DISTRICT SURVEY REPORT FOR SUSTAINABLE SAND MINING DISTT. YAMUNA NAGAR

The Boulder, Gravel and Sand are one of the most important construction materials. These minerals are found deposited in river bed as well as adjoining areas. These aggregates of raw materials are used in the highest volume on earth after water. Therefore, it is the need of hour that mining of these aggregates should be carried out in a scientific and environment friendly manner. In an endeavour to achieve the same, District Survey Report, apropos "the Sustainable Sand Mining Guidelines" is being prepared to identify the areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structural and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area.

1. Introduction:-

Minor Mineral Deposits:

1.1 Yamunanagar district of Haryana is located in north-eastern part of Haryana State and lies between 29° 55' to 30° 31 North latitudes and 77° 00' to 77° 35' East longitudes. The total area is 1756 square kilometers, in which there are 655 villages, 10 towns, 4 tehsils and 2 sub-tehsils. Large part of the district of Yamunanagar is situated in the Shiwalik foothills. The area of Yamuna Nagar district is bounded by the state of Himachal Pradesh in the north, by the state of Uttar Pradesh in the east, in west by Ambala district and south by Karnal and Kurukshetra Districts.

1.2 The district has a sub-tropical continental monsoon climate where we find seasonal rhythm, hot summer, cool winter, unreliable rainfall and immense variation in temperature. In winters, frost sometimes occurs during December and January. The district also gets occasional winter rains from cyclones. The rain fall is mostly restricted to rainy season. The district has Shivalik hills and foot hill rolling plain in the north and north- east, and flood - plain along the Yamuna River in the east and south- east. The

important rivers/ streams of the district are Yamuna, Sarasvati, Chautang, Rakshi, Somb, Boll, Fandi Rao etc.

1.3 Boulder, Gravel and Sand (Minor Minerals) finding use as construction material are found in the river bed areas and flood plain areas. The size and the concentration of material gradually reduce towards down stream as the heavy material of larger size settles with reduction in flow of water stream. The mineral deposits are found in villages of the districts located along the river or their flood plains and abandoned water courses/drains as well as along with foothills of the hilly terrains.

1.4 All rivers/drainage systems in the district Yamunanagar other than river Yamuna are seasonal rivers. Even the water of river Yamuna at Hathanikund Barrage is diverted partly towards Uttar Pradesh and Haryana through different Canal Systems for Irrigation purposes. In the main river bed area the water is released from Hathni Kund Barrage during rainy seasons. The water released in the river during rainy season brings huge quantity of Boulder, Gravel and Sand which gets deposits in the river bed area. The flood plains also have huge deposits of Boulder, Gravel and Sand up to a depth of 10-12 meter.

1.5 The river Yamuna acts as natural boundary between the State of Haryana and Uttar Pradesh. Part area of river Yamuna in the State of Uttar Pradesh and part area falls in the State of Haryana. Though, in general western part falls in Haryana and eastern part in Uttar Pradesh. But at certain places, the entire area of river (both side of river bank) falls in either of state. In other words there are areas of river where entire riverbed area falls within the jurisdiction of Haryana or Uttar Pradesh.

1.6 The Boulder, Gravel and Sand deposits are not found only in river Yamuna but also in the other rivers/tributaries of river Yamuna or rivulets like Yamuna, Chautang, Rakshi, Somb, Boll, Fandi Rao etc. passing through other parts of district Yamunanagar as well as in adjoining areas outside the river bed.

Minor Mineral Bearing Areas:-

1.7 The minor mineral deposits in the district Yamunanagar can be divided mainly in five categories

i. Areas in Yamuna riverbed.
ii. Areas outside river Yamuna bed.
iii. Sand bearing areas in Yamuna riverbed.
iv. Areas in river bed of other rivers like Chautang, Rakshi, Somb, Boll, Fandi Rao etc.
v. Areas outside/flood plains of other rivers.

2. Overview of Mining Activity in the District

Mode of grant of mineral concession

2.1 Before giving details of actual sites / number of sites or mineral concessions it would be appropriate to explain that the Mineral Concession in respect of minor minerals are granted as per the provisions of the State Rules, framed by the State Government in exercise of powers conferred under section 15 of the Mines and Minerals (D&R) Act, 1957.

2.2 The State of Haryana at the time of bifurcation opted prevailing Rules namely "Punjab Minor Mineral Concession Rules 1964". These Rules were amended from time to time as per policy of the State Government. The Hon'ble Supreme Court vide its order dated 27.02.2012 directed all State Governments to revise their State Rules making provisions in accordance with various recommendations contained in the report of the MoEF & CC, GoI, on mining of minor minerals and the Model draft guidelines issued by the Ministry of Mines, GoI.

2.3 Accordingly, the State of Haryana framed & notified on 20.06.2012 comprehensively revised Rules namely, the **"**Haryana Minor Mineral Concession, Stocking, Transportation of Minerals, and Prevention of Illegal Mining Rules, 2012", repealing the prevailing Rules namely "Punjab Minor Mineral Concession Rules 1964".

2.4 The mineral concessions in the Haryana are being granted in the form of **"Mining Contract"** or **"Mining Lease"** through competitive bidding process. The Mining Contracts are granted for a minimum period of 07 years and

maximum period of 10 years. Whereas the Mining Leases are granted for a minimum period of 10 years and maximum period of 20 years. In district Yamuna Nagar mineral concessions are/were granted in the form of Mining contacts for the period varying between 7 to 10 years. The contracts are being granted through open auction/ e-auction mode. The Mineral concessions are being granted subject to condition that actual mining operation shall be allowed only after environment Clearance is/are obtained from the competent authority as per requirement of EIA Notification dated 14.09.2206 of the MoEF & CC, Gol.

