DISTRICT SURVEY REPORT, MOGA

PUNJAB
District Map
JAMMU & KASHMIR
N
Pathankot
PATHANKOT
Gurdaspur
GURDASPUR
PAKISTAN
HIMACHAL PRADESH
HOSHIARPUR
AMRITSAR
Amritsar
Taran Taran
KAPURTHALA
Hoshiarpur
Kapurthala
Jalandhar
TARAN TARAN
K
Nawanshahr
RUPNAGAR
JALANDHAR
S.B.S.NAGAR
FIROZPUR
Firozpur
Moga
Ludhiana
Rupnagar
S.A.S. NAGAR
MOGA
LUDHIANA
CHANDIGARH
Faridkot
Fatehgarh Sahib
Mohali
Muktsar
FARIDKOT
FATEHGARH SAHIB
Fazilka
BARNALA
MUKTSAR
Barnala
PATIALA
Patiala
Bathinda
Sangrur
FAZILKA
BATHINDA
Mansa
SANGRUR
RAJASTHAN
MANSA
HARYANA
LEGEND
District Boundary
State Boundary
International Bdy.
District HQ
State Capital
K = Kapurthala
Map not to Scale
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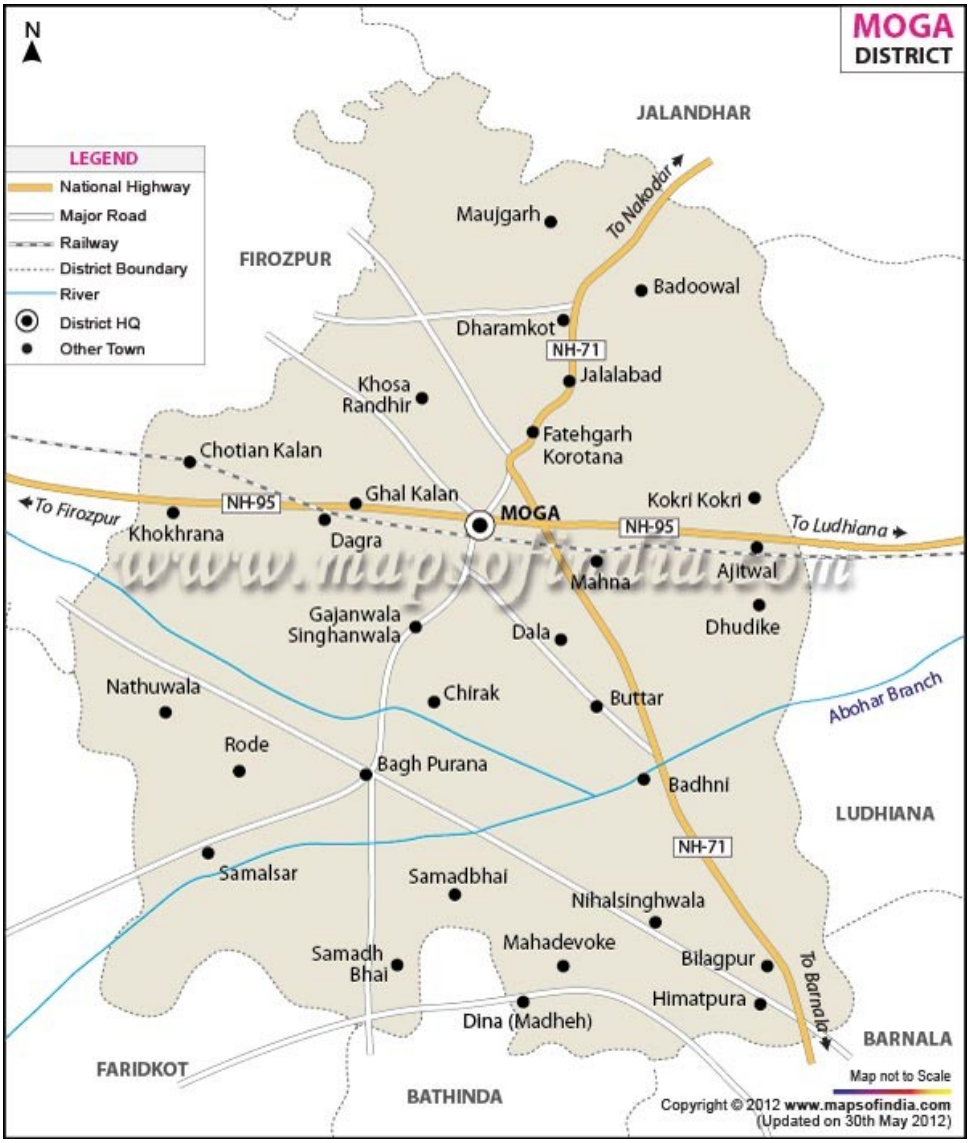
(Updated on 19th May, 2015)

