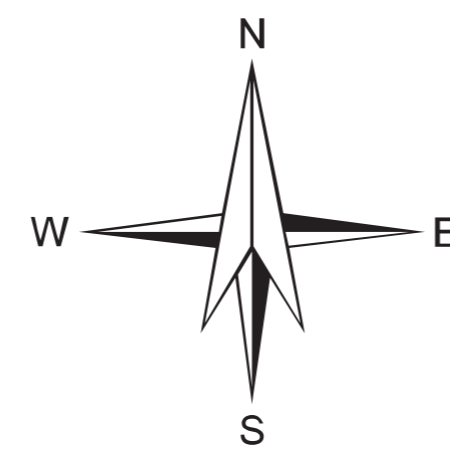
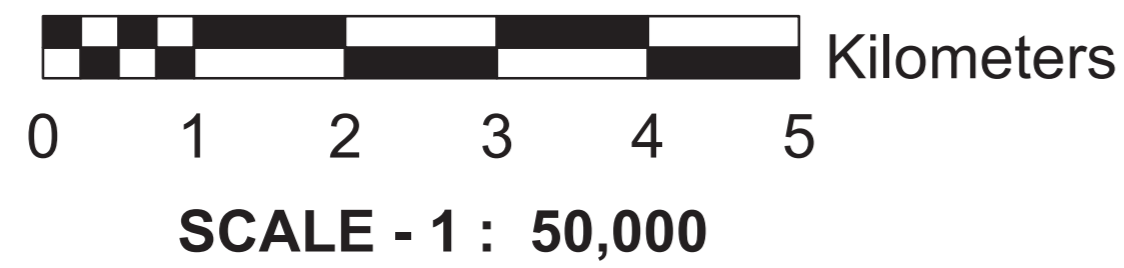


GROUND WATER PROSPECTS MAP

(PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS)



MAP SHEET NO. 72P/4

BIRBHUM DISTRICT, WEST BENGAL

LEGEND

MAP UNIT (HYDROGEOLOGIC 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						RECHARGE STRUCTURES SUITABLE & PRIORITY	REMARKS (PROBLEMS / LIMITATIONS)	
					AQUIFER MATERIAL	TYPE OF WELLS SUITABLE	DEPTH RANGE OF WELLS (METERS)	YIELD RANGE OF WELLS (LPM or m ³ /day)	HOMOGENEITY IN THE UNIT & SUCCESS RATE OF WELLS (PROBABILITY)	QUALITY OF WATER (POTABLE / NON-POTABLE) (HIGHLIGHT REASONS)			GROUND WATER RECHARGED AREA (APPROX. RANGE IN PERCENTAGE)
VFE832		Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM+FR	TW / BW	30 - 50	150 - 175 LPM	Moderate	P	Nil	CD Moderate	Prospects inferred as no wells observed. Recharge condition is moderate with moderate groundwater prospects.
BPS832		Granitoid Gneiss (BZ)	No wells observed	Limited	WM+FR	DW TW / BW	5 - 10 40 - 60	10 - 15 m ³ /day 75 - 100 LPM	Low	P	Nil	RP High	Recharge structures will improve sustainability of groundwater sources.
RH832		Residual Hill (RH)	—	—	—	—	—	—	—	—	—	—	Run-off zone. Not suitable for groundwater development.

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.

