



Government of India
Ministry Of Water Resources
CENTRAL GROUND WATER BOARD

GROUND WATER INFORMATION BOOKLET
RAJAURI DISTRICT, JAMMU AND KASHMIR



Chingus Fort

NORTH WESTERN HIMALAYAN REGION
JAMMU

FEBRUARY 2013

GROUND WATER INFORMATION BOOKLET

RAJAURI DISTRICT, JAMMU AND KASHMIR

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RAJAURI DISTRICT AT A GLANCE

<i>Sl. No</i>	ITEMS	<i>Statistics</i>
1.	GENERAL INFORMATION	
	i) Geographical area (sq km)	2630
	ii) Administrative Divisions (2009-10)	
	• Number of Tehsil	7
	• Number of CD Blocks	8
	• Number of Panchayats	160
	• Number of Villages	380
	iii) Population (2011 Census)	
	• Total population	619226
	• Population Density (pers/sq km)	235
	• Rural Population	93.03%
	• Urban Population	6.96%
	• SC Population	7.97%
	• ST Population	33.12%
	• Sex Ratio	918
	iv) Average Annual Rainfall (mm)	1150
2.	GEOMORPHOLOGY	
	i) Major Physiographic units	<ul style="list-style-type: none"> • High Hill Ranges • Valleys & Terraces
	ii) Important Mountain Ranges	<ul style="list-style-type: none"> • Rattan-Peer Range • Chhacher Range • PeerBadesarashwarRange • Kalidhar Range
	iii) Important Peaks	<ul style="list-style-type: none"> • Dakyal Peaks, • Tade Peak • Rattan PeerPeak • Peer Kalewa Peak • Peer Badesarashwar Peak • Peer Chhacher Peak • Noor Bangla Peak • Khari Marg Peak
	iv) Altitude Range	562 – 4800 m amsl
	v) Major Drainages	
	• Basin	Indus River
	• Sub Basin	Chenab River
	• Major Rivers	<ul style="list-style-type: none"> • Nowshera Tawi • Tandapani wali Tawi • Ans River,

<i>Sl. No</i>	ITEMS	<i>Statistics</i>
3.	LAND USE (2009-10) sq.km <ul style="list-style-type: none"> • Forest area • Net area sown 	1267 NA
4.	MAJOR SOIL TYPES	<ul style="list-style-type: none"> • Brown, Red and Yellow Soils (Utisols) • Sub-Mountainous Soil (Alfisols) • Bhabar Soil (Entisols)
5.	IRRIGATION BY DIFFERENT SOURCES (MI census 2005-06) (in hac) <ul style="list-style-type: none"> • Net Area Irrigated <ul style="list-style-type: none"> • Canals • Wells • Other Sources • Gross Area Irrigated <ul style="list-style-type: none"> • Canals • Wells • Other Sources 	<ul style="list-style-type: none"> • 4994 • 1645 • 27 • 3322 • 8562 • 4575 • 45 • 3942
6.	NUMBERS OF GROUND WATER MONITORING WELLS OF CGWB (As on 31.3.2012) <ul style="list-style-type: none"> • No. of Dug Wells • No. of Piezometers 	31 Nil
7.	PREDOMINANT GEOLOGICAL FORMATIONS	<ul style="list-style-type: none"> • Unconsolidated Alluvium • Tertiary (Siwaliks & Murrees) • Older Crystalline & Metamorphic rocks
8.	HYDROGEOLOGY Major Water Bearing Formations <ol style="list-style-type: none"> 1. Older crystalline/ Hard Rocks <ul style="list-style-type: none"> • Yield prospects • GW structures 2. Semi consolidated sediments Murrees (Fractured and jointed) <ul style="list-style-type: none"> • Yield prospects • GW structures 3. Semi consolidated sediments Siwalik <ul style="list-style-type: none"> • Yield prospects • GW structures 	<p>Mostly Hilly Very Low (<3 lps) Springs</p> <p>Covering major part (80%)</p> <p>Low (3-5 lps) Springs/handpumps</p> <p>Covering (10%)</p> <p>Low (2-3 lps) Springs/ Handpumps/Dugwells</p>

<i>Sl. No</i>	ITEMS	<i>Statistics</i>
	4. Unconsolidated porous sediments Alluvium	Valley area (10%)
	<ul style="list-style-type: none"> • Yield prospects • GW structures 	Moderate (3-8 lps) Springs/ Handpumps/Dugwells/ tubewells
	Depth to water level (m bgl)	
	Pre-monsoon(May)	0.69-6.10
	Post – monsoon(Nov)	0.70-7.15
9	GROUND WATER EXPLORATION BY CGWB (As on 31.3.2007)	
	<ul style="list-style-type: none"> • No of wells drilled • Depth Range (m) • Zones encountered • Discharge (lps) 	5 20 - 50.50 m bgl Alluvium (valley fills) 0.5-5.0
10.	GROUND WATER QUALITY	
	i) Presence of Chemical constituents more than permissible limits	Iron, Fluoride, Nitrate
	ii) Range of Chemical constituents in Ground water	
	<ul style="list-style-type: none"> • EC (micro mohos/cm) • PH • Fluoride (mg/l) • Nitrate (mg/l) • Iron (mg/l) 	217-1470 7.20-9.3 0.02-2.45 0.72-60.0 0.26-7.7
11.	DYNAMIC GROUND WATER RESOURCES	Not Computed (being Hilly terrain)
12.	AWARENESS AND TRAINING ACTIVITY Mass Awareness Programme	02
	Place / Date	Nowshera / 24 th Jan, 2007 Solki / 20 th March 2012
13.	EFFORTS OF ARTIFICIAL RECHARGE & RAINWATER HARVESTING	01
14.	GROUND WATER CONTROL AND REGULATION	
	Number of OE Blocks	Nil
	No of Critical Blocks	Nil
	No of blocks notified	Nil
15.	MAJOR GROUND WATER PROBLEMS	<ul style="list-style-type: none"> • Occurrence of Iron, Flouride and Nitrate • Low yield of tubewells, dugwells & handpumps with high drawdowns