DISTRICT SURVEY REPORT IN COMPLIANCE TO THE NOTIFICATION DATED 15.1.2016 AND 20.1.2016 ISSUED BY MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE GOVERNMENT OF INDIA



Ministry of Environment, Forest and climate change issued notification on 15.1.2016 ,the preparation of Distt. Survey report of River bed mining and other minor mineral is in accordance appendix 10 of the notification. It is also mentioned here that the procedure of preparation is as per notification.

Sutluj River

DISTRICT SURVEY REPORT, MOGA

With reference to Gazette notification of 15th January 2016 of Ministry of Environment, Forest and Climate Change, the District Environment Impact Assessment Authority (DEIAA) and District Environment Assessment Committee (DEAC) are to be constituted by the Divisional Commissioner for prior environmental clearance of mining of minor minerals. The DEIAA and DEAC will scrutinize and recommend the prior environmental clearance of mining of minor minerals on the basis of District Survey Report. This will a model and guiding document which is a compendium of available mineral resources, geographical set up, environmental and ecological set up of the district and is based on data of various departments, published reports, journals and websites.

INTRODUCTION :-

Moga district is the Seventeenth district on the map of Punjab State on 24th day of November 1995. Before this, Moga was the Sub-Division of Faridkot District. Moga town the Head Quarter of the District is situated on Ferozepur – Ludhiana road. Area of Dharamkot Block with 150 villages has been merged in Moga District vide Punjab Govt. Notification No.2/36/98-R. 2(1) 6408 dated 05/11/1999.

1. Location

Moga District falls under the jurisdiction of Ferozpur Division. Its boundaries touch the boundaries of Jalandhar District in North, Ludhiana District in East, Sangrur District in South and Faridkot District & Ferozepur District in West. It stretches between longitude **75'**-15',75'-

25' East and latitude 30-35',31-15' North. It spreads over an area of 2230 km which comes to 4.42% of the Punjab State.

2. Administrative Set up

From administrative point of view district is divided into four Sub-Divisions (i.e. Moga, Baghapurana, Nihal Singh Wala, Dharamkot) and five Blocks. The details are as under:-

Sr.No.	Sub-Division	Block
1.	Moga	Moga-1 & Moga-2
2.	Baghapurana	Baghapurana
3.	Nihal Singh Wala	Nihal Singh Wala
4.	Dharamkot	Dharamkot

3. Towns

The District is having five towns namely Moga, Baghapurana, Badhni Kalan, Nihal Singh Wala & Dharamkot. Moga is the biggest and Badhni Kalan is the smallest amongst the towns.

4. No. of Inhabited Villages

There are 328 inhabited villages in the district. Total number of Panchayats in the district is 337. All the villages are electrified and connected with mattaled roads.

Municipal Council:-

Sr. No.	Municipal Name
1.	Moga Municipal Corporation

5. Education

Sr. No.	Type of institute.	Number
1.	Primary School	362
2.	Middle School	84
3.	High Sr. Sen. School	155
4.	Govt. I.T.I	01
5.	Govt. Polytechnic	01
6.	Private Polytechnic	08
7.	Colleges	70

6. Population

As per 2001 census total population of the district is 894854 which is 3.67% of the total population of the Punjab State. Out of total population 474139 are males and 420715 are females. The rural population of the district comes 725920 which is 81.12% & semi urban population accounted to 168934 which is 18.88% of the district population.

