GROUND WATER PROSPECTS MAP (PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS) SCALE - 1: 50,000 BANKURA DISTRICT, WEST BENGAL MAP SHEET NO. 73M/4

DATA USED: IRS - P6 LISS III FCC dated February 2006, GROUND TRUTH & WELL OBSERVATION during April-May, 2009 & Jan-Feb, 2010, Published Geological maps & Literatures.

Designed & Developed by Hydrogeology Division, NRSC, ISRO

NRSC (ISRO), DEPT. OF SPACE, GOVT. OF INDIA

L E G E N D

MAP UNIT	GEOLOGICAL SEQUENCE / ROCK TYPE	GEOMORPHIC UNIT / LANDFORM	DEPTH TO WATER LEVEL	RECHARGE CONDITIONS	GROUND WATER PROSPECTS						RECHARGE STRUCTURES	REMARKS	
(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	BASED ON AVAILABILITY OF WATER (RAINFALL & OTHER SOURCES)	AQUIFER MATERIAL LS = LOOSE SEDIMENTS PR = PERMEABLE ROCK FIR = FISSURED ROCK FR = FRACTURED ROCK WR /= WEATHERED ROCK / WM WEATHERED MATERIAL IR = IMPERVIOUS ROCK IM = IMPERVIOUS MATERIAL	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)	OF WELLS	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)	SUITABLE & 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	(PROBLEMS / LIMITATIONS)
CB111	Hugli/ Bhagirathi Formation (Present Day) (Hugli/ Bhagirathi Formation (Present Day) (1111)	Channel Bar (CB)	<u>5 - 6</u> 2	Excellent	LS	TW	5-10 m	400-500 LPM	Very High	Р	42%	Not Required	Groundwater prospects very high with high recharge potential. Recharge structures not required.
PB111		Point Bar (PB)	6 1	Very Good	LS	RW TW	5-10 m	300-400 LPM	Very High	Р	7%	Not Required	Groundwater prospects very high with high recharge potential. Recharge structures not required.
APY113	Early to Late Holocene) (Early to Late Holocene) (Sand and Silt) (113)	Alluvial Plain Younger (APY)	7.1 - 7.32 DW - 2	Very Good	LS	DW TW	10 - 12 m 20 - 30 m	125 - 150 m ³ /day 200 - 250 LPM	Very High	Р	Nil	Not Required	Aquifer is formed of sandy part of alluvium. Recharge structures are no required as good recharge conditions prevail.
AC13	Early Holocene)	Abandoned Channel (AC)	No wells observed	Excellent	LS	DW TW	5 - 7 m 10 - 20 m	200 - 225 m ³ /day 250 - 350 LPM	Very High	Р	Nil	Not Required	Aquifer is formed of sandy part of alluvium. Recharge structures are no required as good recharge conditions prevail.
APO13	Sijua/Rampurh (Late Pleistocene to (Sand,Silt and Clay) (13)	Alluvial Plain Older -Moderate (AOM)	1.35 - 7.96 DW - 12 HP - 2	Good	LS	DW TW	10 - 15 m 40 - 60 m	75 - 100 m ³ /day 150 - 200 LPM	High	Р	Nil	Not Required	Aquifer is formed of sandy part of alluvium. Recharge structures are no required as good recharge condition prevail.