GROUND WATER INFORMATION BOOKLET

RAJAURI DISTRICT, JAMMU AND KASHMIR

1.0 INTRODUCTION

The district derives its name from Rajauri town which itself had been historically known as Rajapuri. Rajauri came into existence as a district from 1st January 1968. The district has an area of 2630 sq. km. with peculiar physical features and is located in the foothills of Pir Panjal Range. It is situated in south western part of the State and it lies between latitudes 33⁰00' 00" & 33⁰35'20" N and longitudes 74⁰08'00" & 74⁰42' 30" E in Survey of India Degree sheet no. 43 K. The district is a part of Jammu Division and is surrounded by the Poonch, Mirpur, Udhampur and Jammu districts.

Rajauri is the district headquarter, which is 154 km from Jammu, the winter capital of Jammu & Kashmir. The administrative set up of the district is as under:

Table 1.1: Administrative setup

S.No	Tehsils	Blocks	No. of Panchayats
1.	RAJAURI	Rajauri	24
2.	NOWSHERA	Nowshera	23
3.	KALAKOTE	Kalakot	21
4.	SUNDEBANI	Sunderbani	16
5.	KOTERANKA	Budal	33
6.	THANNAMANDI	Thanamandi	20
7.	DARHAL	Daral	09
8.		Manjakot	14
Total	07	08	160

As per 2001 Census, the total population of the district is 6.19 lacs. The population density of the district is 235 persons /sq. km. The growth rate in the district is 28.14% and the sex ratio is 877. The literacy percentage is 68.54%.

Rajauri district does not have well developed irrigation network. Most of the cultivable lands are located in the slopes where irrigation network is not possible.

Rajal Canal is the only surface water irrigation system in the district and irrigates about 660 ha of the land . But Minor Irrigation is an important sector. Apart from this, most of the paddy area located on the banks of the Nullas is irrigated through khuls in Thanna, Behrote, Palma and sources of irrigation are Nullah Thanna, Nallah Ans, River Rajauri and Nullah Kalakote.

At present, there are 130 khuls existing which are being looked after by the Irrigation Department out of which 5 are lift schemes

Under groundwater exploration CGWB has constructed, only five exploratory wells up to the depth of 105.00 m. CGWB monitors 31 NHNS mainly in Rajauri valley where ground water levels and ground water quality are being monitored.

2.0 CLIMATE & RAINFALL

The climate varies from semitropical in the southern part comprising Nowshera, Sunderbani and Kalakote to temperate in the mountainous northern part comprising the area of Rajauri, Thannamandi and Koteranka Tehsils of the district. The subtropical southern region receives regular monsoons whereas the northern part prone to hailstorms experiences excessive rains.

The average annual rainfall is 1150 mm and average temperature varies from 7.42 degree celsius to 37.4 degree celsius. The maximum rainfall in the area is received through southwest monsoon during July-September. The rainfall during the rest of the period is sporadic and scanty. The general elevation of the district is in the range of 562-4800 m amsl.

3.0 GEOMORPHOLOGY & SOIL TYPES

The area is undulatory with high peaks and dissected valleys. The land slopes are steep and at many places escarpments are seen.. Physiographically the district is characterized by mountain ranges trending NW-SE direction, deep narrow valley and terraces, valley fill deposits with gentle slopes. Pirpanajal Range in the Northeastern side of the district separates it from the Kashmir valley where high peaks are found.

3.1 Hilly Terrain

The altitude in the district varies from 562 to 4800m amsl. Major slope of the terrain is towards south and southwest. Structural hills belonging to Murree and Siwalik groups are mostly longitudinal with altitude varying between 700 m and 2200 m amsl.

The alluvial terraces are observed along the Tawi River. The district forms a part of hilly terrain of the sub-Himalayas, consists of parallel hill ranges separated by narrow valleys. Important Ranges in Rajauri district are Rattan- Peer Range, Chhacher Range, Peer Badesarashwar Range and Kalidhar Range. Important Peaks in Rajauri district are Dakyal Peak, Tade Peak, Rattan Peer Peak, Peer Bradeshwar Peak, Peer Chhacher Peak, Noor Bangla Peak, Khari Marg Peak.

3.2 DRAINAGE

The district area is drained by a number of perennial rivers and ephemeral streams. These nallas /streams remain dry in summer but create havoc due to flash floods especially in rainy seasons. They carry huge load of boulders, pebbles, sand and silt during monsoon period.