2.5 The mineral concession holders are required to prepare a detailed **"Mining Plan"** for their specific project through Registered Qualified Person and get in approved from authorized officer of the State Government. The exhaustive mining plan are prepared interalia giving details of mineral reserves, method of mining, extent of proposed mining and other related details. These are the projects specific details. Based on these details itself the project proponents/ mineral concession holders obtains environmental clearances.

3. Method of Mining and Conditions in which mining in river bed areas is to be allowed

3.1 The river bed areas apart from other related condition for mining are allowed to excavate minerals (Boulder, Gravel or Sand) to ensure safety of rivers bed structures and the adjoining areas on the following specific conditions:

(i) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

(ii) There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorized by him;

(iii) The maximum depth of mining in the river-bed shall not exceed three meters measured from the un-mined bed level at any point in time with proper bench formation;

(iv) Mining shall be restricted within the central $3/4^{th}$ width of the river/ rivulet;

3.2 **Note:** The above said conditions have been decided after detailed discussions and recommendations of the PWD (B & R) department and Irrigation department, Haryana.

3.3 As the mining in river bed remains restricted in the Central 3/4th part of the river bed, the area left on both side of the river bank not only ensures the safety of banks (bank cutting due to water stream) but also ensures that in the central part of river, water stream flows smoothly during rains and process of river meandering does not occur.

3.4 The light weight excavator/JCBs are being deployed to remove mineral from river bed up to maximum depth of 03 meter layer from general level of the bed. The mining in the river bed are undertaken in mechanized manner. At times the RQPs do refers the excavation in river bed mining through excavators as "Semi Mechanized Mining".

3.5 The mineral excavated is directly loaded in the vehicles/dumpers and the vehicle owners and drivers take away the mineral directly to the stone crushers or screening plants or consumers. In certain cases mineral concession holders stacks mineral on the river bank in case are not able to sell the material on actual mining itself.

4. Method of Mining in areas outside river bed:

4.1 The excavation of minerals (Boulder, gravel, Sand or Sand) found outside river bed areas are also being permitted. The opencast mining of Boulder, gravel & Sand or Sand from areas outside river bed is similar to that of any kind of open cast mining.

4.2 As the minerals (Boulder, gravel & Sand or Sand) are found in and adjoining river bed areas also, therefore, to ensure that mining from outside do not affect rivers, no mining is being permitted in an area up to a width of 500 meters from the active edges of embankments in case of river Yamuna, 250 meters in case of Tangri, Markanda and Ghaggar and 100 meters on either side of all other rivers/ rivulets.

4.3 The mineral excavation from areas outside river bed is being permitted subject to condition that a safety margin of two meters **(2m)** shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained

from the competent authority in this behalf. Further the depth of excavation of mineral shall not exceed nine meters **(9m)** at any point of time.

4.4 The method of excavation is such that the mining contractors deploys earth moving machineries and after removing the top layer of original soil, varying between 1 to1.5 meters, stack the same separately. Thereafter removes the minor mineral deposits. After undertaking the mining i.e. removing of mineral layer up to a maximum depth of 09 meter, the top stacked soil is again spread back into the pit. The mined out area/ land is put to reuse for cultivation after spreading the top soil. The landowners/farmers give their land to the contractors for mining after getting compensation, mutually settled between the landowners and the mining contractor.

5. Method of Mining in river bed areas (semi-mechanized/mechanized or manual)

5.1 The Hon'ble NGT with regards to river bed mining has specifically desired to examine the mode of mining – shall the same be **semi mechanized /mechanized or manual**.

5.2 There is no specific definition of **Semi – Mechanized Mining.** The term Semi – mechanized mining in general is used where method of working in general are undertaken mechanically, however, some operations are also undertaken manually. Therefore, the semi mechanized mining or mechanized mining, is the same method of working. Sometime mechanized mining with light machines are also referred as semi- mechanized mining. The term semi mechanized mining is being used in general parlance where in the very same mining area in part area as per requirement manual mining is also undertaken along with mechanized mining of sand/river bed mining.

5.3 Whereas **Manual** mining operations are undertaken using conventional hand tools only like Spade, Pan, Crowbar etc. and operations are only labour intensive. As per requirement in manual mining lifting of sand and directly loading the sand in tractor trolleys etc. is being carried out through labours itself.

5.4 The **Mechanized** mining operations in respect of sand mining are undertaken with the help of excavator-cum-loaders. In this process sand is lifted/excavated from the river bed through excavator-cum-loaders and directly loaded in

dumpers or other mode of transport. The vehicles carrying the mineral from mines to site of use/ site of construction or sale stocks outside lease hold areas (*an independent business than that of mining*).

5.5 In the current scenario it is impractical to undertake manual mining because:-

(i) The labours are not easily available;

(ii) Manual mining cannot be undertaken in systematic and scientific manner as compared to mechanical mining which can be undertaken systematic/ scientific and controlled mining.

(iii) In case of manual mining to achieve desired level of production more number of manpower would be required meaning thereby human interface within river bed area would increase and more ecological damage would be caused.

5.6 The method of mining even otherwise can not be uniform even for same area and all the methods have their own pros and cons, however, considering the current scenario wherever feasible mechanized (semi-mechanized or mechanized is same thing) mining should be preferred over manual method.

