

# Detailed Soil Survey and Land use of Aj5m, Aj7c, Aj7d, Aj7f, Aj7j, Aj7m, and Aj7n Subwatersheds of Nagarjunsagar Catchment, Ron (RVP) and Gadag Taluks of Gadag District and Navalgund Taluk of Dharwad District in Karnataka State Using Remote Sensing Techniques

## ABSTRACT

1. Surveyed area : Aj5m, Aj7c, Aj7d, Aj7f, Aj7j, Aj7m, and Aj7n, Subwatersheds of Nagarjunsagar Catchment, Ron and Gadag Taluks of Gadag District and Navalgund Taluk of Dharwad Districts in Karnataka State
2. Geographical extent : 15° 22' to 15° 43' of North latitude and 75° 26' to 75° 38' East longitude
3. Total area mapped and surveyed : 31881 ha
4. Kind of survey : Detailed Soil Survey using Remote Sensing Techniques
5. Period of survey : February 2012 to March 2012
6. Base map used : Enlarged Quadrant wise SOI Toposheets on 1:12,500 Scale and Landsat Google Imageries
7. Topo maps used : Survey of India toposheets 48M/6, 48M/10 and 48M/11 on 1:50,000 scale
8. Agro climatic zone : Zone-10, Southern Plateau & Hill region
9. Soil series mapped and sub watershed wise area extent

Sl. No	Soil Series	Subwatershed Code							Total	%
		Aj5m	Aj7c	Aj7d	Aj7f	Aj7j	Aj7m	Aj7n		
1	Dyampur	98	157	0	0	833	294	155	<b>1537</b>	<b>4.8</b>
2	Gadag	0	0	0	0	0	0	169	<b>169</b>	<b>0.5</b>
3	Gudda	0	0	0	0	0	19	147	<b>166</b>	<b>0.5</b>
4	Ron	274	323	302	234	409	425	453	<b>2420</b>	<b>7.6</b>
5	Lakshmapur	332	500	886	799	340	525	560	<b>3942</b>	<b>12.4</b>
6	Mainahalli	98	141	0	0	542	286	149	<b>1216</b>	<b>3.8</b>
7	Thimmapur	1228	3406	4467	3010	2350	3717	3202	<b>21380</b>	<b>67.1</b>
8	Misc	102	154	40	0	175	179	401	<b>1051</b>	<b>3.3</b>
	<b>Total</b>	<b>2132</b>	<b>4681</b>	<b>5695</b>	<b>4043</b>	<b>4649</b>	<b>5445</b>	<b>5236</b>	<b>31881</b>	<b>100</b>

### 9a. Subwatersheds and major villages

S.No	Sub watershed (old codes)	Subwatershed (As per new Karnataka MWA)	Micro watersheds (As per new Karnataka MWA)	Major villages covered
1	Aj5m	4D5A8f	4D5A8f4 (part) 4D5A8f5	Kadadi, Hadagali Honnapur, Malapur
2	Aj7c	4D5B1b	4D5B1b1, b2 & b3	Hadagali, Yavagal Kaujageri
3	Aj7d	4D5B1b	4D5B1b4,b5,b6 & b7	Datanal,Belavaniki
4	Aj7f	4D5A8p & 4D5B1c	4D5A8p (part)& 4D5B1c1 &c2	Balganur, Lingadhal
5	Aj7j	4D5B1f	4D5B1f1,f2 & f3	Kurlageri, Arhatti Tadahal, Naikanur Boganur, Datanal Shelvadi, Navalli Tuppadkuratti
6	Aj7m	4D5B1h	4D5B1h1, h2 &h3	Kittur, Madagnur Venkatapur, Belahada Chikka, Handigola Hire Handigola
7	Aj7n	4D5B1h	4D5B1h4, h5, h6 &h7	Gadag, Binkadakatti Belikop, Asundi Malasamudra Kalasapura

