International Journal of Mathematics and Physical Sciences Research ISSN 2348-5736 (Online)
Vol. 2, Issue 2, pp: (168-173), Month: October 2014 – March 2015, Available at: www.researchpublish.com

Our National Mineral Policy and Environmental Degradation Due To Varied Mining Activities - With Special Reference to Granite Mining In Bundelkhand Region

P.K. Jain[1], Yashodhan Waze[2], U. C. Singh[3]

[1, 3]School of Studies in Earth Science, Jiwaji University, Gwalior (MP), PIN – 474 011, India
[2]Kendriy Vidhyalay No. 1, Gwalior (M.P.), PIN- 474011, India

Abstract: **Rocks and minerals are non-renewable products of nature, once they are exhausted, they cannot be grown like plants and forest. Minerals have significant importance for the industrial, social and economic prosperity of any nation. Keeping this in view the need for a judicious National Mineral Policy was felt, so that the state could lay down proper guidelines towards development and exploitation of its natural resources, without harming the environment. The National Mineral Policy thus framed is liable for charyes according to necessity and demands. Generally, the policy can be grouped for 'domestic' and 'foreign' purposes separately to achieve this goal the terms "close door", "open door" and "restrictive" policies have been applied. Pursuing the available literature on our National Mineral Policy, it has been found that there is no strong and clear cut provision to protect the environmental degradation due to varied mining activities going on locally like - granite mining in Bundelkhand region. This lacuna raises the question that, what should be our "Ideal National Mineral Policy" (INMP).**

In the view of the above lacunae, the present paper presents certain suggestions for the same. The suggestions are discussed specially keeping in the view of the mining scenario of the state of Madhya Pradesh.

Keywords: **National Mineral Policy, Environmental Degradation, Mining Activities and INMP.**

1. INTRODUCTION

The rocks and minerals have great importance for the industrial, social progress and prosperity of the nation. They are necessary for the basic human needs. Minerals are limited as well as non-renewable in nature. A mineral once taken out from earth is gone forever, not only for one or two generations but for all generations to come. So the proper scheme for exploration, exploitation, development and maximum best use of minerals should be adopted.

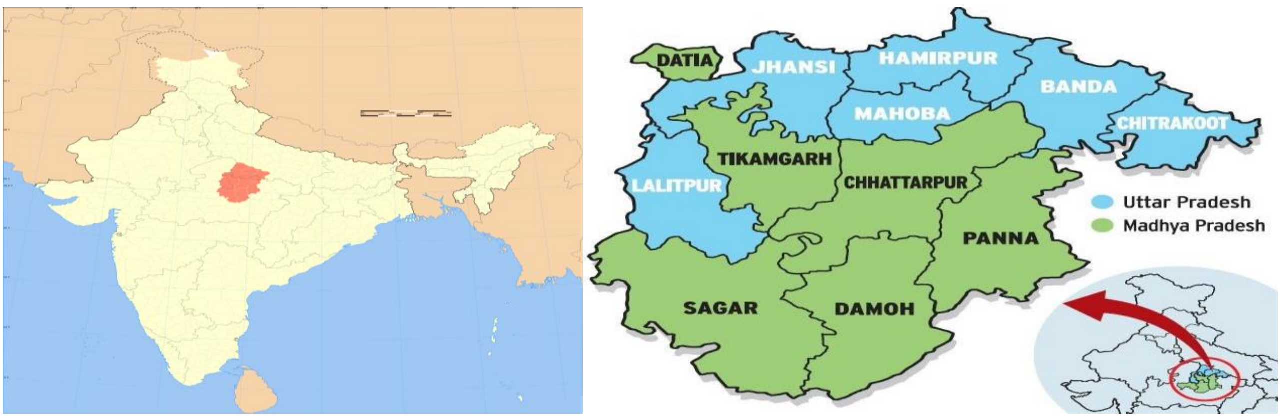

Fig. 1: Location and Approach Map of Bundelkhand Region

Stone is the basic building material, chiefly available in the earth's crust, used by men from pre-historic times [1]. Stones are regaining great popularity as building material through revolution in quarrying and mining to fulfill the demand of domestic and International markets. Granitic rocks are well exposed in the Bundelkhand region of M.P. and U.P. (**Fig. 1**). Granitic rocks (**Fig. 2**) are well known as high strength natural material, having great demand in the real estate market. Thus quarrying and mining of the rocks are well going on at the various places of Bundelkhand region.

Environmental degradation is another significant factor related to the mining sector. Due to greed for mineral resources, man has harmed the environmental scenario. For this, there should be strong laws and enactments to protect the environment. Our present mineral policy is unable to fulfill on these accounts. It should be more powerful and more possessive.

Fig. 2: Field Photograph showing Granite Exposure, Location: Baroni Khurd, Datia (M.P.)

2. EVOLUTION OF NATIONAL MINERAL POLICY (NMP) AFTER [2]

2.1.1 Ancient period:

Great economist Chanakya in his book Arthashastra, advocated limited freedom to mine owners and considerable regulatory powers to government. In ancient times, there was a dual role of public & private sector.

