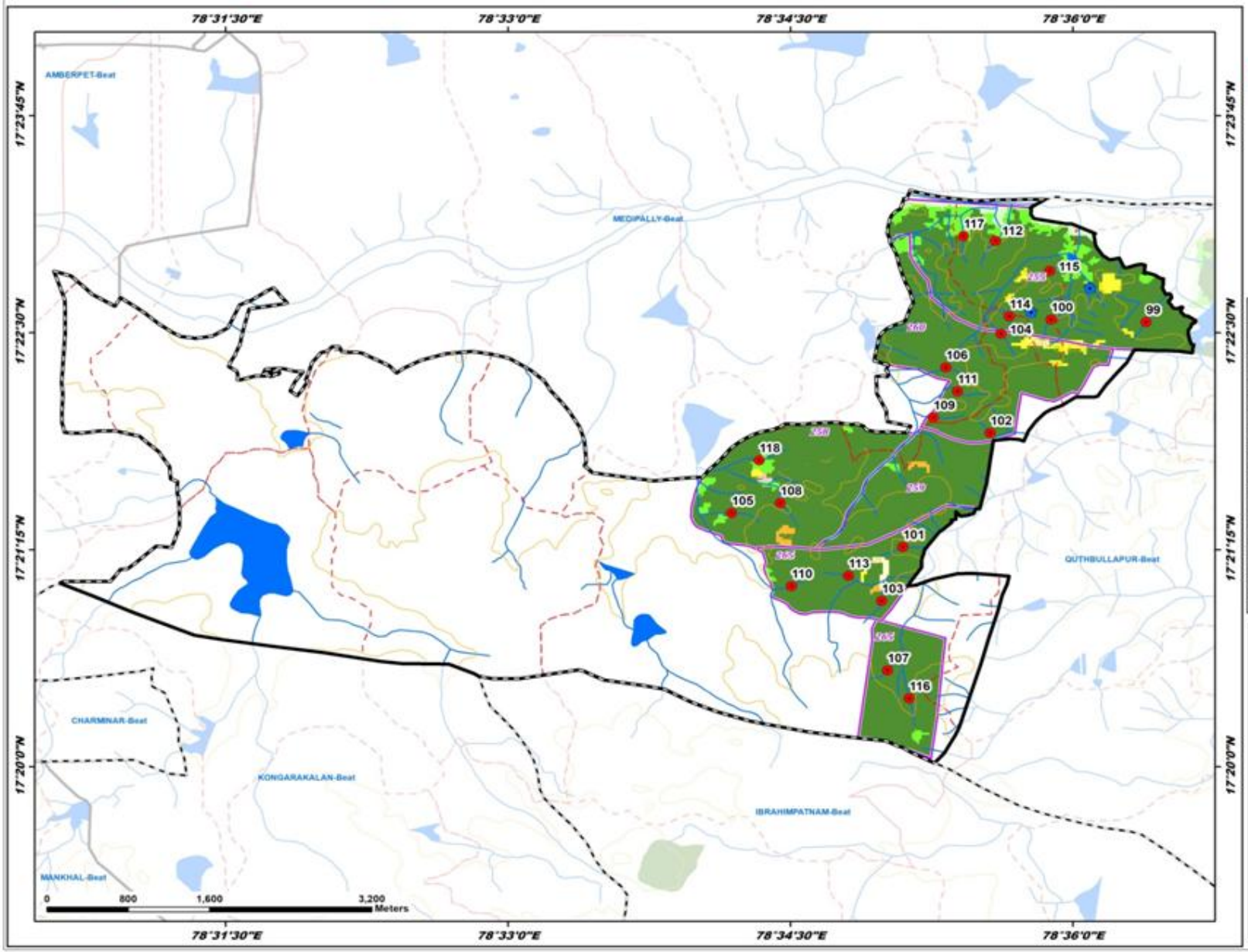
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Mansoorabad Beat



N
W
E
S

Division : Shamshabad
Range : MHVNP

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
99	17.376016	78.606501	6.19	I
100	17.376284	78.598111	8.72	I
101	17.354449	78.584986	12.01	I
102	17.365388	78.592708	5.10	I
103	17.349276	78.583095	12.63	I
104	17.374913	78.593659	8.97	I
105	17.357688	78.569809	11.06	I
106	17.371678	78.588798	8.42	I
107	17.342614	78.583617	11.85	I
108	17.356643	78.574111	13.02	I
109	17.366862	78.587676	9.31	I
110	17.350689	78.575115	6.60	I
111	17.369382	78.589818	7.96	I
112	17.383833	78.593189	10.17	I
113	17.351694	78.580158	10.86	I
114	17.376573	78.594407	6.14	I
115	17.380954	78.597987	5.24	I
116	17.339907	78.585548	11.71	I
117	17.384294	78.590344	6.60	II
118	17.362751	78.572266	8.37	II

