

DISTRICT SURVEY REPORT

DISTRICT KISHTWAR

As per Gazette notification of 15th January 2016 of Ministry of Environment, Forest and Climate Change a Survey shall be carried out by the District Environment Impact Assessment Authority (DEIAA) with assistance of Irrigation and Flood Control Department, Forest Department, Geology and Mining Department and Revenue Department in the district for preparation of District Survey Report as per the Sustainable Sand Mining Guidelines to ensure identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area.

Every effort have been made to cover sand mining locations, areas in the district with all its relevant features pertaining to geology & mineral wealth in replenish-able and non-replenish-able areas of rivers, stream and other sand sources. The mineral potential is calculated based on field investigation & geology of the catchment area of the river or streams. Also as per the site conditions and locations, depth of minable mineral is defined. The area for removal of the mineral in a river or stream is decided depending on geomorphology & other factors, it can be 50% to 60% of the area of a particular river or stream. Other constituents like clay and silt are excluded as waste while calculating the mineral potential of particular river or stream.

This District Survey Report shall form the basis for application for environment clearance, preparation of reports and appraisal of projects. The report shall be updated once every five years.



ACCESS

The Jammu – Kishtwar National Highway joins the District with Jammu and rest of India. It is 235Km from Jammu.

OVERVIEW OF THE MINING ACTIVITY IN THE DISTRICTS:

The major part of mining activity in District Kishtwar is confined to bed of River Chenab between Bhandarkot to Atholi Gulabgarh, which meets the demand of the local population for the construction material besides meeting the demands of the raw material for crushing purposes and some minor mining activity is also carried out in other streams and seasonal Nallah for local consumption. The majority of the stone crushers are located in vicinity of the Kishtwar town and the raw material is fetch from the bed of the River Chenab. The stone crushers are located in village Machhipal, two in tehsil Kishtwar at Bonjwah, one in Kuria, Charar and Padder.

LIST OF MINING LEASES IN THE DISTRICTS WITH LOCATION, AREA AND PERIOD OF VALIDITY:

There is only one mine in the district. It is in the name of the Jammu and Kashmir Minerals Ltd. for the Mining of the Sapphire in the Suncham valley. The total area under the mining lease is 2.86 square kilometer.

DETAILS OF PRODUCTION OF SAND OR BAJRI OR MINOR MINERALS AND ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS:

Production and revenue of Kishtwar District for the year 2015-16

Name of the Mineral	Production 2015-16 upto ending Dec.2015 old rates (MTs)	Production 2015-16 (Jan.16 to Mar.16 New rates) (in MTs)	Rate (old rate)	Rate (New Rate)	Royalty 2015-16 upto ending Dec.2015 old rates) (in MTs)	Royalty 2015-16 (Jan.16 to Mar.16 New rates) (in MTs)
Stone	₹ 67,443.51	23	12	20	₹ 809,322.13	₹ 460.00

Ordinary sand	₹ 50,743.71	2334.11	17	25	₹,643.09	₹ 58,352.75
Nallah Muck/RBM	₹ 10.00		16	25	₹ 160.00	₹ -
N/Boulder	₹ 10.00		12	20	₹ 120.00	₹ -
N/Bajri	₹ 4,133.88		25	35	₹ 103,347.00	₹
C/Bajri		1060.58		40	₹ -	₹ 42,423.20
Crushing stone	₹ 21,472.50	2790	16	25	₹ 343,560.00	₹ 69,750.00
Dress/stone	₹ ,470.13		25	35	₹ 211,753.15	₹ -
GSB	₹ 1,073.32		16	25	₹ 17,173.12	₹ -
	₹ 153,357.05	₹ 6,207.69			₹ 2,348,078.49	₹ 170,985.95

Production and revenue of Kishtwar District for the year 2016-17

Name of the Mineral	Production (in MTs)	Rate (Per Mt)	Royalty (in Rs)
Stone	20,009.35	20	400,187.00
Ordinary sand	28,971.42	25	724,285.50
N/Boulder	2,480.25	20	49,605.00
N/Bajri	2,048.60	35	71,701.00
Crushing stone	22,620.51	25	565,512.70
Dress/stone	9,416.65	35	329,582.58
Dreco/stone	10.00	70	700.00
Total:-	85,556.77		2,141,573.78

**Production and revenue of Kishtwar
District for the year 2017-18**

Name of the Mineral	Production (in MTs)	Rate (Per Mt)	Royalty ending May.2018
Stone	36,516.86	20	730,337.20
Ordinary sand	24,306.17	25	607,654.35
Screened sand	227.20	30	6,816.00
Nallah Muck/RBM	5,446.24	25	136,156.00
N/Boulder	1,075.75	20	21,515.00
Crushing stone	24,835.24	25	620,881.00
Dress/stone	7,061.71	35	247,159.99
Deco/stone	54.00	70	3,780.00
	99,523.18		2,374,299.54

PROCESS OF DEPOSITION OF SEDIMENTS IN THE RIVERS OF THE DISTRICTS

The process of deposition of Minor Minerals in a river bed varies from River/ stream to River/stream and depends on several factors such as catchment area, lithology, and rainfall, discharge of the river, river profile and geomorphology of the river course. Thus, it is difficult to predict, what will be the quantity of mineral deposited by the river.

