GROUND WATER PROSPECTS MAP (PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS) SCALE - 1: 50,000 MAP SHEET NO. 73M/3 BANKURA DISTRICT, WEST BENGAL NRSC (ISRO), DEPT. OF SPACE, GOVT. OF INDIA Designed & Developed by Hydrogeology Division, NRSC, ISRO 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.

L E G E N D

MAP UNIT		CAL SEQUENCE / CK TYPE	GEOMORPHIC UNIT / LANDFORM (REPRESENTED IN THE MAP WITH ALPHABETIC CODE)	DEPTH TO WATER LEVEL PRE /POST - MONSOON (AVERAGE IN METERS) NO. OF WELLS OBSERVED	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)	PRESENTED IN E MAP WITH			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)	YIELD RANGE OF WELLS (EXPECTED) (in LPM or m ³ / 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)	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)
APY113	Panskura fm Ur. Holocene) (Present Day)	Alluvium and Dominant) (113)	Alluvial Plain Younger (APY)	3.7 DW - 1	Very Good	LS	DW TW	10 - 12 m 20 - 30 m	125 - 150 m ³ /day 200 - 250 LPM	Very High	Р	60%	Not Required	Aquifer is formed of sandy part of alluvium. Recharge structures are not required as good recharge conditions prevail.
APO13	Sijua fm (Lr. Holocene)	Alluvium nd, Silt and Clay) (13)	Alluvial Plain Older -Moderate (AOM)	4.62 DW - 1	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 not required as good recharge conditions prevail.
VFS211	cene)		Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM + FR	TW / BW	50 - 60 m	75 - 100 LPM	Moderate	Р	30%	DT Moderate	Recharge structure will increase the sustainability of ground water
LP211	late Chaper In part In part	Laterite rricrete-hard crust, eritic nodules and thomarge clay) (211)	Lateritic Plain (LP) (Lithomarge Clay)	1.0 - 9.65 DW - 20	Limited	WM + FR	DW TW / BW	15 - 20 m 50 - 60 m	25 - 50 m ³ /day 50 - 100 LPM	Moderate	Р	20%	RW / DT High	Areas of exposed lithomarge clay. Fracture zones form the aquifer, recharge structure will enhance ground water developement
DLU211	Lalgarh/IIIa (Middle to		Dissected Lateritic Upland (DLU) (Hard crust and lateritic nodules)	4.46 - 5.75 DW - 3	Poor to limited	WM + IR (Impervious material)	TW / BW	80 - 100 m	30 - 50 LPM	Low	Р	Nil	Not required	Essentially Run-off zone where hard cap present. Areas of nodular laterites are re zones with deep water table conditions. P forest areas with sparse settlements. Not for large scale development of ground
VFS73			Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM + FR	TW / BW	30 - 50 m	50 - 75 LPM	Moderate	Р	80%	DT Moderate	Prospect inferred as no wells observed.Recharge structure will improve ground water prospects.
ВРМ73	is mill.yrs)	Anorthosite and Grabbroic Anorthosite (73)	Buried Pediplain Moderate (BPM)	6.38 - 9.86 DW - 2 HP - 1	Moderate	WM + FR	DW TW/ BW	5 - 10 m 40 - 50 m	5 - 10 m ³ /day 50 -75 LPM	Moderate	Р	30%	RP Moderate	Weathered material and underlying fra rock form the aquifer.Sustainability of gr water yield can be increased with rech structure.
BPS73	를 등 Grabbroic		Buried Pediplain Shallow (BPS)	4.75 - 8.63 DW - 7	Limited	WM + FR	DW TW/ BW	5 -10 m 40 - 60 m	< 5 m ³ /day 30 - 50 LPM	Low	Р	25%	RP High	Limited ground water resources. Priority of recharge structures is high.
