GROUND WATER PROSPECTS MAP (PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS) SCALE - 1: 50,000 **MAP SHEET NO. 720/16**

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

DATA USED: IRS - P6 LISS III FCC dated February 2009, March 2009 & Nov 2011, GROUND TRUTH & WELL OBSERVATION during February-March 2011, Published GSI & SOI maps.

Designed & Developed by Hydrogeology Division, NRSC, ISRO

LEGEND

	GEOLOGICAL SEQUENCE / ROCK TYPE (REPRESENTED IN THE MAP WITH NUMERIC CODE)	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 BASED ON AVAILABILITY OF WATER (RAINFALL & OTHER SOURCES)	GROUND WATER PROSPECTS							RECHARGE STRUCTURES	REMARKS
(HYDROGEOMORPHIC UNIT) REPRESENTED IN THE MAP WITH ALPHANUMERIC CODE (COLOUR INDICATES YIELD RANGE AND HATCHING INDICATE DEPTH RANGE)					AQUIFER MATERIAL LS = LOOSE SEDIMENTS PR = PERMEABLE ROCK FIR = FISSURED ROCK FR = FRACTURED ROCK WR /= 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 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)
CB111	Shaugaon Formation/Present Day Deposit (Present Day) (Present Day) (Ittl) (Ittl) (Ittl) (Ittl) (Ittl)	Channel Bar (CB)	No Well Observed	Excellent	LS	TW	5-10 m	400-500 LPM	Very High	P	Nil	Not Required	Groundwater prospects very hig with high recharge potential. Recharge structures not require
		Point Bar (PB)	No Well Observed	Very Good	LS	RW TW	5-10 m	300-400 LPM	Very High	Р	Nil	Not Required	Groundwater prospects very hig with high recharge potential. Recharge structures not require
RI111		River Island (RI)	No Well Observed	Very Good	LS	TW	5-10 m	400-500 LPM	High	Р	10	Not Required	Highly productive aquifer in shallow depth. Good recharge
OL111		Oxbow Lake (OL)	No Well Observed	Good	LS	TW	20-30 m	200-300 LPM	Moderate	Р	Nil	Not Required	Though occur as water bodies, but highly productive aquifer ocat depth.
CM111		Cut-off Meander (CM)	No Well Observed	Good	LS	RW TW	10-20 m	300-400 LPM	High	Р	15	Not Required	Highly productive shallow aquife with good recharge from the rive base flow.
		Meander Scar (MS)	No Well Observed	Very Good	LS	RW TW	10-15 m	200-250 LPM	High	Р	10	Not Required	Highly productive shallow aquiwith good recharge.
FP111		Flood Plain (FP)	No Well Observed	Very Good	LS	TW	<30 m	250-350 LPM	Very High	Р	Nil	Not Required	Receives good recharge and fo shallow aquifer. Overall quality the water is potable.
FP111		Flood Plain (FP)	<u>13 / 7</u> 3	Very Good	LS	TW	80-100 m	600-800 LPM	Very High	NP (As & Fe) (at shallow depth)	92	Not Required	Areas with high concentration of Arsenic & Iron. Potable water avat deeper depth.
FB12	Alluvium (Clay Dominant) (12)	Flood Basin (FB)	9/7	Very Low	LS	TW	50-60 m	50-100 LPM	Low to Moderate	Р	70	Not Required	Flood basins are occupied by we the surface. Form aquitards due clayey sediments. However, so due to channel migration in the fluvial regime, aquifers at dept occur.
B\$12		Back Swamp (BS)	No Well Observed	Poor	LS	TW	60-70 m	40-50 LPM	Low to Moderate	P	100	Not Required	Areas of low groundwater poten Better potential at greater depth
APY113	Alluvium (Sand and Silt) (113)	Alluvial Plain Younger (APY)	8 / 5 16	Good	LS	TW	100-120 m	400-500 LPM	High	NP (As & Fe) (at shallow depth)	40	Not Required	Areas with high Arsenic & Iron c Potable water available at deepe depth.
AC13	Alluvium (Sand,Silt & Clay) (13)	Abandoned Channel (AC)	No Well Observed	Very Good	LS	RW TW	10-15 m	250-300 LPM	Very High	P	5	Not Required	Highly productive shallow aquife with good recharge from base fl
F// — –	– – These are fau	ult / fracture zones, which go	enerally act as conduits for m	ovement of ground water in	hard rocks. Along these zone	s, the yields are significantl	/ higher and wells ar	e likely to be sustaina	l ble for longer duratio	n. However, the inferre	d fractures need to be	confirmed by detailed ground surveys.	

