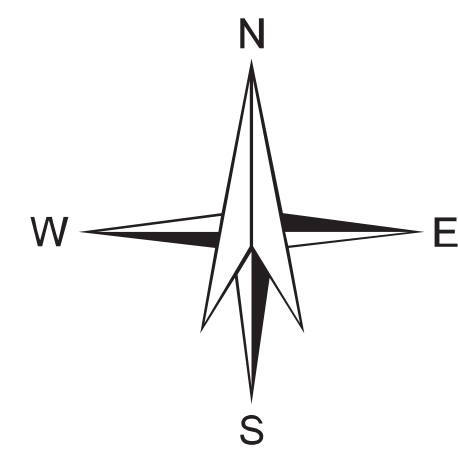
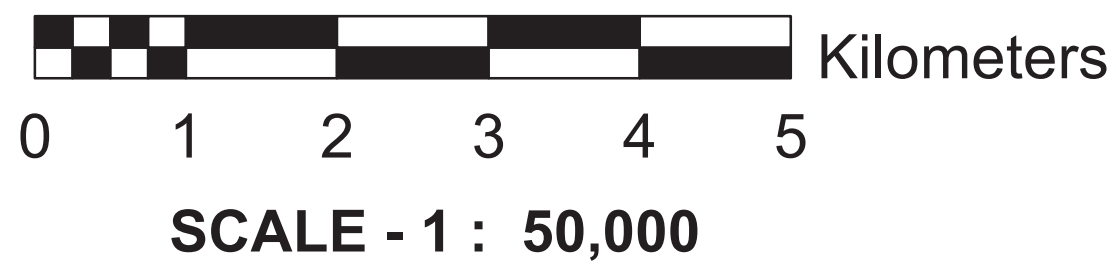


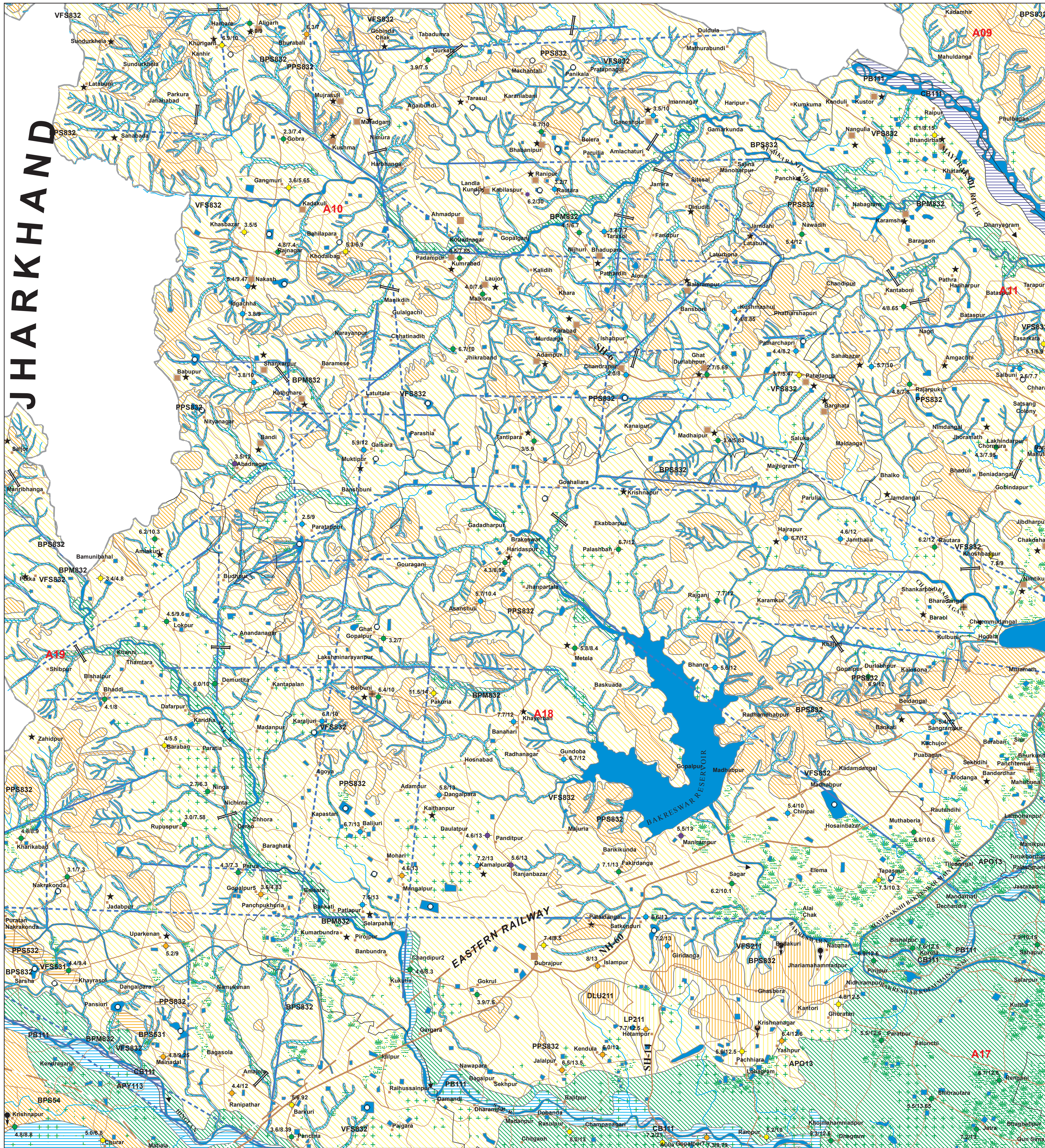
GROUND WATER PROSPECTS MAP

(PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS)



MAP SHEET NO. 73M/5

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 ALPHANUMERIC 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 (EXPECTED)	YIELD RANGE OF WELLS (EXPECTED)	HOMOGENEITY IN THE UNIT RATE OF WELLS (PROBABILITY)	QUALITY OF WATER (INDICATE REASON IF NON POTABLE)	GROUND WATER IRRIGATED AREA (APPROX. RANGE IN PERCENTAGE)		
CB111	Alluvium (Sand Dominant) (111)	Channel Bar (CB)	5 - 6 2	Excellent	LS	TW	5 - 10 m	400-500 LPM	Very High	P	42%	Not Required	Groundwater prospects very high with high recharge potential. Recharge structures not required.
PB111	Alluvium (Sand Dominant) (111)	Point Bar (PB)	6 1	Very Good	LS	RW TW	5 - 10 m	300-400 LPM	Very High	P	7%	Not Required	Groundwater prospects very high with high recharge potential. Recharge structures not required.
APY113	Alluvium (Sand Dominant) (113)	Alluvial Plain Younger (APY)	4.65 - 7.35 DW - 4	Very Good	LS	DW TW	10 - 12 m 20 - 30 m	125 - 150 m ³ /day 200 - 250 LPM	Very High	P	50%	Not Required	Aquifer is formed of Sandy part of alluvium. Recharge structures not required as good recharge conditions prevail
APQ13	Alluvium (Sand/Silt and Clay) (113)	Alluvial Plain Older - Deep (AOD)	5.5 - 7.99 DW - 5	Good	LS	DW TW	10 - 20 m 40 - 60 m	80 - 100 m ³ /day 150 - 200 LPM	High	P	20%	Not Required	Aquifer is formed of Sandy part of alluvium. Recharge structures not required as good recharge conditions prevail
VFS211	Valley Fill Shallow (VFS)	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM+FR	TW / BW	50 - 60 m	75 - 100 LPM	Moderate	P	Nil	DT Moderate	Recharge structures will increase the sustainability of groundwater
LP211	Lateralite (Ferricrete-hard crust, lateritic nodules and lithomarge clay) (211)	Lateralite Plain (LP) (Lithomarge Clay)	4.82 - 7.72 DW - 3	Limited	WM+FR	DW TW / BW	15 - 20 m 50 - 60 m	25 - 50 m ³ /day 50 - 100 LPM	Moderate	P	Negligible	RW / DT High	Areas of exposed lithomarge clay. Fracture zones form the aquifer, recharge structures will enhance groundwater development