6. General Regulation relating to Mining

6.1 As per prevailing State Rules the Mineral Concession holders are required to get a Mining Plan for the area prepared from a **"**Registered Qualified Persons". The mining plan includes the area specific details along with the Mine Closure Plan (Progressive & Final) taking into consideration the details of the Geology and lithology of the area including the estimated mineral reserves of the area. Proposed method of mining/ development of mines, use of explosives and blasting operations, if any, stacking and disposal of minerals, mine-drainage pattern, handling of the overburden, location of weigh bridges, and mineral processing, if any. The extent of manual mining or mining with the use of machinery and mechanical devices along Level of Production (production from year-to-year for a period of five years), Mechanization, Type of Machinery to be used, nature and extent of the mineral body/ spot or spots where the mining operations are proposed to be undertaken; natural water courses, limits of mineral reserves and other forest areas and density of trees, if any, assessment of impact of mining activity on land surface and environment including air and water pollution i.e. the

environment management plan. In addition to this Mining plan also suggests the details of scheme of restoration/ rehabilitation of the area through afforestation, land reclamation, use of pollution control devices and such other measures as may be directed by the State Government from time to time.

6.2 The Mining Plan are to be got approved from the authorized officer of the State Government. Based on mining plan prior environmental clearance from the competent authority as per provisions of EIA Notification dated 14.09.2006 of MoEF & CC, GoI is obtained.

6.3 After obtaining the Environmental Clearances, to comply with requirement of Air Act, 1981 the Consent to Establish and **"Consent to Operate"** from State Pollution Control Board are also obtained before actual mining

6.4 The above said provisions mainly relates to mineral conservation and environmental protection. With regards to provisions related to safety in mines and welfare of labours provisions under the Mines Act, 1952 are ensured by the Directorate General Mines Safety, a department under the Ministry of Labour, Government of India.

7. Areas selected for Mining in District Yamuna Nagar

Background

7.1 As per rough estimate total area of rivers beds (all rivers and tributaries/rivulets) passing through district Yamuna Nagar is about **28 to 30 sq. km**. Further approximately about 90 sq km. area outside river bed is also having mineral deposits. A larger part of which is otherwise under various uses including agriculture. As regards selection of area for mining it may be pointed out that:-

(i) Earlier, (about 16-18 years back) mineral concession/mining contracts were being granted on revenue estate basis (without giving any specific details of areas), subject to various restrictions. The mineral concession holders used to undertake mining in areas after leaving restricted area.

(ii) Initially about **120 villages** were being offered for mining, however, over a period of time the number of villages/quarries reduced to about **67,** as area of some of the villages came under other

restrictions either because of construction of some bridges on river bed or due to other development projects including habitation.

(iii) The mode of grant of mining contracts of individual quarries/revenue estates in Yamuna Nagar district was changed in late nineties and instead granting individual quarries on contract, number of adjoining quarries were clubbed for the purpose of granting mineral concession. This mode was further changed and all minor mineral quarries of the district were given "as one unit". In this way their used to be a single contractor for all minor mineral quarries **"district as one unit".** In district Yamuna Nagar last such contract for **"district as one unit"** was granted on 11.04.2004 for a period up to 31.03.2009.

(iv) Needless to state that such **mineral concession areas** used to have even the areas having no mineral deposits, the areas otherwise not permissible for mining. The mineral concession holders were under obligation to undertake mining only in the areas free from all restriction and as per prevailing Rules and Regulations. Mineral Concessions for minor Mineral prior to 14.09.2006 were not required to obtain environmental clearance.

(v) The EIA notification dated 14.09.2006 became applicable for fresh contacts/ leases and in the year 2008 for grant of mineral concessions in respect of other areas in the State fresh auctions were notified subject to condition that mining will be allowed to be undertaken only after prior environmental clearance is obtained as per requirement of EIA notification dated 14.09.2006 of MoEF & CC, GoI**.** However, said condition was challenged by some prospective bidders on the plea that the notification dated 14.09.2006 was not applicable for mining of minor minerals.

(vi) The operation of notification dated 14.09.2006 for mining of minor mineral was stayed by the Hon'ble Punjab and Haryana High Court vide its interim order dated 07.04.2008 in CWP No. 4578 of 2008- Chandi Mandir Stone Crusher Consumer Company Vs. Union of India and Others.

(vii) The State could not have granted long term contracts during the pendency of said case because operation of the notification was under stay and in case long term contracts were granted the mineral concession holders would have claimed that at the time of grant the notification was not applicable for them or may have sought to cancel the contract.

(viii) Subsequently, the Hon'ble High Court on 15.05.2009 while disposing of the above said writ petition (along with CWP no 20134 of 2004 Vijay Bansal v/s State) upheld that notification dated 14.09.2006 was applicable for mining of minor minerals also.

(ix) However, as regards the process of obtaining the prior environmental clearance, the Hon'ble High Court directed the process to be followed in two parts. In the first stage, it was directed that the state of Haryana would submit the ToRs to the EAC and the EIA report will be prepared by Expert Appraisal Committee (EAC) in the MoEF, GoI before conducting the auctions. Subsequent to the holding of the auctions, the successful bidder shall obtain the prior environmental clearance from the competent authority.

(x) The Hon'ble High Court, considering that some time would be required for completing the process as per above, and general public would face problems due to sudden closure of mining, permitted mining without environmental clearance for the period up to 28.02.2010.

