Report on Detailed Soil Survey and Land use of Aj3q, Aj3s, Aj3t, Aj3v, Aj3w, Aj3x & Aj3z subwatersheds in Aj Subcatchment under Nagarjunsagar Catchment (RVP) in Ron Taluk, Gadag District and Yelburga Taluk of Koppal District, Karnataka State Using Remote Sensing Technique

ABSTRACT

1. Surveyed area : Aj3q, Aj3s, Aj3t, Aj3v, Aj3w, Aj3x & Aj3z subwatersheds in Aj Sub catchment, Nagarjunsagar catchment of Ron Taluk, Gadag District and Yelburga Taluk of Koppal District, Karnataka State.

2. Geographical extent : 15°33' to 15°47' N latitude and 75°44'to 75°59' E longitude

3. Total area mapped and Surveyed : 36150 ha.

4. Kind of survey : Detailed Soil Survey using Remote Sensing Technique.

5. Period of survey : February, 2012 to March, 2012

6. Base map used : Enlarged Toposheets on 1:12,500 scale and IRS-P6, LISS IV Satellite Imageries.

7. Toposheet used : 48M09, 48M10, 48M13 and 48M14

8. Agro-climatic zone : 10 (Southern Plateau and Hill region)

9. Sub watersheds and major villages covered

Sl. No	Sub watershed (old codes)	Subwatershed codes (As per new Karnataka MWA)	Microwatersheds covered	Major villages covered
1	Aj3q	4D5A7c (part)	4D5A7c1, c2, c3	Kurabanhal, Gulaguli, Alagundi, Sudi, Itgi
2	Aj3s	4D5A7c (part)	4D5A7c4, c5, c6	Sankanur
3	Aj3t	4D5A7f (part)	4D5A7f6, f7, f8, f9	Siragump, Sompura, Myageri
4	Aj3v	4D5A7g (part)	4D5A7g1, g2, g3	Kotabal, Mugli, Talihal
5	Aj3w	4D5A7h (part)	4D5A7h1, h2, h3,h4	Nidagundi
6	Aj3x	4D5A7j (part)	4D5A7j2, j3	Jakkali, Maranbasri
7	Aj3z	4D5A7k (part)	4D5A7k1, k2, k3, k4, k5	Naregal

10. Series wise distribution of area in ha under different sub watersheds

S No.	Series Name	Distribution of area under different subwatersheds							Total	Percent
		Aj3q	Aj3s	Aj3t	Aj3v	Aj3w	Aj3x	Aj3z		
1	**Dyampur**	569	377	187	708	1156	1008	912	**4917**	13.60
2	**Hebli**	0	0	0	0	0	0	418	**418**	1.16
3	**Hosur**	0	283	2094	0	0	60	745	**3182**	8.80
4	**Jijeri**	0	34	147	0	0	0	35	**216**	0.60
5	**Kurahatti**	0	0	0	255	0	0	0	**255**	0.71
6	**Lakshmapur**	2636	1860	1659	3130	3276	2556	2214	**17331**	47.94
7	**Mainahalli**	0	0	0	0	32	111	133	**276**	0.76
8	**Myageri**	0	49	473	0	0	72	275	**869**	2.40
9	**Naregal**	89	0	0	0	0	0	336	**425**	1.18
10	**Ron**	177	70	0	186	146	142	63	**784**	2.17
11	**Thimmapur**	933	654	1081	878	1204	1075	920	**6745**	18.66
12	**Misc.**	148	34	118	130	108	84	110	**732**	2.02
	Total	**4552**	**3361**	**5759**	**5287**	**5922**	**5108**	**6161**	**36150**	100.00