The district is drained by the Munawwar Tawi and its tributaries named Nowshera Tawi, Neari Tawi, and Thande pani wali Tawi, except the eastern side which is

drained by Ans River. Both falls in Chenab sub basin. These rivers originate from the north of the district limit.

The northern part of the district is characterized by the dendritic to sub dentritic drainage pattern controlled by the natural topography of the area and geological structures.

3.3 SOILS

Three types of soils are present in the district. They are Brown, Red and Yellow Soils (Udisols), Sub-Mountainous Soil (Alfisols) and Bhabar Soil (Entisols)

4.0 GROUND WATER SCENARIO

4.1 GEOLOGY

The district is underlain by rock formations ranging in age from Pre-Cambrian to Quaternary period. The generalized geological succession in the district is given below:

Group	Lithology	Age
Quaternary	Heterogeneous Clastic sediments comprising of Sand, Silt, Clay	Sub-recent to Recent
Siwalik	Sandstone, Clays, shale, boulder/pebble etc.	Lower Miocene to Pleistocene
Murrees	Red coloured Sand stone & Clay	Lower Miocene
UNCONFORMITY		
Older crystalline and Metamorphic rocks (Subathu, Salkhala, Sirban Formations)	lime stone, shale, Sand stone, Phyllites, Gneisses	Precambrian to Eocene

Northern side of the district comprises of Older Crystalline and Metamorphic rocks consisting of Salkhala, Tanawal and Ramban Formations of Precambrian to Eocene age.

The southern part of the district comprises of Siwalik Formation. The Lower Siwalik semi consolidated subgroup constitutes light grey, medium to coarse sandstone, few claystones. The sandstones are well compact. The Siwalik consists predominantly of light grey, medium to coarse sandstone and clays.

About 80% of the district comprises of Murree Group of rocks of late Eocene- Early Miocene age and is disconformably underlain by the rocks of Subathu Formation in

the district. Murree Group consists of pink Sand stone & Clay. It is separated from Siwalik in south by Mandli - Kishanpur thrust and in north by Murree Thrust from Older Crystalline and Metamorphic rocks

4.2 HYDROGEOLOGY

In general, the ground water potential in Siwalik and Murree formation is poor. The shallow dug wells located in the terrace and valley fill deposits yield low to moderate discharge of groundwater. Recharge to the alluvial aquifers is received both by in situ filtration of rainwater as well as through subsurface flows from the near by nallas and streams. The thickness of these alluvial aquifers is limited to a maximum of 12-15 m below ground level.

However zones of secondary porosity in them form suitable areas, worthy of ground water development. Ground water occurrence in the area occupied by Siwalik rocks in the district is restricted to small isolated patches in hilly areas. Springs, in the areas are main source of groundwater.

The Murree group of rocks occupies the major portion of the district. The Murrees are totally devoid of primary porosity. However, the Ground water emerges in the form of springs at contact of pervious and impervious beds and other structural features.

The Alluvial deposits are highly heterogeneous comprising of varying grades from gravels, sand, silt & clay. These deposits possess a good degree of primary porosity & permeability. About 75% of dug wells in the entire district are located in these deposits and yield fresh potable water. Ground water occurs in the saturated pore spaces of the alluvial sediments.

Springs are formed where the water table is intercepted by the topography. In the study area, the springs are widely distributed, occurring in the different formations at varying altitudes. In the study area, occurrence of spring is controlled by lithological and structural character of rock formation. Majority of the springs occur along fracture zones. Kishanpur-Mandli Thrust are some major fractures along which springs are located

4.3 GROUND WATER QUALITY

The quality of ground water is very important because of its utility for the purpose of sustaining life, either in the form of drinking, agriculture or industrial uses. Hence present utility and future development programme depends upon physical, chemical and bacterial characteristics of the ground water. The chemical quality of ground water prevailing in the district has been assessed based on the analysis carried out by CGWB from time to time.

The range of chemical parameters hydrograph network stations of CGWB in the district for May 2008 are summarized below

Sr. No.	Constituents	Range
1.	pH	7.20-9.30
2.	EC (micro mohos/cm)	217-1470
3.	Ca ⁺⁺ (mg/l)	26.00-144.00
4.	Mg ⁺⁺ (mg/l)	9.70-43.00
5.	CO ₃ ⁻⁻ (mg/l)	-
6.	HCO ₃ ⁻⁻ (mg/l)	92.00-525.00
7.	Cl (mg/l)	3.50-184.00
8.	NO ₃ (mg/l)	0.72-60
9.	F(mg/l)	0.11-2.45
10.	Na ⁺ (mg/l)	0.5-225.00
11.	K ⁺ (mg/l)	0.50-8.5
12.	Iron (mg/l)	0.26-7.7

Ground water quality in the district is in general good both for irrigation and domestic purpose. From the samples collected from ground water sources viz., well, tube wells, hand pumps and springs, the EC in ground water is generally below 1000 μ S/cm at 25 C except at a couple of places. Other chemical parameters are also within the permissible limits except Iron, Flouride and at one place Nitrate. Thus it can be concluded that the over all quality of ground water is good and suitable for domestic and irrigation use.

4.4 STATUS OF GROUND WATER DEVELOPMENT

Hydro geologically the major part of the area is not suitable for large-scale ground water development.