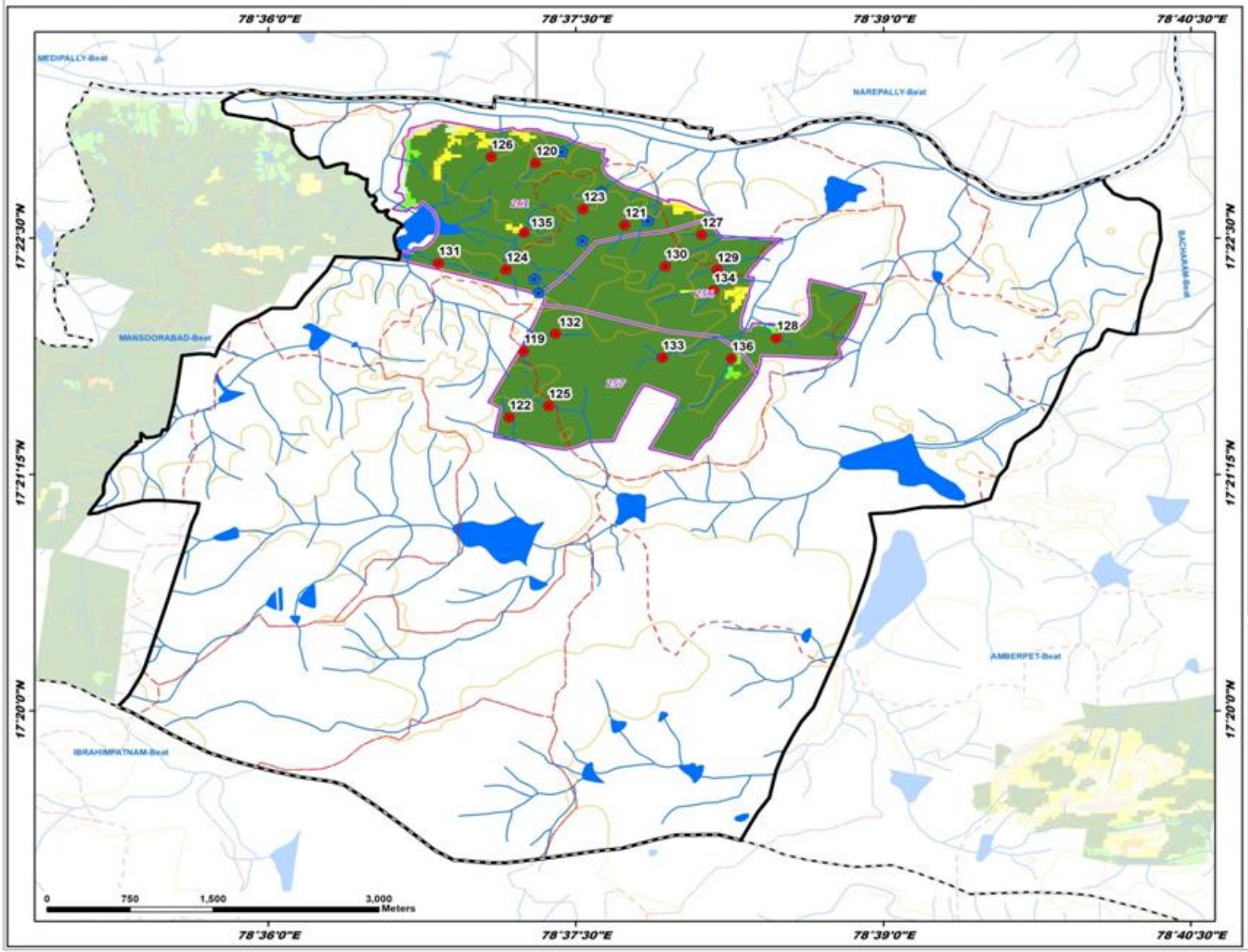
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Quthbullapur Beat



