

# Distribution of Gypsum Deposits in Bikaner District (Rajasthan)

Dr. Hawa Singh Yadav\*

Asso. Professor in Geography, Govt. PG college Narnaul, Dist M/Garh Haryana

**Abstract - Gypsum is a valuable mineral geologically gypsum of Bikaner district belongs to the Pleistocene to recent formula which is mostly gypsite type and occur in a bedded form. Gypsum is widely used for plastering building in towns and rural areas and also as bricks of lawn and secondly used as fertilizers. In Bikaner district gypsum bearing areas are confined 30-40km for Bikaner City like Jambar, Allah -Din-ka-Bela, Hansuwali, Nawshra, Balahar, KANVNI etc.**

**Keywords - Gypsum Deposit In Bikaner Distric**

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## INTRODUCTION

The gypsum deposit of Bikaner are well known and perhaps the most valuable in India. From time immemorial it has been used for plaster in buildings in towns and rural areas and also as bricks of hewn blocks as well as fertilizers, but reports about them so far have been rather sketchy. The work included mapping and exhaustive sampling of the largest of these deposits at Jamsar and in the neighbouring areas.

## GEOLOGY

The gypsum deposits of Jamsar occur in a shallow basin and belong to sub-recent formation, being depositions in inland saline lakes and lagoons as a result of evaporation. Gypsum begin to be thrown down from saline water when 37% of water has been evaporated, but 93% of water must be driven off before chloride of sodium can begin to deposited. Hence the concentration and evaporation of water of a saline lake would give rise first to a layer of gypsum followed by one of rock salt, but gypsum may be precipitated without rock salt, as appears to be the case here, either because the water was diluted before the point of saturation of rock salt was reached or because the salt of deposited has been subsequently dissolved and removed.

## DESCRIPTION OF THE DEPOSIT

Gypsum is the bedded variety of the mineral, which in its crystalline form is known as selenite. At Jamsar and other places in the neighbourhood and practically wherever it is found in Bikaner. The mineral lies practically at surface, the overburden which is wind blown sand varies between an inch and 3 feet in thickness it occurs as a horizontal and bedded deposit. When the soil cap missing the upper & inches or so of

the gypsum is decomposed and coated with a smear of carbonate of use. The thickness of the deposit varies, the maximum found in a pit was 24 ft. without reaching the end of the deposit the average thickness is about 12 ft. The bottom of the deposit often consists of coarse selenite.

## DISTRIBUTION OF GYPSUM IN BIKANER

Bikaner is fairly rich in the deposit of gypsum. At present it is main supplier in fertilizer and cement Industry in the country. Most of the gypsum bearing areas are confined 30-40 km from Bikaner and Fugal respectively; some of the important deposit of gypsum in Bikaner are following

**JAMBAR:** The gypsum deposit in Jamsar is one of the biggest and best deposits of gypsum in India. It is located near village Jamsar. A railway station of the same name is situated within the area covered by the deposit which extends about 5.6 km in the east-west and about 1.6km North-South direction. The mineral which is of very good quality occur in almost Horizontal beds of varying degrees purity and thickness. Intercalculated with slightly unconsolidated clay and sand beds. This deposit is held at present under a mining lease by M/s Bikaner gypsum ltd.. a public limited company, in which govt. of Rajasthan is also partner. The mines are fully mechanised and the mining is carried out by open cast method. On an average the deposit is estimated to contain reserves of 30 million tons of good quality of gypsum. Now mines are close in Jamsar.

**ALLAH-DIN-KA-BERA:** It is situated 13 miles from Pugal on Khajuwala Pest. It is a deposit of gypsum covering 575463 Sq.m is seam in a depression surrounded by sand dunes the length of gypsum patches is 7.6 km from east to west the width about 610 m. in the central port. Gypsum occurs as a fine

grained well bedded deposit in which thickness of bed is varies from 32-65m the colour of gypsum is white. Balance deposit of gypsum in this area is 10 lack tonnes and production is nil.