Springs are encountered along faults having discharge range 2-150 lpm. They can be developed for domestic use and water can be supplied. To provide sustainability to spring discharge, rejuvenation of springs can be adopted.

The ground water exploration in Rajauri district was taken up for the first time by CGWB in 2005-06 to evaluate the potentiality and aquifer systems. Central Ground Water Board has drilled five tubewells in Rajauri district. The maximum depth of drilling is 105.00 m at Inayatpur.

The PHE department has drilled four tube wells in Nowshera Division ranging discharge 2500 gph to 20000 gph, where as the yield in Rajauri Division ranges from 2500 gph to 4000 gph. a number of dugwells constructed by PHE in Nowshera Division with discharging between 2500gph – 100000 gph.

5.0 GROUND WATER MANAGEMENT STRATEGY

5.1 GROUND WATER DEVELOPMENT

Most of the district is in concentrated in valley portion drained by major river Munnawar Tawi and its tributaries. In the past, development of ground water was

mainly through dug wells and percolation wells along the riverbeds, nallhas and also with springs , which have played a major role for sustainable domestic and irrigational purposes. In some of the areas, at present too these are the only sources of water.

However, in recent years modern means of ground water development have been employed. Public Health Engineering has been constructing number of hand pumps and shallow-moderate depth tube wells for large-scale water supplies.

CGWB has so far explored the Rajauri area by drilling two numbers of exploratory wells in the district, in the depth range of 20-50.50 m bgl. The other parts of the valley are yet to be explored in the district.

5.2 GROUND WATER CONSERVATION AND ARTIFICIAL RECHARGE

The district being hilly and mountainous, traditional sources of ground water mainly springs have played a major role since past in providing assured irrigation and water supply , These include the nallas, springs,, chashamas. In some areas, at present too, these are the only sources of water for settlements, but the availability of the water during summer is limited. Based on the climatic conditions, topography, hydrogeology of the area, suitable structure for rain water harvesting and artificial recharge to ground water is required

In the hilly areas Check dams, Gabion structures and Nalla bunding are recommended and are can be adapted. The traditional water sources like springs and bowlies needs to be protected.

6.0 GROUND WATER RELATED ISSUES AND PROBLEMS

The district being hilly and mountainous, most of the rainfall goes waste as runoff. This results in varying degree of recharge to the ground water. In such hard rock terrain, since the aquifers are discontinuous and of different geological and hydro geological setup, the ground water scenarios are different in various parts of the district.

Most of the ground water issues and problems so far noted in the district are localized and need to be treated independently by taking micro level studies in a particular area. Some of the common issues are deeper water levels and heavy drawdown, as most of the area comprises of Murrees, Siwaliks and hard rock metamorphic. As far as over all quality of ground water is good except at couple of places where Fluoride and Iron have been detected more that permissible limits. The source of both of them may be geogenic. At one place, nitrogen has been found, which may be because of manmade reasons.

Hydro geological data and information is very limited and there is need to take up ground water study when the law and order problem improves there.

7.0 AWARENESS & TRAINING ACTIVITY

NOWSHERA, DISTRICT RAJAURI 24TH JAN, 2007:

Mass Awareness Programme was conducted at Nowshera, Distt. Rajauri, Jammu and Kashmir on 24-01-2007. The target group is local villagers, Employees and Engineers of PHE, Irrigation and Flood control Departments of J&K Govt. About 220 persons participated in the mass awareness programme.

SOLKI, DISTRICT RAJAURI 20TH MARCH, 2012.

Under the Information, Education and Communication (IEC) activities of Govt. of India, Ministry of Water Resources, Central Ground Water Board, North Western Himalayan Region, Jammu organized a Mass Awareness Program on “Ground Water Conservation” at Inspection Bungalow, Solki, Tehsil: Kalakote, District: Rajouri on 20th March, 2012. During the Mass Awareness Program, musical and dance group sung traditional songs in gojri and pahari languages on water conservation theme and also performed the tribal dance depicting the local traditions on village upliftment.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

- The district has an area of 2630 sq. km located in the foothills of Pir Panjal Range. with latitudes $33^{\circ} 00' 00''$ & $33^{\circ} 35' 20''$ N and longitudes $74^{\circ} 08' 00''$ & $74^{\circ} 42' 30''$ E.
- The climate varies from semi tropical to sub tropical. The maximum rainfall in the area is received through southwest monsoon during July-September
- The altitude in the district varies from 562 to 4800m amsl. Major slope of the terrain is towards south and southwest.
- The district is drained by many perennial rivers as Ans River and Munawwar Tawi and its tributaries. Both falls in Chenab Basin. district The northern part of the district is characterized by the dendritic sub dendritic drainage pattern.
- Three types of soils are present in the district. They are Brown, Red and Yellow Soils (Udisols), Sub-Mountainous Soil (Alfisols) and Bhabar Soil (Entisols).
- About 80% of the district comprises of Murree Group of rocks of late Eocene- Early Miocene age and is disconformably underlain by the rocks of Subathu Formation in the district
- In general, the ground water potential in Siwalik and Murree formation is poor. But alluvial deposits which are highly heterogeneous possess a good

degree of primary porosity & permeability. Ground water occurs in the saturated pore spaces of these alluvial sediments.

