

Ecology and Sustainable Development

(With Special Reference to Aravali Hills)

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Abstract:

The Aravalli Mountain range which stretches widely from Gujarat in the southwest to Delhi in the northeast for about 700 km and which sculpts the topography of eastern Rajasthan and adjoining parts of Haryana and Delhi, is the largest mountain range. Its ecology has always been a point of fascination to the localites and those who belong to the areas other than the ones that fall within the Aravali mountain range. In Rajasthan, it creates a picturesque backdrop for flourishing settlements that reveal their superiority over others due to their climatic richness. The highest point of the Aravali hills is at Guru Shikhar on Mount Abu in Rajasthan where the peak rises to about 1,722 m.

The effect of the ranges on the biodiversity and environment of the region is so immense. They support open forests, famous forts and temples of historical importance, micro climate and the hydrological features.

It will not be wrong to comment that the Aravalli ranges are the lifeline of this region of Rajasthan because several rivers sustain life in the adjoining areas. In addition, essential resources for sustaining human and livestock populations of the area are provided. However, the current situation is drastic because due to the greed of the modern man, recent developments have adversely affected their biodiversity.

The paper, designed primarily on the secondary data found available in the books of Geography and Ecology and in the various studies on the issue available in the varied national and international journals, concludes that in order to maintain the original form of the Aravali hills, it is essential to adopt some effective governmental policies so that the ecological features can be maintained and sustainable development in and around the Aravali hills can be brought about.

Keywords: Rajasthan, Aravali, greening; mountain ranges, sustainable development, environment, ecology, biodiversity, ecological impact, productivity

Introduction

Aravalli is a Sanskrit term which means 'line of peaks' are the oldest fold mountain ranges in India. It spans from Gujarat to Delhi with the highest point in Mount Abu, Rajasthan. The Sambhar Sirohi range and the Sambhar Khatri range in Rajasthan are two subdivisions of Aravalli hills. It is the source of several rivers such as Banas, Luni, Sakhi and Sabarmati.

A mountain range in Northern-Western India, the Aravali Range runs approximately 670 km in a south-west direction. It starts near Delhi, passes through southern Haryana, Rajasthan, and ends in Ahmedabad Gujarat, covering and encompassing thus, four major states of India. They impart a special status and identity to Rajasthan because the highest peak is Guru Shikhar on Mount Abu at 1,722 metres or 5,650 ft.

As regards the natural and resource-beauty is concerned, the Aravali Range is rich in natural resources and minerals. It serves as a great check to the growth of the western desert. Spread across Delhi, Gujarat, Haryana and Rajasthan, the Aravalis play an important role in shaping the west-Indian climate and biodiversity.

However, deforestation, land degradation, encroachments, developmental activities and mining in the regions that fall within them, have led to serious consequences like loss of biodiversity, human wildlife conflicts, air pollution etc. The more the times are advancing, the more the ecology of the region is losing its original features.

The deforestation trend from 1957 to 1998-2001 is assessed by means of Indian topographical sheets and satellite images. It is reported that the natural vegetation cover has decreased from 30% in 1982 to 15% in 1998-2001. This region was once famous for its greenery between Himalaya and Vindhyan mountain regions.

A number of factors are involved in the deforestation. This study attempts to highlight the deforestation trend, and its associated causes and effects, so that this grave problem can be properly understood. It is also observed that the tribes of Great Aravalli followed unique type of tree mortgage system.

Nearly 20 thousand years ago for the first time due to climatic changes the well civilised people of Great Aravalli migrated towards the north direction, which was inspired by migratory birds.

The forested patches of Aravali hills have acted as green lungs against the air pollution and soil erosion for a long time as a result of which the ecology was so strong and so rich. The rich ecology of Aravali hills in the region kept the people, flora and fauna away from the effect of the varied pollutants and there had been a perfect peace to all.

Likewise they checked the spread of the Indian Desert towards eastern Rajasthan, Indo Gangetic plains, Haryana and Western UP, imparting greenery to the areas. Had there not been Aravali hills, there would have been deserts spread across everywhere in Rajasthan, Haryana etc. with no greenery and picturesque beauty.

One of the most significant contributions of the Aravali hills is that it has provided a rich habitat for wildlife since times immemorial, but now the scenario is all changed. Undoubtedly, the materialistic tendency of the modern man that has made him absolutely individualistic in approach of thinking and living, is responsible for this horrible changed situation in the regions associated with Aravali hills.

The minerals that are found in plenty here include- zinc, gold, silver, copper ore and lead, marble, limestone etc. The Aravali hills have attracted everyone, but especially the miners and constructors who, with the aim of earning more and more through the hills, make over exploitation of the ranges for the sake of money. It is equally seen in all the four states of India where for the sake of money and for being millionaires and billionaires, the miners and constructors are busy in exploiting the Aravali hills.