Division : Shamshabad
Range : MHVNP

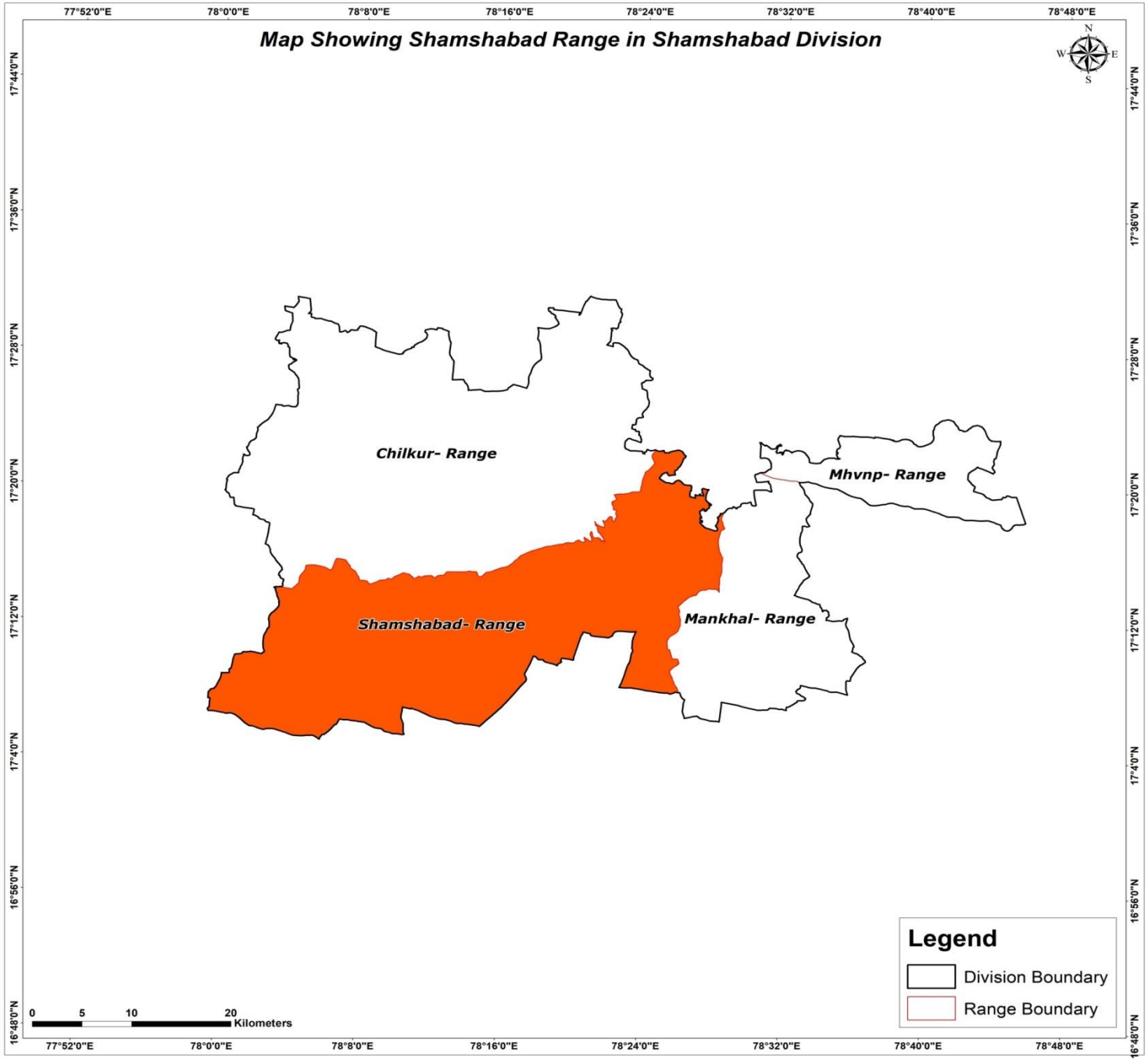
ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
119	17.365043	78.620767	6.33	I
120	17.381608	78.621734	11.75	I
121	17.376149	78.628989	11.38	I
122	17.359192	78.619592	8.51	I
123	17.377549	78.625622	5.69	I
124	17.372227	78.619354	8.50	I
125	17.360200	78.622799	10.41	I
126	17.382150	78.618135	6.19	I
127	17.375297	78.635237	5.79	I
128	17.366191	78.641325	10.32	I
129	17.372191	78.636496	8.68	I
130	17.372487	78.632284	9.94	I
131	17.372781	78.613853	10.20	I
132	17.366570	78.623362	16.48	I
133	17.364461	78.632062	31.54	II
134	17.370406	78.636204	27.72	II
135	17.375480	78.620825	30.74	II
136	17.364378	78.637682	40.16	III

