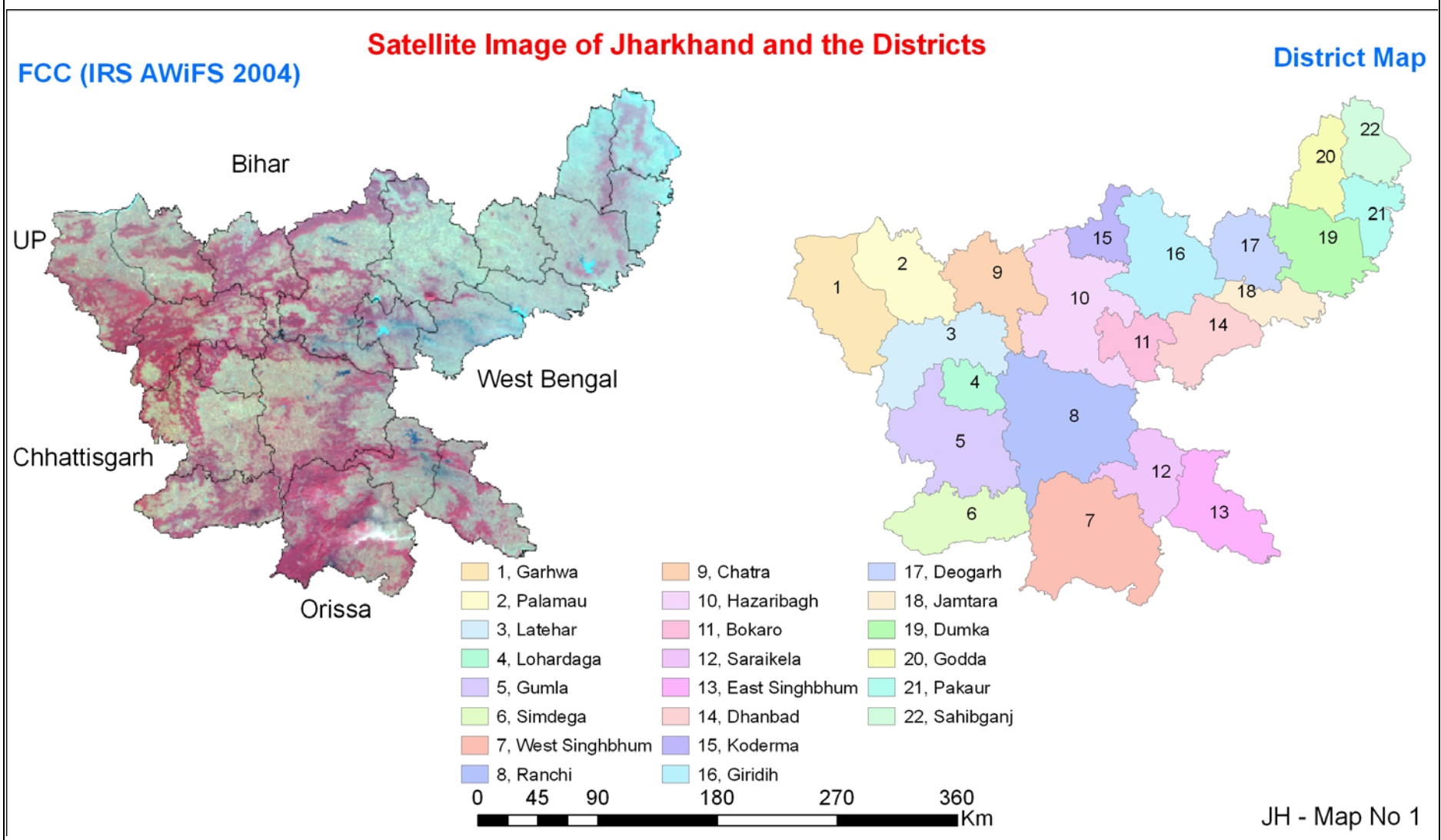
JHARKHAND

INTRODUCTION

Location and Administrative Setup: Jharkhand state situated in the Northern part of India came into being on November 15, 2000. It is located between 21° 57' to 25° 14' N latitude and 83° 20' to 87° 58'E longitude covering an area of about 7971.400 Th ha (79714 sq. km). The state is divided into 22 districts(Map 1), 33 divisions and 210 subdistricts. Total number of towns is 152 with 32615 villages. Ranchi is the state capital.