PPS73			Weathered Pediplain Shallow (PPS)	No wells observed	Poor	FR	DW TW/ BW	5 -10 m 40 - 60 m	< 5 m ³ /day 20 - 30 LPM	Low	Р	Nil	RP High	Essentially run-off zone.Recharge structure may help in limited ground water development.
RH73			Residual Hill (RH)	No wells observed	_	_	_	_	_	_	_	_	_	Run-off zone.Not suitable for ground water development.
VFS832	Chhotanagpur Gniessic Complex (Lower Proterozoic-2300 - 2400 mill.yrs) By Proterozoic-2300 - 2400 mill.yrs) Complex (Lower Proterozoic-2300 - 2400 mill.yrs) 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	10%	CD Moderate	Prospects inferred as no wells observed Recharge condition is moderate with moderate ground water prospects.
BPM832		Granitoid Gneiss (832)	Buried Pediplain Moderate (BPM)	4.05 - 6.38 DW - 2	Moderate	WM + FR	DW TW / BW	5 - 10 m 40 - 50 m	15 - 25 m ³ /day 150 - 175 LPM	Moderate	Р	30%	RP Moderate	Recharge structure will improve groun water prospects.
BPS832			Buried Pediplain Shallow (BPS)	2.02 - 9.2 DW - 48 HP - 3	Limited	WM + FR	DW TW / BW	5 - 10 m 40 - 60 m	10 - 15 m ³ /day 75 - 100 LPM	Low	Р	40%	RP High	Recharge structures will improve sustainability of ground water sources
PPS832			Weathered Pediplain Shallow (PPS)	3.81 - 9.02 DW - 6	Poor	FR	DW TW / BW	5 - 10 m 40 - 60 m	5 - 10 m ³ /day 30 - 50 LPM	Low	Р	5%	RP High	Due to high run off and poor infiltration recharge structures are required to maintain sustainability of ground wate sources.
VFS923	rphics cs)	Mica Schist (923)	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM + FR	TW / BW	30 - 50 m	100 - 125 LPM	Moderate	Р	50%	Not required	Very small unit,few settlement,rechargestructures not required
BPS923	ied Metamoi Metamorphi (Archaean)		Buried Pediplain Shallow (BPS)	No wells observed	Limited	WM + FR	DW TW / BW	5 - 10 m 40 - 60 m	3 - 10 m ³ /day 50 - 75 LPM	Low	Р	10%	Not required	Very small unit,few settlement,recharg structures not required
RH923	Unclassif (Older		Residual Hill (RH)	No wells observed	_	_	_	_	_	_	_	_	Not required	Run-off zone, not suitable for ground water development.

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.

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 -80 METERS > 80 METERS	CANAL / TANK IRRIGATED AREA	GENTLE (<15)	NH - 2 NATIONAL HIGHWAY	3-3		
SUMPLERS SUMMERLAS SUMMERLAS	GROUND WATER IRRIGATED AREA	MODERATE (15 - 45)				
> 800 LPM VIOLET	RIVER / STREAM (with sand)	STEEP (45 - 80)	SH - 9 STATE HIGHWAY	A A Comment of the co		
	WATER BODY / SPRING	SUB - VERTICAL TO VERTICAL (> 80)	METALLED ROAD	and the second s		
400 - 800 LPM INDIGO	CANAL	ANTICLINE / ANTIFORM ←←	OTHER ROAD	INDIA		
	RAIN GUAGE STATION (With average annual rainfall in mm)		OTHER ROAD			
