GROUND WATER PROSPECTS MAP

(PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS)

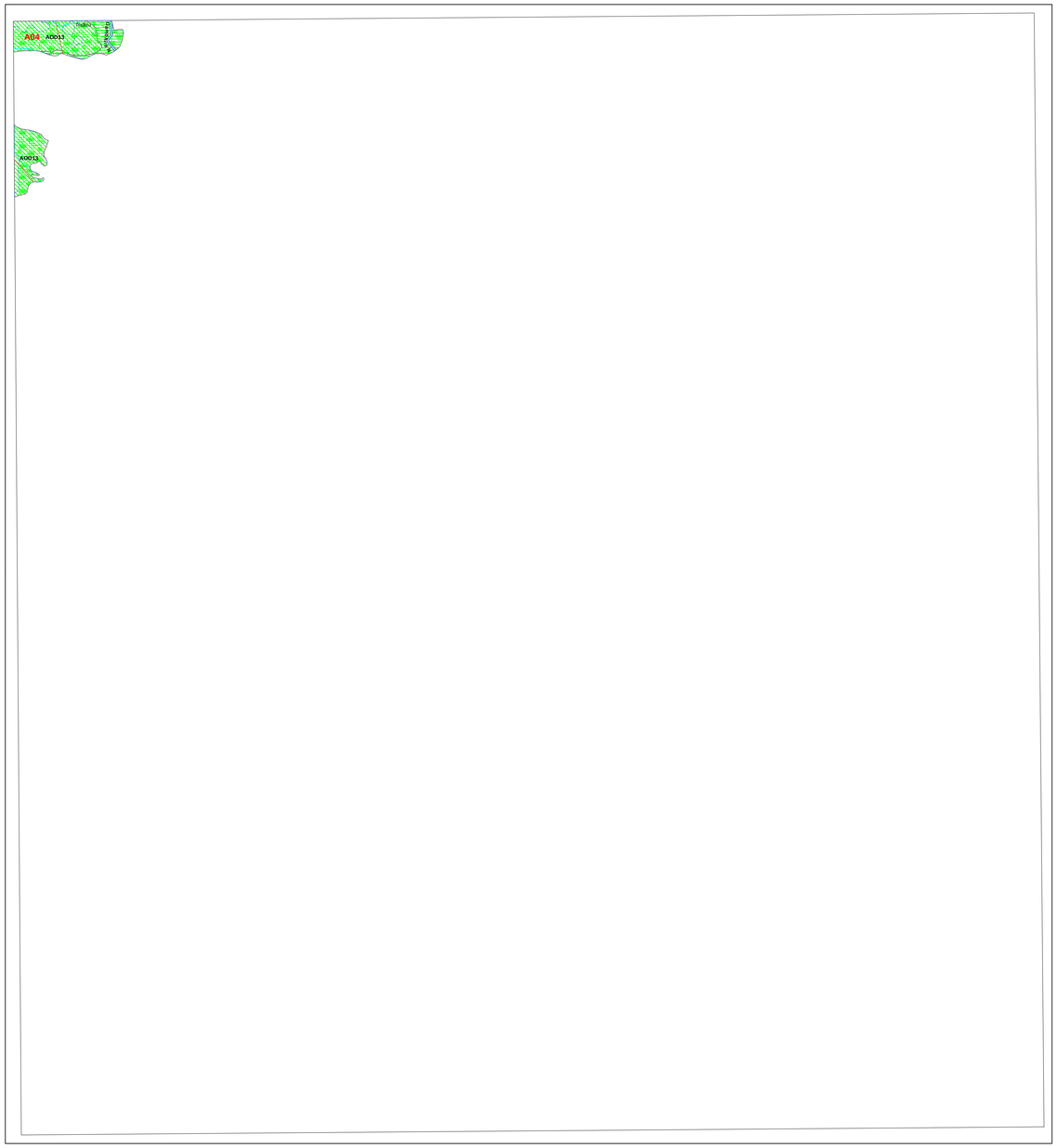
Kilometers

0 1 2 3 4 5

SCALE - 1 : 50,000

MAP SHEET NO. 78D/4

BIRBHUM DISTRICT, WEST BENGAL



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

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)	G R O U N D W A T E R P R O S P E C T S						RECHARGE STRUCTURES SUITABLE & PRIORITY	REMARKS (PROBLEMS / LIMITATIONS)
					AQUIFER MATERIAL LS = LOOSE SEDIMENTS CS = CONSOLIDATED ROCK FR = FISSURED ROCK FR = FRACTURED ROCK MR = WEATHERED ROCK / WEATHERED MATERIAL IR = IMPERVIOUS 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)	PT = PERCOLATION TANK CD = CHECK DAM NB = NALA BUND DW = DESILTING WELL DT = DESILTING OF TANK RP = RECHARGE PIT SD = SUBSURFACE DYKE RS = RECHARGE SHAFT SS = STORAGE TANK SCM = SOIL CONSERVATION MEASURES	
AOM13	Alluvium (Sand with Silt and Clay) (13)	Alluvial Plain Older -Moderate (AOM)	No Wells observed	Good	LS	DW TW	10 - 15 25 - 30	50 - 75 m^3/day 150 - 200 LPM	High	P	Nil	Not Required	Aquifer is formed of sandy part of alluvium. Recharge structures are not required as good recharge condition prevails
AOD13		Alluvial Plain Older -Deep (AOD)	No Wells observed	Good	LS	DW TW	15 - 20 30 - 50	50 - 75 m^3/day 175 - 200 LPM	High	P	-	Not Required	Aquifer is formed of sandy part of alluvium. Recharge structures are not required as good recharge condition prevails

Sya formation + Rampurhat formation (Lower Gondwana)

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.