Total population of Jharkhand according to 2001 census is 2,69,09,428 out of which 1,38,61,277 are male. The state has population density of 337 persons/sq km. The overall sex ratio is 941 i.e. 941 females per 1000 males. The state has total literacy rate of 43.76%.Percent of rural population is higher (77.80%) indicating that the state is still predominantly rural and depend upon agriculture as mainstay of livelihood.



Climate: The state has a sub-humid climate with average annual rainfall of 1262.8 mm. Maximum rainfall takes place during the months from July to September, which accounts for more than 90% of total rainfall in the state. However, due to high variability of monsoon rains, low moisture holding capacity of soils, absence of developed aquifers due to hard rock substrate and high runoff due to undulating terrain, agriculture is fraught with high risk. Climate of the state in general is tropical with hot summers and cold winters, with annual mean minimum temperature 19.1^0 C and annual mean maximum temperature 31.5^0 C. The highest temperature recorded is 41.5^0 C, where as the lowest temperature recorded is 7.6^0 C. There are regional variations and some parts of the state like Ranchi, Netarhat, and Parasnath have pleasant climate even during the summers

Land use: Land use statistics for the year 1997-'98 is given in Table 1.

Table 1: Major Land Use (Th ha)

PARTICULARS	1997-'98
Forest	2332.549
Not Available for Cultivation	
A-Land put to Non Agriculture Uses	788.333
B-Barren and Uncultivable Land	573.094
Other Uncultivable Land Excluding Fallow Land	
A-Permanent Pastures & Grazing Land	87.852
B-Land under Misc. Tree Crops & Groves	110.075
C-Cultivable Wastelands	277.501
Fallow Land	
A-Current Fallow	1212.700
B-Old Fallow	779.353
Cropped Area	
A-Net Area Sown	1803.904
B-Area Sown More Then Once	260.573
Gross Cropped Area	2064.477
Cropping Intensity (%)	114.45

(Source: www.indiastat.com)

Satellite Data: IRS 1D LISS III data of two different seasons namely, pre monsoon (April-May, 2003) and post monsoon (November-December, 2002) were used for delineation of waterlogged and salt affected areas of various commands of Jharkhand.

WATER RESOURCES AND COMMAND AREAS

Water Resources: Jharkhand state is endowed with vast fresh water resources in the form of tanks/ponds and reservoirs. The main rivers flowing in the State are Damodar, Mayurakshi, Barakar, Koyal, Sankh, Son, Auranga, More, Karo, Bansloi, South Koel, Kharkai, Swarna Rekha, Ganga, Gumani and Batane. Annual Replenishable Ground water Resources are 5.58 BCM and stage of ground water development is 20%. State is divided in 16 river basins, which can be harnessed through different irrigation schemes.

Command Areas: There are 74 irrigation commands in Jharkhand. Number of major and medium irrigation commands are 2 and 72, respectively (Map 2).