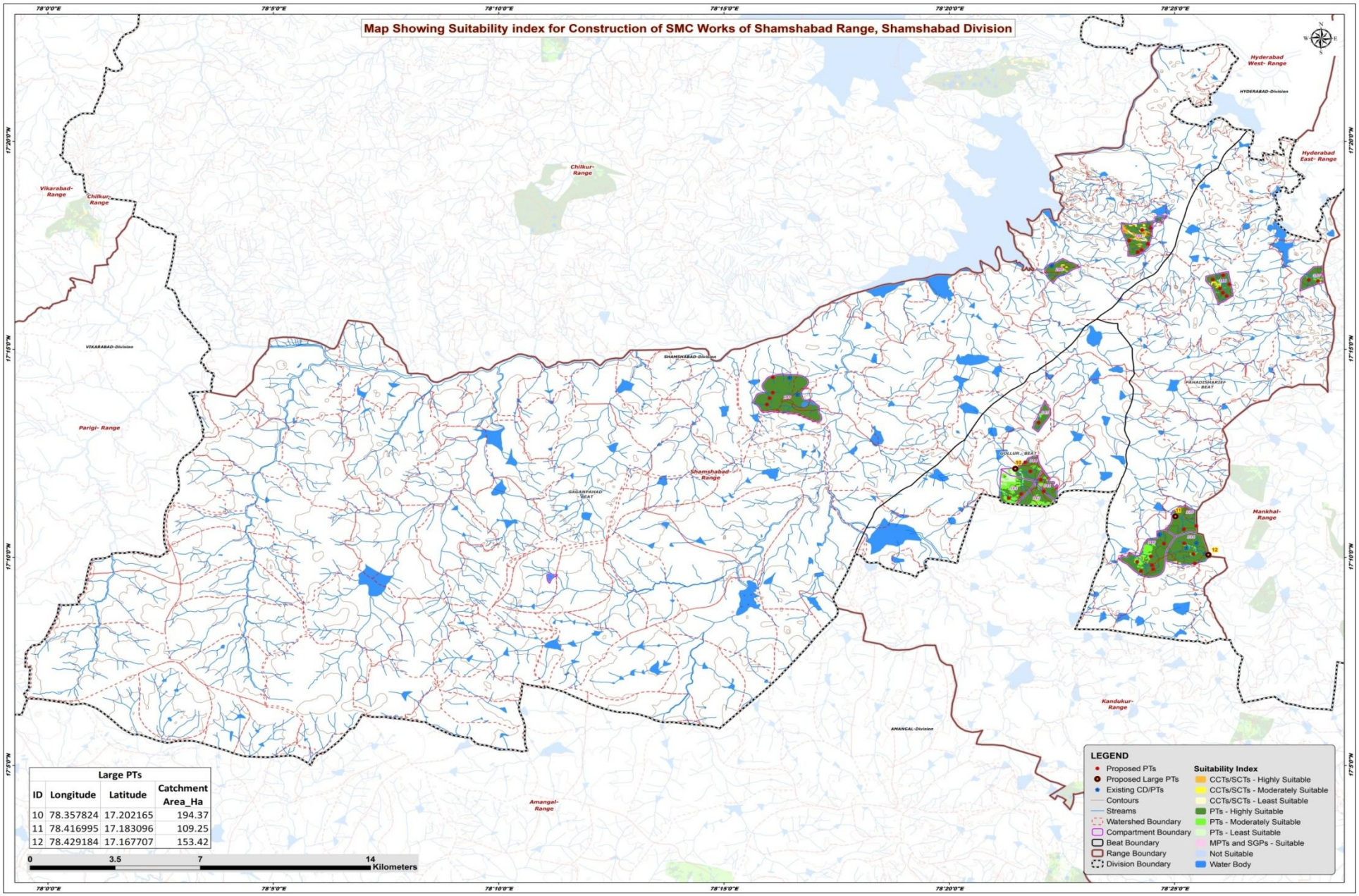
LEGEND

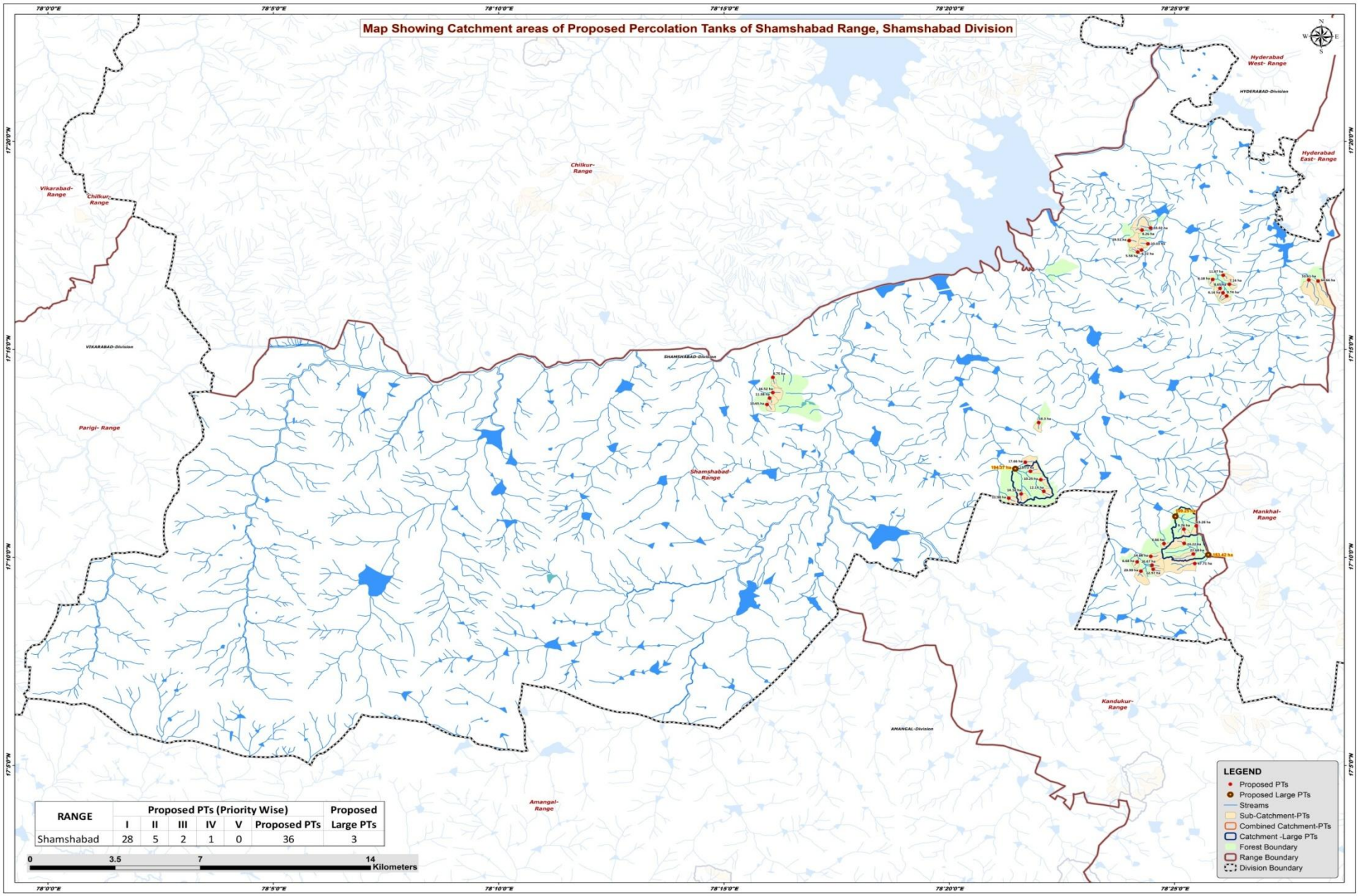
- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body