J H A R K A N D

GROUND WATER PROSPECTS INFORMATION <table border="1"> <thead> <tr> <th>YIELD RANGE OF WELLS</th> <th>COLOUR CODE</th> <th>DEPTH RANGE OF WELLS (meters)</th> </tr> </thead> <tbody> <tr> <td>> 800 LPM</td> <td>VIOLET</td> <td>SHALLOW (0-10)</td> </tr> <tr> <td>400 - 800 LPM</td> <td>INDIGO</td> <td>MODERATE (10-45)</td> </tr> <tr> <td>200 - 400 LPM</td> <td>BLUE</td> <td>DEEP (45-80)</td> </tr> <tr> <td>100 - 200 LPM</td> <td>GREEN</td> <td>SHALLOW (0-10)</td> </tr> <tr> <td>50 - 100 LPM</td> <td>YELLOW</td> <td>MODERATE (10-45)</td> </tr> <tr> <td>30 - 50 LPM</td> <td>ORANGE</td> <td>DEEP (45-80)</td> </tr> <tr> <td>10 - 20 LPM</td> <td>BROWN</td> <td>SHALLOW (0-10)</td> </tr> <tr> <td>Prospects where potential only (POT. PROSP.)</td> <td>RED</td> <td>MODERATE (10-45)</td> </tr> <tr> <td>Run-off zone/ Barrier for D.W. movement</td> <td>Brown/Red</td> <td>SHALLOW (0-10)</td> </tr> </tbody> </table>	YIELD RANGE OF WELLS	COLOUR CODE	DEPTH RANGE OF WELLS (meters)	> 800 LPM	VIOLET	SHALLOW (0-10)	400 - 800 LPM	INDIGO	MODERATE (10-45)	200 - 400 LPM	BLUE	DEEP (45-80)	100 - 200 LPM	GREEN	SHALLOW (0-10)	50 - 100 LPM	YELLOW	MODERATE (10-45)	30 - 50 LPM	ORANGE	DEEP (45-80)	10 - 20 LPM	BROWN	SHALLOW (0-10)	Prospects where potential only (POT. PROSP.)	RED	MODERATE (10-45)	Run-off zone/ Barrier for D.W. movement	Brown/Red	SHALLOW (0-10)	HYDROLOGICAL INFORMATION <table border="1"> <thead> <tr> <th>DESCRIPTION</th> <th>SYMBOL</th> </tr> </thead> <tbody> <tr> <td>CANAL / TANK IRRIGATED AREA</td> <td>[Symbol]</td> </tr> <tr> <td>GROUND WATER IRRIGATED AREA</td> <td>[Symbol]</td> </tr> <tr> <td>RIVER / STREAM (with bank)</td> <td>[Symbol]</td> </tr> <tr> <td>WATER BODY / SPRING</td> <td>[Symbol]</td> </tr> <tr> <td>CANAL</td> <td>[Symbol]</td> </tr> <tr> <td>RAIN GUAGE STATION (With average annual rainfall in mm)</td> <td>[Symbol]</td> </tr> <tr> <td>RECHARGE STRUCTURES SUGGESTED</td> <td>[Symbol]</td> </tr> <tr> <td>PERCOLATION TANK</td> <td>[Symbol]</td> </tr> <tr> <td>NALA RUNOFF</td> <td>[Symbol]</td> </tr> <tr> <td>DESILTING TANK</td> <td>[Symbol]</td> </tr> <tr> <td>SUBSURFACE DYKE</td> <td>[Symbol]</td> </tr> <tr> <td>SOIL CONSERVATION MEASURES</td> <td>[Symbol]</td> </tr> <tr> <td>WELL (with yield range in m³/day)</td> <td>[Symbol]</td> </tr> <tr> <td>RECHARGE DAM</td> <td>[Symbol]</td> </tr> <tr> <td>RECHARGE WELL</td> <td>[Symbol]</td> </tr> <tr> <td>RECHARGE PIT</td> <td>[Symbol]</td> </tr> <tr> <td>RECHARGE SHAFT</td> <td>[Symbol]</td> </tr> <tr> <td>STORAGE TANK</td> <td>[Symbol]</td> </tr> </tbody> </table>	DESCRIPTION	SYMBOL	CANAL / TANK IRRIGATED AREA	[Symbol]	GROUND WATER IRRIGATED AREA	[Symbol]	RIVER / STREAM (with bank)	[Symbol]	WATER BODY / SPRING	[Symbol]	CANAL	[Symbol]	RAIN GUAGE STATION (With average annual rainfall in mm)	[Symbol]	RECHARGE STRUCTURES SUGGESTED	[Symbol]	PERCOLATION TANK	[Symbol]	NALA RUNOFF	[Symbol]	DESILTING TANK	[Symbol]	SUBSURFACE DYKE	[Symbol]	SOIL CONSERVATION MEASURES	[Symbol]	WELL (with yield range in m ³ /day)	[Symbol]	RECHARGE DAM	[Symbol]	RECHARGE WELL	[Symbol]	RECHARGE PIT	[Symbol]	RECHARGE SHAFT	[Symbol]	STORAGE TANK	[Symbol]	STRUCTURAL INFORMATION <table border="1"> <thead> <tr> <th>DIPS</th> <th>BEDDING</th> <th>SCHISTOSITY / FOLIATION</th> </tr> </thead> <tbody> <tr> <td>GENTLE (< 15)</td> <td>[Symbol]</td> <td>[Symbol]</td> </tr> <tr> <td>MODERATE (15 - 45)</td> <td>[Symbol]</td> <td>[Symbol]</td> </tr> <tr> <td>STEEP (45 - 80)</td> <td>[Symbol]</td> <td>[Symbol]</td> </tr> <tr> <td>SEE 'VERTICAL TO VERTICAL' (> 80)</td> <td>[Symbol]</td> <td>[Symbol]</td> </tr> </tbody> </table>	DIPS	BEDDING	SCHISTOSITY / FOLIATION	GENTLE (< 15)	[Symbol]	[Symbol]	MODERATE (15 - 45)	[Symbol]	[Symbol]	STEEP (45 - 80)	[Symbol]	[Symbol]	SEE 'VERTICAL TO VERTICAL' (> 80)	[Symbol]	[Symbol]	BASE MAP INFORMATION <table border="1"> <thead> <tr> <th>SYMBOL</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>NH-2</td> <td>NATIONAL HIGHWAY</td> </tr> <tr> <td>SH-9</td> <td>STATE HIGHWAY</td> </tr> <tr> <td>[Symbol]</td> <td>METALLED ROAD</td> </tr> <tr> <td>[Symbol]</td> <td>OTHER ROAD</td> </tr> <tr> <td>[Symbol]</td> <td>RAILWAY</td> </tr> <tr> <td>[Symbol]</td> <td>CITY / VILLAGE</td> </tr> <tr> <td>[Symbol]</td> <td>HABITATIONS: NON-COVERED (NC) PARTIALLY COVERED (PC)</td> </tr> </tbody> </table>	SYMBOL	DESCRIPTION	NH-2	NATIONAL HIGHWAY	SH-9	STATE HIGHWAY	[Symbol]	METALLED ROAD	[Symbol]	OTHER ROAD	[Symbol]	RAILWAY	[Symbol]	CITY / VILLAGE	[Symbol]	HABITATIONS: NON-COVERED (NC) PARTIALLY COVERED (PC)	LOCATION INFORMATION <table border="1"> <thead> <tr> <th>STATE INDEX</th> <th>DISTRICT INDEX</th> </tr> </thead> <tbody> <tr> <td>[Map of India]</td> <td>[Map of West Bengal]</td> </tr> <tr> <th>BLOCK INDEX</th> <th>MAPSHEET INDEX</th> </tr> <tr> <td>A10 - RAJNAGAR</td> <td>72L15 72P3 72P7 72L16 72P4 72P8 72L13 72M1 72M5</td> </tr> </tbody> </table>	STATE INDEX	DISTRICT INDEX	[Map of India]	[Map of West Bengal]	BLOCK INDEX	MAPSHEET INDEX	A10 - RAJNAGAR	72L15 72P3 72P7 72L16 72P4 72P8 72L13 72M1 72M5
YIELD RANGE OF WELLS	COLOUR CODE	DEPTH RANGE OF WELLS (meters)																																																																																																													
> 800 LPM	VIOLET	SHALLOW (0-10)																																																																																																													
400 - 800 LPM	INDIGO	MODERATE (10-45)																																																																																																													
200 - 400 LPM	BLUE	DEEP (45-80)																																																																																																													
100 - 200 LPM	GREEN	SHALLOW (0-10)																																																																																																													
50 - 100 LPM	YELLOW	MODERATE (10-45)																																																																																																													
30 - 50 LPM	ORANGE	DEEP (45-80)																																																																																																													
10 - 20 LPM	BROWN	SHALLOW (0-10)																																																																																																													
Prospects where potential only (POT. PROSP.)	RED	MODERATE (10-45)																																																																																																													
Run-off zone/ Barrier for D.W. movement	Brown/Red	SHALLOW (0-10)																																																																																																													
DESCRIPTION	SYMBOL																																																																																																														
CANAL / TANK IRRIGATED AREA	[Symbol]																																																																																																														
GROUND WATER IRRIGATED AREA	[Symbol]																																																																																																														
RIVER / STREAM (with bank)	[Symbol]																																																																																																														
WATER BODY / SPRING	[Symbol]																																																																																																														
CANAL	[Symbol]																																																																																																														
RAIN GUAGE STATION (With average annual rainfall in mm)	[Symbol]																																																																																																														
RECHARGE STRUCTURES SUGGESTED	[Symbol]																																																																																																														
PERCOLATION TANK	[Symbol]																																																																																																														
NALA RUNOFF	[Symbol]																																																																																																														
DESILTING TANK	[Symbol]																																																																																																														
SUBSURFACE DYKE	[Symbol]																																																																																																														
SOIL CONSERVATION MEASURES	[Symbol]																																																																																																														