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 - UPTO 15 METERS	MODERATE 15 - 30 METERS	DEEP - 30 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 valley fills, pediments (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)	800

RECHARGE STRUCTURES SUGGESTED

PERCOLATION TANK, NALA BUND, DESILTING OF TANK, SUBSURFACE DYKE, SOIL CONSERVATION MEASURES

CHECK DAM, RECHARGE WELL, RECHARGE PIT, RECHARGE SHAFT, STORAGE TANK

WELLS OBSERVED DURING PRE-/POST-MONSOON PERIOD

YIELD RANGE IN LPM	BORE / TUBE WELL	YIELD RANGE IN m^3/day	DUG WELL / RING WELL
> 800 LPM	15/70	> 400 m^3 / day	(9/15
400 - 800 LPM	15/70	200 - 400 m^3 / day	(9/15
200 - 400 LPM	15/70	100 - 200 m^3 / day	(9/15
100 - 200 LPM	15/70	50 - 100 m^3 / day	(9/15
50 - 100 LPM	15/70	25 - 50 m^3 / day	(9/15
30 - 50 LPM	15/70	15 - 25 m^3 / day	(9/15
20 - 30 LPM	15/70	10 - 15 m^3 / day	(9/15
10 - 20 LPM	15/70	5 - 10 m^3 / day	(9/15
< 10 LPM	15/70	< 5 m^3 / day	(9/15

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 - 90)		
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	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 : STATE
	DISTRICT
	BLOCK

OTHER INFORMATION

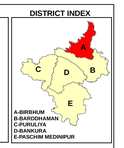
Rainfall : 1431mm

(Source IMD)

LOCATION INFORMATION

STATE INDEX

DISTRICT INDEX



A-BIRBHUM
B-BARDDHAMAN
C-PURULIYA
D-BANKURA
E-PASCHIM MEDINIPUR

BLOCK INDEX

MAPSHEET INDEX

72P/15	78D/3	78D/7
72P/16	78D/4	78D/8
73M/13	79A/1	73A/5

PREPARED BY

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