VFS211	rmation ne)	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Undelain by WM + FR	TW / BW	50 - 60 m	75 - 100 LPM	Moderate	Р	Nil	DT Moderate	Recharge structure will increase the sustainability of ground water resour
LP211	Laterite GH Laterite GH Laterite (Ferricrete-hard crust lateritic nodules and lithomarge clay) (211)	Lateritic Plain (LP) (Lithomarge Clay)	2.15 - 7.65 DW - 22 HP - 2	Limited	WM + FR	DW TW / BW	15 - 20 m 50 - 60 m	25 - 50 m ³ /day 50 - 100 LPM	Moderate	Р	Nil	RW / DT High	Areas of exposed lithomarge clay. Fracture zones form the aquifer, recharge structure will enhance ground water development
DLU211	Lalgarh/II (Middle to	Dissected Lateritic Upland (DLU) (Hard Crust and lateritic nodules)	2.8 - 7.17 c DW - 16	Nil to moderate	WM + IR (Impervious material)	TW / BW	80 - 100 m	30 - 50 LPM	Low	Р	Nil	Not required	Essentially Run-off zone where hard is present. Areas of nodular are recharge zones with deep table conditions.Primarily forest with sparse settlements.Not suital large scale development of ground
VFS832	Chhotanagpur Gniessic Complex (Lower Proterozoic-2300 - 2400 mill.yrs) By Sience (Complex (Lower Proterozoic-2300 - 2400 mill.yrs) By Sience (Complex (Lower Proterozoic-2300 - 2400 mill.yrs) Chhotanagpur Gniessic Complex (Lower Proterozoic-2300 - 2400 mill.yrs) Sience (Complex (Lower Proterozoic-2300 - 2400 mill.yrs)) Sience (Complex (Lower Proterozoic-2300 - 2400 mill.yrs))	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM + FR	TW / BW	30 - 50 m	150 - 175 LPM	Moderate	Р	Nil	CD Moderate	Prospects inferred as no wells obser Recharge condition is moderate with moderate ground water prospects.
BPM832		Buried Pediplain Moderate (BPM)	1.54 - 5.74 DW - 5	Moderate	WM + FR	DW TW / BW	15 - 20 m 40 - 50 m	50 - 60 m ³ /day 100 - 125 LPM	Moderate	Р	Nil	RP Moderate	Recharge structure will improve grouwater prospects.
BPS832		Buried Pediplain Shallow (BPS)	1.25 - 7.67 DW - 24	Limited	WM + FR	DW TW / BW	15 - 20 m 40 - 60 m	35 - 50 m ³ day 75 - 100 LPM	Low	Р	Nil	RP High	Recharge Structures will improve sustainability of groundwater source
PP\$832		Weathered Pediplain Shallow (PPS)	No wells observed	Poor	FR	DW TW / BW	15 - 20 m 40 - 60 m	15 - 25 m ³ day 30 - 50 LPM	Low	Р	Nil	Not Required	No recharge structures required as settlement are not present