7. Occupation and area distribution

Moga is an economically well off city, as compared to many othertowns of Punjab or Haryana. Economic Development of the District

depends upon Agriculture. From employment point of view 79.95% population belongs to rural area and is engaged with agriculture and allied activities. Area of the villages in the district is reported 223040 hectares. Moga economy upon the Agriculture Implements Mfg. Now the main economy of Moga is based on Sand Mines. Being on the near the River Satluj which run in plan of moga and the river carry sand which settle as the river enter the moga area. There are more than 23 sand mines are works on closed after 2003 in moga district.

8. Agriculture and cropping pattern

Agricultural Land

Sr.No.	Statistics	Area in Hectares
1	Net Area Sown	195247
2	Area Sown More than once	192455
3	Total Cropped Area	387705
4	% of Gross irrigated to Gross Cropped Area	99.99
5	% of Net irrigated Area to Net Area Sown	100
6	% of Net irrigated Area to Net Area Sown for Wheat	89.37
7	% of Net irrigated Area to Net Area Sown for Rice	93.21
8	% of Net irrigated Area to Net Area Sown for Sugarcane	Nil
9	Production of Wheat(in Tons)	806
10	Rice	852
11	Sugarcane	Nil
12	Yield Wheat	4617Kg

		Rice	4843Kg
		Sugarcane	Nil
13	Intensity of Cropping		198

9. Geomorphology and Climate

Moga has an average elevation of 329 metres (1,080ft). It is densely populated town surrounded by the Satluj stream. Two National Highway N.H.91 and N.H.73.

Spring: The climate remains the most enjoyable part of the year during the spring season (from mid-February to mid-April). Temeratures very between (max) 16' C to 27'C and (min) 9' C to 28 'C.

Autumn : In autumn (from Mid- September to mid November), the temperature may rise to a maximum of 30'C. Temperatures usually remain between 16' to 27' in autumn. The minimum temperature is around 11'C.

Summer : The temperature in summer (from Mid- May to Mid-June) may rise to a maximum of 48' C (rarely). Temperatures generally remain between 35' C to 45 'C (94-112F).

Monsoon : During monsoon (from mid-June to mid-September), Moga receives moderate to rainfall and sometimes heavy to very heavy rainfall (generally during the month of August or September). Usually, the rain bearing monsoon winds blow from south-west/ south-east. Mostly, the city receives heavy rain from south (which is mainly a persistent rain) but it generally receives most of its rain during monsoon either from North-west or North-east.

Winter : Winters (November to Mid-March) are mild but it can sometimes get quite chilly in Moga. Average temperatures in the winter remain at (max) 7' C to 15 ' C and (min) 0' C to 8 'C .

Rainfall: The south-west monsoon generally arrives in the first week of July and continues up to the end of August. About 70% of the rainfall in the district is received during the period from June to September and as much as about 18% rainfall occurs during the period from December to February.

The following table shows the average annual rainfall of Moga District.

S.No.	Year	Average annual rainfall
01	2011- 2012	472.01 m.m.
02	2012-2013	472.1 m.m.
03	2013-2014	218.9 m.m.
04	2014-2015	619.7 m.m.

Humidity: Relative humidity is generally high in the mornings, exceeding 70 percent except during the summer season when it is less than 50 per cent. The humidity is comparatively less in the afternoons. The driest part of the year is the summer season when the relative humidity in the afternoons is about 25 per cent or less.

Winds: Winds are generally light with some strengthening in the summer and early part of the monsoon season. In the post- monsoon and cold season, winds are light and variable in direction in the morning and mostly from the west or north-west in the afternoons. In April and May, winds are mainly from direction between north-west and north –east in the mornings and between west and north –east in the afternoons. By June, easterlies and south- easterlies also blow and in the south-west monsoon season. Winds are more commonly from diections between north-east and south- east.

