GROUND WATER PROSPECTS MAP

(PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS)

Kilometers

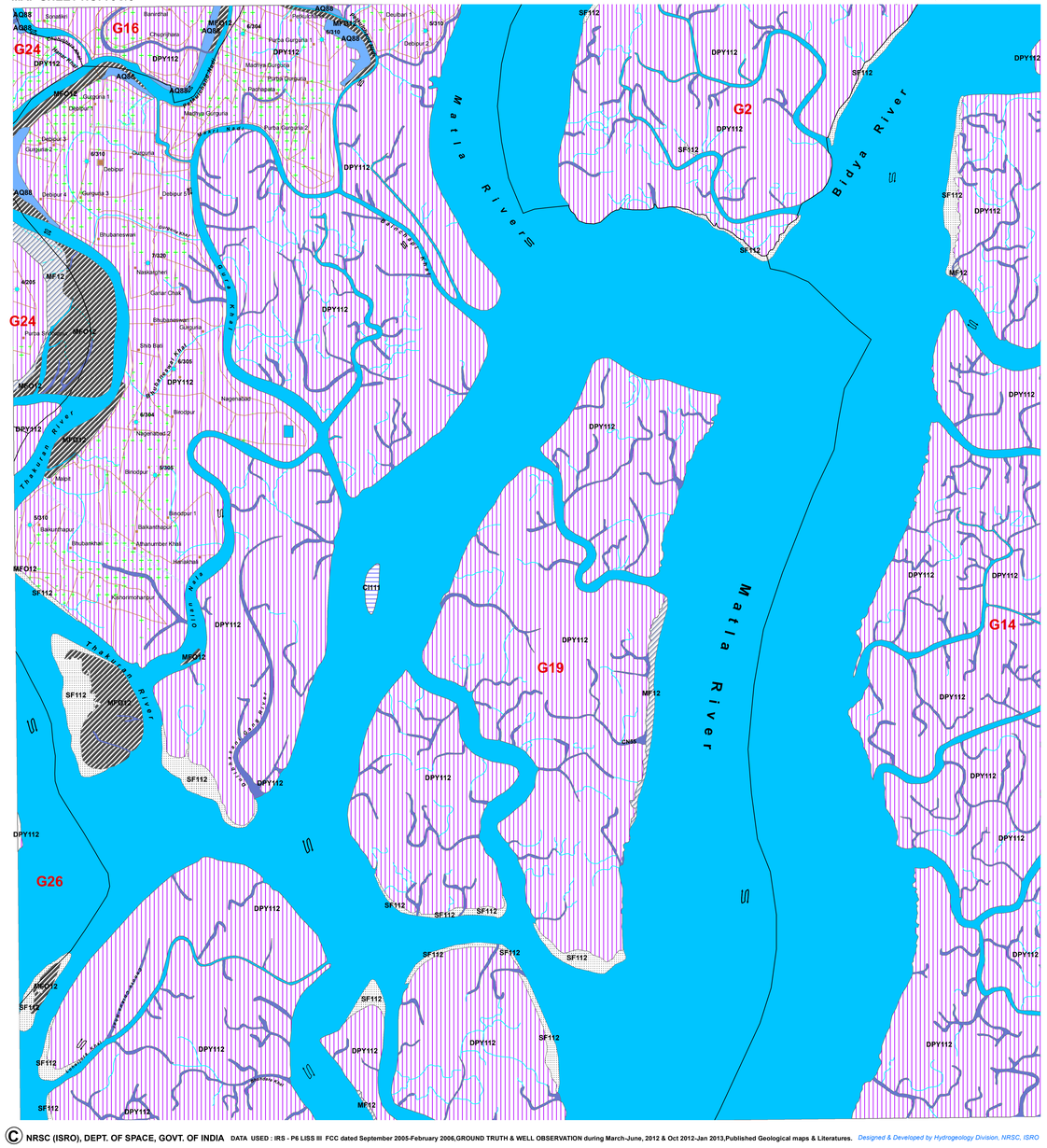
0 1 2 3 4 5

SCALE - 1 : 50,000

N W E S

MAP SHEET NO. 79C/9

SOUTH 24 PARGANAS DISTRICT, WEST BENGAL



© 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*

L E G E N D

MAP UNIT (HYDROGEOMORPHIC UNIT) REPRESENTED IN THE MAP WITH ALPHANUMERIC CODE (COLOUR INDICATES YIELD RANGE AND HATCHING INDICATE DEPTH RANGE)	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: AQUIFER MATERIAL (LS = LOOSE SEDIMENTS, CR = CONSOLIDATED ROCK, FR = FRESURED ROCK, FR = FRACTURED ROCK, WR = WEATHERED ROCK / WM = WEATHERED MATERIAL, IR = IMPERVIOUS ROCK)	TYPE OF WELLS SUITABLE (DW = DUG WELL, BW = BWIG WELL, TW = TUBE WELL, TW = TURE 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)	RECHARGE STRUCTURES SUITABLE & PRIORITY (PT = PERCOLATION TANK, CD = CHECK DAM, NB = NALA BUND, RW = RECHARGE WELL, DT = DESILTING OF TANK, SD = SIDEBUNDING, SC = SOIL CONSERVATION, DY = DYKE, RS = RECHARGE SHAFT, ST = STORAGE TANK, SCM = SOIL CONSERVATION MEASURES)	REMARKS (PROBLEMS / LIMITATIONS)
CI111	Hugli/Bhagirathi Formation/Present day Deposits (Present Day)	Alluvium (Sand Dominant) (111)	Channel Island (RI)	No Well Observed	Excellent	LS	TW	5-10 m	400-500 LPM	Very High	P	0	Not Required	Groundwater prospects very high with high recharge potential. Recharge structures not required.
DPY112	Active Estuarine Deposits (Present Day)	Alluvium (Sand and Silt) (112)	Deltaic Plain Younger (DPY)	7/4 / 10	Good	LS	TW	>250 m	>800 LPM	High	NP (Salinity at shallow depth)	4	Not required	Areas affected by salinity.Fresh water available at depth ranges >250m