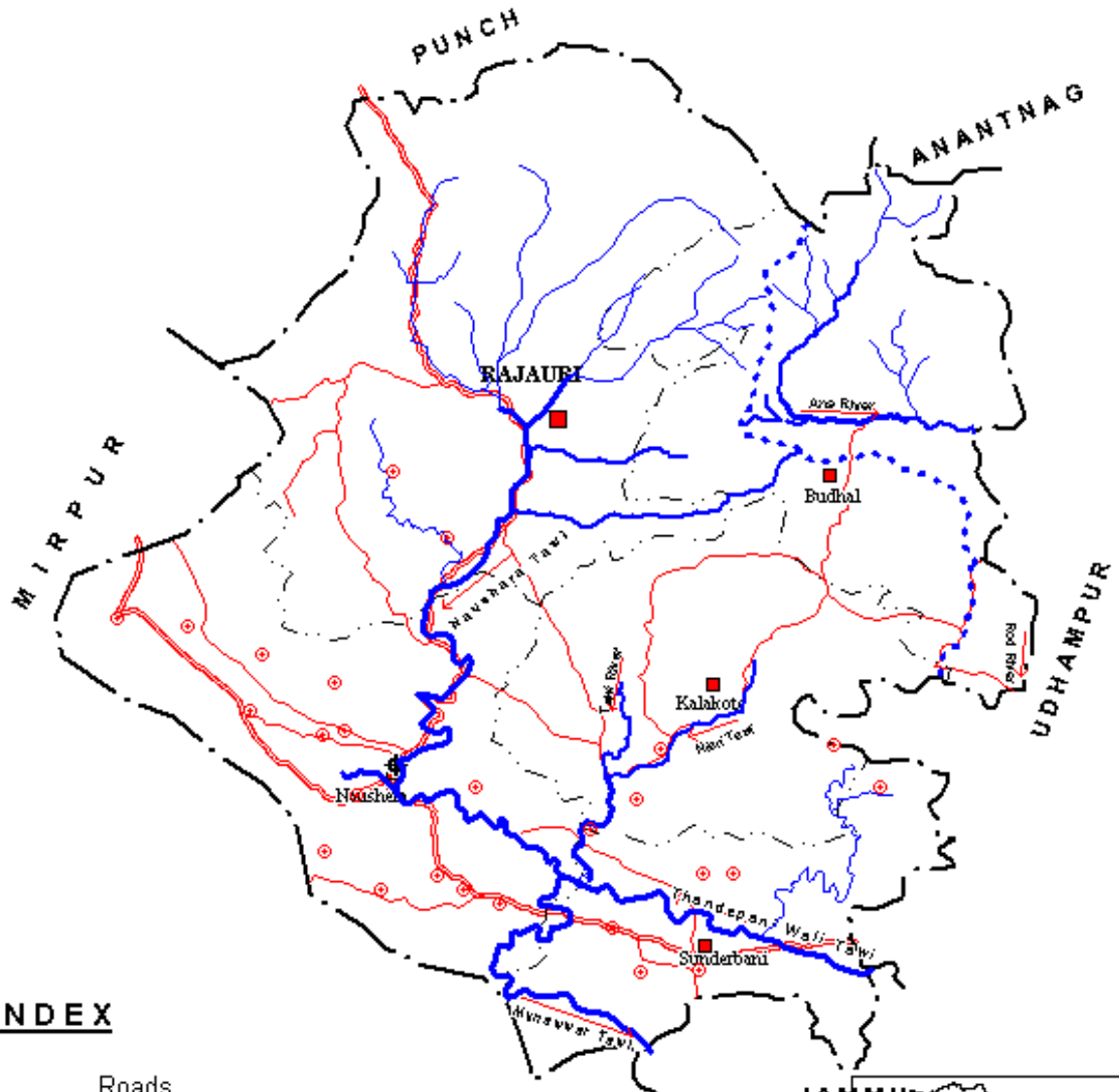
- All the chemical parameters are within the permissible limits except Iron, Flouride and at one place Nitrate. Thus it can be concluded that the over all quality of ground water is good and suitable for domestic and irrigation use.

8.2 RECOMMENDATIONS









- In hilly terrain, springs and perennial nallas are the major sources of water. Shallow to medium depth bore wells fitted with hand pump are useful ground water structures for meeting the domestic needs and are feasible at favorable areas.
- In valley areas, in addition to traditional ground water structures like dug wells & springs, shallow to medium depth bore wells can be constructed for developing the ground water resource.
- Proper development of Khuls as a source of irrigation in upper reaches like Thanna, Behrote and Palma may be promoted on scientific lines. Few more Khuls may be constructed in water scarce areas.
- Traditional resources like springs need to be revived developed & protected on scientific lines for various use.
- Rainwater harvesting in general & RTRWH in particular is an ideal solution for augmenting water resources particularly in sloppy hilly & chronic water scarce areas. There is thus need to create awareness for water conservation and augmentation and proper waste disposal for protecting water sources
- People's participation is a must for any type of developmental activities. So they should be made aware for proper utilization and conservation of water resources available. In addition, micro level efforts are required for proper implementation of development programme.
- Central Ground Water Board has so far not taken up the surveys of Vertical Electrical Sounding (VES) to demarcate the aquifer geometry and subsurface litho logy and ground water behavior. Thus the district is required to be surveyed under geophysical studies.
- Special scientific hydro geological studies should be taken up to study the ground water occurrences and movement in different hydro geological settings.