200 - 400 LPM BLUE	PERCOLATION TANK CHECK DAM	SYNCLINE / SYNFORM	RAILWAY	WEST		
	NALA BUND RECHARGE WELL	TREND LINE		BENGAL A-BIRBHUM B-BARDDHAMAN		
100 - 200 LPM GREEN	SUBSURFACE DYKE	2 1	CITY / VILLAGE	D-BANKURA D-BANKURA E-PASCHIM MEDINIPUR		
	MEASURES STORAGE TANK	ESCARPMENT	HABITATIONS : NON - COVERED (NC)			
50 - 100 LPM YELLOW	WELLS OBSERVED DURING FIELD VISIT YIELD RANGE BORE / YIELD RANGE DUG WELL / IN LPM TUBE WELL IN m³/day RING WELL	LITHOLOGY / GEOMORPHIC UNIT BOUNDARY	PARTIALLY COVERED (PC)			
	> 800 LPM	MINOR MAJOR	BOUNDARY:	BLOCK INDEX MAPSHEET INDEX		
30 - 50 LPM ORANGE	400 - 800 LPM	FAULT F F F F	STATE			
	200 - 400 LPM	THRUST TT TT	DISTRICT	D01		
20 - 30 LPM BROWN	50 - 100 LPM	FRACTURE / LINEAMENT	BLOCK	3		
	30 - 50 LPM	FRACTURE / LINEAMENT		731/15 73M/3 73M/7		
10 - 20 LPM PINK	20 - 30 LPM	SHEAR ZONE (Confirmed / Inferred) S S/S S S/S S	OTHER INFORMATION	Dos Dos		
Prospects	10 - 20 LPM	DYKE (Confirmed / Inferred)		D06 73I/16 73M/4 73M/8		
limited to valley portions only (Hills, Plateaus	< 10 LPM	QUARTZ REEF (Confirmed / Inferred)	Rainfall: 1386mm	D03 SALIOKA D03 GANGAJALGHATI D06 BANKURA - II D02 MEJHIA D07 BANKURA - II		
etc.) RED	Colour inside well symbol indicates yield range. The figures on the top right hand side of well indicate the depth to water level and depth of well in meters	P P P		D08 BARJORA		
Run-off zone/ Barrier for (Inselberg / Ridge / Dyke etc.)	DUG - CUM- BORE WELL HAND PUMP WELL ARTESIAN WELL OBSERVATION WELL OF	Lithologic contacts are inferred at places & Geomorphic boundaries	(Source IMD)			
G.W. movement	G.W DEPT. / C.G.W.B.	are gradational				
PREPARED BY	TECHNICAL GUIDANCE & QUALITY CHECK	PARTICIPATING ORGANIZATIONS	METHODOLOGY & PROJECT EXECUTION	SPONSORED BY		
GEOINFORMATICS & REMOTE SENSING CELL	इसरो ंडन्व	CHEVEY OF INDIA	इसरी । डान्च	RAJIV GANDHI NATIONAL DRINKING WATER MISSIO		
W.B. STATE COUNCIL OF SCIENCE AND TECHNOLOGY DEPARTMENT OF SCIENCE AND TECHNOLOGY	NATIONAL REMOTE SENSING CENTRE	SURVEY OF INDIA GEOLOGICAL SURVEY OF INDIA	NATIONAL REMOTE SENSING CENTRE	(PHASE III B) DEPARTMENT OF DRINKING WATER SUPPLY (DDWS) MINISTRY OF RURAL DEVELOPMENT		
GOVERNMENT OF WEST BENGAL	INDIAN SPACE RESEARCH ORGANISATION (ISRO)	PHED, GOVT. OF WEST BENGAL	INDIAN SPACE RESEARCH ORGANISATION (ISRO)			
4TH FLOOR, BIKASH BHAVAN SALT LAKE, KOLKATA 700 091	DEPT. OF SPACE, GOVT. OF INDIA BALANAGAR, HYDERABAD - 500 625	P.S.MAPS (LAND RECORD), GOVT OF WEST BENGAL	DEPT. OF SPACE, GOVT. OF INDIA BALANAGAR, HYDERABAD - 500 625	GOVERNMENT OF INDIA NEW DELHI		
SALI LANL, NOLNAIA /00 091	DALANAGAN, III DENADAD - 300 023	1.0.MAFO (LAND RECORD), GOVI OF WEST BENGAL	DALANAGAN, III DENABAD - 300 023	I NEW DELIN		