Map Showing Shamshabad Range in Shamshabad Division
77°52'0"E
78°0'0"E
78°8'0"E
78°16'0"E
78°24'0"E
78°32'0"E
78°40'0"E
78°48'0"E
17°44'0"N
17°36'0"N
17°28'0"N
17°20'0"N
17°12'0"N
17°4'0"N
16°56'0"N
16°48'0"N
N
S
E
W
Chilkur- Range
Mhvnp- Range
Shamshabad- Range
Mankhal- Range
Legend
Division Boundary
Range Boundary
0 5 10 20
Kilometers


Map Showing Suitability index for Construction of SMC Works of Shamshabad Range, Shamshabad Division
78°0'0"E
78°5'0"E
78°10'0"E
78°15'0"E
78°20'0"E
78°25'0"E
17°20'0"N
17°15'0"N
17°10'0"N
17°5'0"N
Hyderabad West- Range
HYDERABAD-Division
Hyderabad East- Range
Chilkur- Range
Vikarabad- Range
Chilkur- Range
VIKARABAD-Division
SHAMSHABAD-Division
Parigi- Range
Shamshabad- Range
GADANPAHAD BEAT
PAHADSHARIFF BEAT
GOLLUR - BEAT
Mankhal- Range
Kandukur- Range
AMANGAL-Division
Amangal- Range
Large PTs
ID | Longitude | Latitude | Catchment Area_Ha
10 | 78.357824 | 17.202165 | 194.37
11 | 78.416995 | 17.183096 | 109.25
12 | 78.429184 | 17.167707 | 153.42
0
3.5
7
14
Kilometers
LEGEND
Proposed PTs
Proposed Large PTs
Existing CD/PTs
Contours
Streams
Watershed Boundary
Compartment Boundary
Beat Boundary
Range Boundary
Division Boundary
Suitability Index
CCTs/SCTs - Highly Suitable
CCTs/SCTs - Moderately Suitable
CCTs/SCTs - Least Suitable
PTs - Highly Suitable
PTs - Moderately Suitable
PTs - Least Suitable
MPTs and SGPs - Suitable
Not Suitable
Water Body



RANGE	Proposed PTs (Priority Wise)						Proposed
	I	II	III	IV	V	Proposed PTs	Large PTs
Shamshabad	28	5	2	1	0	36	3