F——F/ ——/ — — -

These are fault / fracture zones, which generally act as conduits for movement of ground water in hard rocks. Along these zones, the yields are significantly higher and wells are likely to be sustainable for longer duration. However, the inferred fractures need to be confirmed by detailed ground surveys.

D——D /Q——Q / P——P
D— — -D /Q— — -Q / P— — -P

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

Sand Flat (SF112), Mud Flat (MF112), Mud Flat Older (MFO12) & Crick Network (CN55) are not used for groundwater exploitation.

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.

GROUND WATER PROSPECTS INFORMATION

YIELD RANGE OF WELLS	COLOUR CODE	DEPTH RANGE OF WELLS: SHALLOW (< 30 METERS)	MODERATE (30 - 50 METERS)	DEEP (> 50 METERS)
> 800 LPM	VIOLET			
400 - 800 LPM	INDIGO			
200 - 400 LPM	BLUE			
100 - 200 LPM	GREEN			
50 - 100 LPM	YELLOW			
30 - 50 LPM	ORANGE			
20 - 30 LPM	BROWN			
10 - 20 LPM	PINK			
Prospects limited to rainy periods only (Hills, Plateaus etc.)	RED			
Run-off zone/ Barrier for G.W. movement		(Inselberg / Ridge / Dyke etc.)		

HYDROLOGICAL INFORMATION

DESCRIPTION	SYMBOL
CANAL / TANK IRRIGATED AREA	
GROUND WATER IRRIGATED AREA	
RIVER / STREAM (with sand)	
WATER BODY / SPRING	
CANAL	
RAIN GUAGE STATION (With average annual rainfall in mm)	600

RECHARGE STRUCTURES SUGGESTED

PERCOLATION TANK		CHECK DAM	
NALA BUND		RECHARGE WELL	
DESILTING OF TANK		RECHARGE PIT	
SUBSURFACE DYKE		RECHARGE SHAFT	
SOIL CONSERVATION MEASURES		STORAGE TANK	

WELL & Gradient SUBSIL DELIA UNIT

YIELD RANGE IN LPM	BORE / TUBE WELL	YIELD RANGE IN m^3/ day	DUG WELL / RING WELL
> 800 LPM	10/70	> 400 m^3 / day	8/15
400 - 800 LPM	10/70	200 - 400 m^3 / day	8/15
200 - 400 LPM	10/70	100 - 200 m^3 / day	8/15
100 - 200 LPM	10/70	50 - 100 m^3 / day	8/15
50 - 100 LPM	10/70	25 - 50 m^3 / day	8/15
30 - 50 LPM	10/70	15 - 25 m^3 / day	8/15
20 - 30 LPM	10/70	10 - 15 m^3 / day	8/15
10 - 20 LPM	10/70	5 - 10 m^3 / day	8/15
< 10 LPM	10/70	< 5 m^3 / day	8/15

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

DUG - CUM- BORE WELL — HAND PUMP WELL

ARTESIAN WELL — OBSERVATION WELL OF G.W DEPT. / C.G.W.B.

STRUCTURAL INFORMATION

DIPS	BEDDING	SCHISTOSITY/ FOLIATION
GENTLE (< 15)		
MODERATE (15 - 45)		
STEEP (45 - 80)		
SUB - VERTICAL TO VERTICAL (> 80)		

ANTICLINE / ANTIFORM

SYNCLINE / SYNFORM

TREND LINE

ESCARPMENT

LITHOLOGY / GEOMORPHIC UNIT BOUNDARY

	MINOR	MAJOR
FAULT	F — F	F — F
THRUST	T — T	T — T
FRACTURE / LINEAMENT		
FRACTURE / LINEAMENT (Inferred)		
SHEAR ZONE (Confirmed / Inferred)	S — S /S — S	
DYKE (Confirmed / Inferred)	D — D / D — D	
QUARTZ REEF (Confirmed / Inferred)	Q — Q /Q — Q	
PEGMATITE VEIN (Confirmed / Inferred)	P — P / P — P	

Lithologic contacts are inferred at places & Geomorphic boundaries are gradational

BASE MAP INFORMATION

SYMBOL	DESCRIPTION
NH - 2	NATIONAL HIGHWAY
SH - 9	STATE HIGHWAY
	METALLED ROAD
	OTHER ROAD
	RAILWAY
	CITY / VILLAGE
	HABITATIONS : NON - COVERED (NC) PARTIALLY COVERED (PC)

BOUNDARY :

INTERNATIONAL

STATE

DISTRICT

BLOCK

OTHER INFORMATION

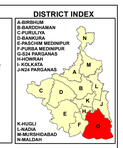
Rainfall : 1876 mm

(Source IMD)

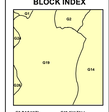
LOCATION INFORMATION

STATE INDEX

DISTRICT INDEX



BLOCK INDEX



MAPSHEET INDEX

79B08	79B12	79B16
79C05	79C09	79C13
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