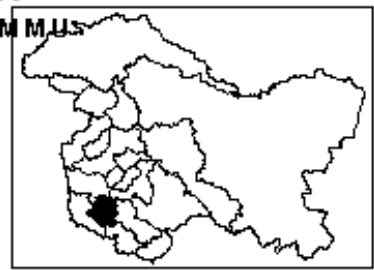
JAMMU & KASHMIR RAJAURI DISTRICT INDEX MAP

Not to Scale



INDEX

-  Roads
-  River/Nalla
-  District Head Quarter
-  Tehsil Head Quarter
-  Tehsil Boundary
-  District Boundary
-  NHNS Wells
-  Exploratory Wells



JAMMU & KASHMIR

RAJAURI DISTRICT

PHYSIOGRAPHY & DRAINAGE

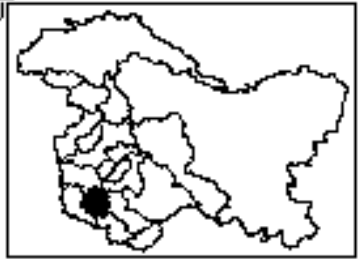
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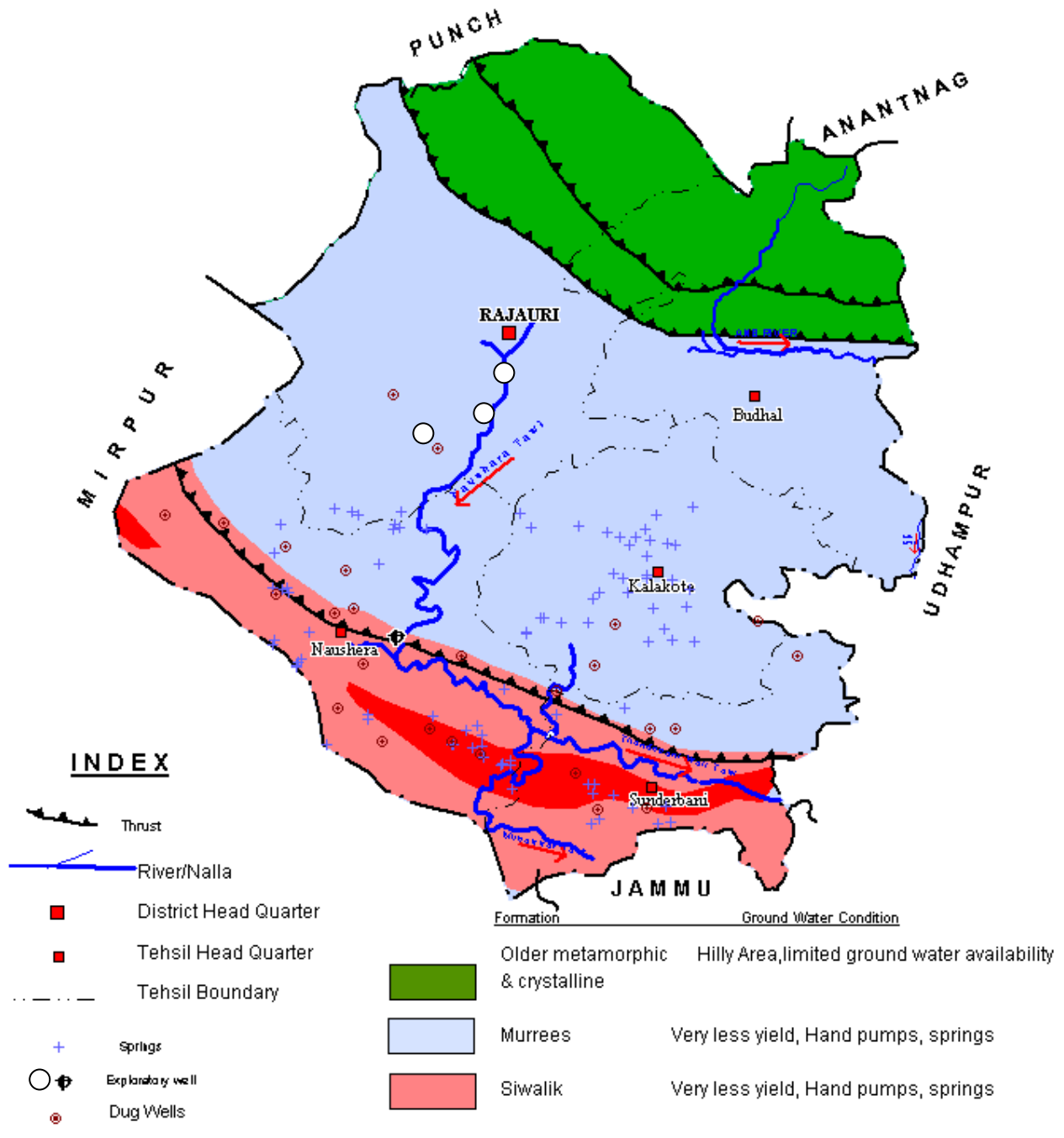
- District Boundary
- Tehsil Boundary
- District HQ
- Tehsil HQ
- Water divide
- Road
- River/Nalla

