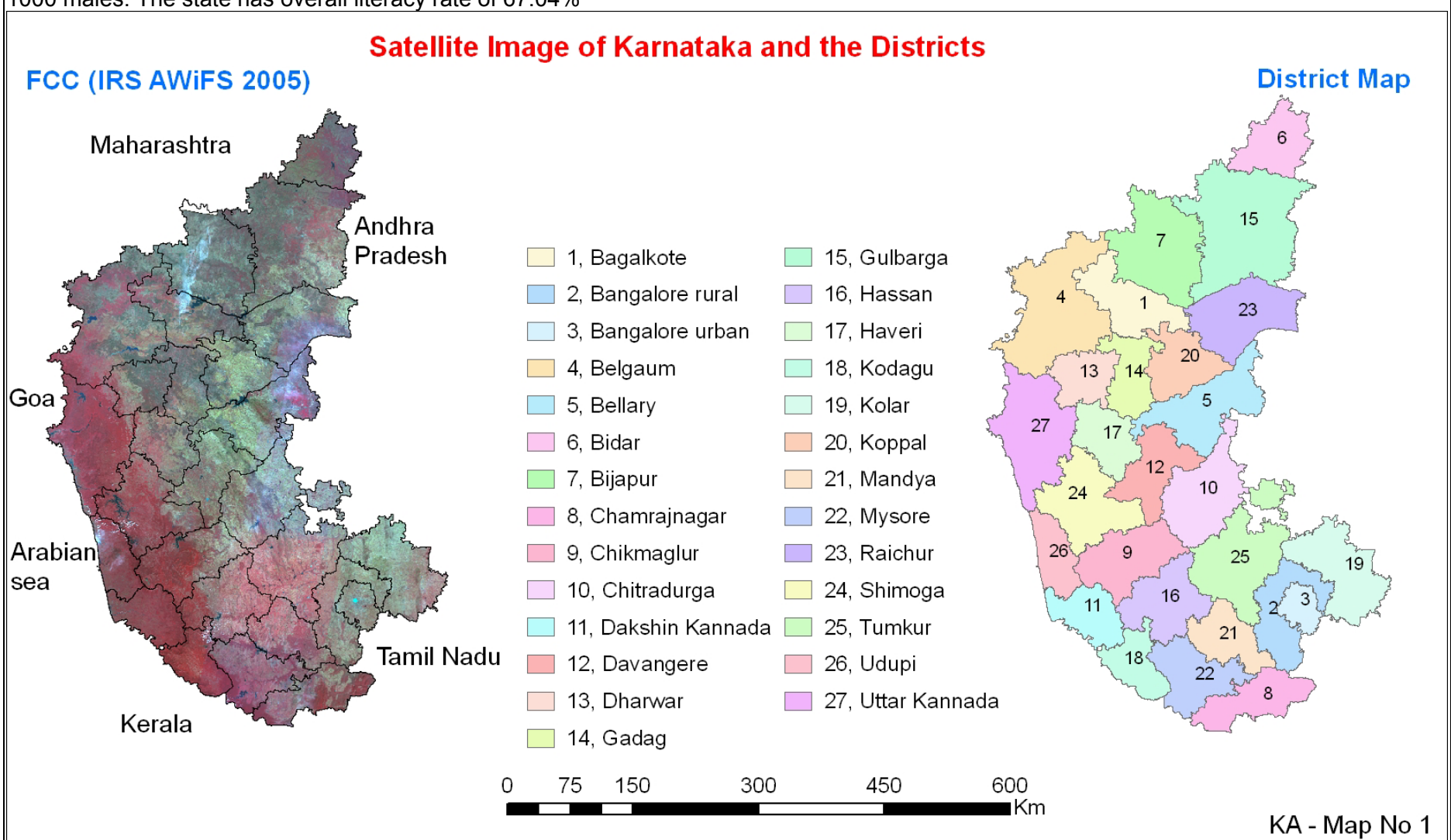
KARNATAKA

INTRODUCTION

Location and Administrative Setup: Karnataka, the seventh largest state of India, is located between 11° 30' and 18° 30' N latitude and 74° 15' and 78° 30' E longitude covering an area of about 19179.100 Th ha (191791 sq. km) 1,91,791 sq. km. It accounts for 5.82 % of the total geographical area of the country. It has 320 km long coastal line which forms the western boundary. The state is bounded by Goa in the North - West, Maharastra in the North, Andhra Pradesh in the East, Tamil Nadu in the South and South - East and Kerala in the South - West. The state has 27 administrative districts (Map 1) comprising 175 taluks with 175 sub-districts, 175 tehsils, 270 towns and 29406 villages. Bangalore is the state capital.

According to 2001 census total population of the state stood at 5,28,50,562 out of which 2,68,98,918 are male The rural population comprises of about 66.02% of total population. The higher percentage of rural population indicates agriculture as mainstay of livelihood. The state has population density of 275 persons per sq. km. Decadal growth rate of population is 17.25%. The overall sex ratio is 964 i.e. 964 females per 1000 males. The state has overall literacy rate of 67.04%



KA - Map No 1

Climate: The climate of Karnataka is basically tropical and determined largely by the physiographic and geographic location with respect to the sea and monsoon. The state enjoys the benefit of two monsoons and hence it will be called the land of two monsoons because both southwest and northeast monsoons account for major part of the rainfall. The state receives an average annual rainfall of 1354.7 mm with a minimum of 