OVERVIEW OF MINING ACTIVITY

Mainly three types of Minor Minerals constituents such as Stone Bajri and Sand are required for any type of construction apart from other material

like cement and steel.In the earlier time the mud houses/buildings were constructed with the use of mud. However with the passage of time, new technique of development activities were started .As such the demand of Minor Mineral started is an increasing trend. In order to meet the requirement of raw material for construction, the extraction of sand carried out exclusively from the river beds and outside river beds. The demand of sand is mainly met through by river borne sand .

The local residents used to lift sand from the river beds to meet out their bonafide requirement. However after notified the Punjab Minor Mineral rules 1964, and ammended rules in 2013.The mining is regulated in accordance with the rules. At present about 10 Nos of mining quarries have been granted under the above said rules in the Dharamkot Tehsil of the District and out of which 02 quarries are operational and 01 quarry under process for getting auction.

LIST OF MINING QUARRIES IN THE DISTRICT AND LOCATION AREA AND PERIOD OF VALIDITY:-

Sr.No.	**LOCATION**		**AREA**	**PERIOD OF VALIDITY**	**River/ Stream**
1	Chak Singh Pura		1.85 acers	31-10-16 Case is under Process for E.C.	Dry
2	Said Mohamamd Shah		1.55 acers	-do-	Dry
3	Kot Sadar Khan		5.95 acers	31-10-16	Dry
4	Dargah Saidan		8.75 acers	31-10-16	Dry
5	Chak Tare Wala		3.86 acers	31-10-16	Satluj River
6	Chak Bhora		11.68 acers	31-10-16	Satluj River

7	Gatti Jattan	7.98 acers	31-10-16	Satluj River
8	Adraman	43.65acers	January-2020	Satluj River
9	Bassian	20.9acers	January-2020	Satluj River
10	Sangera	44.72acers	November-2019 Case is under process for e-auction.	Satluj River

Royalty Rs.1,33,48,642 Received in last Five Years.

DETAIL OF PRODUCTION OF SAND OR MINOR MINERAL IN LAST THREE YEARS IN DISTRICT.

SR.NO.	YEAR	SAND (IN MT)	GRAVEL(IN MT)
1	**2013**	**127653**	**Nil**
2	**2014**	**59789**	**Nil**
3	**2015**	**114770**	**Nil**

