Impact of Mining on Flora and Fauna of Faridabad District in Haryana

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Abstract – Mining of minerals, whether major or minor have a direct bearing on the hydrological regime of the area. Besides, affecting the availability of water as a resource, it also affects the quality of water through direct run of going into the surface water bodies and infiltration/leaching into groundwater. Further, groundwater withdrawal, dewatering of water from mine pit and diversion of surface water may cause surface and sub-surface hydrologic systems to dry up and direct effect on flora and fauna of a particular region. An ideal situation would require that quarrying should be restricted to unsaturated zone only above the phreatic water table and should not intersect the groundwater table at any point of time. However, from the point of view of mineral conservation, it may not be desirable to impose blanket ban on mining operation below groundwater table. 491 number of Air Polluting industries including Stone Crushers operating in the District Faridabad. All these units have provided desired Air Pollution Control Device. The major source of industrial emission is from burning of agriculture waste, fossil fuel and pet coke either in the boilers, thermal fluid heaters or industrial furnaces. Further a part of the industrial emission is being generated from the Stone Crushing activity by 163 Stone Crushers operating in the District Faridabad and from the other infrastructure developing industries. The other major source of air emission is from automobiles plying in the District Faridabad.

Key words: Hydrological, Infiltration, Phreatic water table, Industrial emission, Stone Crushing activity.

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INTRODUCTION

Faridabad, the south-eastern district in the state of Haryana, was founded in 1607 AD by Baba Farid, treasurer of Jahangir and a Sufi saint, with the object of protecting the Grand Trunk Road (now National Highway 2) which passed through the town. Sheikh Farid built a fort, a tank and a mosque which are now in ruins. Later on, it became the headquarters of a Pargana which was held in jagir by Ballabgarh ruler. Faridabad District came into existence on 15 August 1979 as the 12th district of the state. Faridabad District was carved out from erstwhile Gurgaon District.

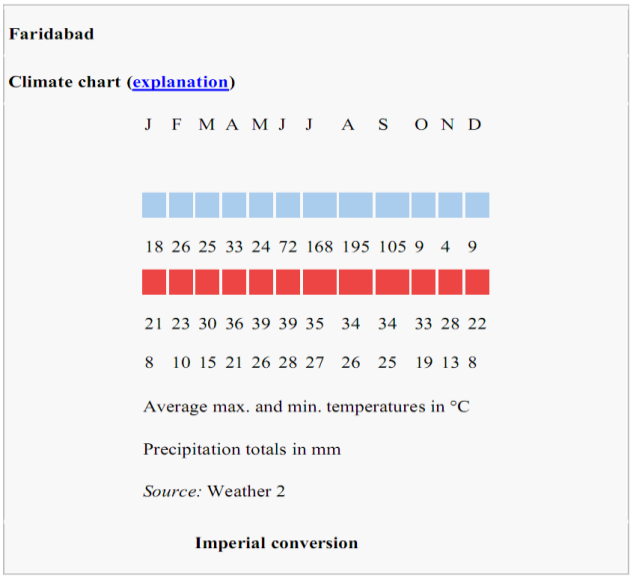
As a part of Pakistani Refugee Resettlement Project after the Partition of India, light industrial development was initiated in the town in 1950. At that time Delhi was completely filled and then Prime Minister Jawahar Lal Nehru had the responsibility of economic development and transferred the industries to this city and the refugees worked in these industries. Thus, refugees laid down the initial infrastructure of the present Faridabad.

Faridabad is located at 28.43°N 77.32°E. It has an average elevation of 198 metres (649 ft).

City is located on the plains of the Yamuna River. It is bordered by the Yamuna to the east and Aravali Hills towards the west and southwest. Today, virtually all of the land has been developing with residential housing as the population of the city swelled during the mid-1990s.

Much like the rest of India, the people of Faridabad rely on the ground water for their basic needs which is the gift of good monsoon season.