(xi) Accordingly, no long term contact in Yamuna Nagar area could be granted due to above litigation and after expiry of the last contract the mining operations was allowed in district Yamuna Nagar (as well as in other part of the state) for the period of up to 28.02.2010 without environmental clearance as per orders of Hon'ble High Court.

(xii) However, the order dated 15.05.2009 of Hon'ble High Court relating to preparation of EIA report by the State Government was not acceptable to the MoEF, CC, GoI. The MoEF was of the view

that state being regulating agency cannot prepare the said report at its own. Therefore, the applications submitted by State of Haryana for approval of ToR were not considered.

(xiii) The MoEF initially filed a Review Application before the Hon'ble High Court and thereafter SLP before the Hon'ble Supreme Court. During the pendency of said matter the state of Haryana neither could take further action relating to preparation of EIA report nor could auction its minor mineral areas for grant of mineral concessions subject to condition that Environmental Clearance shall be obtained by the project proponent.

(xiv) The mining in district Yamuna Nagar /other parts of the State came to a grinding halt on 01.03.2010. The mining in the district Yamuna Nagar remained closed. The mining operations prior to 01.03.2010 were either undertaken by the contactors to whom contract was granted prior to 14.09.2006 or under special dispensation granted by the Hon'ble High Court to operate mines without Environment clearance till 01.03.2010.

(xv) Subsequently, the Hon'ble Supreme Court on 28.10.2013 while disposing of the SLP No. 729 of 2011 of the MOEF & CC, GoI held that prior environmental clearance is to be obtained by the concerned mining lease holders and not by the State Government. In other words the process for obtaining prior environmental clearance was to be followed as prescribed by MoEF, CC, GoI under its notification dated 14.09.2006 as amended to time to time (uniformly applicable for country).

(xvi) In view of above the State of Haryana in November, 2013 could issue notifications for grant of mineral concessions in various parts of the State including district Yamuna Nagar through open auctions to be held in December, 2013.

8. Areas Selected for mining in November/ December, 2013 and thereafter (the areas at present on contracts or to be granted on mining contracts)

8.1 In November, 2013 it was decided that instead of the auctioning all of minor

mineral quarries of a district as a single unit, the same should be granted in the form of big mining units. The mineral concessions for district as one unit were found to be resulting in monopoly of a few in the business of mining in a district.

8.2 At the cost of repetition it is stated that mineral concession areas of large size blocks/units used to have even such areas which otherwise were not permissible for mining. The restricted area were not meant to be used for actual mining operations but otherwise permissible for subsidiary activities like installation/establishment of check posts/weighbridge etc.

8.3 In December, 2013 a total of 16 Mining Blocks having contiguous area were carved out and were auctioned as 06 separate units (one unit was having number of blocks) having total area of 3601.62 hectares. The said mineral concessions were granted subject to condition that mining would be allowed to be commenced only after prior environmental clearance is obtained by the concerned mining contracts/LoI holders.

8.4 The areas of each of these Mining Units except that of Unit No. 1 & Unit No. 2 are very large. However, subsequently 04 of the LoI holders got their bids cancelled through Hon'ble High Court. The area of such cancelled 04 large size contracts became available for fresh grant. It was decided to be auctioned afresh by carving our small size blocks as compared to large size areas auctioned in the December, 2013.

8.5 The area available for actual mining out of area of above said 04 units and a few of other areas which earlier could have been offered due to some issues relating to access road etc., were notified for fresh grant by carving out **33 Mining Blocks.** While auctioning comparatively smaller blocks the total area available for grant of mineral concession got further reduced to **1221.91 hectare.**

8.6 At Present 02 big Mining Units and 31 Mining Blocks, having total area of 1825 hectare have already attracted bids in auction/e-auctions.

9. **Annual Capacity of Areas selected for mining of minor minerals**

9.1 In order to make estimates of mineral deposits and mineable reserves of any mineral a detailed exploration is required to be undertaken. The economic life

of a mine based on the mineral estimates including current mining production plans are made on the basis of study taking into consideration the quantity and quality of the minerals extracted during the reporting time, changes in Economic Viability due to changes in prices and costs, development of relevant technology, newly imposed environment or other regulations, and data on exploration conducted concurrently with mining. It presents the current status of the deposits, providing a detailed and accurate, up-to-date statement on the reserves and the remaining resources.

9.2 However, in case of minor minerals like Boulder, Gravel and Sand as the same are available in abundance and estimates can be made on the basis of mineral seen at surface or through the area operated in past and on the basis of permissible limits to excavate minerals.

9.3 The minerals are non-renewable resources, however, minor minerals found in the river bed areas have peculiar condition relating to mineral reserves. The minerals removed from the river bed areas get replenished after every rainy season with minerals brought along with water from hilly areas. The mineral reserves for mining on replenishment remain almost same every year after rainy season.

9.4 On the other hand in case of areas outside river bed or any area used for mining, the mineral reserves reduce after every year after mining operations. Hence, total mineable reserves after mining gets depleted and the life of any mine also reduces. This is a normal practice for mineral reserve estimation for all types of mining activities other than river bed areas.

9.5 The mineral reserves for river bed areas are calculated on the basis of maximum depth of 3 meters. The area multiplied with depth gives volume and volume multiplied with bulk density gives the quantity in M.T. In case of river bed areas per hectare area, maximum availability of mineral for actual mining is 60,000 MT. However, as explained above the mineral excavated from river gets replenished after every year, therefore, the same quantity remains available for mining again and again.