During less rainfall, percentage of deposition will be less and during heavy rainfall water gushes into the rivers may force it to change its course, thus old sites of deposition may be irrelevant and redundant. Thus the figures of deposition may be a mere prediction as the demarcation of the Minor Mineral Blocks is done after the preliminary investigation only. The figures may vary from area to area and on year to year basis. Therefore it is suggested that DEAC committee including hydro- geologist from Geology and Mining Department may go for a spot inspection of the area under question to make necessary amendments in the document. Therefore factor of average of 40-60% of the total mineral potential is used to calculate the deposition.

In order to calculate the mineral deposits in the stream beds, the mineral constituents have been categorized as clay, silt, sand, bajri and boulder. However during present calculation, the waste material i.e. silt which vary from 10 to 20% in different streams has also been included in the total production. The mineral reserves have been calculated only upto 1.00 meter depth although there are some portions in the river beds such as channel bars, point bars and central islands where the annual deposition is raising the level of river bed thus causing shifting of the rivers towards banks resulting in to bank cutting and at such

locations, removal of this material upto the bed level is essential to control the river flow in its central part and to check the bank cutting. While calculating the mineral potentials, the mineral deposits lying in the sub-tributaries of that particular stream/river has not been taken into consideration. Since these mineral deposits are adding annually to the main river, the mineral deposits will be much more.

There is an average %age is taken into account that % age of boulders varies from 30% to 70%, bajri 15 % to 40%, sand from 15% to 30% and rest is silt .Only boulder, bajri and sand are the resource mineral i.e. usable mineral and rest is taken as the waste.

To arrive at holistic figure the report regarding deposition of Minor Minerals and status of groundwater etc in the area shall be taken/ recorded twice in year i.e. post monsoon and pre monsoon by the concerned District Mineral Officer so that conservation of the Mineral wealth and overall safeguard of Geo-environment and Ecology of the area is also maintained.

GENERAL PROFILE OF THE DISTRICT:

Kishtwar is first referred to in the Rajatarangini by the ancient name Kashthavata, during the reign of Raja Kalsa of Kashmir (1063–1089), when "Uttamaraja", the ruler of Kashthavata visited the court of the Kashmir King in company with several other hill chiefs to pay their respects to the Raja. The Mehta Family was given the lands of Kishtwar by the King of Kashmir. Their family temple "HattaWali Mata" and their heritage can still be tracked back to Kishtwar.

It is located between 35-55 and 45-97 degrees longitudinal; however the altitude of the District varies from 3000-15000 ft. above the sea level. Commonly known as the 'Land of Saffron, Sapphire and Shrines' , it is also very rich in forest products. Kishtwar is surrounded by the District Anantnag, District Doda and also touches the boundaries of state Himachal Pradesh.

Kishtwar District is a newly formed district of Jammu and Kashmir. As of 2011 it is the third least populous district of Jammu and Kashmir (out of 22), after Kargil and Leh.The District has derived its name from "Kishat Rishi" who stayed here.

Kishtwar district consists of 9 blocks:

Marwah Warwan, Dachan, Kishtwar, Nagsani, Drabshalla, Inderwal, Chatroo, and Paddar. Each block consists of a number of panchayats.

Block Kishtwar is the 1st block of Kishtwar District and Beron Town 1st Kishtwar is the 1st panchayat of Block Kishtwar, beron town panchayat consists of Panditgam, Zewar, Nagdera, BucherwalMohalla, Semna andWazgwari. Kishwar Sub-District areKishtwar_tehsil Paddar tehsil, Marwah tehsil and Chatroo tehsil.Marwah Sub-District areWarwan tehsil, Dachan tehsil. In Paddar Sub-District Paddar tehsil is the most remote town of the district bordered by Zanskar to the north and towered by the Sickle Moon Peak.

According demographics of the district the 2011 census of Kishtwar district has a population of 227,976, roughly equal to the nation of Vanuatu. This gives it a ranking of 586th in India (out of a total of 640). The district has a population density of 29 inhabitants per square kilometre (75/sq mi) .Its population growth rate over the decade 2001-2011 was 21.06%. Kishtwar has a sex ratio of 938 females for every 1000 males, and a literacy rate of 58.54%. Male 71.75% Female 44.13%.