PROCESS OF DEPOSITION OF SEDIMENTS IN THE RIVERS OF THE DISTRICT:-

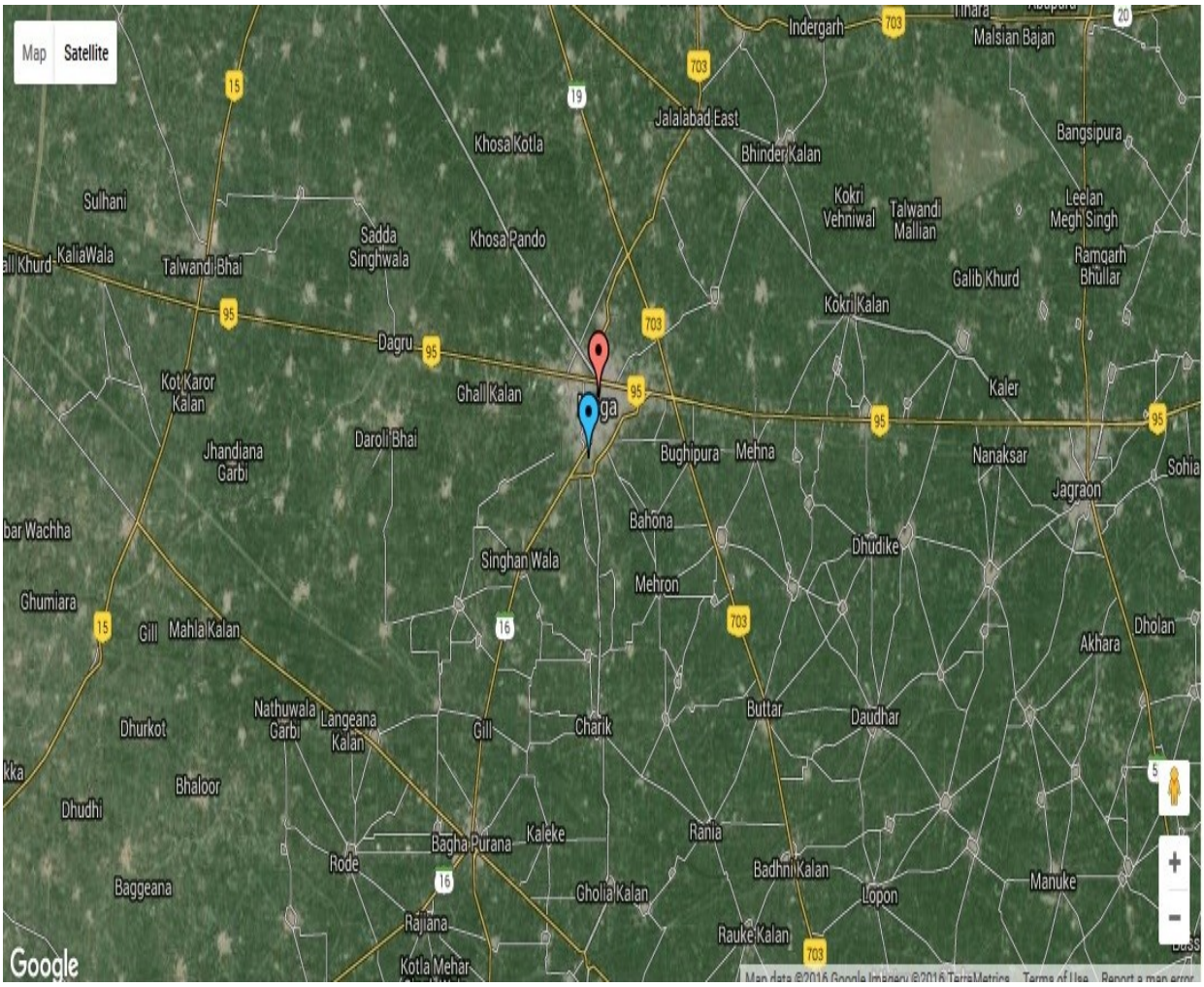
The deposition in a river bed is more pronounced during rainy season although the quantum of deposition varies from stream to stream depending upon numbers of factors such as catchment, lithology, discharge, river profile and geomorphology of the river course. where annual deposition is much more even two to three metres, but it is noticed that during flood season whole of the pit so excavated is completely filled up and as such the excavated area is replenished with new harvest of minerals.

In order to calculate the mineral deposits in the stream beds, the mineral constituent has been categorized as sand. 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. Further the Survey of India Topo-Sheets are used as base map to know the extent of river course. The mineral reserves have been calculated only upto 1.00 metre 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 cutting of banks and at such locations, removal of this material upto the bed level is essential to control the river flow in its central part 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 depositsare adding annually to the main river, the mineral deposits will be much more.

This is one river Satluj Stream in District Moga.