9.6 In case of areas outside river bed the maximum depth of 9 meters from ground level is considered for calculation of capacity of a mine. The area multiplied with 09 gives the volume and volume multiplied with bulk density gives quantity of total mineral available in M.T. However, on an average half

meter to 1 meter layer is of ordinary earth, so actual mineral can be excavated up to maximum depth of about 08 meters per hectares area outside river bed in general provides 1,60,000 M.T. of mineral.

10. Capacity of Minor Mineral Mines/ Areas selected for mining

10.1 The capacity of any mining area mainly depends upon of mineable reserves, economical viability and demand of minerals. In most of the cases particularly in respect of minor minerals the mineral deposits are found in huge quantity. However, the demand of material depends upon other factors such as ongoing infrastructure projects and other related private constructions. The operation of other minor mineral mines in and around any area/mine is one of the important factors affecting the production plan.

To illustrate for example if total demand of particular area for construction material is "X" M.T. per annum, all operating mines in and around any particular area depending upon market forces would be supplying the material. Accordingly if operation in any of the mines stops, the demand of the market would be met by the remaining operating mines. In other words the production level of operating mines shall increase. The annual production plan is prepared by mining contractors/lease holders considering their maximum capacity. However, in all cases peak capacity in general may or may not be achieved at any point of time.

10.2 As per documents submitted by the Mineral Concessionaires maximum annual capacity of each of the 35 Mining Units/Blocks of District Yamuna Nagar, are given as under :

Sr. No.	Mining Unit/Block Location	Area (In Hect.)	Period (In yrs)	Name of Minor Minerals	Status of Granted of Mineral Concession	Annual Capacity as per EC/Mining Plant/TOR in lakh MT.	Present Status
Riverbed Mining Areas							
1.	Yamuna Nagar Unit-1 (Tajewala)	48.97	10	Gravel, Sand, Boulder	Yes	20.64	Yet to be Auctioned

Sr. No.	Mining Unit/Block Location	Area (In Hect.)	Period (In yrs)	Name of Minor Minerals	Status of Granted of Mineral Concession	Annual Capacity as per EC/Mining Plant/TOR in lakh MT.	Present Status
2.	Yamuna Nagar Unit-2 (28 village)	554.13	8	Gravel, Sand, Boulder	Yes	120.00	Working
3.	Bailgarh- South Block (YNR-B2	28.00	9	Gravel, Sand, Boulder	Yes	13.00	Working
4.	Bailgarh North Block (YNR-B1)	44.00	7	Gravel, Sand, Boulder	Yes	21.44	EC/CTO Awaited
5.	Mandoli Ghaggar East Block (YNR B3)	20.18	10	Gravel, Sand, Boulder	Yes	8.58	Working
6.	Mandoli Ghaggar West Block (YNR B4)	25.56	7	Gravel, Sand, Boulder	Yes	11.91	Working
7.	Kanalsi Block (YNR B5)	44.14	09	Gravel, Sand, Boulder	Yes	19.50	Working
8.	Jairampur Jagir Block/YNR B6	33.58	10	Gravel, Sand, Boulder	Yes	15.20	EC/CTO Awaited
9.	Beer tapu Block (YNR B7)	14.45	7	Gravel, Sand, Boulder	Yes	6.15	Working
10.	Odhari North Block YNR-B8	10.00	9	Sand	No	4.50	Area under Consideration
11.	Odhari South Block YNR-B9	56.98	10	Sand	No	25.18	Area under Consideration
12.	Lapra Block/ YNR B10	34.28	7	Sand	Yes	15.30	EC/CTO Awaited
13.	Pobari Block (YNR B11)	23.05	9	Sand	Yes	11.00	Working
14.	Gumthala1 North Block(YNR B16)	44.62	7	Sand	Yes	21.00	Working
15.	Gumthala South Block/YNR B-17	49.67	09	Sand	Yes	21.88	Working
16.	Jathlana Block /YNR b12	101.27	10	Sand	Yes	36.00	Working

Sr. No.	Mining Unit/Block Location	Area (In Hect.)	Period (In yrs)	Name of Minor Minerals	Status of Granted of Mineral Concession	Annual Capacity as per EC/Mining Plant/TOR in lakh MT.	Present Status
17.	M T Karhera Block/ YNR B-13	67.79	07	Sand	Yes	29.60	EC/CTO Awaited
18.	Nagla Rangraan/ YNR B-14	89.48	9	Sand	Yes	38.60	EC/CTO Awaited
19.	Nagli Block/ YNR B-15	77.25	10	Sand	Yes	33.30	EC/CTO Awaited
20.	Dhanora Block/ YNR B-18	18.18	10	Sand	No	9.38	Yet to be Auctioned
		Totl.= 1385.58				**Totl.=482.16**	
Outside Riverbed Mining Areas							
21.	Bhood Kalan (YNR B19)	12.62	7	Gravel, Sand, Boulder	Yes	2.59	Temp. Closed Due to
22.	Bhood Majra (YNR B20)	9.95	7	Gravel, Sand, Boulder	Yes	2.00	Temp. Closed Due to
23.	Kohliwala (YNR B21 & 22)	13.59	8	Gravel, Sand, Boulder	Yes	2.50	Working
24.	Devdhar (YNR B24)	31.87	8	Gravel, Sand, Boulder	Yes	5.10	Working
25.	Malikpur Khadhar Block/YNR B-28	23.20	8	Gravel, Sand, Boulder	Yes	4.00	Working
26.	Pipli Majra Block/ YNR B29, 30 &31	18.20	7	Gravel, Sand, Boulder	Yes	3.70	Working
27.	Jaidhari Block/ YNR B-33	48.60	08	Gravel, Sand, Boulder	Yes	9.10	Working
28.	Mandewala (YNR B-38)	15.00	8	Gravel, Sand, Boulder	Yes	22.80	EC/CTO Awaited
29.	Chuharpur Block/YNR B-26&27	50.40	08	Gravel, Sand, Boulder	Yes	74.56	EC/CTO Awaited