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

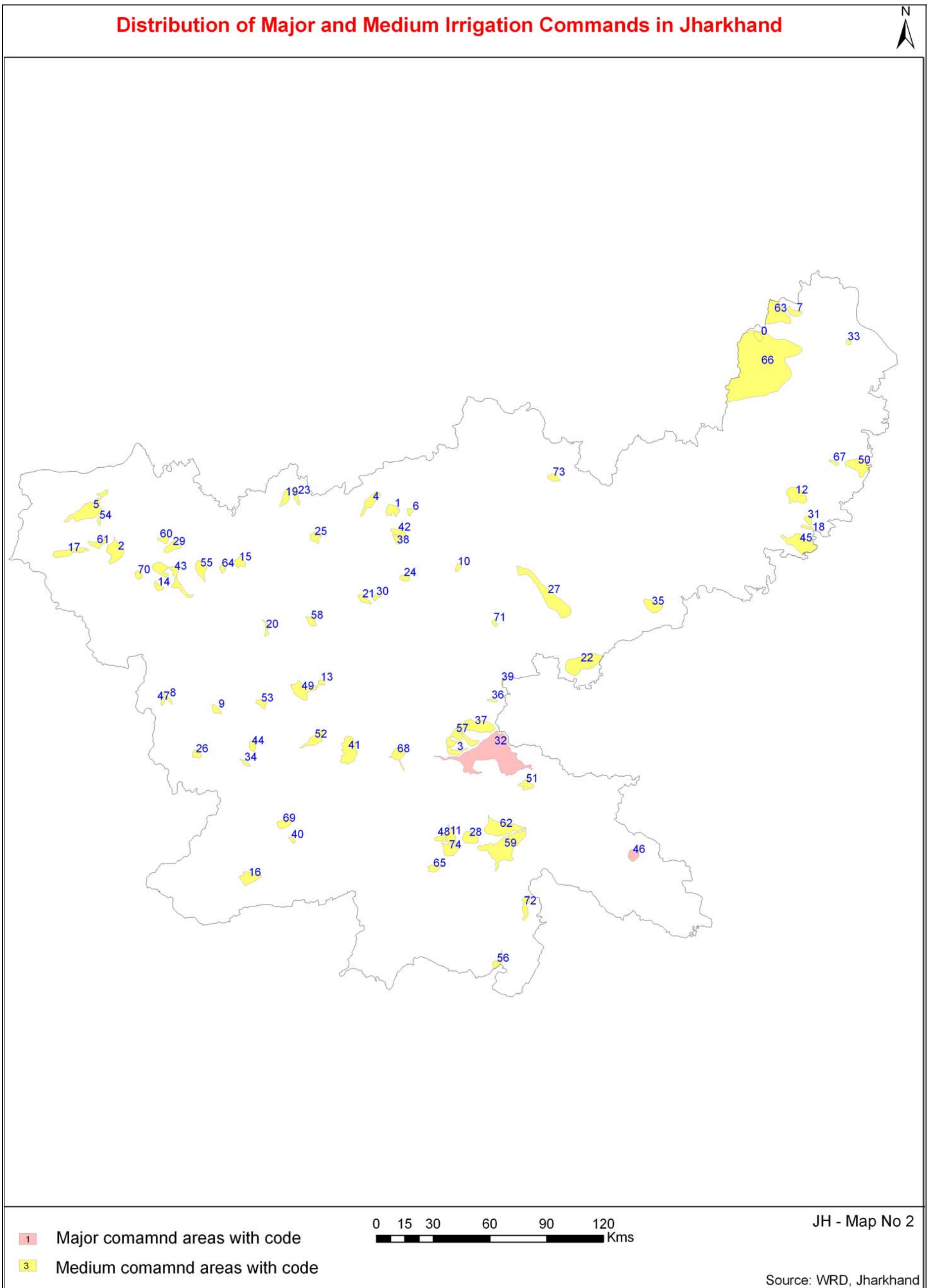
State has no area under waterlogging and salinity as per analysis of data of 2002 – 03. Total 223 soil samples were collected to check the salinity / alkalinity in the command.