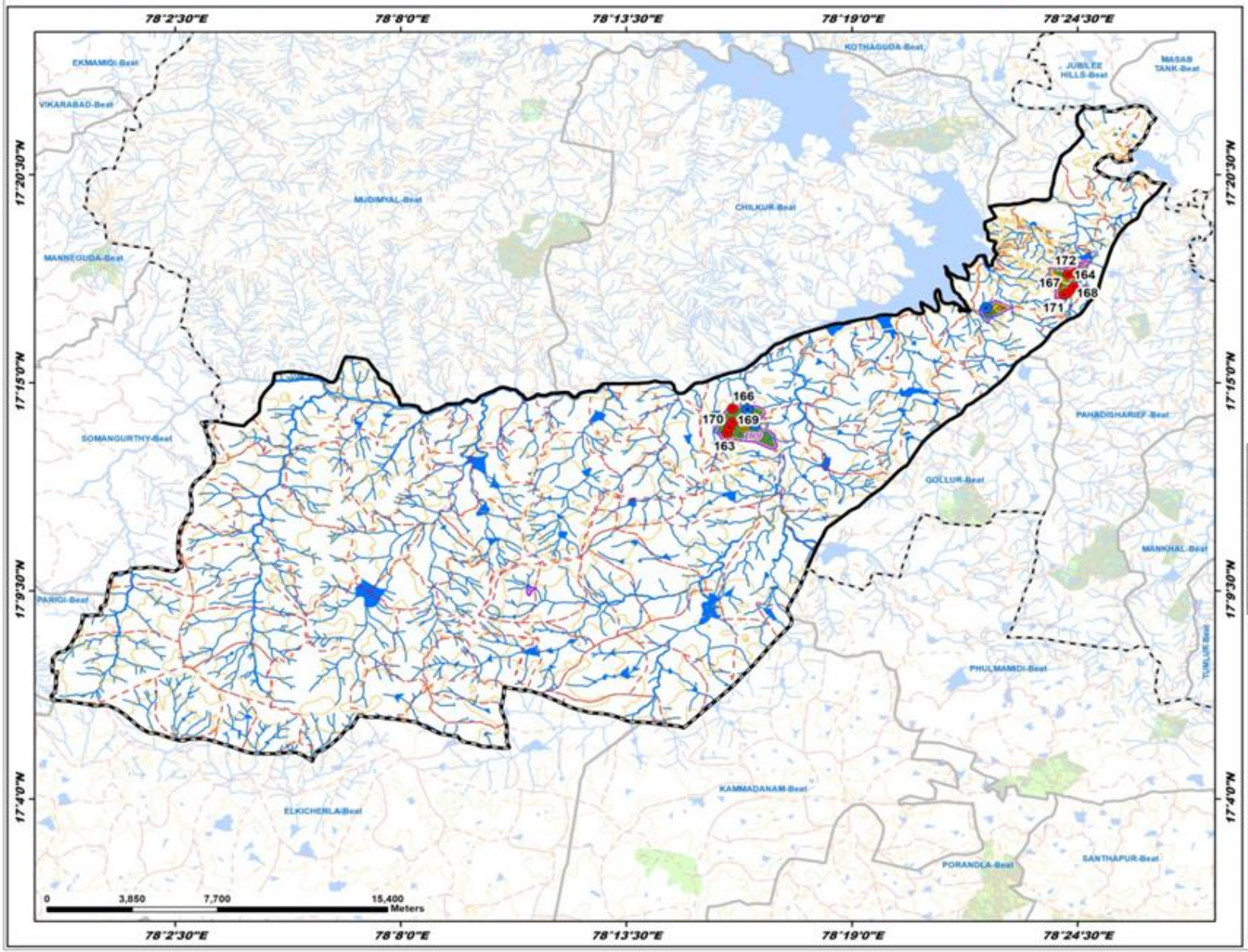
Beat wise Abstract of Proposed PT's – Shamshabad Range

S. No.	Beat	Proposed PT's
1	GAGANPAHAD	10
2	GOLLUR	7
3	PAHADISHARIEF	19
	Total	**36**

List of Proposed PTs – Shamshabad Range

ID	Latitude	Longitude	Catchment Area_Ha	Priority	Beat
137	17.197746	78.367189	10.25	I	GOLLUR
138	17.193129	78.368310	12.14	I	GOLLUR
139	17.204754	78.361486	17.66	I	GOLLUR
140	17.192073	78.359966	14.18	I	GOLLUR
141	17.201111	78.363355	15.73	I	GOLLUR
142	17.220656	78.366456	10.30	I	GOLLUR
143	17.190366	78.355353	11.38	II	GOLLUR
144	17.279647	78.434682	11.67	I	PAHADISHARIEF
145	17.179246	78.424731	13.28	I	PAHADISHARIEF
146	17.271358	78.435979	9.74	I	PAHADISHARIEF
147	17.172260	78.420232	24.22	I	PAHADISHARIEF
148	17.277972	78.430814	6.18	I	PAHADISHARIEF
149	17.274438	78.433522	8.65	I	PAHADISHARIEF
150	17.161897	78.408792	12.97	I	PAHADISHARIEF
151	17.272632	78.434619	6.16	I	PAHADISHARIEF
152	17.163525	78.408319	16.67	I	PAHADISHARIEF
153	17.177957	78.420111	9.76	I	PAHADISHARIEF
154	17.172179	78.412757	6.66	I	PAHADISHARIEF
155	17.276072	78.436975	7.16	I	PAHADISHARIEF
156	17.167032	78.407909	14.88	I	PAHADISHARIEF
157	17.164839	78.402844	6.68	II	PAHADISHARIEF
158	17.167991	78.423662	22.68	II	PAHADISHARIEF
159	17.161142	78.404258	23.99	II	PAHADISHARIEF
160	17.277783	78.466352	53.61	III	PAHADISHARIEF
161	17.164178	78.424167	67.71	III	PAHADISHARIEF
162	17.277348	78.469762	64.66	IV	PAHADISHARIEF
163	17.227897	78.265935	10.65	I	GAGANPAHAD
164	17.292267	78.406844	10.33	I	GAGANPAHAD
165	17.293554	78.399887	19.51	I	GAGANPAHAD
166	17.238746	78.268144	8.75	I	GAGANPAHAD
167	17.297738	78.404680	8.26	I	GAGANPAHAD
168	17.289786	78.404446	6.22	I	GAGANPAHAD
169	17.230468	78.266890	11.38	I	GAGANPAHAD
170	17.232666	78.268092	16.52	I	GAGANPAHAD
171	17.288926	78.403074	5.58	I	GAGANPAHAD
172	17.298571	78.407806	33.02	II	GAGANPAHAD