- Triangulation Point (m amsl)
- Valley
- Hilly Area



JAMMU & KASHMIR RAJAURI DISTRICT Hydrogeology

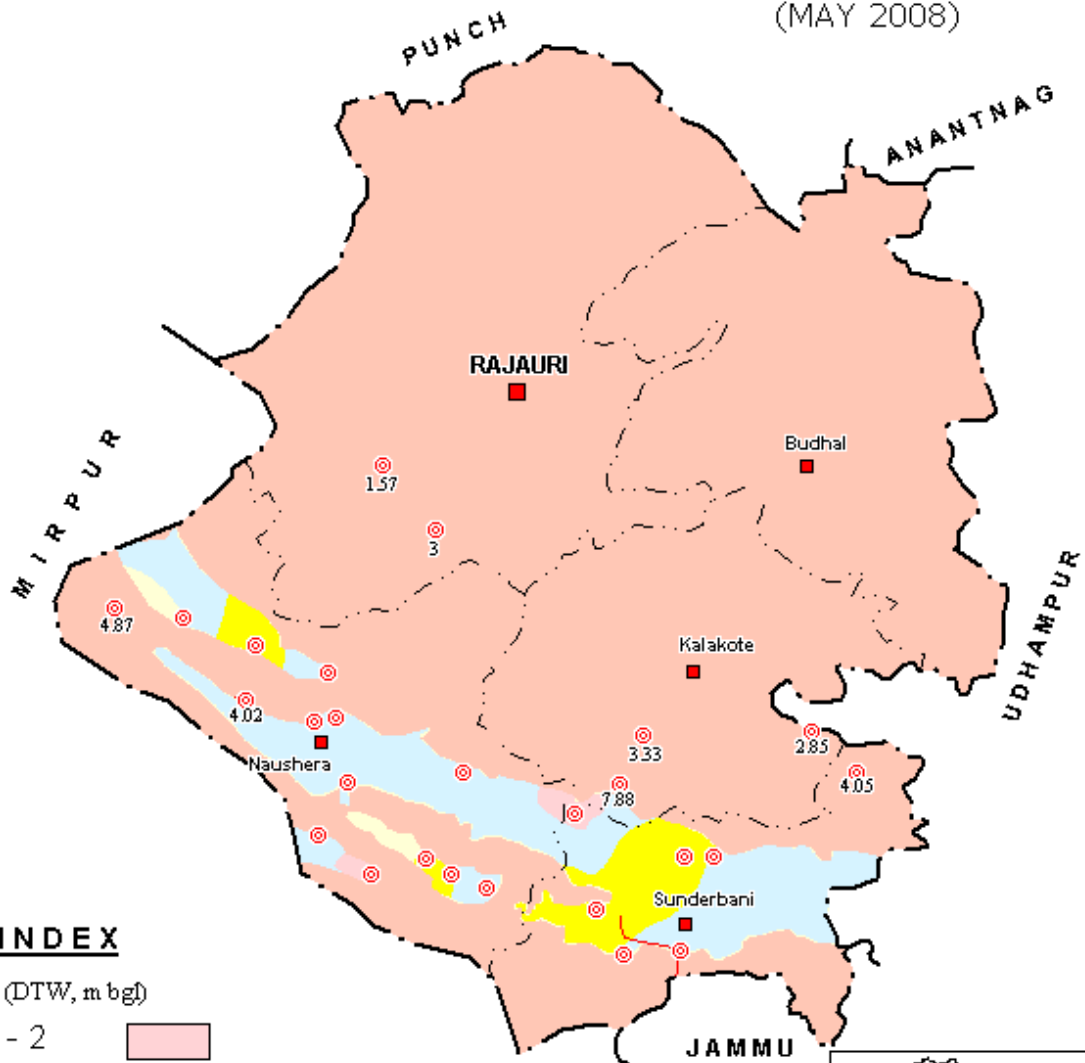
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Not to Scale

JAMMU & KASHMIR RAJAURI DISTRICT DEPTH TO WATER LEVEL (MAY 2008)



INDEX

(DTW, m bgl)