552.8 mm and maximum of 3932.4 mm. Temperature is lowest in the month of January and increases thereafter gradually at first and then, rapidly after the middle of February or beginning of March. Temperature varies between 18^0 to 40^0C during summer and between 14^0 – 32^0C during winters.

Land use: Land use statistics for the year 2002–'03 is given in Table 1.

Table 1: Major Land Use (Th ha)

PARTICULARS	2002-03
Forest	3070.330
Not Available for Cultivation	
A-Land put to Non Agriculture Uses	1331.643
B-Barren and Uncultivable Land	788.017
Other Uncultivable Land Excluding Fallow Land	
A-Permanent Pastures & Grazing Land	952.204
B-Land under Misc. Tree Crops & Groves	304.718
C-Cultivable Wastelands	421.263
Fallow Land	
A-Current Fallow	1831.535
B-Old Fallow	512.506
Cropped Area	
A-Net Area Sown	9837.620
B-Area Sown More Then Once	1674.297
Gross Cropped Area	11531.576
Cropping Intensity (%)	117.20

(Source: www.indiastat.com)

Satellite Data: IRS P4 LISS III data of of two different seasons namely, pre monsoon (April-May, 2003) and post monsoon (November-December, 2001-'02) were used for delineation of waterlogged and salt affected areas of various commands of Karnataka.

WATER RESOURCES AND COMMAND AREAS

Water Resources: There are seven river systems draining the state. Considering average annual rainfall of 1354.7 mm for the state, the gross water resources of the state works out to be about to 217 cubic km. The major river systems draining the entire state comprised of Krishna, Cauvery, Godavari, North Pennar, South Pennar and Palar.

Command Areas: There are 85 irrigation commands in Karnataka. Number of major and medium irrigation commands are 26 and 59, respectively (Map 2).