LAND UTILISATION PATTERN IN THE DISTRICT: Forest, Agriculture, Horticulture, Mining Etc.: (To be provided by Members of the DEIAA / DEAC)

PHYSIOGRAPHY OF THE DISTRICT:

District Kishtwar is predominantly a mountainous district. The general topography of the Kishtwar is rugged and precipitous. The Chenab River is the main River of the district. The other small rivers of the district are Maru River which originates in the Marwah area. Other river of the district is

RAINFALL MONTH-WISE:(To be provided the Members of the DEIAA)

GEOLOGY AND MINERAL WEALTH:

The general geology of the district Kishtwar is as under:

Group	Member	Age
	Recent to Sub recent	Recent - Pleistocene
Sinthan	Panjaj Traps Agglomeratic Slate	Permo-carboniferous
----- Chattru Thrust -----		

Kishtwar	Mylonitic quartzite Gnisses Migmatites Schists Phyllites -----Kishtwar Thrust ----- Shalimar quartzite	Proterozoic
Intrusive	Dolerite Granitic Amphibolites	Permo-carboniferous Age not established

SHALIMAR QUARTZITES:

The important Lithological unit of rocks extensively developed in and around Kishtwar town, forming a resistant banding unit in the area, has been termed Shalimar Quartzite from the name of the Shalimar hamlet where they are fully exposed and typically developed. These are generally fine grained, very compact but jointed and thickly bedded. Their steep dip slopes and resistant nature have resulted in imparting a special topography to this section of the area which is dominant by the presence of successive ridges. These are good pavement stones. Their colour varies from white to greyish having at places. These bands are almost parallel to the bedding of the quartzites as whole.

These quartzites are superseding the pelitic schists outcropping towards the west along a thrust which has been designated here as Kishtwar thrust. It marks the zone of sudden uprising of the Shalimar quartzite's from the westerly fluvio glacial terraces of Kishtwar. On the east side, the quartzites are underlying in a normal sequence successively the formations of schists and gneisses. This order of superposition is exhibited in the river sections near Dul and Ikhale.

SALKHALA FORMATION

This formation represents the oldest rock formation of this area, comprises of meta sedimentary rocks (Pelitic rocks), are constituted of schists, gneisses and migmatites. These rocks represent Prograde Regional Metamorphism as evidenced by the development of biotite, garnet, staurolite-kyanite and sillimanite minerals. Calcareous/Marble bands are also interbedded within these rocks. The schistosity is well preserved in the pelitic schists. There are number of granitic bodies, occurring as structural domes in these metamorphites. The grade of metamorphism of the country rocks around these granitic bodies increases, as reflected by development of high grade metamorphic minerals like kyanite, staurolite etc. and sometimes by mere increase in the degree of migmatization of the country rocks.

Schists of Salkhala Formation comprises of chlorite schist, muscovite-biotite schist, garnetiferous mica schists & kyanite schist whereas gneisses are constituted of porphyroblastic gneisses, augen gneisses, garnetiferous mica gneisses and granitic gneisses. These Salkhalas are separated from Dul/Shalimar quartzite-phyllite sequence by a fault known as 'Kishtwar Fault'.

PHYLLITES:

The phyllites are abundantly found in the area especially towards the south, west and northwestern parts of the district. These are conspicuous due to their lustrous appearance, corrugations, friable and soft nature, fine grained texture and brown to brick red colour. The brown and brick-red colour of these wherever present appear due to the leaching of hydrated iron oxides on weathering. They are very often intruded by quartzite veins which are lensoid in form owing to the tapering of these at either ends.

SCHIST

The schists of the district predominantly show imbricated structures and are contorted. The colour varies from brown to light grey to light green and the schistosity is well defined though massive types. The degree of competence among the schists, however, varies a great deal due to the variation in the mica content with increase in the amount of mica the competence undergoes a decrease. The schists of different varieties are Chlorite schist, Mica schist, Garnetiferous mica schist and kyanite schist.

MIGMATITES:

The migmatites show gradational contact with the schist. This hybrid rock has developed by

injections of granitic material into the country rocks and is more prominent along the foliation plains. This gives the rocks a large scale bedding appearance which alternate in colour. Veins of quartz have frequently penetrated along the schistosity planes of the rocks.

GNEISSES:

The gneisses are the subordinate rock type in the metamorphic complex of Kishtwar and are present as thick but discontinuous exposures in the schists and also as high grade metamorphic rocks of the pelitic sediments towards the north. The texture and structure of these rocks show considerable variation and on this basis these rocks are divided in to three types, coarse grained gneisses, augen gneisses and garnetiferous mica gneisses.