Climate



The climate of Faridabad district can be classified as tropical steppe, hot semi-arid (Köppen BSh) which is mainly characterized by the extreme dryness of the air except during monsoon months. During three months of south west monsoon from last week of June to September, the moist air of oceanic penetrate into the district and causes high humidity, cloudiness and monsoon rainfall. The period from October to December constitutes post monsoon season. The cold weather season prevails from January to the beginning of March and followed by the hot weather or summer season which prevails up to the last week of June.

The normal annual rainfall in Faridabad district is about 542 mm (21.3 in) spread over 27 days. The south west monsoon sets in the last week of June and withdraws towards the end of September and contributes about 85% of the annual rainfall. July and August are the wettest months 15% of the annual rainfall occurs during the non-monsoon months in the wake of thunder storms and western disturbances.

Climate data for Faridabad

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C (°F)	21 (70)	23 (73)	30 (86)	36 (97)	39 (102)	39 (102)	35 (95)	34 (93)	34 (93)	33 (91)	28 (82)	22 (72)	31.2 (88)
Average low °C (°F)	8 (46)	10 (50)	15 (59)	21 (70)	26 (79)	28 (82)	27 (81)	26 (79)	25 (77)	19 (66)	13 (55)	8 (46)	18.8 (65.8)
Precipitation mm (inches)	18 (0.71)	26 (1.02)	25 (0.98)	33 (1.3)	24 (0.94)	72 (2.83)	168 (6.61)	195 (7.68)	105 (4.13)	9 (0.35)	4 (0.16)	9 (0.35)	688 (27.06)

Source: Weather

Faridabad is the industrial capital of India. It is home to hundreds of large-scale companies like Lafarge, Shova, Imperial Auto Ltd., Birla VXL, elofic filters, Star Wire India Limited,JCB, Escorts group, Yamaha, Knorr Bremse, ACE-cranes, ABB, Good Year, ACC, Indian Oil (R&D), Whirlpool, Havell's, L&T, Bhartia cutler hammer, Mahindra Defence, Frick India Ltd., Orient Fans, Talbros, Bharat Gears, Clutch Auto, Hyderabad Industries, Lakhani shoes, Khaitan, Marathon Electric, JBM Group and many more.

It is also a hub of 25000 small-scale industries, mostly mechanical and light engineering goods industries.

REVIEW OF LITERATURE:

Present status of water environment supported with minimum one year analytical data Water bodies/effluent receiving drains in the area important for water quality monitoring Regional Office of Haryana State Pollution Control Board is regularly monitoring the water quality of River Yamuna, Canal system passing through the District i.e. Agra Canal, Gurgaon Canal and Drains carrying domestic effluent and industrial effluent which finally reaches the River Yamuna. The data generated is clearly indicating that the water quality of the above mentioned water bodies are not confirming to the standards prescribed under Water Act and Environmental Protection Act. The water quality of Agra Canal and Gurgaon Canal at Badarpur Border is very bad. A long term and short term action plan is urgently required to mitigate these problems and to reduce the pollution load in the River Yamuna. Further the regional office is also regularly monitoring the status of water quality of Gaunchi Drain and Buria Nalaha.

Present levels of pollutants in water bodies/effluent receiving drains/ground water (routine parameters, special parameters and water toxics relevant to the area in three categories- known carcinogens, probable carcinogens and other toxics) Ecogeological features Badkhal Lake, Suraj Kund Lake are the most important ecogeological features in the Aravali Hills. Due to mining activity in the Aravali Hills these two lakes are presently dried out. The perennial source of water supply to these lakes was catchments area in the Aravali Hills and due to mining activity these sources have since been dried out. There is an urgent need to provide alternate source of water to these lakes. The mining activities in the region have already been stopped by Hon'ble Supreme Court of India. The mining department and the Irrigation department Govt. of Haryana to take urgent action in this regard.

MATERIAL AND METHOD:

There are 491 number of Air polluting industries including Stone Crushers operating in the District Faridabad. All these units have provided desired Air Pollution Control Device. The major source of industrial emission is from

burning of agriculture waste, fossil fuel and pet coke either in the boilers, thermic fluid heaters or industrial furnaces. Further a part of the industrial emission is being generated from the Stone Crushing activity by 163 Stone Crushers operating in the District Faridabad and from the other infrastructure developing industries. The other major source of air emission is from automobiles plying in the District Faridabad.