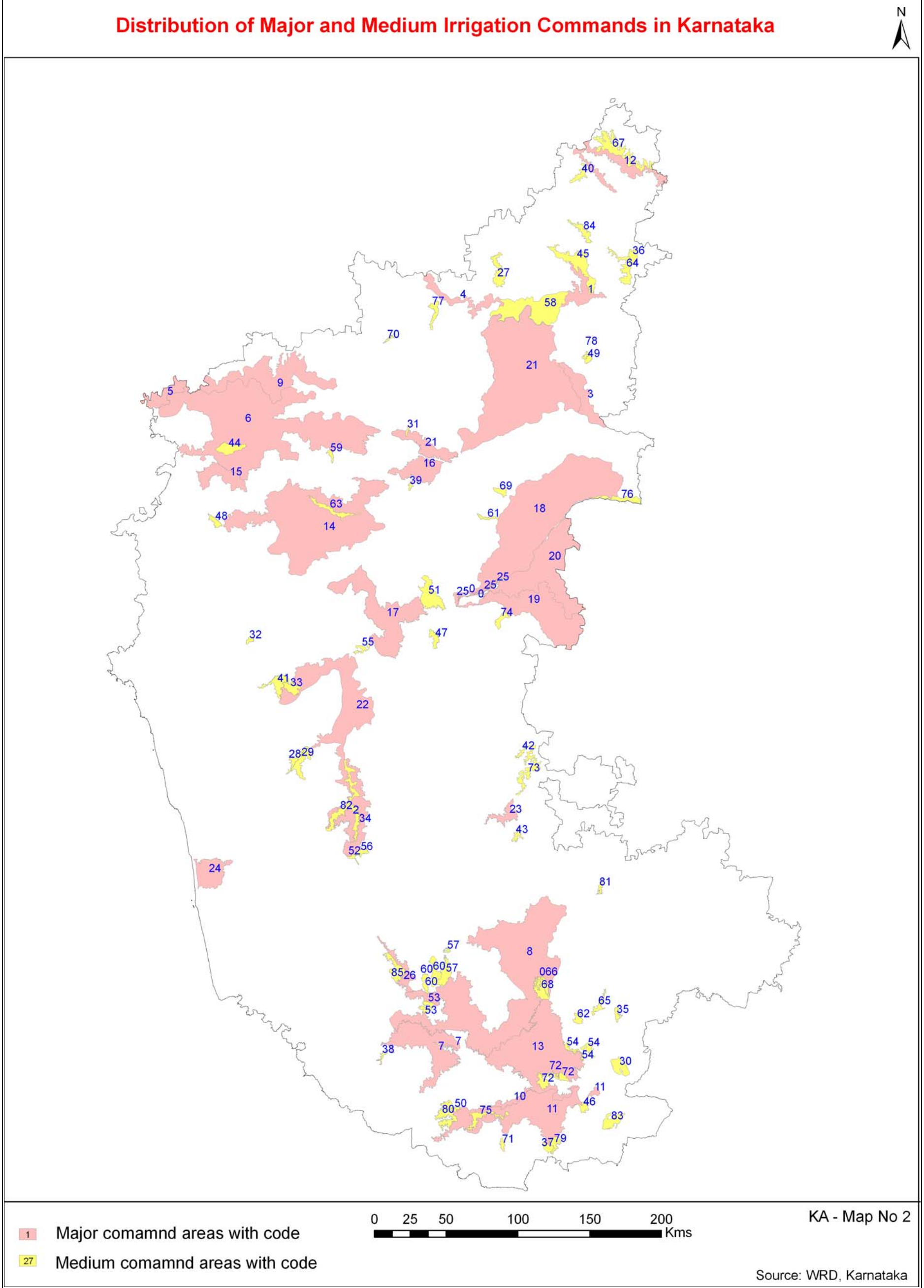
WATER LOGGING AND SALT AFFECTED AREAS IN MAJOR AND MEDIUM IRRIGATION COMMANDS BASED ON SATELLITE REMOTE SENSING

No area is found under waterlogging category due to continuous drought during the investigation date in the state. However additional analysis done using AWiFS data pertaining to normal year show 11.974 Th ha area under seasonal watelogging. Total 2081 soil samples were collected to check the salinity / alkalinity in the command. Total salt affected area in the state is 5.781Th ha. K R Sagar command has maximum salt affected area. Table 2 and Map 3 show the salt affected area and waterlogged areas in major and medium irrigation commands in Karnataka state.

