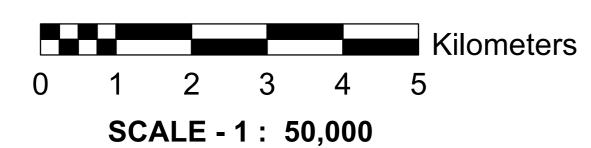
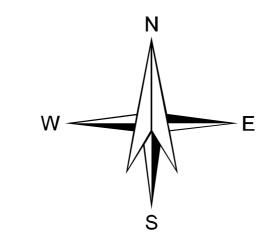
## GROUND WATER PROSPECTS MAP

(PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS)





NORTH 24 PARGANAS DISTRICT, WEST BENGAL MAP SHEET NO. 79B/13 | |-|+|+|+|+|+|+|+|+|+| |||+|+|+|+|+|+|+|+|+| ||||+|+|+|+|+|+|+|+| ||-||-||-||+||+||+||-||||+|+|+|+|+|+| NRSC (ISRO), DEPT. OF SPACE, GOVT. OF INDIA DATA USED: IRS - P6 LISS III FCC dated September 2005-February 2006, GROUND TRUTH & WELL OBSERVATION during March-June, 2012 & Oct 2012-Jan 2013, Published Geological maps & Literatures. Designed & Developed by Hydrogeology Division, NRSC, ISRO

## LEGEND

					LE	G	EN	I D					
MAP UNIT	GEOLOGICAL SEQUENCE / ROCK TYPE	GEOMORPHIC UNIT / LANDFORM	DEPTH TO WATER LEVEL	RECHARGE CONDITIONS  BASED ON AVAILABILITY OF WATER  (RAINFALL & OTHER SOURCES)	GROUND WATER PROSPECTS						RECHARGE STRUCTURES SUITABLE &		
( HYDROGEOMORPHIC UNIT )  REPRESENTED IN  THE MAP WITH ALPHANUMERIC CODE  ( COLOUR INDICATES YIELD RANGE AND HATCHING INDICATE DEPTH RANGE)	( REPRESENTED IN THE MAP WITH NUMERIC CODE )	( REPRESENTED IN THE MAP WITH ALPHABETIC CODE )	PRE / POST- MONSOON (AVERAGE IN METERS)  NO. OF WELLS OBSERVED		AQUIFER MATERIAL  LS = LOOSE SEDIMENTS PR = PERMEABLE ROCK FIR = FISSURED ROCK FR = FRACTURED ROCK WK /= WEATHERED ROCK / WM WEATHERED MATERIAL IR = IMPERIVIOUS ROCK	TYPE OF WELLS SUITABLE  DW = DUG WELL RW = RING WELL BW = BORE WELL TW = TUBE WELL DBW/ = DUG CUM-BORE WELL/ DTW DUG CUM-TUBE WELL	DEPTH RANGE OF WELLS (SUGGESTED) MIN - MAX (IN METERS)	YIELD RANGE OF WELLS (EXPECTED) (in LPM or m <sup>3</sup> / day)	HOMOGENEITY IN THE UNIT & SUCCESS RATE OF WELLS (PROBABILITY)  VERY HIGH HIGH MODERATE LOW	QUALITY OF WATER  POTABLE (P) NON - POTABLE (NP)  (INDICATE REASONS IF NON POTABLE)	GROUND WATER IRRIGATED AREA (APPROX. RANGE IN PERCENTAGE)	PRIORITY  PT = PERCOLATION TANK CD = CHECK DAM NB = NALA BUND RW = RECHARGE WELL DT = DESILTING OF TANK RP = RECHARGE PIT SD = SUBSURFACE DYKE RS = RECHARGE SHAFT ST = STORAGE TANK SCM = SOIL CONSERVATION MEASURES	REMARKS (PROBLEMS / LIMITATIONS)
OL111	nt day Deposits	Ox-bow Lake (OL)	No well observed	Very Good	LS	TW	10-15 m	200-300 LPM	Very High	Р	Nil	Not Required	Limited potability of groundwater.