DLU211	Dissected Lateralite Upland (DLU) (Hard crust and lateritic nodules)	Dissected Lateralite Upland (DLU)	7.2 DW - 1	Nil to moderate	WM+FR (Impervious material)	TW / BW	80 - 100 m	30 - 50 LPM	Low	P	Nil	Not Required	Essentially run-off zone where hard capping is present. Areas of nodular laterites are recharge zones with deep water table conditions. Primarily forest areas with sparse settlements. Not suitable for large scale development of groundwater
BPS54	Sandy Shale (Barren Measure) (54)	Buried Pediplain Shallow (BPS)	No wells observed	Limited	WM+FR	DW TW / BW	5 - 10 m 40 - 60 m	< 5 m ³ /day 30 - 50 LPM	Low	P	40%	RW/DT High	Prospects limited along fracture zones
VFS531	Sandstone & Shale with Coal (Raniganj Formation) (531)	Valley Fill Shallow (VFS)	No wells observed	Good	LS Underlain by WM+FR	TW / BW	20 - 25 m	75 - 100 LPM	Moderate	P	Nil	Not Required	Aquifer conditions modified by coal mining activities. Groundwater development may not be sustainable in the long run. Areas of piped water supply
BPS531	Sandstone & Shale with Coal (Raniganj Formation) (531)	Buried Pediplain Shallow (BPS)	4.48 DW - 1	Moderate	WM+FR	DW TW / BW	5 - 10 m 20 - 30 m	10 - 15 m ³ /day 30 - 50 LPM	Low	P	Negligible	Not Required	Aquifer conditions modified by coal mining activities. Groundwater development may not be sustainable in the long run. Areas of piped water supply
PPS532	Sandstone & Shale with Coal (Barakar Formation) (532)	Weathered Pediplain Shallow (PPS)	No wells observed	Limited	FR	DW TW / BW	5 - 10 m 20 - 30 m	5 - 10 m ³ /day 30 - 50 LPM	Low	P	Nil	Not Required	Aquifer conditions modified by coal mining activities. Groundwater development may not be sustainable in the long run. Areas of piped water supply
VFS832	Valley Fill Shallow (VFS)	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM+FR	TW / BW	30 - 50 m	150 - 175 LPM	Moderate	P	10%	CD Moderate	Prospects inferred as no wells observed. Recharge condition is moderate with moderate groundwater prospects
BPM832	Buried Pediplain Moderate (BPM)	Buried Pediplain Moderate (BPM)	No wells observed	Limited	WM+FR	DW TW / BW	5 - 10 m 40 - 60 m	15 - 25 m ³ /day 150 - 175 LPM	Moderate	P	Nil	RP Moderate	Recharge structure will improve ground water prospects