### 10. Area under different land capability classes

S.No	Land capability classes	Area (Ha)	Percentage	Soil Series
1	III	14506	45.5	Dyampur, Gadag, Gudda, Lakshmapur, Mainahalli, Ron, Thimmapur
2	IV	16158	50.7	Dyampur, Gadag, Ron, Mainahalli, Lakshmapur, Thimmapur
3	VI	166	0.5	Gudda
4	Misc.	1051	3.3	Tank, River, Habitation
	<b>Total</b>	<b>31881</b>	100.0	

## 11. Sub watershed wise area under different erosion classes and their percentage

Sl. No.	Subwatersheds	Total area in hectares	Soil erosion classes	
			2	3
1	Aj5m	2030	900	1130
2	Aj7c	4527	1935	2592
3	Aj7d	5655	2821	2834
4	Aj7f	4043	2009	2034
5	Aj7j	4474	2161	2313
6	Aj7m	5266	2238	3028
7	Aj7n	4835	2608	2227
<b>Total</b>		<b>30830</b>	<b>14672</b>	<b>16158</b>
<b>Percentage</b>		<b>100</b>	<b>47.6</b>	<b>52.4</b>

## 12. Specific problems of the area and sub watershed wise extent

S. No.	Specific problems	Subwatershed codes							Total
		Aj5m	Aj7c	Aj7d	Aj7f	Aj7j	Aj7m	Aj7n	
1	Moderate soil erosion on 1-3% very gently sloping lands	907	1845	2677	1947	1666	1698	2030	12770
2	Moderate soil erosion on 3-5% gently sloping lands	0	90	144	62	495	521	431	1743
3	Moderate soil erosion on 10-15% moderate sloping lands	0	0	0	0	0	19	147	166
4	Severe soil erosion on 1-5% gently sloping lands	617	1417	1545	911	823	1030	1069	7412
	Severe soil erosion on 3-5% gently sloping lands	506	1175	1289	1123	1490	1998	1158	8739
<b>Erosion hazard wise problematic areas in hectares</b>		<b>2030</b>	<b>4527</b>	<b>5655</b>	<b>4043</b>	<b>4474</b>	<b>5266</b>	<b>4835</b>	
	Gravelliness affected problematic soils	-	-	-	-	-	19	220	239
	Stoniness affected problematic soils	-	-	-	-	-	-	-	
	Shallow soils	-	-	-	-	-	-	-	
<b>Problematic area</b>		<b>2030</b>	<b>4527</b>	<b>5655</b>	<b>4043</b>	<b>4474</b>	<b>5285</b>	<b>5055</b>	<b>31069</b>
<b>Misc. area</b>		<b>102</b>	<b>154</b>	<b>40</b>	<b>0</b>	<b>175</b>	<b>179</b>	<b>401</b>	<b>1051</b>
<b>Grand Total problematic area</b>		<b>2132</b>	<b>4681</b>	<b>5695</b>	<b>4043</b>	<b>4649</b>	<b>5464</b>	<b>5456</b>	<b>32120</b>
<b>Total subwatershed area</b>		<b>2132</b>	<b>4681</b>	<b>5695</b>	<b>4043</b>	<b>4649</b>	<b>5445</b>	<b>5236</b>	<b>31881</b>

(Note: An area of 239 hectares is having more than one inherent problem, so this 239 hectares accounted only once with the total surveyed area of 31,881 hectares)

### **13. Salient features of the area**

- The survey area is dominated by very deep soils covering an area 27,742 hectares (87.0%) followed by deep soils 1706 hectares (5.4%) and moderately deep soils (3.8%).
- Nearly 63 % of the area is under very gently sloping while 33% is under gently sloping lands.
- Survey area is mostly affected by severe erosion covering 16158 hectares (51 %) whereas only 14672 hectares (46 %) is under moderate erosion.
- An area of 16158 hectares ( 50.7 % ) is classified under land capability class IV whereas an area of 14506 hectares (45.5 %) falls under land capability class III.
- An area of 239 hectares is affected by surface and subsurface gravelliness / stoniness
- Majority of the area is under agriculture.
- Total problematic area accounts to 32120 hectares