2.1.2 British period:

During the British time, the mineral policy of government was to encourage private sector to deal with the mineral properties. Further, the private ownership was mainly controlled by British companies & firms.

2.1.3 Post independence period:

Immediately after the independence the government had taken initiative towards formulation of National Mineral Policy. Mining rules were included in industrial policy announced in 1948 and 1956. Then followed MMRD Act, 1957 and Mineral Concession Rules (MCR) 1960, Different state governments also framed their own Minor Mineral Concession Rules (MMCR).

2.2 National Mineral Policy- After [3]

National Mineral Policy (NMP) is in a sense the attitude of a Government towards mineral development. It is the will and view of the Government for exploration, exploitation, development and maximum best use of its mineral resources.

2.2.1 Classification: - Two fold;

Like all other national policies, National Mineral Policy can be broadly classified in 'two' groups.

I. **Domestic Mineral Policy**-

The policy of the Government, towards its own mineral resources without foreign interference.

II. **Foreign mineral policy**-

The policy of the Government, towards foreign investments and collaboration in the mining sector **or** investments and collaboration in the mining sector of other countries.

2.2.2 Classification: - Three fold;

On the basis of freedom of investment in mining sector, the National Mineral Policy may be classified in 'three' groups.

I. **Close door policy**: No foreign investment is allowed to participate except those of allies.

II. **Open door policy**: Foreign investment is freely allowed.

III. **Restrictive policy**: Foreign investment is freely allowed on minority share basis.

2.3 National Mineral Policy - After [4]

First National Mineral Policy of India, announced in August 1990, was guided by Industrial Policy Resolutions 1956, which stated the responsibility of Government for development of 13 minerals. On the other hand the initiative of mining and processing of the minor minerals, as well as developing the small deposits of other minerals, will lie primarily with the private enterprises.

2.3.1 National Mineral Policy for non-fuel & non-atomic minerals:

Because of the consequent shift in government policy, the policy of liberalization, the National Mineral Policy was reformed and second National Mineral Policy came in March 1993. Because to be stand in tough competition of quantity and quality, the environmental concern was neglected. However government took a firm stand to protect the environment at any cost but there were no clear cut provisions and enactments.

3. NATIONAL MINERAL POLICY 2008 AFTER [5], [6]

The essentials of the NMP-2008 are:

3.1 Regulation of Minerals:

Procedures for the grant of mineral concessions shall be transparent, seamless and security of tenure shall be guaranteed to the concessionaires.

3.2 Role of the state:

The provisions of the MMDR Act, 1957 and the rules there under will be reviewed and harmonized with the basic features of the NMP.

3.4 Survey and exploration:

While Government agencies (GSI, MECL and State Directorates of Mining and Geology) will continue to perform the tasks assigned to them and private sector would in future.

3.5 Database of mineral resources:

National inventory of mineral resources based on the UNFC system will be maintained by IBM in digitized form comprising both a Resource Inventory and a Tenement Registry.

3.6 Strategy for Mineral Development:

Conservation of minerals, as a positive concept leading to augmentation of reserve base through improvement by scientific mining, beneficiation and utilization of low grade ores with zero waste mining is the ultimate goal.

3.7 Fiscal aspects:

It will be the Endeavour of the Government within the context of the budget, to design fiscal measures conducive to the promotion of exploration and development.

4. MINING OF BUNDELKHAND GRANITE AND ENVIRONMENTAL DEGRADATION

Bundelkhand granite [7] is one of the ancient rock groups and has much similarity with basement Archaen complex of Rajasthan and southern states. It is spread up in the southern part of U.P and northern part of M.P.

The granite mining in the region (around Datia, Tikamgarh, Chhatarpur districts of M.P, Lalitpur and Jhansi districts of U.P.) is basically quarry oriented. Small mine owners take lease of the mine and develop it without consulting the geologist or environmental geologist. The rules and acts (National Mineral Policy) are not hard & strict. So during the mining, environment is badly affected.

ENVIRONMENTAL IMPACT ASSESSMENT (E I A)

Quarrying involves opening of large pits (**Fig. 3**) on the surface of the land and stripping of exposed rocks / mineral deposits involving blasting. The degree of these operations, being mostly dependent on the value of the mineral deposit and quantity of production, involve partial mechanization. These activities cause a notable impact on the environment.

Fig. 3: Working Pit showing open cast mining activity

The major environmental problems associated with granite mining in Bundelkhand region are as follows:

1. Land degradation
2. Water pollution
3. Air pollution
4. Noise pollution
5. Flora & fauna
6. Demolition of aesthetics
7. Health hazards
8. Socio-economic impacts.

4.1 Land degradation:

The land degradation is mainly attributed to unscientific mining and disposal of quarry waste. The quarry waste include the overburden or weathered waste rock. Though, these are unmarketable products, mine owners do not take interest in proper handling of these wastes.