11. Distribution of area in (ha) under different land capability classes

LCC	AREA (Ha)	Percent	DYAMPUR	HEBLI	HOSUR	JIJERI	KURAHATTI	LAKSHMAPUR	MAINAHALLI	MYAGERI	NAREGAL	RON	THIMMAPUR
IIes1	**2107**	**5.83**	0	321	1416	0	255		0	0	0	115	0
IIes2	**4940**	**13.67**	2309		1766	196	0	0	0	0	0	669	0
IIes3	**117**	**0.32**	0	97		20	0	0	0	0	0	0	0
IIIes1	**199**	**0.55**	0	0	0	0	0	199	0	0	0	0	0
IIIes2	**19648**	**54.35**	0	0	0	0	0	17132	0	0	226	0	2290
IIIes3	**6834**	**18.90**	2608	0	0	0	0	0	0	0	175	0	4051
IIIes4	**428**	**1.18**	0	0	0	0	0	0	0	0	24	0	404
IVes2	**701**	**1.94**	0	0	0	0	0	0	0	701	0	0	0
IVes3	**444**	**1.23**	0	0	0	0	0	0	276	168	0	0	0
River	**246**	**0.68**	0	0	0	0	0	0	0	0	0	0	0
ROC	**25**	**0.07**	0	0	0	0	0	0	0	0	0	0	0
Tank	**14**	**0.04**	0	0	0	0	0	0	0	0	0	0	0
Habitn	**447**	**1.24**	0	0	0	0	0	0	0	0	0	0	0
	36150	**100**	**4917**	**418**	**3182**	**216**	**255**	**17331**	**276**	**869**	**425**	**784**	**6745**

12. Sub watershed wise area (Ha) under different erosion classes

Subwatersheds	Total Area	Miscellaneous	Slight	Moderate	Severe
Aj3q	**4552**	148	45	4112	247
Aj3s	**3361**	34	79	3017	231
Aj3t	**5759**	118	0	5157	484
Aj3V	**5287**	130	33	4788	336
Aj3w	**5922**	108	42	5104	668
Aj3x	**5108**	84	0	4370	654
Aj3z	**6161**	110	0	5362	689
Total	**36150**	**732**	**199**	**31910**	**3309**
		2.02	**0.55**	**88.27**	**9.16**

13. Specific problems of the area and sub watershed wise extent

S. No.	Specific problems	Subwatershed codes							Total
		Aj3q	Aj3s	Aj3t	Aj3v	Aj3w	Aj3x	Aj3z	
1	Moderate soil erosion on mod. deep soils on 1-3% slope	89	49	169	0	0	72	218	597
2	Moderate erosion on deep to very deep soils on 3-5% slope	0	0	304	0	0	0	369	673
3	Moderate erosion on deep to very deep soils on 1-3% slope	3065	2245	4230	3749	3888	3223	3660	24060
4	Moderate erosion on deep to very deep soils on 3-5% slope	958	723	454	1046	1216	1065	1115	6577
5	Severe erosion on mod. deep soils on 3-5% slope	0	0	0	0	32	111	157	300
6	Severe erosion on deep to very deep soils on 3-5% slope	247	231	484	329	636	553	532	3012
Erosion hazard wise problematic areas in hectares		4359	3248	5641	5124	5772	5024	6051	35219
Gravelliness affected problematic soils		0	0	29	0	0	0	139	168
Problematic area		4359	3248	5670	5124	5772	5024	6190	35387
Miscellaneous area		148	34	118	130	108	84	110	732
Total Problematic area		**4507**	**3282**	**5788**	**5254**	**5880**	**5108**	**6300**	**36119**
Total subwatershed area		**4552**	**3361**	**5759**	**5287**	**5922**	**5108**	**6161**	**36150**

Note: An area of 199 ha (Mapping unit L5rB1) is not coming under problematic area whereas an area of 168 ha is affected by more than one problem, i.e., erosion hazard as well as Gravelliness. Therefore the difference of 31ha (36150-36119= 31 and 199-168= 31) is justified and tallied.

11. Salient features:-

a. Major geologies of the surveyed area are Granite gneiss, Shale/Schist and Quartzite - sandstone complex with Alluvium.

b. The surveyed area comprises very deep soils of 28715 Ha. (79.43%), deep soils of 5133 Ha. (14.20%) and moderately deep soils of 1570 Ha (4.34%).

c. Nearly 69.1% of the area is under very gently sloping lands (1-3%) with 28.9% under gently sloping lands (3-5%).

d. Only 3309 ha. (9.15%) area is under severe erosion with 31910 ha (88.27%) under moderate erosion and less than 1% under slight erosion hazard.

e. About 7164 Ha. area is under Land Capability Class II, 27109 Ha. under Class III and 1145 ha. under Class IV.

f. An area of 36119 ha is coming under Problematic area