Urbanization is much more responsible for such an exploitation of the Aravali hills due to which building and construction activities in and around Delhi, the demand for red Badarpur sand, silica, quartz and other stones has been growing constantly. In this regard, Rajasthan is better than other states relating to Aravali ranges because mining in the area of Aravalli hills of

Rajasthan has been prohibited by the Supreme Court of India, still due to the great demand of construction materials, legal and illegal mining have been rampant in the region.

The Aravalli range is considered the lungs of the polluted National Capital Region. The failure of Haryana and Rajasthan governments to rein in the miners despite the Supreme Court's orders to preserve the hills, has resulted in severe degradation of the hills, causing many of them to vanish. This multi-utility of Aravalli hills range, from the business as well as public policy perspective, has made the very survival of the range a continuous struggle.

Objectives of the Study

- To highlight the geographical features of the Aravali hills
- To discuss the major contribution of Aravali hills to environment, flora and fauna of the regions.
- To highlight the ecological changes and ecological crisis in the Aravali range in Rajasthan
- To mention the causes and effects of the ecological changes and ecological degradation in Rajasthan
- To study and describe the environmental degradation around the Aravali hills
- To emphasize the need of the maintenance of the ecological features of the Aravali hills
- To reflect the ecology and sustainable in the areas near Aravali hills
- To deal with the governmental policies adopted to ensure ecology and sustainable development in and around Aravali hills

Review of Related Literature

- **K.K.Yadav & Vinita Yadav (2012)**, in their study entitled **Tourism and Eco Development in Aravalli Ranges, Near Delhi**, observe that urbanisation has posed a threat for the environment. The developers and builders activities impacted negatively on the natural habitat. Aravalli Ranges in and around Delhi has seen many such changes in the last few decades. The Government and Builders nexus had an impact on the forest cover and ground water level. For sustainable development at regional level, it is essential to check the environmental degradation.
- **G. Singh, G. R. Choadhary, B. Ram & N. K. Limba (2011)**, in **Effects of rainwater harvesting on herbage diversity and productivity in degraded Aravali hills in western India**, study that over-exploitation and rural growth have severely damaged native vegetations of Aravali hills in Rajasthan, India. The study evaluates the effects of different restoration practices (i.e., rainwater harvesting (RWH) and planting of tree seedlings) on improvement in soil water and nutrients and growth and biomass of herbaceous vegetation.
- **Rinku Sharma (2009)**, in the study **Sustainable Development: The Way for Future, Where are we?**, suggests that concerted and sustained efforts are required to meet the challenges resulting from climate change and its effects. Ground water conservation practices like construction of khadin (popular in Maharashtra, Andhra Pradesh, Madhya

Pradesh, Tamil Nadu, Karnataka, and Gujarat), check dams, farm ponds, recharge shafts, injection wells (in coastal region and to combat problems of heavily pumped out aquifers), and contour trenching, to arrest surface run-off at elevations, and similarly surface water conservation techniques, like construction of ooranies (surface water collection ponds with improved catchments, commonly found in Tamil Nadu), are important measures to tackle problems of water scarcity and the decreasing ground water table.

- **Jens Lund, Kulbhushan Balooni and Thorkil Casse (2009), in Change We can Believe in? Reviewing Studies on the Conservation Impact of Popular Participation in Forest Management**, observe that popular participation in the management of forests is an important policy in developing countries. Popular participation signifies peoples' participation in the management of the forests they live in and around, and, hence, includes many of the management regimes entitled decentralized forest management, participatory forest management, joint forest management, community-based forest management, indigenous forestry, and social forestry found around the world.
- **Ashish Aggarwal, Radhey Shyam Sharma, Bhimraj Suthar & Kailash Kunwar (2006), in An ecological assessment of greening of Aravali mountain range through joint forest management in Rajasthan, India**, observe that Rajasthan is one of the largest Indian states with about 9% of its total geographical area covered with forest. Large area of the state is covered with desert, has one of the highest livestock populations and therefore has severe shortage of biomass for local use. The community forestry initiative in this state has resulted in significant regeneration, enhanced biomass and enhanced tree cover in the villages indicating large potential for community initiatives. Species diversity, stem density and species richness have increased in plantations and natural forests under community forestry indicating that community is keen on managing the forest resources. The study indicates that there is potential to cover more villages under JFM to enhance forest cover, stem density and diversity of tree species.

Formulated Hypothesis

- Aravali hills encompass four major states of India, namely, Gujarat, Rajasthan, Haryana and Delhi
- In Rajasthan, the two major ranges of Aravali hills are- the Sambhar Sirohi range and the Sambhar Khatri Range
- Aravali hills are losing their original ecological features
- Over exploitation of the land in the areas falling in the Aravali hills in Rajasthan has created a problem and crisis for the ecological features of the Aravali hills
- It is only through the ecology and sustainable development that the Aravali hills can be kept safe from the growing pollution.