Sr. No.	Mining Unit/Block Location	Area (In Hect.)	Period (In yrs)	Name of Minor Minerals	Status of Granted of Mineral Concession	Annual Capacity as per EC/Mining Plant/TOR in lakh MT.	Present Status
30.	Begampur (YNR b-37)	39.50	8	Gravel, Sand, Boulder	Yes	56.88	EC/CTO Awaited
31.	Jaidhar Block /YNR B-34	25.60	8	Gravel, Sand, Boulder	Yes	36.86	EC/CTO Awaited
32.	Nandgarh Block /YNR B36	29.60	8	Gravel, Sand, Boulder	Yes	46.22	EC/CTO Awaited
33.	Ismsilpur Block/YNR B32	50.50	08	Gravel, Sand, Boulder	Yes	76.96	EC/CTO Awaited
34.	Haldari Gujjar Block/YNR B-35	46.80	08	Gravel, Sand, Boulder	Yes	70.43	EC/CTO Awaited
35.	Galauri Block/ YNR B 39	24.00	08	Gravel, Sand, Boulder	Yes	4.40	Working
	Total= 439.43					**Total= 418.1**	
	G. Total area = 1825.01 hect.					**G. Total=900.26**	

10.3 The annual capacities of above mines have been ascertained on the basis of area available for mining and production plans suggested by the mineral concession holders under their Mining Plan/ Application for seeking Environment clearance. In case of the areas not granted till now, the average reserves had been taken into account. Further, the annual capacity of river bed areas is calculated on the basis of assumption that the quantity lifted during any year would get replenished after every rainy season. Whereas the capacity of areas outside river bed has been calculated on the basis to total mining reserves to be excavated during the period of mineral concession.

10.4 That as explained in for forging paras the demand of mineral is most crucial factor in deciding the actual production of any mine or area. In case of district Yamunanagar, the operation of minor mineral mines towards

Saharanpur side of U.P also has direct bearing. The total demand of mineral in these areas can be estimated on the basis of past production of minor minerals. During last 10 years the production of minor minerals excavated are tabulated as below:-

Year	Boulder/Gravel/Bajri	Sand	Total
1999-2000	8,68,970	2,44,100	11,12,070
2000-2001	9,81,050	3,02,100	12,83,150
2001-2002	12,30,050	4,66,700	16,96,750
2002-2003	37,43,286	10,40,300	47,83,586
2003-2004	25,40,800	----------	24,40,800
2004-2005	13,52,008	7,58,800	21,10,808
2005-2006	23,13,476	14,67,252	37,80,728
2006-2007	11,81,600	14,46,000	26,27,600
2007-2008	14,23,000	14,07,000	28,30,000
2008-2009	12,15,000	12,88,000	25,03,000
Total	1,68,49,240	63,67,052	2,52,69,492
Average	**16,84,924**	**6,36,705**	**25,26,949**

The perusal of above would show that on an average about 25 lakh M.T. minor mineral per annum was being excavated from minor mineral mines of district Yamunanagar. Most of the excavation is undertaken in the river bed areas where minerals excavated get replenished after rainy season due to fluvial action. Even annual demand after 2008-09, is considered to have been accelerated with a rate of 10% every year, the demand for present shall about 45-50 lakh M.T. per year. Approximately 75% of the minerals are likely to be excavated from river bed areas. Accordingly, it is estimated that about 25-30 lakh M.T. would be excavated from various parts of river bed areas, spread over approximately 1385 hectare having estimated capacity of 482 lac MT per annum. The requirement would be less than 10% of the annual capacity of all river bed areas used for actual mining.

The quantity of actual mineral to be excavated even remains at optimum level, the replenishment rate is still higher. Though there is no specific study available on the quantity of sedimentation/ replenishment but the same is directly proportionate to the area of catchments, Geological formation of the area of catchments, gradient and water flow of the river etc. The area in question is situated in the foothills of Shivalik range, being very young in Geological formation. The region is extremely important because it is the prime source of sediments, with a number of steep gradient torrents transport downstream to the

plan. The huge quantity of boulder and gravel settles immediately after reaching plane areas and thereafter fine sand gets deposited. The department is planning to study annual replenishment rate by taking time to time MRL readings of river bed areas.

11. DETAILS OF ROYALTY/REVENUE RECEIVED IN LAST THREE YEARS.

Sr.	Year	Revenue (In Rs)
1	2014-15	NIL (Mining Closed)
2	2015-16	NIL (Mining Closed)
3	2016-17	24,74,22,307/-

12. DETAILS OF PRODUCTION OF MINOR MINERAL OF LAST THREE YEARS.

Sr.	Year	Production (In MT)
1	2014-15	NIL (Mining Closed)
2	2015-16	NIL (Mining Closed)
3	2016-17	13,68,302-00

13. PROCESS OF DEPOSITION OF SEDIMENTS IN THE RIVER OF 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. It has been observed that during rainy season all of the pits created due to excavation of minerals are 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 constituents have been categorized as Clay, Silt, Sand, Gravel and Boulder. However during present calculation, the waste material i,e silt, clay which vary from 10 to 20% in different streams have been included in the total production. The mineral reserves have been included 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 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 deposits are adding annually to the main river, the mineral deposits will be much more.