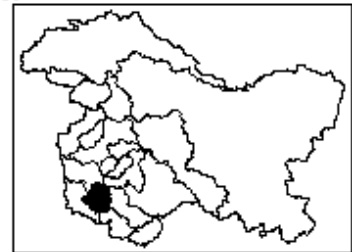
0 - 2	
2 - 5	
5 - 10	
10 - 20	

NHS Locatios

District HQ

Tehsil HQ

Hilly Area

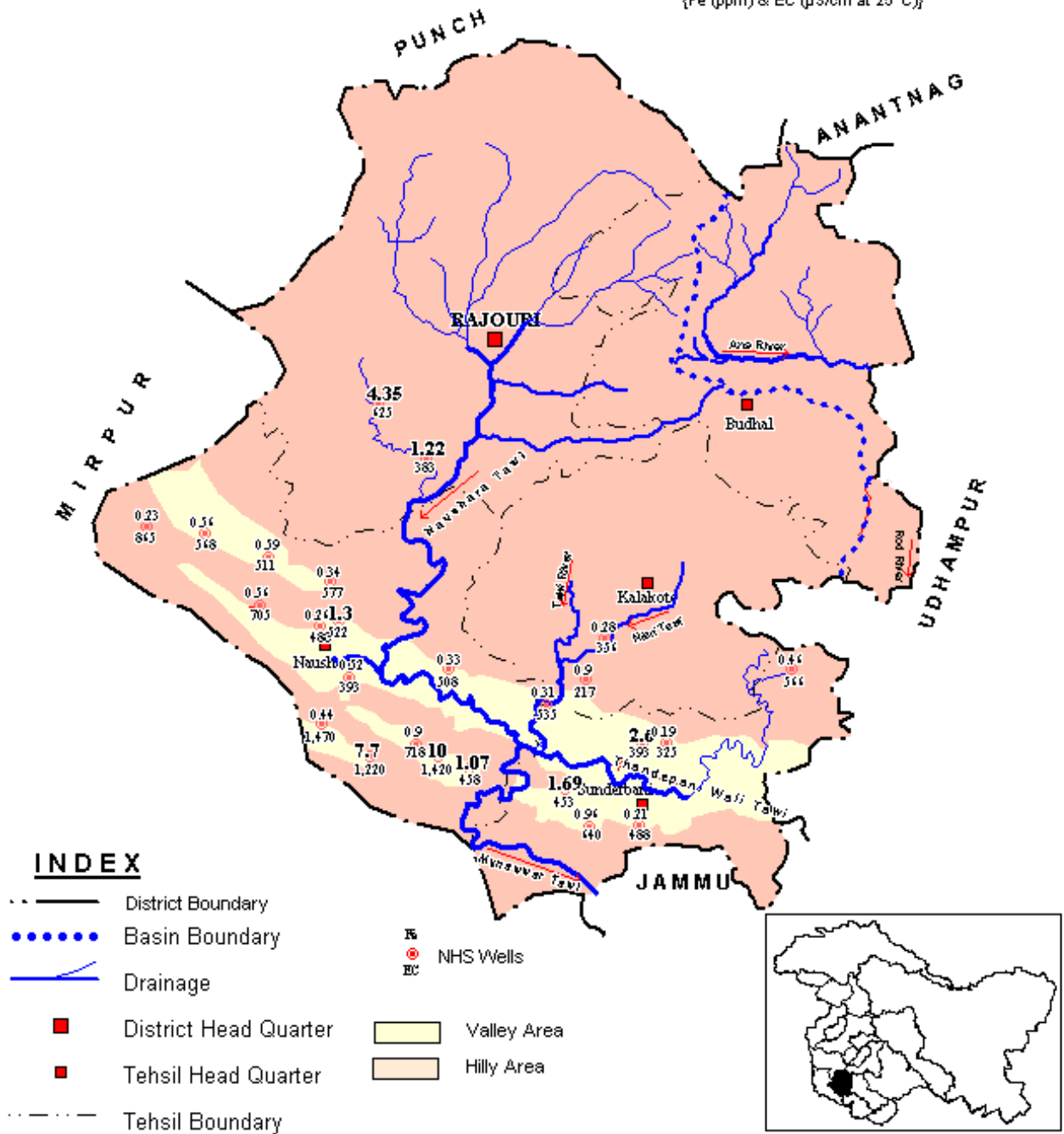




Not to Scale

JAMMU & KASHMIR RAJOURI DISTRICT CHEMICAL QUALITY












{Fe (ppm) & EC ($\mu\text{S/cm}$ at 25°C)}



FRESH WATER YEAR - 2003

LEGEND

DISTRICT RAJOURI

	Wells feasible	Rigs suitable	Depth of well (m)	Discharge (lpm)	Suitable artificial recharge structures
  Soft rock aquifers	Tube wells	Percussion, DTH with Odex	60 to 80 [*]	380 to 1250	Check dam, Check Dam cum ground Water dam, Recharge Shaft/pit
	Dug Wells	Poclain	6 to 12	230 to 700	
 Hard rock aquifers	Tube wells	DTH with Odex	60 to 80 [*]	300 to 1000	
	Dug Wells	Poclain	6 to 10	300 to 500	
	Spring Development			30 to 1200	
5  Water level contour (m bgl) (Pre monsoon decadal mean, 1993-2002)			 Tehsil boundary		 Tehsil HQ
 Springs			 District boundary		 District HQ
			 Thrust		 Major Drainage

OTHER INFORMATIONS

Total area	2630 sq.km
No. of tehsils	6
Major drainage	Naushera, Tawi, Ans Rivers
Population	478595 (2001 Census)
Rainfall	1120 mm
Temperature	-4.9 ⁰ C to 31.6 ⁰ C
Regional geology	Soft rock : - Alluvium, Karewas, Murrees, Siwaliks
	Hard rock : - Panjal traps
Ground water quality	EC<750 micro mhos/cm at 25 ⁰ C
Utilizable ground water resources	Not estimated
Stage of GW development	Not estimated
Name of watershed/ tehsil showing intensive GW development	Nil

GROUND WATER USER MAP

RAJOURI DISTRICT, JAMMU & KASHMIR