MS111	rathi Formation/Prese (Present Day) (Present Day) (Mathematical Control Contro	Meander Scar (MS)	No well observed	Good	LS	RW TW	10-15 m	200-250 LPM	High	P	Nil	Not Required	Groundwater prospects very high with high recharge potential. Recharge structures not required.
	Hug li/Bhagi	Cut-off Meander (CM)	No well observed	Very Good	LS	RW TW	10-15 m	200-300 LPM	Very High	P	Nil	Not Required	Potable water available at shallow depth.
	Alluvium (Clay Dominant) (12)	Backswamp (BS)	No well observed	Poor	LS	TW	60-70 m	40-50 LPM	Low	P	Nil	Not Required	Areas of low groundwater potential. Better potential at greater depths.
	Panskura/Arambagh/Chinsura/Katwa (Early to Late Holocene) (Barly to Late Holocene) (I13) (I13)	Alluvial Plain Younger (APY)	<u>10/6</u> 9	Good	LS	TW	100-120 m	400-500 LPM	High	NP (As & Fe at shallow depth)	55	RW Low	Areas with high Arsenic and Iron concentration.Potable water available at depth range above 100 m. Recharge of shallow aquifer recommended.
AC13	Sijua/ Bethuadahari Formation (Late Pleistocene to Early Holocene) (S) (S) (S) (S) (S) (S) (S) (S) (A) (Cate Pleistocene to Early Holocene) (S) (S) (A) (Cate Pleistocene to Early Holocene) (S) (A) (Cate Pleistocene to Early Holocene) (Cate Pleistocene to Ear	Abandoned Channel (AC)	No well observed	Very Good	LS	RW TW	10-15 m	250-300 LPM	Very High	Р	Nil	Not Required	Areas of very high groundwater potential at shallow depth.Most suitable for extraction of groundwater
F// —-		ult / fracture zones, which ge	nerally act as conduits for mo	ovement of ground water in	hard rocks. Along these zone	s, the yields are significantl	higher and wells are	e likely to be sustainal	ble for longer duration	on. However, the inferred	d fractures need to be o	confirmed by detailed ground surveys.	
D /QQ /	/ PP PP These are	dykes, quartz reefs and	pegmatite veins, which g	enerally act as barriers	for ground water moveme	ent.							
	N.BThe depth range and yield Locations of the	range of wells may vary v	within the unit because of yn in the map are tentative	certain inhomogeneities. c. This map is useful for r	Fractures/Lineaments who arrowing down the target	ich are clearly observed zones,and exact location	/inferred from the	satellite image are i	indicated on the m	ap. There could be s	ome obscured fractu	ures which also influence the ground in the	nd water prospects. veys.