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

Code	Command name	Type	Waterlogged area (Th Ha)	Salt affected area (Th Ha)
32	Kanchi Weir Scheme	Major	0.000	0.000
46	Murahir Reservoir Scheme	Major	0.000	0.000
1	Anjanwa Irrigation Scheme	Medium	0.000	0.000
2	Annraj Weir Schemes	Medium	0.000	0.000
3	Aradih Weir (Irrigation) Scheme	Medium	0.000	0.000
4	Baksa Reservoir Scheme	Medium	0.000	0.000
5	Banki Weir Scheme	Medium	0.000	0.000
6	Barhi Reservoir Scheme	Medium	0.000	0.000
7	Bhorabund Weir Scheme	Medium	0.000	0.000
8	Birha Weir Scheme	Medium	0.000	0.000
9	Bishanpur Weir (Irrigation) Scheme	Medium	0.000	0.000
10	Boudha Weir Scheme	Medium	0.000	0.000
11	Brahmani Irrigation Scheme	Medium	0.000	0.000
12	Brahmani Reservoir Scheme	Medium	0.000	0.000
13	Buchaopa Reservoir Scheme	Medium	0.000	0.000
14	Butanduba Reservoir Scheme	Medium	0.000	0.000
15	Chako Weir (Irrigation) Scheme	Medium	0.000	0.000
16	Chinda Reservoir Scheme	Medium	0.000	0.000
17	Danro Weir Scheme	Medium	0.000	0.000
18	Diggalpahari Reservoir Scheme	Medium	0.000	0.000
19	Dulki Reservoir Scheme	Medium	0.000	0.000
20	Ghaghari Weir Scheme	Medium	0.000	0.000
21	Ghaghra Reservoir Scheme	Medium	0.000	0.000
22	Gobai Barrage Scheme	Medium	0.000	0.000
23	Golai Weir (Irrigation) Scheme	Medium	0.000	0.000
24	Gonda Reservoir Scheme	Medium	0.000	0.000
25	Hiru Reservoir Scheme	Medium	0.000	0.000
26	Jaipur Reservoir Scheme	Medium	0.000	0.000
27	Jamunia Reservoir Scheme	Medium	0.000	0.000
28	Jensai Reservoir Scheme	Medium	0.000	0.000
29	Jinjoi Weir Scheme	Medium	0.000	0.000
30	Jugra Weir Scheme	Medium	0.000	0.000
31	Kairabani Reservoir Scheme	Medium	0.000	0.000
33	Karantola Weir Scheme	Medium	0.000	0.000
34	Khatwa Irrigation Scheme	Medium	0.000	0.000
35	Khudia Weir Scheme	Medium	0.000	0.000
36	Kita Weir Scheme	Medium	0.000	0.000
37	Kokro Irrigation Scheme	Medium	0.000	0.000
38	Kutipisi Weir Scheme	Medium	0.000	0.000
39	Lapasia Weir(Irrigation) Scheme[1]	Medium	0.000	0.000
40	Larwa Irrigation Scheme	Medium	0.000	0.000
41	Latratu Reservoir Scheme	Medium	0.000	0.000
42	Lotia Weir Scheme	Medium	0.000	0.000
43	Malay Reservoir Scheme	Medium	0.000	0.000
44	Masaria Irrigation Scheme	Medium	0.000	0.000
45	Mayurakshi Left Canal Scheme	Medium	0.000	0.000
47	Nakti Nala Weir Scheme	Medium	0.000	0.000
48	Nakti Reservoir Scheme	Medium	0.000	0.000
49	Nandini Reservoir Scheme	Medium	0.000	0.000
50	Pagla Weir Scheme	Medium	0.000	0.000
51	Palna Reservoir Scheme	Medium	0.000	0.000
52	Paras Reservoir Scheme	Medium	0.000	0.000
53	Phuljhar Irrigation Scheme	Medium	0.000	0.000
54	Phulwari Weir Scheme	Medium	0.000	0.000
55	Pipri Weir (Irrigation) Scheme	Medium	0.000	0.000
56	Putongra Irrigation Scheme	Medium	0.000	0.000
57	Raisa Weir Scheme	Medium	0.000	0.000
58	Ramghat Weir Scheme	Medium	0.000	0.000
59	Roro Irrigation Scheme	Medium	0.000	0.000
60	Sadabah Weir Scheme	Medium	0.000	0.000

Code	Command name	Type	Waterlogged area (Th Ha)	Salt affected area (Th Ha)
61	Saraswatia Weir Scheme	Medium	0.000	0.000
62	Sona Irrigation Scheme	Medium	0.000	0.000
63	Sonepur Weir Scheme[2]	Medium	0.000	0.000
64	Sonre Weir Scheme	Medium	0.000	0.000
65	Sonua Irrigation Scheme	Medium	0.000	0.000
66	Sunder Reservoir Scheme	Medium	0.000	0.000
67	Surjodhi Irrigation Scheme	Medium	0.000	0.000
68	Tajna Weir Scheme	Medium	0.000	0.000
69	Tapkara Irrigation Scheme	Medium	0.000	0.000
70	Temrain Weir Scheme	Medium	0.000	0.000
71	Tenubhat Reservoir Scheme	Medium	0.000	0.000
72	Torlo Reservoir Scheme	Medium	0.000	0.000
73	Usri Weir Scheme	Medium	0.000	0.000
74	Vijay Irrigation Scheme	Medium	0.000	0.000
	Total		**0.000**	**0.000**