About Satluj River:-

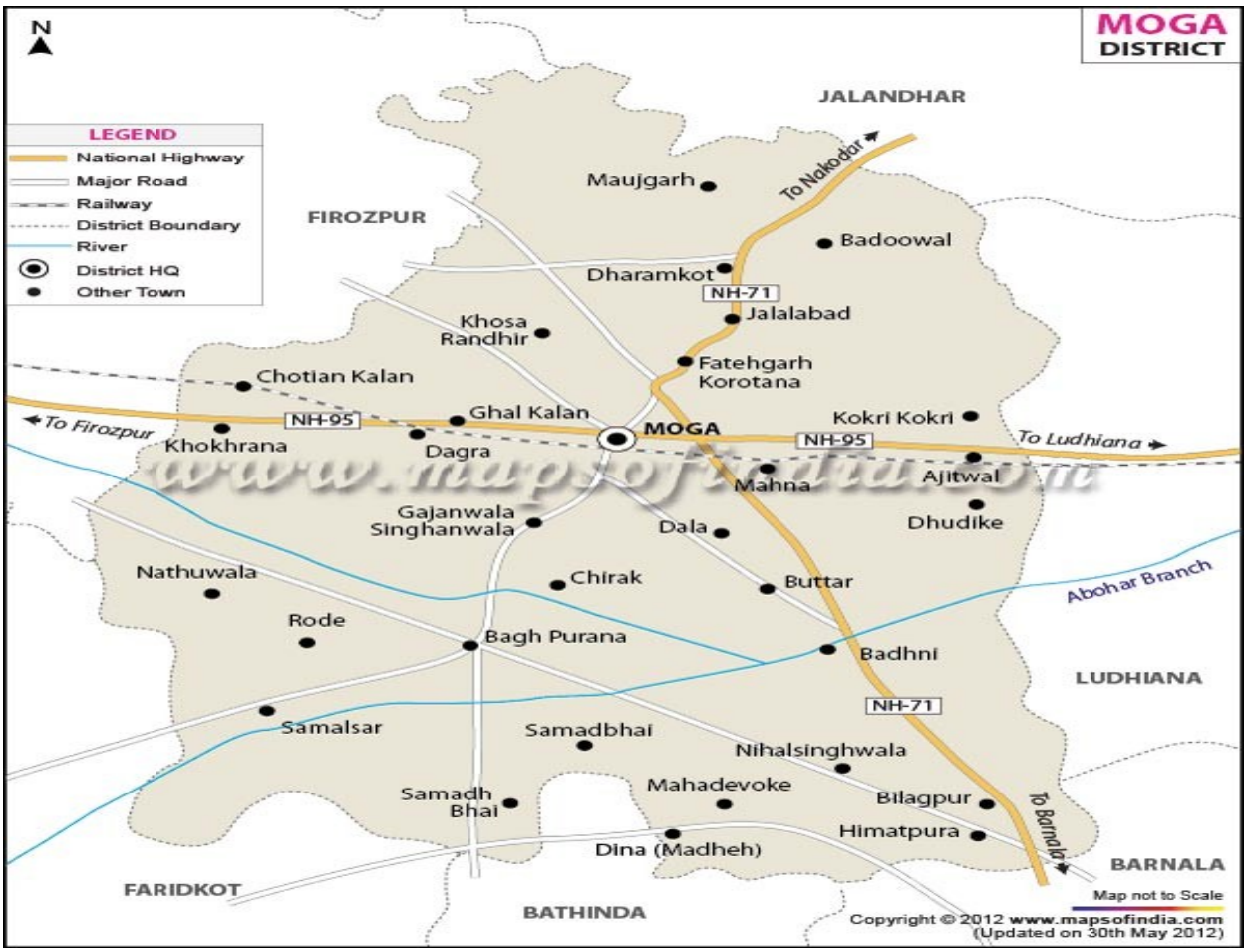
Satellite image District Moga



SATLUJ RIVER IN MOGA

The district area forms a part of Indo Gangetic plain and Sutlej sub basin of main Indus basin. The area as a whole is almost flat with a gentle slope towards the Western and Northwesterly direction. The Sutlej River enters in the district from North East side along with the boundary of Jalandhar district. It enters from the village Kania Khurd and enters the Ferozepur district from village Khana in Kot-Ise-Khan block and the total length of the Sutlej River in Moga district is 27.43 kms.

SHOWING SATLUJ RIVER CATCHMENT IN MOGA



GENERAL PROFILE OF THE DISTRICT

Moga district is the Seventeenth district on the map of Punjab State on 24th day of November 1995. Before this, Moga was the Sub-Division of Faridkot District. Moga town the Head Quarter of the District is situated on Ferozepur – Ludhiana N.H.road . Area of Dharamkot Block with 150 villages has been merged in Moga District vide Punjab Govt. Notification No.2/36/98-R. 2(1) 6408 dated 05/11/1999. It falls under the jurisdiction of Ferozpur Division. Its boundaries touch the boundaries of Jalandhar District in North, Ludhiana District in East, Sangrur District in South and Faridkot District & Ferozepur District in West. It stretches between longitude **75'**-15',75'-25' East and latitude 30-

35',31-15' North. It spreads over an area of 2230 km which comes to 4.42% of the Punjab State.