The important rivers/streams of the district are Yamuna, Somb, Boli, Sarasvati, Chautang, Rakshi, etc. Yamuna River rises from the snow-clad peaks of the middle Himalayas at Yamnotri, enters the district from its northeastern corner though a narrow corridor in the Siwaliks. River Yamuna enters plain area for the first time from Yamuna Nagar and running through the district which forms the eastern boundary with the neighboring District Saharanpur. This boundary is also a state boundary. The Somb river originates in the Shivalik hills near Adi Badri in Yamuna Nagar district on the border of Haryana and Himachal Pradesh State. Boli nadi joins the somb nadi near the Dadupur and after combining both nadi's join the Yamuna river at Mehar majra. The Historical river Saraswati also originates from the place named Adibadri in the district. The rakshi stream takes its birth in the rolling foot hill plains while the Chautang and Sarasvati rivers originate in the lower hills. Generally, the slope of the district is from north-east to south-west, in which direction of most of rivers/nadis/rainfed torrents flow down. The Higher area that is not flooded in rainy season is called Bangar and the lower flood prone area is called Khaddar.

14. GENERAL PROFILE OF THE DISTRICT.

Country	India
State	Haryana
Headquarters	Yamunanagar
Sub Divisions	Jagadhri, Bilaspur, Radaur
Tehsils	Jagadhri, Chhachhrauli, Bilaspur,Radaur
Sub Tehsils	Sadaura, Mustafabad, Khizrabad
Area	1,756 Sq. km (678 sq mi)
Population (2001)	
• Total	12,14,162
• Density	590/sq. km (1,500/sq mi)
Demographics	
• Sex ratio	862

Website	Official website (ynr.nic.in)

15. LAND UTILIZATION PATTERN IN THE DISTRICT.

In District Yamuna Nagar, most of the areas are utilized for Agriculture and Horticulture, some area is used for Mining and rest of land is forest.

16. PHYSIOGRAPHY OF DISTRICT.

The district is divided into four Physiographic units:-

- Siwaliks
- Dissected Rolling Plains
- Interfluvial Plains
- Active and Recent Flood Plains
- Relict Plains

Siwaliks hills – Siwalik hill ranges occupy the northern fringe of Yamuna Nagar district and attain the height up to 950m AMSL. The hills are about 500m high with respect to the adjacent alluvial plains. These are characterized by the broad tableland topography that has been carved into quite sharp slopes by numerous ephemeral streams come down to the outer slopes of the Siwaliks and spread much of gravels boulders, pebbles in the beds of these streams.

Kandi Belt – A dissected rolling plain in the northern parts of district is a transitional tract between Siwalik Hills and alluvial plains. It is about 25 km wide and elevation varies between 250 and 375m AMSL.

Interfluvial plains – This tract is part of higher ground between Ghaggar and Chautang and includes high mounds and valleys. In general, the slope is from northeast to southwest.

Active and recent flood plains – This plain is narrow tract along river Yamuna in the district.

Relict wedge plain – This is almost in alignment to the surface water divide between the westward flowing Ghaggar and eastward flowing Yamuna River.

17. Rainfall data:- Months Wise

Monthly Normal Rainfall Averages of 5 year (2011-15) in Milimetre

Sr. no.	Month	2011-15
1	January	32.5
2	February	46.5
3	March	28.9
4	April	10.0
5	May	20.5
6	June	182.0
7	July	268.0
8	August	331.0
9	September	108.6
10	October	14.0
11	November	12.6
12	December	20.6
	Total	**1075.2**

18. GEOLOGY AND MINERAL WEALTH:-

The north-eastern and central part of Haryana is predominantly characterized by sedimentary lithology in the sub-Himalayan zone comprising Subathus, Dagshais, Kasaulis and Siwaliks. A general Regional Stratigraphic sequence in the area is given in the table.

Table: Regional Stratigraphic sequence

Age	Super Group	Group	Formation	Lithology
Holocene			Newer alluvium and Newer Aeolian Deposits	Gravel, Sand, Silt, Clay, Limestone, gypsum
Lower to upper Pleistocene			Older alluvium and older Aeolian deposits	Gravel, grey sand, silt clay brown sand, calcrete
Lower to Middle Pleistocene		Upper Siwalik	Boulder Conglomerates formation	Conglomerate, sand stone, silt. Clay
Upper Pilocene			Pinjore Formation	Coarse grit, red sand stone and clay,

				conglomerate
			Tat rot formation	Friable Sand Stone and variegated clay
	Middle Siwalik		Dhokpather Formation	Brown Sandstone and variegated clay
			Nagri Formation	Hard grey sand Stone and minor shale
	Lower Siwalik		Nahan Formation	Course gritty, clay and red sandstone often calcareous, brownish shale with lignite lenticels greenish white quartizite
Lower Miocene	Sirmur		Kausauli Formation	Grey and stone, green shale and grey clay
			Dagsai Formation	Purple sand green sand stone, deep red gritty, clay, white sand stone with ferruginous concretions
Upper Eocene			Subathu Formation	Sandstone with grit clay. Impure fossliferous limestone calcareous slate, greenish shale and dark brown quartizite
Pre-Proterozoic			Tunda pathar	Tickly bedded, stromatolite limestone with carboniferous shale and quartzite