4.2 Water pollution:

Water is essential for quarrying and processing of dimension stones. The requirement of water is met through pumping of ground water and this causes lowering of the water level in the region. The slurry from processing plants is neither suitable for human consumption nor other usage, washed off from the waste dumps causes heavy siltation in the neighboring agricultural fields and also make water reservoir dry.

4.3 Air Pollution:

This is caused due to dust generated during blasting and other mining operations as well as from huge crushers installed nearby mining areas. The transportation of men and material over unmetalled mine/ roads also cause serious air pollution.

4.4 Noise pollution:

Most of the pollution due to blasting adopted for loosing the overburden and rock. Operations of crushing, screening loading and unloading also cause noise pollution.

4.5 Flora & fauna:

Flora & fauna are affected by various functions like -

I. Deforestation

II. Blasting operations and other sounds

III. Interference due to human population

IV. Electrification etc.

4.6 Demolition of aesthetics:

The local scenic beauty of the towns due to the existence of hillocks, hills, mounds, ridges etc. is also being adversely affected due to granite mining in the region.

4.7 Health hazards:

Long and deep pits are developed by granite mining. These are converted to ponds in the rainy season. Accumulation of water for longer time in these open pits, invite easily bacterial infections subjected to ground water pollution and uses of this contaminated water may put adverse effect on the user's health. (Epidemic diseases etc). Several types of bronchial and lung diseases are also generally found in the mine workers due to dust pollution.

4.8 Socio – economic impact:

Local population has their own social and cultural values, practices and occupations. Tribals and villagers who were busy in their occupations kept alive many crafts through generations are likely to be disturbed due to mining activities. This may result in the migration of native people and loss of traditional arts & craft of the whole region.

5. IDEAL NATIONAL MINERAL POLICY (I N M P)

It has been observed that there exist no clear cut and strong provision for protection of environmental degradation in our National Mineral Policy, in order to formulate and develop an Ideal National Mineral Policy (INMP) following suggestions should be incorporated.

I. All mining activities should be carried out under the supervision of a qualified geologist.

II. Environmental Impact Statement (EIS) should be prepared before actual mining by an environmental geoscientist.

III. Adequate Environmental Management Plans (EMP) should be prepared for a specific mineral development.

IV. The mining or quarrying operations should not be allowed within the radius of 1 km of the State / National highways.

V. Continuous monitoring and control should be done by competent agencies under the strict supervision of State Governments.

VI. Strict environmental laws and regulations should be enforced to check the possible environmental degradation in mining districts.

VII. Proper laws should be enacted for environmental auditing of mining operations.

VIII. Effective measures should be adopted for land use planning and restoration of land after mining operations are over.

IX. Systems for water and air quality management during and after mining operation should be developed and followed.

X. Sound environmental policies should be implemented for establishing a correct balance between economic necessities and ecological goals of the region.

6. CONCLUSIONS

Rocks and Minerals are the valuable natural resources of the Nation, which plays very crucial role in the development and prosperity of any Nation, once they are exhausted cannot be grown like fauna and flora. The demand of present time for a well planned programme of survey, exploration, exploitation and management of the natural resources, those have already been discovered and to be discovered in the future, for their timely, economical, optimal and judicious use are the matter of national interest. The exploitation should be done for the same without destruction of environment. Well harmony must be maintained in between the men / users and environment to protect the ecosystem for retaining life on the earth.

ACKNOWLEDGEMENT

The authors are sincerely grateful to Late Professor Madhumas Chandra Khare, former head, school of Studies in Earth Science, Jiwaji University, Gwalior (M.P.) for his valuable suggestions to improvement of the manuscript and provide department facilities to carry out the work.

REFERENCES

[1] Reddy, D. V., 2008, Decorative and Dimensional stones of India, CBS Publishers & Distributors, New Delhi-02, pp vii.

[2] Chatterjee, K. K., 1993, An introduction to Mineral Economics, chapter - 24, National Mineral Policy-Problems and Prospects pp. 318-334, Wiley eastern limited, New Delhi.

[3] Sinha, R.K. and Sharma, N.L. 1988, Mineral Economics (4th edition) chapter-17. National Mineral Policy, pp. 304-309, Oxford & IBH publishing company Pvt. Ltd. New Delhi.

[4] Chowdhury, S.K., 1996, India's Mineral policy in the wake of liberalization and globalization of economy, Journal of mines, metals & fuels, pp. 99-102 & 116.

[5] Hoda, Anwarul (Chairman, High Level Committee for NMP), 2005 & 2008, National Mineral policy-2008, for non fuel and non- coal minerals, Ministry of Mines, Govt. of India.

[6] Pichamuthu, D. V., 2011, Note on the evolution of India’s National Mineral policy and its impact on the mienal industry. Jour. Geol. Soc. India, Vol. 78, Sept., 2011, pp. 285-289.

[7] Jain P.K., M. C. Khare and A. C. Saxena, 1994, Petrography of Bundelkhand Granite and Intrusive Rocks of an Area around Datia (M.P) India, Asian J. Exp Sci, vol. 8, No.1 & 2, pp. 51-57.