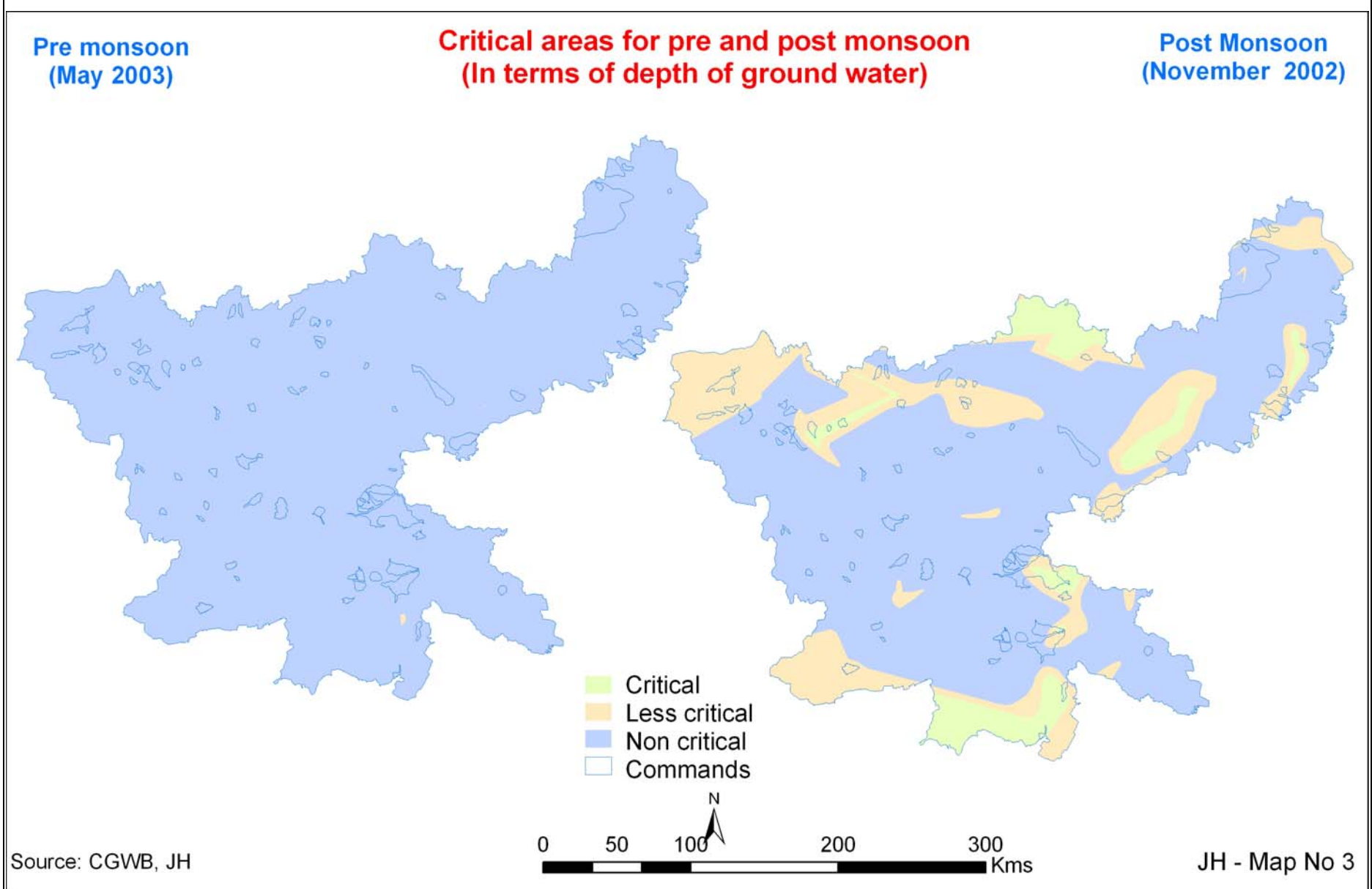
Distribution of Major and Medium Irrigation Commands in Jharkhand



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 (May, 2003) and post (November, 2002) monsoon.

Table 3: Critical Area of Depth of Ground Water for Pre (May, 2003) and Post (November, 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 (May, 2003)	0.000	0.00	0.000	0.00	0.000	0.00	399.477	100.00
Post Monsoon (November, 2002)	0.000	0.00	27.504	6.89	110.723	27.72	261.250	65.39



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