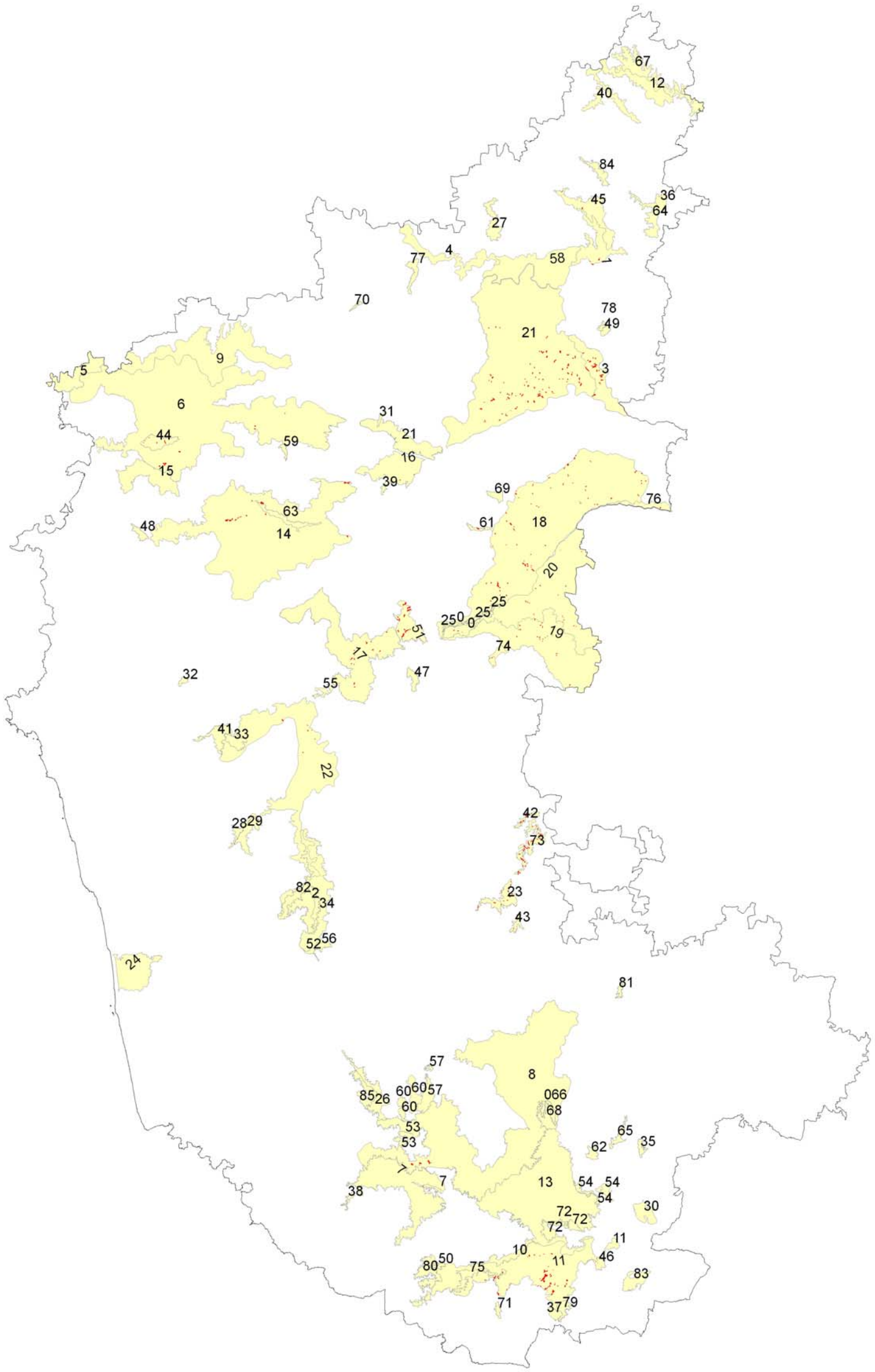
Table 2: Salt Affected and Waterlogged areas in major and medium irrigation commands of state