Map Showing Suitability Index for Construction of SMC Works of Gaganpahad Beat



Division : Shamshabad
Range : Shamshabad

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
163	17.227897	78.265935	10.65	I
164	17.292267	78.406844	10.33	I
165	17.293554	78.399887	19.51	I
166	17.238746	78.268144	8.75	I
167	17.297738	78.404680	8.26	I
168	17.289786	78.404446	6.22	I
169	17.230468	78.266890	11.38	I
170	17.232666	78.268092	16.52	I
171	17.288926	78.403074	5.58	I
172	17.298571	78.407806	33.02	II

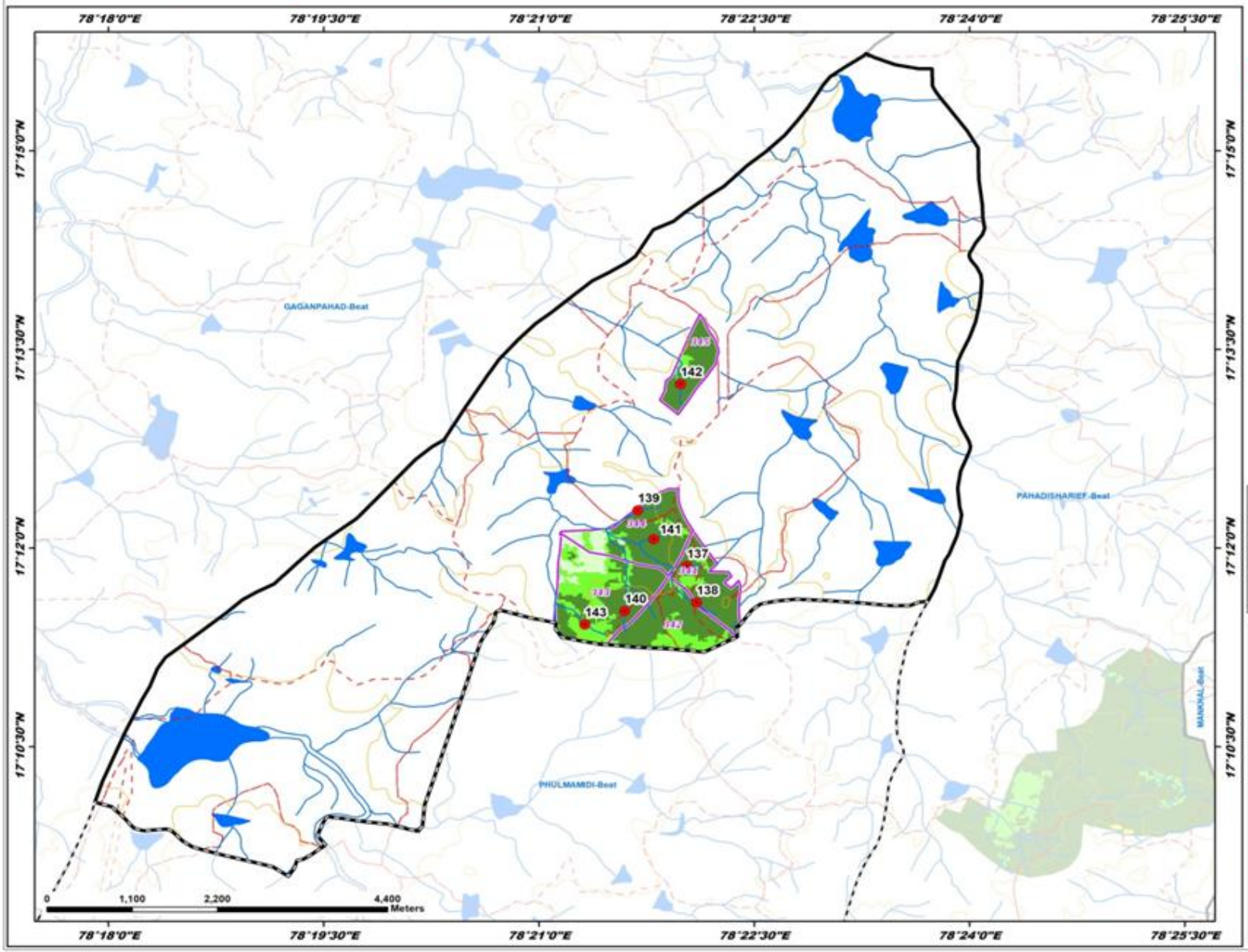
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Gollur Beat



Division : Shamshabad
Range : Shamshabad

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
137	17.197746	78.367189	10.25	I
138	17.193129	78.368310	12.14	I
139	17.204754	78.361486	17.66	I
140	17.192073	78.359966	14.18	I
141	17.201111	78.363355	15.73	I
142	17.220656	78.366456	10.30	I
143	17.190366	78.355353	11.38	II