WELL (with yield range in m ³ /day)	[Symbol]																																																																																																														
RECHARGE DAM	[Symbol]																																																																																																														
RECHARGE WELL	[Symbol]																																																																																																														
RECHARGE PIT	[Symbol]																																																																																																														
RECHARGE SHAFT	[Symbol]																																																																																																														
STORAGE TANK	[Symbol]																																																																																																														
DIPS	BEDDING	SCHISTOSITY / FOLIATION																																																																																																													
GENTLE (< 15)	[Symbol]	[Symbol]																																																																																																													
MODERATE (15 - 45)	[Symbol]	[Symbol]																																																																																																													
STEEP (45 - 80)	[Symbol]	[Symbol]																																																																																																													
SEE 'VERTICAL TO VERTICAL' (> 80)	[Symbol]	[Symbol]																																																																																																													
SYMBOL	DESCRIPTION																																																																																																														
NH-2	NATIONAL HIGHWAY																																																																																																														
SH-9	STATE HIGHWAY																																																																																																														
[Symbol]	METALLED ROAD																																																																																																														
[Symbol]	OTHER ROAD																																																																																																														
[Symbol]	RAILWAY																																																																																																														
[Symbol]	CITY / VILLAGE																																																																																																														
[Symbol]	HABITATIONS: NON-COVERED (NC) PARTIALLY COVERED (PC)																																																																																																														
STATE INDEX	DISTRICT INDEX																																																																																																														
[Map of India]	[Map of West Bengal]																																																																																																														
BLOCK INDEX	MAPSHEET INDEX																																																																																																														
A10 - RAJNAGAR	72L15 72P3 72P7 72L16 72P4 72P8 72L13 72M1 72M5																																																																																																														
PREPARED BY GEOINFORMATICS & REMOTE SENSING CELL W.B. STATE COUNCIL OF SCIENCE AND TECHNOLOGY DEPARTMENT OF SCIENCE AND TECHNOLOGY GOVERNMENT OF WEST BENGAL 4TH FLOOR, BIKASH BHAVAN SALT LAKE, KOLKATA 700 091	TECHNICAL GUIDANCE & QUALITY CHECK NATIONAL REMOTE SENSING CENTRE INDIAN SPACE RESEARCH ORGANISATION (ISRO) DEPT. OF SPACE, GOVT. OF INDIA BALANAGAR, HYDERABAD - 500 625	PARTICIPATING ORGANIZATIONS SURVEY OF INDIA GEOLOGICAL SURVEY OF INDIA PHED, GOVT. OF WEST BENGAL STATE WATER INVESTIGATION DIRECTORATE, GOWB P.S.MAPS (LAND RECORD), GOVT OF WEST BENGAL	METHODOLOGY & PROJECT EXECUTION NATIONAL REMOTE SENSING CENTRE INDIAN SPACE RESEARCH ORGANISATION (ISRO) DEPT. OF SPACE, GOVT. OF INDIA BALANAGAR, HYDERABAD - 500 625	SPONSORED BY RAJIV GANDHI NATIONAL DRINKING WATER MISSION (PHASE III B) DEPARTMENT OF RURAL DEVELOPMENT (DDWS) MINISTRY OF RURAL DEVELOPMENT GOVERNMENT OF INDIA NEW DELHI																																																																																																											