Industrial Sources

No. of Registered Industries 12468

No. of Polluting Industries 1216

Large & Medium Units 123

SSI Units 1093

No. of Air Polluting Industries 491

No. of APCM installed 491

Vehicular Sources

No. of Registered Vehicles in Faridabad 5, 76,800

No. of Private Vehicles 4, 46,800

(Car, SUV, MUV and 2 Wheelers)

No. of Commercial Vehicles 1, 13,584

(Trucks, Buses)

No. of Auto Rickshaws Diesel Driven 15,544

No. of Auto Rickshaws CNG Driven 872

Flora and Fauna

Thorny, dry, deciduous forest and thorny shrubs can be found all over the region of Faridabad. During the monsoon, a carpet of grass covers the hills. Mulberry, eucalyptus, pine, kikar, shisham and babul are some of the trees found here. The species of fauna found in the region include black buck, nilgai, panther, fox, mongoose, jackal and wild dog. More than 300 species of birds are found here.

Due to uncontrolled mining and pollution in this area flora and fauna is facing a stressed condition and interference of human activities in their natural habitat leads to entry of some of the wild animals in human habitat and they are either killed by poachers or even other animals like dogs etc.

Mining activities leads to a dusty environment which is responsible for deposition of dust on foliage of all green plants in the area. It not only impair with the process of photosynthesis but also destruction of natural habitat leads to extinction of a number of plant species of medicinal importance and aesthetic value In States like Haryana, minor mineral leases are auctioned for a particular time period. Mining is considered to be capital intensive industry and considerable time is lost for developing the mine before it attains the status of fully developed mine. If the tenure of the mine lease is short, it would encourage the lessee to concentrate more on rapid exploitation of mineral without really undertaking adequate measures for reclamation and rehabilitation of mined out area, posing thereby a serious threat to the environment and health of the workers and public at large.

There is thus, a need to bring uniformity in the period of lease. It is recommended that a minimum period of mine lease should be 5 years, so that eco friendly scientific and sustainable mining practices are adopted. However, under exceptional circumstances arising due to judicial interventions, short term mining leases / contracts could be granted to the State Agencies to meet the situation arising there from.

Cluster of Mine Approach for Small Sized Mines:

Considering the nature of occurrence of minor mineral, economic condition of the lessee and the likely difficulties to be faced by Regulatory Authorities in monitoring the environmental impacts and implementation of necessary mitigation measures, it may be desirable to adopt cluster approach in case of presently. Further, these clusters need be provided with processing/crusher zones for forward integration and minimizing excessive pressure on road infrastructure. The respective State Governments / Mine Owners Associations may facilitate implementation of Environment Management Plans in such cluster of mines.

Requirement of Mine Plan for Minor Minerals:

At present, most of the State Governments have not made it mandatory for preparation of mining plan in respect of minor minerals. In some States like Rajasthan, eco friendly mining plans are prepared, which are approved by the State Mining Department. The eco friendly mining plans so prepared, though conceptually welcome, are observed to be deficient and need to be made comprehensive in a manner as is being done for major minerals. Besides, the aspects of reclamation and rehabilitation of mined out areas, progressive mine closure plan, as in vogue for major minerals could be introduced for minor minerals as well.

It is recommended that provision for preparation and approval of mine plan, as in the case of major minerals may appropriately be provided in the Rules governing the mining of minor minerals bythe respective State Governments. These should specifically include the provision for reclamation and rehabilitation of mined out area, progressive mine closure plan and post mine land use.