Code	Command name	Type	Waterlogged area (Th ha)	Salt affected area (Th ha)
1	Benithora	Major	0.000	0.044
2	Bhadra	Major	0.000	0.000
3	Bhima flow	Major	0.000	0.476
4	Bhima lift	Major	0.000	0.000
5	Dudhganga	Major	0.000	0.000
6	Ghataprabha	Major	0.000	0.203
7	Harangi	Major	0.000	0.000
8	Hemavathi	Major	0.000	0.152
9	Hippargi barrage	Major	0.000	0.000
10	Hullhalli	Major	0.000	0.000
11	K R Sagar	Major	0.000	0.761
12	Kanva	Major	0.000	0.000
13	Kolchiweir	Major	0.000	0.000
14	Malaprabha	Major	0.000	0.380
15	Markandaya	Major	0.000	0.000
16	Ramthal lift	Major	0.000	0.020
17	Singatlur	Major	0.000	0.171
18	TB high	Major	0.000	0.132
19	TB left	Major	0.000	0.665
20	TB right	Major	0.000	0.094
21	Upper Krishna	Major	0.000	1.217
22	Upper Mullamari	Major	0.000	0.000
23	Vanivilas	Major	0.000	0.151
24	Varahi	Major	0.000	0.000
25	Vijayanagar channel	Major	0.000	0.000
26	Yagachi	Major	0.000	0.000
27	Amarja	Medium	0.000	0.000
28	Ampligola	Medium	0.000	0.000
29	Anjanapura	Medium	0.000	0.000
30	Areshankar	Medium	0.000	0.000
31	Arkavathi	Medium	0.000	0.000
32	Bachanki	Medium	0.000	0.000
33	Basapura lift	Medium	0.000	0.000
34	Bhadra anicut	Medium	0.000	0.000
35	Byramangala	Medium	0.000	0.000
36	Chandrampalli	Medium	0.000	0.000
37	Chickhole	Medium	0.000	0.000
38	Chiklihole	Medium	0.000	0.000
39	Chitwadgi	Medium	0.000	0.000
40	Chulkinala	Medium	0.000	0.000
41	Dharma	Medium	0.000	0.000
42	Feeder canal	Medium	0.000	0.131
43	Gayathri	Medium	0.000	0.044
44	Gokak canal	Medium	0.000	0.009
45	Gondharinala	Medium	0.000	0.027
46	Gundal	Medium	0.000	0.004
47	Hagaribommanahalli	Medium	0.000	0.000
48	Harinala	Medium	0.000	0.000
49	Hathikuni	Medium	0.000	0.000
50	Hebballa	Medium	0.000	0.000
51	Hirehalla	Medium	0.000	0.508
52	Hodirayanahalla	Medium	0.000	0.000
53	Huchethana koppalu	Medium	0.000	0.000
54	Iggalur	Medium	0.000	0.000
55	Ittagi Susalwad	Medium	0.000	0.000
56	Jambadahalla	Medium	0.000	0.000
57	Kabini	Medium	0.000	0.000
58	Kachenahalli	Medium	0.000	0.000
59	Kagina	Medium	0.000	0.000
60	Kalasakoppa	Medium	0.000	0.000
61	Kamasamudra LIS	Medium	0.000	0.000
62	Kanakanala	Medium	0.000	0.044
63	Karanja	Medium	0.000	0.000
64	Lower Mullamari	Medium	0.000	0.000
65	Manchanbele	Medium	0.000	0.000
66	Mangala	Medium	0.000	0.000
67	Manjralift	Medium	0.000	0.000
68	Markonahalli	Medium	0.000	0.000
69	Maskinala	Medium	0.000	0.000
70	Nagathan	Medium	0.000	0.000
71	Nallur ammanikere	Medium	0.000	0.000
72	Nanjapura LIS	Medium	0.000	0.000
73	Narayanpura anicut	Medium	0.000	0.407
74	Narihalla	Medium	0.000	0.009
75	Nugu	Medium	0.000	0.039
76	Rajolibunda	Medium	0.000	0.021
77	Ramanahalli	Medium	0.000	0.000
78	Saudhagar	Medium	0.000	0.000
79	Suvarnavathi	Medium	0.000	0.000
80	Taraka	Medium	0.000	0.000
81	Teetha	Medium	0.000	0.000
82	Tunga anicut	Medium	0.000	0.000
83	Uduthorehalla	Medium	0.000	0.000
84	Upper Tunga	Medium	0.000	0.071
85	Votehole	Medium	0.000	0.000
	Total		**0.000**	**5.781**