BPS832	Buried Pediplain Shallow (BPS)	Buried Pediplain Shallow (BPS)	2.02 - 8 DW - 89 HP - 1	Limited	WM+FR	DW TW / BW	5 - 10 m 40 - 60 m	10 - 15 m ³ /day 75 - 100 LPM	Low	P	20%	RP High	Recharge structures will improve sustainability of groundwater sources
PPS832	Weathered Pediplain Shallow (PPS)	Weathered Pediplain Shallow (PPS)	5.77 - 11.5 DW - 3	Poor	FR	DW TW / BW	5 - 10 m 40 - 60 m	5 - 10 m ³ /day 30 - 50 LPM	Low	P	Negligible	RP High	Due to high run-off and poor infiltration, recharge structures are required to maintain sustainability of groundwater sources
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 / --- D / --- P --- 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		HYDROLOGICAL INFORMATION		STRUCTURAL INFORMATION		BASE MAP INFORMATION		LOCATION INFORMATION	
YIELD RANGE OF WELLS	COLOUR CODE	DEPTH RANGE OF WELLS	DESCRIPTION	SYMBOL	DIPS	BEDDING	SYCHNOSITY / FOLIATION	STATE INDEX	DISTRICT INDEX
> 800 LPM	VIOLET	SHALLOW (0-10 METERS)	CANAL / TANK IRRIGATED AREA		GENTLE (< 15°)				
400 - 800 LPM	INDIGO	MODERATE (10-15 METERS)	GROUND WATER IRRIGATED AREA		MODERATE (15 - 45°)				
200 - 400 LPM	BLUE	DEEP (> 15 METERS)	RIVER / STREAM (with sand)		STEEP (45 - 80°)				
100 - 200 LPM	GREEN		WATER BODY / SPRING		SUB-VERTICAL TO VERTICAL (> 80°)				
50 - 100 LPM	YELLOW		CANAL		ANTICLINE / ANTIFORM				
30 - 50 LPM	ORANGE		RAIN GUAGE STATION (With average annual rainfall in mm)		SYNCLINE / SYNFORM				
20 - 30 LPM	BROWN		PERCOLATION TANK		ESCAPMENT				
10 - 20 LPM	PINK		NALA BUND		LITHOLOGY / GEOMORPHIC UNIT BOUNDARY				
Prospects	RED		DESIGNING OF TANK		FAULT				
			SUBSURFACE DYKE		THRUST				
			SOIL CONSERVATION MEASURES		FRacture (LINEAMENT) (Inferred)				
					FRacture (LINEAMENT) (Inferred)				
					SHEAR ZONE (Confirmed / Inferred)				
					DYKE (Confirmed / Inferred)				
					QUARTZ REEF (Confirmed / Inferred)				
					PEGMATITE VEIN (Confirmed / Inferred)				
					Lithologic contacts are inferred at places & Geomorphic boundaries are gradational				
PREPARED BY GEOINFORMATICS & REMOTE SENSING CELL W.B. STATE GOVT. 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 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 DRINKING WATER SUPPLY (DDWS) MINISTRY OF RURAL DEVELOPMENT GOVERNMENT OF INDIA NEW DELHI	