GROUND WATER PROSPECTS INFORMATION	HYDROLOGICAL INFORMATION	STRUCTURAL INFORMATION	BASE MAP INFORMATION	LOCATION INFORMATION		
YIELD COLOUR DEPTH RANGE OF WELLS	DESCRIPTION SYMBOL	DIPS BEDDING SCHISTOSITY/ FOLIATION	SYMBOL DESCRIPTION	STATE INDEX DISTRICT INDEX		
RANGE CODE SHALLOW MODERATE DEEP OF WELLS < SO METERS SO METERS SO METERS > 80 METERS	CANAL / TANK IRRIGATED AREA	GENTLE (<15)	NH - 2 NATIONAL HIGHWAY	A-BIRBHUM B-BARDDHAMAN		
COMPLETE SOMETIME	GROUND WATER IRRIGATED AREA	MODERATE (15 - 45)		C-PURULIYA D-BANKURA E-PASCHIM MEDINIPUR		
> 800 LPM VIOLET	RIVER / STREAM (with sand)	STEEP (45 - 80)	SH - 9 STATE HIGHWAY	F-PURBA MEDINIPUR G-S24 PARGANAS H-HOWRAH		
	WATER BODY / SPRING	SUB - VERTICAL TO VERTICAL ( > 80 )	METALLED ROAD	I-HOWKATA I-KOLKATA J-N24 PARGANAS M		
400 - 800 LPM INDIGO	CANAL  RAIN GUAGE STATION ( With average annual rainfall in mm )	ANTICLINE / ANTIFORM ←←	OTHER ROAD	INDIA		
200 - 400 LPM BLUE	RECHARGE STRUCTURES SUGGESTED  PERCOLATION TANK CHECK DAM	SYNCLINE / SYNFORM ←	RAILWAY	WEST BENGAL		
100 - 200 LPM GREEN	NALA BUND RECHARGE WELL TO RECHARGE PIT SUBSURFACE DYKE	TREND LINE	CITY / VILLAGE	K-HUGLI L-NADIA M-MURSHIDABAD N-MALDAH		
	SOIL CONSERVATION RECHARGE SHAFT MEASURES  WELLS OBSERVED DURING FIELD VISIT	ESCARPMENT  LITHOLOGY / GEOMORPHIC UNIT	HABITATIONS : NON - COVERED (NC) PARTIALLY COVERED (PC)	The state of the s		
50 - 100 LPM YELLOW	YIELD RANGE IN LPM         BORE / TUBE WELL but 15/70         YIELD RANGE IN m³ day         DUG WELL / RING WELL	BOUNDARY		BLOCK INDEX MAPSHEET INDEX		
	> 800 LPM	MINOR   MAJOR   FAULT   F   F   F   F   F   F   F   F   F	BOUNDARY:			
30 - 50 LPM ORANGE	200 - 400 LPM 15/70 100 - 200 m³ / day 8/15	THRUST TT TT	INTERNATIONAL STATE	79A12 79A16 79E04		
20 - 30 I PM BROWN	100 - 200 LPM   -• 15/70	FRACTURE / LINEAMENT	DISTRICT	312		
20 - 30 LPM BROWN	50 - 100 LPM	FRACTURE / LINEAMENT	BLOCK	79B09 79B13 79F01		
10 - 20 LPM PINK	20 - 30 LPM - 15/70 10 - 15 m <sup>3</sup> / day	SHEAR ZONE (Confirmed / Inferred) S S/S S	OTHER INFORMATION	J22		
Prospects	10 - 20 LPM   -\$\frac{15/70}{  \	DYKE (Confirmed / Inferred)		79B10 79B14 79F02		
limited to valley portions only (Hills, Plateaus etc.)	< 10 LPM	QUARTZ REEF (Confirmed / Inferred)	Rainfall : 1624 mm	J2-BADURIA J13-HABRA I J10-BONGAON J22-SWARUPNAGAR		
Run-off zone/	DUG - CUM- BORE WELL HAND PUMP WELL	PEGMATITIE VEIN (Confirmed / Inferred)	(Source IMD)	J12-GAIGHATA		
Barrier for G.W. movement (Inselberg / Ridge / Dyke etc.)	ARTESIAN WELL  OBSERVATION WELL OF G.W DEPT. / C.G.W.B.	Lithologic contacts are inferred at places & Geomorphic boundaries are gradational				
PREPARED BY	TECHNICAL GUIDANCE & QUALITY CHECK	PARTICIPATING ORGANIZATIONS	METHODOLOGY & PROJECT EXECUTION	SPONSORED BY		
GEOINFORMATICS & REMOTE SENSING CELL B. STATE COUNCIL OF SCIENCE AND TECHNOLO DEPARTMENT OF SCIENCE AND TECHNOLOGY GOVERNMENT OF WEST BENGAL 4TH FLOOR, BIKASH BHAVAN	I NIATIONIAL DEMOTE CENICINIO CENTRE	SURVEY OF INDIA GEOLOGICAL SURVEY OF INDIA PHED, GOVT. OF WEST BENGAL STATE WATER INVESTIGATION DIRECTORATE, GOWB	NATIONAL REMOTE SENSING CENTRE INDIAN SPACE RESEARCH ORGANISATION (ISRO) DEPT. OF SPACE, GOVT. OF INDIA	RAJIV GANDHI NATIONAL DRINKING WATER MISSION (PHASE IV) DEPARTMENT OF DRINKING WATER SUPPLY (DDWS) MINISTRY OF DRINKING WATER & SANITATION		
SALT LAKE, KOLKATA 700 091	BALANAGAR, HYDERABAD - 500 625	P.S.MAPS (LAND RECORD), GOVT OF WEST BENGAL	BALANAGAR, HYDERABAD - 500 625	GOVERNMENT OF INDIA  NEW DELHI		