Distribution of Major and Medium Irrigation Commands in Karnataka



Waterlogged and Salt Affected Areas in the Commands of All Major and Medium Irrigation Projects of Karnataka Using Satellite Remote Sensing



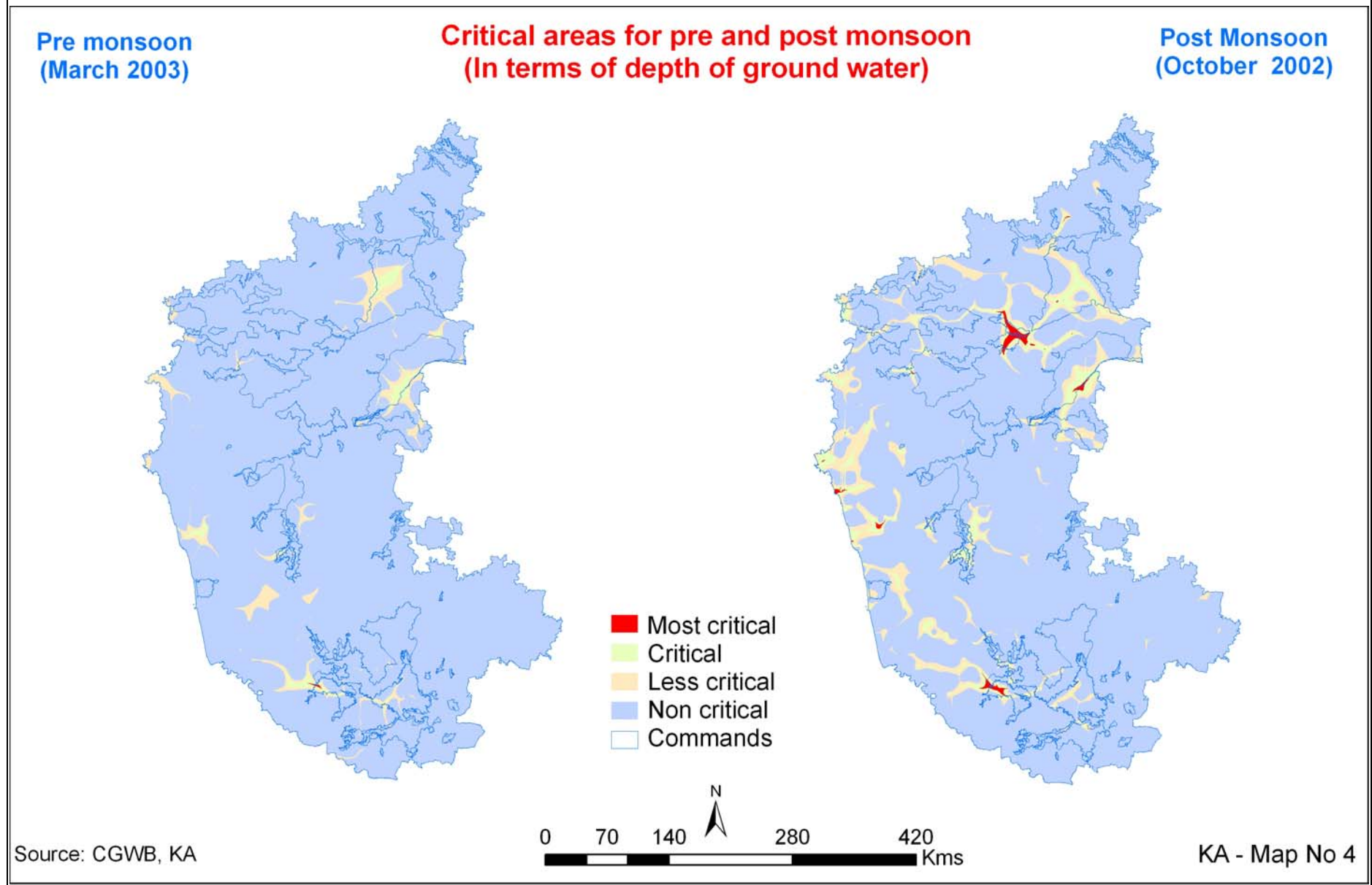
KA - Map No 3

Source: RRSSC/ISRO Jodhpur

For demarcation of critical waterlogged areas due to rise in water table depth, ground water table data of monitoring stations of CGWB were used. Table 3 and Map 4 show the critical area of depth of ground water for pre (March, 2003) and post (October, 2002) monsoon.

Table 3: Critical Area of Depth of Ground Water for Pre (March, 2003) and Post (October, 2002) Monsoon

	Most critical (< 1m)		Critical (1 – 2 m)		Less critical (2 – 3 m)		Non-critical (> 3 m)	
	(Th ha)	(%)	(Th ha)	(%)	(Th ha)	(%)	(Th ha)	(%)
Pre Monsoon (March, 2003)	1.471	0.04	111.166	2.77	257.271	6.41	3642.952	90.78
Post Monsoon (October, 2002)	43.368	1.08	273.481	6.82	458.139	11.42	3237.872	80.68



Project Team

Dr. A.K. Bera (PI), RRSSC, Jodhpur
Shri Rajendra Gaikwad, RRSSC, Jodhpur
Shri K. Nagaraj, KSRSAC, Bangalore
Shri N.L. Rajesh, KSRSAC, Bangalore