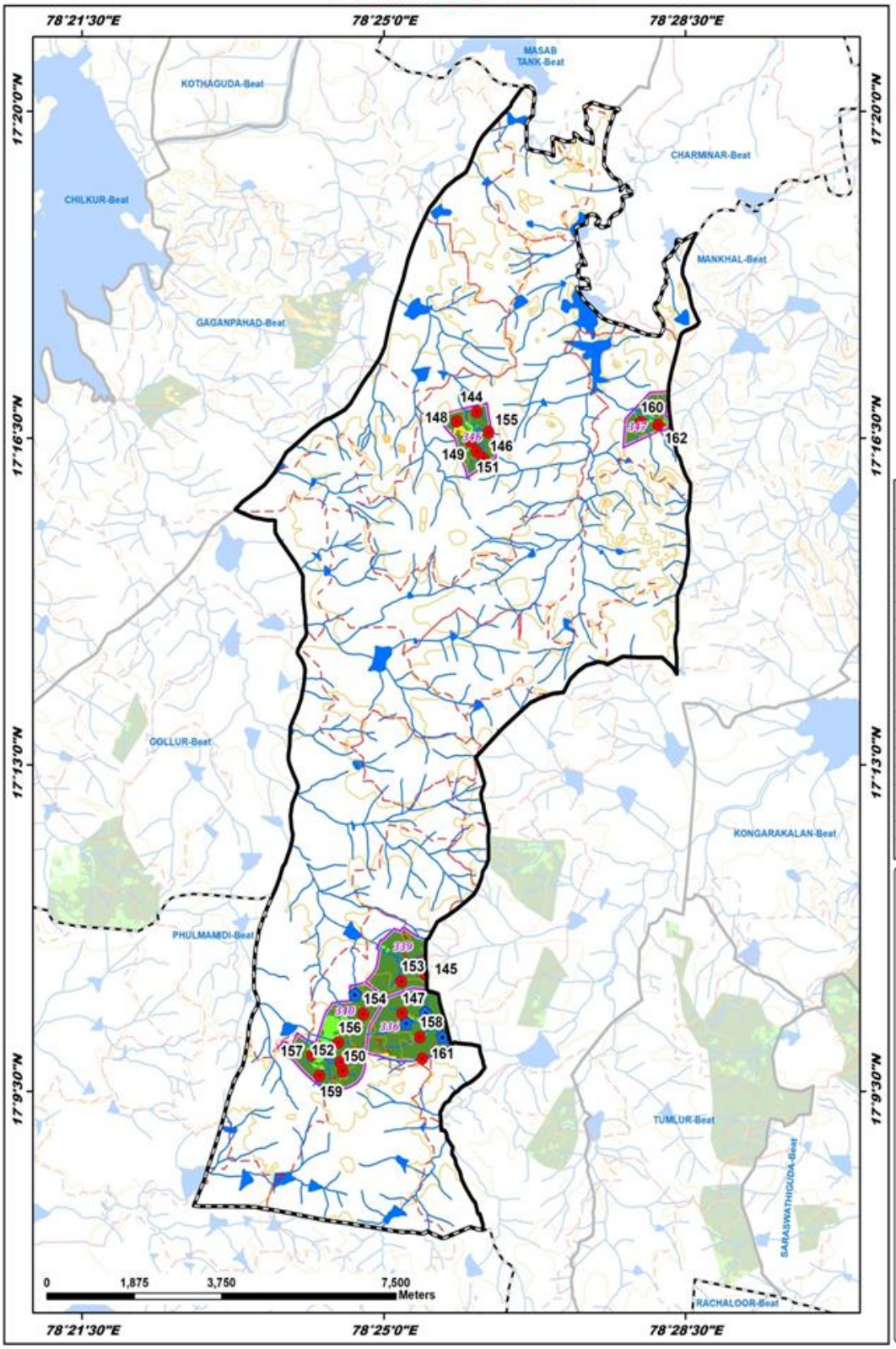
LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body

Map Showing Suitability Index for Construction of SMC Works of Pahadisharief Beat



Division : Shamshabad
Range : Shamshabad

ID	Latitude	Longitude	Catchment Area Ha	PRIORITY
144	17.279647	78.434682	11.67	I
145	17.179246	78.424731	13.28	I
146	17.271358	78.435979	9.74	I
147	17.172260	78.420232	24.22	I
148	17.277972	78.430814	6.18	I
149	17.274438	78.433522	8.65	I
150	17.161897	78.408792	12.97	I
151	17.272632	78.434619	6.16	I
152	17.163525	78.408319	16.67	I
153	17.177957	78.420111	9.76	I
154	17.172179	78.412757	6.66	I
155	17.276072	78.436975	7.16	I
156	17.167032	78.407909	14.88	I
157	17.164839	78.402844	6.68	II
158	17.167991	78.423662	22.68	II
159	17.161142	78.404258	23.99	II
160	17.277783	78.466352	53.61	III
161	17.164178	78.424167	67.71	III
162	17.277348	78.469762	64.66	IV

LEGEND

- Proposed PTs
- Existing CD/PTs
- Contours
- Streams
- Watershed Boundary
- Compartment Boundary
- Beat Boundary
- Division Boundary

Suitability Index

- CCTs/SCTs - Highly Suitable
- CCTs/SCTs - Moderately Suitable
- CCTs/SCTs - Least Suitable
- PTs - Highly Suitable
- PTs - Moderately Suitable
- PTs - Least Suitable
- MPTs and SGPs - Suitable
- Not Suitable
- Water Body