Tehsil

Sr. No.	Tehsil	No. of villages	Population
1.	Moga	224	1,95,254
2.	Bagha purana	56	25,206
3.	Nihal Singh Wala	39	6,786
4.	Dharamkot	120	19,057

Sub-Tehsils

Sr. No.	Sub-Tehsil Name
1.	Kot-Ise-Khan
2.	Badhni Kalan

Religion.

Hindus are the largest religious group in the District, closely followed by Sikhs. Moga also has highest share of Christians in the state.

Hindus 46.7%

Sikhs 43.6%

Christians 7.7%

Muslims 1.2%

Others 0.8%

LAND UTILISATION PATTERN IN THE DISTRICT

Total area of the Distt. is 2,23,500 Ha

1. **FOREST :- 2175 Ha.**

2. **AGRICULTURE:- 195247 Ha**

3. **HORTICULTURE- 2165 Ha**

4. **MINING:- 200 Ha.**

DISTRICT	FORES T	AGRICULTU RE	HORTICULTU RE	MINING
	AREA	AREA(IN	AREA(IN Ha.)	LAND
	(IN	Ha.)		(IN Ha.
	Ha.)			)
Moga	2175	195247	2165	200

FOREST

The district is rich in animals and birds which include some of the rare species. There is a variety of birds in the district like Monal pheasant, Juguriam, Pea-cock, Ring dove, Spotted dove, parrot, tawny eagle, green pigeon, pigeon, gritton vulture, tits, nut cracker, Pies, Wood peaker, Crow, green fly catcher, etc. which are found in the tract of this district.

Agriculture:-

Agriculture is the main occupation of the people in the District, having different types of soil and agro-climate conditions which are quite suitable for the growing of various types of cereals, vegetables, fruits and other crops. The major crops grown in the district are Wheat, Paddy, Maize, Barley, and Millet. Besides these, potato and a variety of vegetable like green-peas, cauliflower, cabbage, spinach tomatoes, etc. are also grown in the district. The economy is mostly agrarian and majority of population is depending on agriculture and activities allied to it for earning their lively hood. The most of the land is un-irrigated and depended upon the rainy season for irrigation. Soil in the district varies from sandy loam to clay.The part of the lands are irrigated and the irrigation facilities are provided by lifting water from streams, shallow, dug wells and medium to deep tube wells in the valley area.

PHYSIOGRAPHY OF THE DISTRICT

During flood plains of the Satluj are separated from the upland plain by sharp river-cut bluffs. There are low lying, with slightly uneven topography. Sand dominates in the soil structure of the flood plains, but it diminishes in both quantity and coarseness in the upland plain. The

upland plain covers a large part of the district particularly. Its elevation ranges from about 305 metres above sea level in the north-east to about 213 metres above sea level in the south-west, with a gentle gredient of about 1 metre in 1.6 km. This is the most important physiographic unit in the district.

Climate

There are mainly two seasons i.e. summer and winter. The summer season falls between the months of April to July and the winter November to March. In summer season the temperature touches 44 °C and sometimes higher. June is the hottest month and January is the coldest one. Mostly the rain falls in the month of July. The winter rains are experienced during January and February. Dust storms occurs in the month of May and June.

Rainfall

The south-west monsoon generally arrives in the first week of July and continues up to the end of August. Seventy percent of the rainfall occurs during this period.

Ecology

The changes in ecology system are inevitable, consequences of development process. The denudation of forests due to increasing population, urbanisation industrialization have accelerated the process of environmental degradation in the district. Therefore, preservation of the ecology is one of the most important goals of the district planning.