Shri N.G. Basavaraju, KSRSAC, Bangalore
Shri Ravi Kumar, KSRSAC, Bangalore
Shri B.N. Umesh, KSRSAC, Bangalore
Shri M.K. Vishwanath, KSRSAC, Bangalore
Shri R.N. Dinesh, KSRSAC, Bangalore
Shri Chokka Reddy, KSRSAC, Bangalore
Shri N.R. Ramesh, KSRSAC, Bangalore
Shri M.B. Devaraj, KSRSAC, Bangalore
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Shri S.J. Chennabasappa, Secreetary to Govt., WRD, Bangalore
Administrators, CADA, Bangalore
Chief Engineers, Irrigation Department, Bangalore
Executive Engineer, Irrigation Department, Bangalore
Incharge, Department of Mines and Geology, Bangalore
Incharge, CGWB, Bangalore
Dr. N.K. Tyagi, Director, Central Soil Salinity Research Institute, Karnal
Dr. R.C. Sharma, Central Soil Salinity Research Institute, Karnal
Dr. Madhurama Sethi, Central Soil Salinity Research Institute, Karnal
Dr. A.K. Mandal, Central Soil Salinity Research Institute, Karnal
Dr. H. Chandrasekharan, IARI, New Delhi
Dr. D.K. Das, IARI, New Delhi
Dr. Himangshu Pathak, IARI, New Delhi
Dr. I.C. Gupta, CAZRI (ICAR), Jodhpur
Dr. D.C. Joshi, CAZRI (ICAR), Jodhpur
Dr. J.C. Tarafdar, CAZRI (ICAR), Jodhpur