AGGLOMERATIC SLATE:

The agglomeratic slate of the southeast of the Marwah valley anticline have remarkable feature of the stratigraphy that the normal succession from Ordovician to permo carboniferous as conspicuously present. Here the slate show a thrust contact with the older metamorphic which representing the rocks of basement complex. They generally underly the Panjal traps. They show mineralization of iron pyrite which varies considerably. These typical agglomeratic slates are present towards the northwest of the area. These rocks are well exposed at Singapore and towards north upto Sinthan pass where they overlain by Panjal traps

PANJAL TRAPS

The Panjal traps are restricted to northwest corner and lies on the top of agglomeratic slate. They together with slate attain considerable thickness and form a summit zone between the Kashmir and Kishtwar area. These traps are almost covered with snow and can only be studied in lower reaches. The traps are of green colour containing amygdaloidals.

INTRUSIVE

AMPHIBOLITES:

These are emplaced both as sills as well as dykes cutting across the country rocks and show very sharp contacts. They generally are compact and of greenish colour but sometimes dark brown coloured are also present. They are best exposed at Shalimar where they are dark brown in colour, less compact and occur in the form of dyke.

MARU GRANODIORITES:

The granitic rocks are present towards the northeast and are well exposed on the south side near Sirshi. Almost entire range of Lomarg is constituted of them. On the basis of lithology they have been classified as granodiorites and named after the Maruriver which passes through them. They intrude into the gneisses and reveal sharp contact with them.

DOLORITE DYKES:

These are narrow, vertical, intrusive bodies of linear persistence and are very competent. These dykes cut through the imbricated and fossiliferous agglomeratic slate and are probably related to Panjal traps igneous activity.

RECENT AND SUB RECENT:

These deposits are of varying thickness not exceeding 150m and are mostly silt and clay deposits which forms Kames near Kishtwar and on which some of villages are situated. They have all the features of a fluvio-glacial deposits and shows a marked resemblance to tillites. The angular and sub angular rock fragments of quartzite, schist and gneisses are also present in these deposits. The heterogeneous, unsorted and dumped nature of such deposits are undoubted proof of their having deposited by fluvio-glacial agencies.

ECONOMIC MINERAL

The main economic mineral found in the District Kishtwar is Sapphire, which is found in the Kuddi Valley of the Suncham area of the Paddar Sub-Division. In addition to this world famous Sapphire, limestone is also reported in the Sinthan pass area. Marble is also found in the Paddar and Machhipal area of the district.

DRAINAGE SYSTEM WITH DESCRIPTION OF MAIN RIVERS:

Salient Features of Important River System and Streams:

The water flowing in the Himalayan Rivers is combined flow from rain, snow and glaciers. Flow from snow and glaciers make these rivers perennial where heavy monsoon rainfall contribute to the bulk of water in these basins which are used for irrigation and Hydro-power generation.

RIVER CHENAB:

The merging of the two Himalayan River; River Chandra and River Bhaga at Tandi located in upper Himalayas (Lahul – Spiti, Himachal Pradesh) forms the River Chenab. It enters Doda district at Thatri and leaves the district Doda at around the Chakwa Nallah and enters District Ramban. Chenab River; is the largest and mightiest of all rivers in the state of Jammu and Kashmir. River Chenab is joined by River DonadiatThatri and by River Neeru near the Pul Doda Bridge north of Doda City besides numerous seasonal streams also join it along the length of this river.

MARU SUDAR RIVER:

Maru Sudhar river is also known as Warwan river. It receives water from the four tributaries such as Maru, Rin, Kiar and Sudhar. Maru originates from the Nunkun glaciers near Lanwi Pass and is joined by a large tributary Rin Nar near Nowgam. The Rin Nar receives water from MandikSar and the adjacent glaciers. It is also joined by the Chattru Nallah. The Marau Sudhar generally has a southerly flow direction and is joined by another tributary namely Sudar. The Sudar river in turn is fed by many streams prominent among them are Tsingam nar Singpora nar, Sarwal nar, Simbal and Drubil nar etc. Maru Sudar river meets River Chenab near Bhandarkote.

S. No.	Name of the river or stream	Total length in district (in Km)	Place of Origin	Altitude of Origin
1	River Chenab	102	Lahaul and Spiti Bara Lacha Pass of Himachal Pradesh	32 ⁰ 45' N 75 ⁰ 22'E

Portion of the Nallah/Stream Recommended for the Mineral Concession	Length Recommended for Mineral Concession (in Kilometers)	Average width Recommended for the Mineral Concession (in meters)	Area recommended for Mineral Concession (in square meters)	Minable Mineral Potential (60% of the mineral potential)(Cum)
River Chenab (Gulabgarh)	0.732	90	213500	438956

Note: - Public in general and the concerned persons in particular can register their objections/ queries if any within 21 days from the date of uploading of District Survey report(DSR) on district website.