19. District wise detail of river/stream and other sand sources:

S. No.	Name of River	Origin	End in C.G.	Width	Length in Ynr Distt.	Remarks
1.	Yamuna River	Origin in Haryana	Gumthala	0.6KM	70KM	
2	Somb Nadi	Ranjitpur	Dadupur	0.06 KM	40KM	Meet in Dad

20. List of villages where minor minerals (Gravel, Boulder and Sand) are available.

- **As per above at the para no. 10.2**

21. Drainage system with description of main rivers

S. No.	Name of the river	Area drained (Sq. Km)	% Area drained
1	Yamuna River (1376 km)	21265	6.5

21.1 Salient Feature of Important Rivers and Streams:

S. No.	Name of the River or Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin
1	River Yamuna	70 Km	Yamnotri	3291 mts
				Or 10797 feets
2.	Somb Nadi	50 Km	Ranjitpur	

Portion of the River or Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential
50 km	70	400 meters	2,40,00,000 Sqm	540 lakh MT

Mineral Potential

Boulder, Gravel, Sand (In lakh MT)	Sand (In lakh MT)	Total Mineable Mineral Potential (MT)
654.52	245.74	900.26

Annual Deposition

	236.42	245.74	482.16

S. No.	River or Stream	Portion of the river or stream recommended for mineral concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)

Total for the District		50 KM	70 KM	400	2,40,00,000 Sqm	540 MT

22. Reclamation and Restoration of mining area and provision of Fund for the same:

22.1 As explained in foregoing paras mining in river bed areas takes place only up to a maximum depth of 3 meter from existing river bed level, that too in central 3/4th of the river bed. The material brought by the river due to fluvial action fills the void created in the process of excavation. In this way the area operated/ used for excavation of mineral from rivers gets reclaimed after every rainy season. Further, in the river bed areas there are no flora and fauna. Accordingly as such river bed mining does not create any ecological impact. The excavation of minerals from central part of the river in fact provides void/space for settlement of sediments without raising the river bed level.

22.2 As it is well known that rising of bed level results in river meandering (change of course) and in the present day the change of course of any river results in floods and damages. Though sometimes areas in and adjoining river banks are affected because of unforeseen circumstances/water stream due to heavy rains.

22.3 Further, the area outside river bed requires levelling reclamation and restoration after mining. The land owners take compensation from the mining contractors in lieu of surface rights. The areas after mining are levelled by the contractors or land owners (depending upon mutual settlement between the contractor and land owners) to make the land reusable for cultivation. In order to ensure that areas after mining in case needs reclamation/restoration are properly dealt/restored.

22.4 The State Rules, 2012 appropriately provide provisions of R&R Fund namely **"Mines and Mineral Development, Restoration and Rehabilitation Fund".** The mineral concession holders are liable to deposit an amount equal to 10% of the dead rent or royalty or contract money paid to the state for Restoration and Rehabilitation works. Further, the state also contributes 5% of the amount received by it on account of the dead rent or royalty or contract

money in a financial year to the Fund. The Fund has been created only for funding of the restoration or reclamation or rehabilitation works in the sites affected by mining operations. The Fund can be used for creating common facilities for the benefit of community in and around areas where mining activities are undertaken, development of infrastructure facilities for orderly growth of the mining operations and allied activities and other related works/schemes.

22.5 In compliance with amendment in the Mines and Minerals (Development & Regulation) Act,1957, vide which Section 9B has been inserted making it mandatory to form District Mineral Foundation(DMF) in each district, the State has recently(19.12.2017) notified Haryana District Mineral Foundation Rules-2017. The Foundations shall work for welfare and benefit of persons and areas affected due to mining operations. 1/3rd of the amount collected in **"Mines and Mineral Development, Restoration and Rehabilitation Fund"** shall be transferred in the **DMF Fund.** The projects to be carried out under **Pradhan Mantri Khanij Kshetra Kalyan Yojna** shall be implemented by the District Mineral Foundations.

22.6 The areas operated in past in the district Yamunanagar were restored (river bed filled up with sediments brought by fluvial action and areas outside river bed levelled by land owners for cultivation). However, some of the areas used for mining in land falling outside river bed were not put in use by private land owners after mining for the reasons known to them. The private land owners could not have been insisted for undertaking cultivation, in case they don't choose for the same. A few of the patches of such un-reclaimed areas are existing in and around crusher zone areas in village Ballewala, Diowala, Mandewala and Kohliwala. In this area over a period of time some rain water get collected and remains wet for quite long every year. The same had no ecological impact on the ecology of the area. As a matter of fact such areas are acting as water recharge zone as well as wet land.

Conclusion:

In district Yamunanagar a total of 1825.01 hectare area has been identified for mining of minor minerals under 35 mineral concessions (at para 10.2), though

number of mineral concessions may change depending upon policy of the state from time to time. Further, use of mineral deposits and exploration/excavation in respect of minerals is an ongoing activity, therefore, as per requirement the area used for mining of minor minerals may have to be revised from time to time.

Forest Officer,
Forest Deptt. Yamunanagar

(Vinod Kumar)
Executive Engineer,
Water Service Division,
Dadupur.(YNR)

(Naresh Kumar)
SDO,
HSPCB, Yamunanagar

(Gurjit Singh)
Mining Officer, YNR

(Manju Rani)
Mining Inspector, Ynr

(Jagmal Singh)
SDE
PWD (B&R), Jagadhri

(R.S Kharab), IAS
Deputy Commissioner,
Yamuna Nagar