The vegetation varies in the district depending on the soil, topography and elevation. In the plain, large scale of a forestation has been under

taken by the forest department. Where water facilities are available, Shisham, mulberry, eucalyptus and poplar are being planted. In the Kallar area, kikar prosopis and eucalyptus has been planted. Besides mango and mulberry, other fruit trees cuiltivated in the district include orange, Kinnow lemon tree and others.

Hydrology

The ground water in this region is suitable for irrigational and domestic uses. The sub soil water depth ranges from 5 to 8 metres in most part of the district. Due to bandh and stepped floods the water table has gone very low.

Soils

The soils are loamy with a clay content below 10 percent. They contain small quantities of lime but the magnesium content is high. They are well supplied in potash and phosphoric acid but the quantities available are low. The agriculture is dependent to a large extent on the nature of its soils which in turn, is influenced materially by climatic factors. The soil of the district is quite alluvial and fertile.

Minerals

The sand is found from the River bed of the Satluj. The demand of sand for the construction purpose is extracted from the river so that the demand can be met.

Infrastructure

ROADS:-

TOTAL LEANGTH OF ROADS :- 1918 KM

LINK ROAD :-	802 KM.
PLAN ROADS:-	939.00 KM
NATIONAL HIGHWAY:-	130 KM
STATE HIGHWAY:-	47.12 KM.

DRAINAGE SYSTEM WITH DESCRIPTION OF MAIN RIVERS

SR.NO	NAME OF THE RIVER	AREA DRAINED (Sq.Km)	% AREA DRAINED IN THE DISTRICT
1	Satluj	700	42 %

The annual replenishment in the river is depend upon the velocity of the river. Annual replenishment is depend upon the period of rainy

season and rainfall at different places of the flow of River. To

calculate the replenishment data at this stage is very difficult. It is suggested that before considering the report for environment clearance Joint inspection Team report must be collected as per Punjab Minor Mineral rules 2013 because the regular demand of sand for the development activities in this respective areas. Before approval of the quarries is is suggested that joint inspection committee report may be demanded as per Punjab Minor Mineral rules 2013.

General recommendations/conclusions:			

During the preparation of the present report prominent rivers/ streams has been studied in detail, as the rest of the

streams/rivers either have very insignificant annual replenishment/ approachability problem or are very narrow at most of the places and as such are not fit for grant of mineral concession for mineral based industries, however it is also important to mention here that because of the regular demand of sand for the developmetal activities in the respective areas, such streams are prone to illegal mining, It is suggested that the auction of quarries regularly to meet out the mineral local demand subject to the approval from the joint Inspection Committee.as per Punjab Minor Mineral 2013 .These mineral concessions shall also reduce demand load and‘ll be helpful to mininmise illegal extraction of minerals, failure of which may result in to illegal mining at odd hours and shall be haphazard and more detrimental to the local ecology.

Irrespective of it following geoscientific considerations are also suggested to be taken into account during the river bed mining in a particular area:

1. Abandoned stream channels or terrace and inactive floodplains may be preferred rather than active channels and their deltas and floodplains.
2. Stream should not be diverted to form inactive channel.
3. Mining below subterranean water level should be avoided as a safeguard against environmental contamination and over exploitation of resources.
4. Large rivers and streams whose periodic sediment replenishment capacities are larger, may be preferred than smaller rivers.
5. Segments of braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.
6. Mining at the concave side of the river channel should be avoided to prevent bank erosion. Similarly meandering segment of a river should be selected for mining in such a way as to avoid natural eroding banks and to promote

mining on naturally building (aggrading) meander components.

7. Continued riverbed material mining in a given segment of the river will induce seasonal scouring and intensify the erosion activity within the channel. This will have an adverse effect not only within the mining area but also both in upstream and downstream of the river course. Hazardous effects of such scouring and enhanced erosion due to riverbed mining should be evaluated periodically and avoided for sustainable mining activities.

8. Mining area should be demarcated on the ground with Pucca pillars so as to avoid illegal unscientific mining.

9. The auction shall be done as per the recommendation /approval of the Sub-Divisional Level Committee and as per Punjab Minor Mineral rules 2013.