Methodology

The study is descriptive and interpretative in nature as throughout a focus has been made to describe the degradation and deterioration in the ecological features of the Aravali hills. The

scientific nature of the study lies in the adoption and implementation of all the steps suggested and approved for research, and especially in the research design adopted for this study. The major steps involved in the study are- appropriateness of the title that enables one to realize the contents to be produced in the paper; set-objectives of the study that helps one realize the delimitations of the study and the various aspects to be studied and considered; review of selected of literature that provided an adequate feedback of the issue and a platform for the study; formulated hypothesis that led the scholar to move in a proper direction and to accept and reject the hypothesis.

Findings & Conclusion

Aravalli hills, another name for the 'line of peaks' serve as the northwestern mountain ranges running through the four major states of India, namely, Delhi, Haryana, Rajasthan and Gujarat. The historical and ecological significance of the Aravali lies in the fact that it is the oldest fold mountain in India, and even older than Himalayan ranges. The Aravali hills have served the flora and fauna of the regions that befall with them.

Each of the four states of India known for the Aravali hills is rich in picturesque beauty, climatic features, flora and fauna and minerals, but Rajasthan stands uncomparable because the highest point of Aravali range called Guru Shikhar is located in Mount Abu in Rajasthan.

Generally, Rajasthan is known for its deserts, but Guru Shikhar in Mount Abu imparts a majestic look and speciality to it through the unexpected climatic beauties that draw everyday the tourists from all the four corners to Mount Abu. The Aravali hills in Rajasthan form two major ranges. They are- the Sambhar Sirohi range and the Sambhar Khatri range. Aravali hills have several of their peculiar beauties and specific features some of which that can be apparently seen and noticed by the lovers of nature are as follows-

- The Aravalli hills extend across the western and north-western margins of the peninsular plateau in particular across four states — Delhi, Haryana, Rajasthan, Gujarat.
- These are heavily eroded and shattered hills and lie in the northern direction of the Satpura ranges.
- These are stretched from Gujarat to Delhi in the Southwest-Northeast direction and give rise to rivers like bananas, luni, Sakhi and Sabarmati.

It is worth noting that the Aravalli range also provides habitat to 300 native plant species, 120 bird species and many exclusive animals like the jackal and mongoose. For Haryana, having the lowest forest cover at around 3.59% of the total forest cover in India, the Aravalli range is the only saving grace, providing the major portion of its forest cover (MoEF 2017). But due to its overexploitation, the range is no longer an effective green barrier. If left untouched, the Aravalli range would be enough to preserve humidity and sufficient rainfall in the region.

Southern Rajasthan is an important physiographic unit of the state, lying in the lap of the Aravalli mountain ranges it has a complex topography characterized by dissected plateaus, hills, ridges and lakes. Once a perfect region for solace and pollution-free environment, it is now in the grip of pollution, deforestation, urbanization, urban sprawl and materialistic tendencies of the

modern man who has lost all sense being blind in his own interests.

It is undoubtedly true that the ecology of Aravali hills in Rajasthan is passing through hard times. The Government of India and the Government of Rajasthan have a serious concern for it. At the level of both the central government and the state government, several policies are adopted to check deforestation and other things that threat the ecology of the region, but in vain.

It is only through the positive and dedicated effort of all the individuals that the basic and original ecological features of the Aravali hills in the region can be revived. There is an utmost need of sustainable development in the region which can be ensured through a planned check on the deforestation and excessive exploitation of the natural resources the Aravali hills have in them.

Deforestation, urban sprawl, excessive exploitation of the natural resources to satisfy the greed of the modern man have disfigured the Aravali hills in the region. Where there was once natural peace, is there now crowd of the people running after money and materialism. Anyway, mustard-like hope is still there that in the region sustainable development will be brought about through the lessons of awareness and individual consciousness of the people.

References

1. Ashish Aggarwal, Radhey Shyam Sharma, Bhimraj Suthar & Kailash Kunwar (2006). An ecological assessment of greening of Aravali mountain range through joint forest management in Rajasthan, India, International Journal of Environment and Sustainable Development 5(1).
2. G. Singh, G. R. Choadhary, B. Ram & N. K. Limba (2011). Effects of rainwater harvesting on herbage diversity and productivity in degraded Aravalli hills in western India, Journal of Forestry Research volume 22, Article number: 329
3. Jens Lund, Kulbhushan Balooni and Thorkil Casse (2009). Change We can Believe in? Reviewing Studies on the Conservation Impact of Popular Participation in Forest Management, Conservation and Society, Vol. 7, Issue 2
4. K.K.Yadav & Vinita Yadav (2012). Tourism and Eco Development in Aravalli Ranges, Near Delhi, The Deccan geographer 50(2):99-105
5. Rinku Sharma (2009). Sustainable Development: The Way for Future, Where are we? Indian J Community Med, v.34(4)