Creation of Separate Corpus for Reclamation / Rehabilitation of Mines of Minor Minerals:

Mining of minor minerals, in our country, is by and large unorganized sector and is practiced in haphazard and unscientific manner. At times, the size of the leasehold is also too small to address the issue of reclamation and rehabilitation of mined outs areas. It may, therefore, be desirable that before the concept of mine closure plan for minor minerals is adopted, the existing abandoned mines may be reclaimed and rehabilitated with the involvement of the State Government. There is thus, a need to create a separate corpus, which may be utilized for reclamation and rehabilitation of mined out areas. The respective State Governments may work out a suitable mechanism for creation of such corpus on the `polluter pays' principle. An organizational structure may also need to be created for undertaking and monitoring these activities.

CONCLUSION:

It is, therefore, recommended that detailed hydro-geological report should be prepared in respect of any mining operation for minor minerals to be undertaken below groundwater table. Based on the findings of the study so undertaken and the comments/ recommendations of Central Ground Water Authority / State Ground Water Board, a decision regarding restriction on depth of mining for any area should be taken on case to case basis.

Uniform Minor Mineral Concession Rules:

The economic value of the minor minerals excavated in the country is estimated to contribute to about 9% of the total value of the minerals whereas the non metallic minerals contribute to about 2.8%. Keeping in view the large extent of mining of minor minerals and its significant potential to adversely affect the environment, it is recommended that Model Mineral Concession rules may be framed for

Minor minerals as well and the minor minerals may be subjected to a simpler regulatory regime, which is, however, similar to major minerals regime.

River Bed Mining:

Environment damage being caused by unregulated river bed mining of sand, bazari and boulders is attracting considerable attention including in the courts. The following recommendations are therefore made for the river bed mining.

(a) In the case of mining leases for riverbed sand mining, specific river stretches should be identified and mining permits/lease should be granted stretch wise, so that the requisite safeguard measures are duly implemented and are effectively monitored by the respective Regulatory Authorities.

(b) The depth of mining may be restricted to 3m/water level, whichever is less.

(c) For carrying out mining in proximity to any bridge and/or embankment, appropriate safety zone should be worked out on case to case basis, taking into account the structural parameters, locational aspects, flow rate etc. and no mining should be carried out in the safety zone so worked out.

However, the activity as a whole is seen to have significant adverse impacts on environment. It is, therefore, necessary that the mining of minor minerals is subjected to simpler but strict regulatory regime and carried out only under an approved framework of mining plan, which should provide for reclamation and rehabilitation of the mined out areas. Further, while granting mining leases by the respective State Governments "location of any eco-fragile zone(s) within the impact zone of the proposed mining area, the linked Rules/Notifications governing such zones and the judicial pronouncements, if any, need be duly noted. The Union Ministry of Mines along with Indian Bureau of Mines and respective State Governments should therefore make necessary provisions in this regard under the Mines and Minerals (Development and Regulation) Act, 1957, Mineral Concession Rules, 1960 and adopt model guidelines to be followed by all States. & quot; (emphasis supplied)

The report clearly indicates that operation of mines of minor minerals needs to be subjected to strict regulatory parameters as that of mines of major minerals. It was also felt necessary to have a re-look to the definition of "minor" minerals per se. The necessity of the preparation of "comprehensive mines plan" for contiguous stretches of mineral deposits by the respective State Governments may also be encouraged and the same be suitably incorporated in the Mineral Concession Rules, 1960 by the Ministry of Mines. Further, it was also recommended that States, Union

Territories would see that mining of minor minerals is subjected to simpler but strict regulatory regime and carried out only under an approved framework of mining plan, which should provide for reclamation and rehabilitation of mined out areas. Mining Plan should take note of the level of production, level of mechanisation, type of machinery used in the mining of minor minerals, quantity of diesel consumption, number of trees uprooted, export and import of mining minerals, environmental impact, restoration of flora and host of other matters referred to in 2010 rules. A proper framework has also to be evolved on cluster of mining of minor mineral for which there must be a Regional Environmental Management Plan. Another important decision taken was that while granting of mining leases by the respective State Governments, location of any eco-fragile zone(s) within the impact zone of the proposed mining area, the linked Rules/Notifications governing such zones and the judicial pronouncements, if any, need to be duly noted.

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