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	CANAL / TANK IRRIGATED AREA	GENTLE (<15)	NH - 2 NATIONAL HIGHWAY	P-1/2		
	GROUND WATER IRRIGATED AREA	MODERATE (15 - 45)	SH - 9 STATE HIGHWAY			
> 800 LPM VIOLET	RIVER / STREAM (with sand)	STEEP (45 - 80)	STATE HIGHWAY	A Rose		
	WATER BODY / SPRING	SUB - VERTICAL TO VERTICAL (> 80)	METALLED ROAD			
400 - 800 LPM INDIGO	CANAL 800	ANTICLINE / ANTIFORM ←←	———— OTHER ROAD	INDIA		
	(With average annual rainfall in mm) RECHARGE STRUCTURES SUGGESTED	SYNCLINE / SYNFORM ←				
000 - 400 LPM BLUE	PERCOLATION TANK CHECK DAM		RAILWAY	WEST BENGAL A-BIRBHUM		
OO 200 LDM CREEN	NALA BUND RECHARGE WELL ▼ DESILTING OF TANK ○ RECHARGE PIT ★	TREND LINE	CITY / VILLAGE	B-BARDDHAMAN C-PURULIYA D-BANKURA		
00 - 200 LPM GREEN	SUBSURFACE DYKE IIIIIII RECHARGE SHAFT A SOIL CONSERVATION STORAGE TANK	ESCARPMENT		E-PASCHIM MEDINIPUR		
50 - 100 LPM YELLOW	MEASURES WELLS OBSERVED DURING FIELD VISIT YIELD RANGE BORE / YIELD RANGE DUG WELL /	LITHOLOGY / GEOMORPHIC UNIT	HABITATIONS : NON - COVERED (NC) PARTIALLY COVERED (PC)			
	N LPM TUBE WELL N m³/ day B/15	BOUNDARY MINOR MAJOR		BLOCK INDEX MAPSHEET INDEX		
00 - 50 LPM ORANGE	400 - 800 LPM	FAULT F F F	BOUNDARY:			
	200 - 400 LPM - 15/70 100 - 200 m³ / day 8/15	THRUST TT TT	STATE	D07 731/15 73M/3 73M/		
20 - 30 LPM BROWN	100 - 200 LPM	FRACTURE / LINEAMENT	DISTRICT BLOCK			
	30 - 50 LPM - 15/70 15 - 25 m ³ / day 8/15	FRACTURE / LINEAMENT		D15 73I/16 73M/4 73M		
10 - 20 LPM PINK	20 - 30 LPM - 15/70 10 - 15 m ³ / day 8/15	SHEAR ZONE (Confirmed / Inferred) S S/S S S	OTHER INFORMATION	The state of the s		
Prospects	10 - 20 LPM - 15/70 5 - 10 m ³ / day	DYKE (Confirmed / Inferred)		73J/13 73N/1		
imited to valley oortions only Hills, Plateaus	< 10 LPM 15/70 < 5 m³ / day Colour inside well symbol indicates yield range. The figures on the top right	QUARTZ REEF (Confirmed / Inferred)	Rainfall: 1386mm	D06 BANKURA - I D15 ONDA D07 BANKURA - II D16 TALDANGRA D05 INDPUR		
RED RED	hand side of well indicate the depth to water level and depth of well in meters DUG - CUM- BORE WELL HAND PUMP WELL	PEGMATITIE VEIN (Confirmed / Inferred)	(Source IMD)			
Run-off zone/ Barrier for G.W. movement (Inselberg / Ridge / Dyke e	ARTESIAN WELL OBSERVATION WELL OF	Lithologic contacts are inferred at places & Geomorphic boundaries	(Source IMD)			
	G.W DEPT. / C.G.W.B.	are gradational				
PREPARED BY GEOINFORMATICS & REMOTE SENSING CE	TECHNICAL GUIDANCE & QUALITY CHECK	PARTICIPATING ORGANIZATIONS	METHODOLOGY & PROJECT EXECUTION	SPONSORED BY RAJIV GANDHI NATIONAL DRINKING WATER MISS (PHASE III B) DEPARTMENT OF DRINKING WATER SUPPLY (DDINKING WATER SUPPLY) MINISTRY OF RURAL DEVELOPMENT GOVERNMENT OF INDIA		
B. STATE COUNCIL OF SCIENCE AND TECHNO	OGY SAM SPO	SURVEY OF INDIA				
DEPARTMENT OF SCIENCE AND TECHNOLO GOVERNMENT OF WEST BENGAL		GEOLOGICAL SURVEY OF INDIA PHED, GOVT. OF WEST BENGAL	NATIONAL REMOTE SENSING CENTRE			
4TH FLOOR, BIKASH BHAVAN	INDIAN SPACE RESEARCH ORGANISATION (ISRO) DEPT. OF SPACE, GOVT. OF INDIA	STATE WATER INVESTIGATION DIRECTORATE, GOWB	INDIAN SPACE RESEARCH ORGANISATION (ISRO) DEPT. OF SPACE, GOVT. OF INDIA			
SALT LAKE, KOLKATA 700 091	BALANAGAR, HYDERABAD - 500 625	P.S.MAPS (LAND RECORD), GOVT OF WEST BENGAL	BALANAGAR, HYDERABAD - 500 625	NEW DELHI		

N.B.-The depth range and yield range of wells may vary within the unit because of certain inhomogeneities. Fractures/Lineaments which are clearly observed / inferred from the satellite image are indicated on the map. There could be some obscured fractures which also influence the ground water prospects.

Locations of the recharge structures shown in the map are tentative. This map is useful for narrowing down the target zones, and exact location on the ground for wells and recharge structures should be identified based on follow-up ground hydrogeological/geophysical surveys.

These are dykes, quartz reefs and pegmatite veins, which generally act as barriers for ground water movement.