**HANSUWALLI:** ½ mile south east of Allah din Ka Bera.

**NAWSHRA :**12 mile North of Pugal village. The geographical situation is 28\31°-72\34°.

**SHIYASHAT :**18 miles west North west of Pugal village (28\31°-72\34°).

**BALAHAR :**A gypsum bearing plate appears to cover an area of 6.5 to 7.5 Sq.km. Gypsum is well bedded, the thickness of bed varies from 22-100 cm and occurs an ovule shape area.

**DANDLU :**Here two patches of gypsums are found, amidst the sand dumps mineral is white crystalline and fine grained, which is dispersed in layer ranging in thickness from 8-200 cm. This is mixed sand, clay and CaCo3.

**LUNKARANSAR:** This deposit situated 72 Km from Bikaner on Bikaner- Bhatinda line of Northern railway. There are two zones of dark clays carrying about 60% of gypsum. Mineral mostly found is selanity which is associated with Nacl and other salt. These nearly 3ft. thick deposits extend over about 2.6 Sq.Km the estimated reserve is 2 lakh tonnes.

**KANVNI:** This deposit is situated on 2819-7316' geographical situation in North of Kanvni village this is located in lo depression about 1600 meter east of Jamalsar. The length o deposit is 4.8 Km and width is 152-914 meter. Gypsum occurs bedded deposit the thickness of bedded is 90 to 150 cm. Th mineral is white, greyish white, fine grained and porous. The approximately reserve is nearly 6.6 lakh tons.

**SONIWALLA:** 8 miles North of Lunkaransar geographical situation 28\30° 72\45°.

**JAGDEWALLA NO.1:** 1.5 miles North east of Jogdewalla railway station, th deposit is situated on 28\20° and 73\30°.

**JAGDEWALLA NO. 23** miles South west of Jogdewalla railway station.

**HARKASAR:** 6.5 miles of Jamsar railway station, the approximate reserve is 5 lakh tonnes.

**DHOLHERA:** 2.5 miles South-South west (SSW) of Dholhera village. This deposit has a reserve of approximately 5 lakh tons.

**BHARU:** Bharu deposit area is located 1 mile North of Bharu village the geographical situation is 28112'-73113'. The approximate estimate of reserve is 5.85 lakh tons. The production of gypsum is 30000 tons per year.

**SIARAR:** Siarar gypsum are situated on West North west (WNW) of Pugal village.

**DHIRERA:** The deposit is about 1000 ft. down South of Dhirera railway station on Bikaner-Bhatinda line of the Northern railway. The area is under mining lease to M/s Bikaner gypsum Limited. The estimated reserve is about 1.33 million tonnes.

**JAIMALSAR:** The approximate reserve of gypsum is about 2.15 lakh tonnes.

**BITHOR:** The deposit is situated near the same name place.

**MADHOGARH:** It has reserves of gypsum estimated at 15,000 tonnes.

Some other places has also deposit of gypsum like Nokha,

Nandi, Panchu, Janglu. Rarha, Naynya Ki Basti and Sudsar.

**QUALITY OF BIKANER GYPSUM**

Gypsum is hydrate sulphate of lime containing when pure 79% of calcium sulphate and 20.9% water. The found here: is of very high grade as a study of the following analysis-

	Sample I	Sample II	Sample III
Calcium Sulphate.	79.48%	78.6%	79.83%
Calcium Carbonate.	1.02%	0.66%	0.05%
Magnesium Carbonate.	1.00%	0.79%	1.13%
Silica.	0.42%	0.22%	0.22%
Alumina.	0.07%	0.08%	0.23%
Water.	17.67%	10.20%	18.11%
Other.	0.50%	0.43%	0.43%

**USES OF GYPSUM**

Gypsum is mainly consumed by the fertilizers factory at Sindhri for the manufacture of artificial manure, and by the cement factories of the country. Besides gypsum is also used by the textile industry and the pottery factories of the country, a small quantity is also used by the local consumers of Bikaner for the manufacture of wall plaster.

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#### **Corresponding Author**

**Dr. Hawa Singh Yadav\***

Asso. Professor in Geography, Govt. PG college  
Narnaul, Dist M/Garh Haryana