GROUND W	ATER PROSPECTS INFORMATION	HYDROLOGICAL INF	STRUC	TURAL INFORMA	TION	BASE	MAP INFORMATION	LOCATION INFORMATION		
YIELD COLO	DEPTH RANGE OF WELLS	DESCRIPTION	SYMBOL	DIPS	BEDDING	SCHISTOSITY/ FOLIATION	SYMBOL	DESCRIPTION	STATE INDEX	DISTRICT INDEX
RANGE COD		CANAL / TANK IRRIGATED AREA GROUND WATER IRRIGATED AREA	# + +	GENTLE (< 15) MODERATE (15 - 45)	/	A	NH	NATIONAL HIGHWAY		S
> 800 LPM VIOLE	ET STATE OF THE ST	RIVER / STREAM (with sand)		STEEP (45 - 80)	, ,	<i>A</i>	SH	STATE HIGHWAY		a R
		WATER BODY / SPRING	₫/ δ	SUB - VERTICAL TO VERTICAL (> 80)	×			METALLED ROAD		and the state of t
400 - 800 LPM INDIC	GO UNITED TO THE STATE OF THE S	CANAL RAIN GUAGE STATION (With average annual rainfall in mm)	800	ANTICLINE / ANTIFOR	M	←		OTHER ROAD	INDIA	N O
200 - 400 LPM BLUE		RECHARGE STRUCTURES	S SUGGESTED	SYNCLINE / SYNFORM	1	←		RAILWAY	WEST BENGAL	S-DARJEELING R-JALPAIGURI Q-KOCHBEHAR P-NORTH DINAJPUI
100 - 200 LPM GREE		DESILTING OF TANK	RECHARGE WELL ↓	TREND LINE				CITY / VILLAGE		M O-SOUTH DINAJPU O-SOUTH DINAJPU N-MALDA M-MURSHIDABAD
		SOIL CONSERVATION	RECHARGE SHAFT A STORAGE TANK	ESCARPMENT	^>,	A CONTRACTOR OF THE PARTY OF TH		HABITATIONS : NON - COVERED (NC)		
50 - 100 LPM YELLO	ow	YIELD RANGE BORE / YIELD RANGE IN LPM TUBE WELL IN m³/ da	ANGE DUG WELL / RING WELL	LITHOLOGY / GEOMORF BOUNDARY	PHIC UNIT	MAJOR		PARTIALLY COVERED (PC)	BLOCK INDEX	MAPSHEET INDEX
30 - 50 LPM ORANG	IGE IIII	> 800 LPM	in 7 day	FAULT	F———F	F———F		BOUNDARY : INTERNATIONAL	N ₄	
		200 - 400 LPM	, ,	THRUST	тт	ТТ		STATE	N5	72011 72015 78C3
20 - 30 LPM BROW	NN I I I I I I I I I I I I I I I I I I	100 - 200 LPM	,	FRACTURE / LINEAMENT				DISTRICT	Juny has	
		30 - 50 LPM	2	FRACTURE / LINEAMENT (Inferred)				вьоск	N6	72012 72016 7804
10 - 20 LPM PINE	K S	20 - 30 LPM + 15/70 10 - 15 m	n / day	SHEAR ZONE (Confirmed / Inferred)	s s/s s	C	OTHER INFORMATION	N7 W	
Prospects		10 - 20 LPM 15/70 5 - 10 m	n ³ / day	DYKE (Confirmed / Inferred)	D/DD	Rair	nfall : 1423 mm		72P9 72P13 78D
limited to valley portions only (Hills, Plateaus		< 10 LPM	ge. The figures on the top right	QUARTZ REEF (Confirmed / Inferred)	Q—————————————————————————————————————		rest Rain gauge ation : Malda	N8 N8	
Run-off zone/		hand side of well indicate the depth to water lo	HAND PUMP WELL	PEGMATITIE VEIN (Confirmed / Inferred)	P————P		Source IMD)	N4 - CHANCHAL II N7 - MANIKCHAK N5 - RATUA I N8 - ENGLISH BAZAR N6 - RATUA II N14 - KALIACHAK II	
Barrier for G.W. movement	(Inselberg / Ridge / Dyke etc.)	ARTESIAN WELL	OBSERVATION WELL OF G.W DEPT. / C.G.W.B.	Lithologic contacts are are gradational	inferred at places & Ge	eomorphic boundaries		Journal IIIID)		
PF	REPARED BY	TECHNICAL GUIDANCE & QUALITY CHECK		PARTICIPATING ORGANIZATIONS			METHODOLOGY & PROJECT EXECUTION		SPONSORED BY RAJIV GANDHI NATIONAL DRINKING WATER MISS	
GEOINFORMATICS & REMOTE SENSING CELL B. STATE COUNCIL OF SCIENCE AND TECHNOLOGY		इसरो ंड००				इसरो ंडन्व				
	OF SCIENCE AND TECHNOLOGY	NATIONAL REMOTE SEN	PHED, GOVT. OF WEST BENGAL GEOINFORMATICS & REMOTE SENSING CELL			NATIONAL RE	MOTE SENSING CENTRE	(PHASE IV) DEPARTMENT OF DRINKING WATER SUPPLY (DE		
GOVER	NMENT OF WEST BENGAL	INDIAN SPACE RESEARCH O	W.B. STATE COUNCIL OF SCIENCE AND TECHNOLOGY, GOWB			INDIAN SPACE R	ESEARCH ORGANISATION (ISRO)	MINISTRY OFDRINKING WATE	R AND SANITATION	
	FLOOR, BIKASH BHAVAN LAKE, KOLKATA 700 091	DEPT. OF SPACE, GO BALANAGAR, HYDERA	STATE WATER INVESTIGATION DIRECTORATE, GOWB			1	F SPACE, GOVT. OF INDIA AR, HYDERABAD - 500 625	GOVERNMENT OF INDIA 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.