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# Changing Pattern of Forests in Haryana

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***Abstract – Forest resource conservation has been widely accepted as a key to sustain the local and regional economic development. The forest edges are affected by anthropogenic activities including deforestation, forest fragmentation, selective logging, extraction of non-timber forest products, collection of medicinal plants, recreations, hydroelectric projects and its associated developmental activities, which alter the biodiversity. The present study reveals that actual situation of forests and comparison between different districts regarding area under forests in the state of Haryana. The result of study says forests are in the critical situation in the state of Haryana and deforested very rapidly. Present study is very useful for making environment policies for the state; based on district wise changes of forests area.***

***Key Words: Biodiversity, Critical Situation, Environment Policy, Forest Area, Haryana.***

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## INTRODUCTION

Environmental activists consider forests as one of the resources on earth. Forests are hugely important for life on earth. This is because it serves as an ecosystem, and sustains life for millions of plants, birds and animals that live in the rivers and streams running through these forests. It also does a lot of good to the atmosphere in climate control, as well as supplying oxygen for human sustenance. They function as habitats for organisms, hydrologic flow modulators and soil conservers, constituting one of the most important aspects of the biosphere. Forests are often home to many animal and plant species, and biomass per unit area is high compared to other vegetation communities. Much of this biomass occurs below ground in the root systems and as partially decomposed plant detritus. The woody component of a forest contains lignin, which is relatively slow to decompose as compared with other organic materials such as cellulose or carbohydrate. Forests contribute to their environment by providing oxygen, improving air quality, climate amelioration, conserving water, preserving soil and supporting wildlife. During the process of photosynthesis, trees take in carbon dioxide and produce the oxygen we breathe. According to the U.S. Department of Agriculture, "One acre of forest absorbs six tons of carbon dioxide and puts out four tons of oxygen. This is enough to meet the annual needs of 18 people." Trees, shrubs and turf also filter air by removing dust and absorbing other pollutants like carbon monoxide, sulfur dioxide and nitrogen dioxide. After trees intercept unhealthy particles, rain washes them to the ground. The Govt. of India promulgated an Ordinance called the "Forest (Conservation) Ordinance, 1980" on the 25th October, 1980, followed by an Act called "The Forest Conservation Act, 1980".

## OBJECTIVES:

- ► To get the attention against forest conservation in Haryana.
- ► To analyze the district wise spatial variation of forests in Haryana.
- ► To reflect the temporal tendency of forests in Haryana during 1970-2011.
- ► To reflect the percentile changes under forests in Haryana from 1998-01 to 2008-11.

## RESEARCH METHODOLOGY:

The data has been used in this research paper from secondary sources. This secondary data has been collected from The Economic and Statistical Office, Karnal (Haryana). For analyzing the change in forests of the state; district wise data has been collected for two triennium 1998-2001 and 2008-2011. An attempt has been made to tabulate process, analyze and interpret the data by applying suitable statistical and cartographic techniques.

- Percentage of Forests has been calculated by using below method:

$$= \frac{\text{Sum of Forests (Triennium)}}{\text{Sum of Total Area According to Village Papers (Triennium)}} \times 100$$

- To know Percentile change of forests in Haryana, following formula has been used:

= Percentage of Forests (1st Triennium) - Percentage of Forests (2nd Triennium)

## STUDY AREA:

The present study is related to Haryana state which comes under the Country of India. Haryana is the seventeenth state of the Indian union located at the north-western land of India. It extends from $27^0$ 39' to $30^0$ 55'51" north latitude and $74^0$ 28' to $77^0$ 36'5" east longitude. It sprawls across 44, 212 sq. km area and is the sixth smallest state in the country; which constitutes 1.4 percent of the country's geographical area. The administrative boundaries of Haryana have been changing from time to time, according to changes in administrative policy. However the geographical and natural boundaries of the state have remained the same. Shivalik Hills in the North, Yamuna River in the East and Aravalli Hills in the south-western part make its geographical boundaries. From the administrative point of view, Haryana is bounded by Punjab on the North West, Himachal Pradesh on the North East, Uttar Pradesh and the Union territory of Delhi and Rajasthan in the South. In this research paper, area under forests include actually forested area on the lands classed or administered as forest under any legal enactment dealing with forests whether state owned or private. Besides, the forest areas along roads, railways and canals have also been included.

## TEMPORAL FOREST CHANGES IN HARYANA:

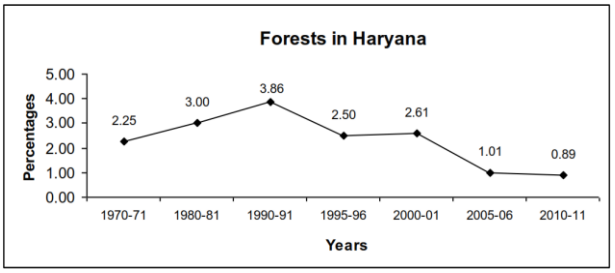
Below Table-1 shows year wise changing percentage of forest under state of Haryana during 1970-1971 to 2010-2011. It clearly shows that the highest percentage of forests contain in the year of 1990-91 i.e. 3.86 percent. But the percentage of forests in Haryana has reached the lowest level during the year 2010-2011

**Table-1: Forests in Haryana during 1970-71 to 2010-11**

| Sr. No. | Years | Percentage of Forests |
|---|---|---|
| 1 | 1970-71 | 2.25 |
| 2 | 1975-76 | 2.36 |
| 3 | 1980-81 | 3.00 |
| 4 | 1985-86 | 3.78 |
| 5 | 1990-91 | 3.86 |
| 6 | 1995-96 | 2.50 |
| 7 | 2000-01 | 2.61 |
| 8 | 2005-06 | 1.01 |
| 9 | 2010-11 | 0.89 |

i.e. 0.89 %. This is the least percentage year under forests in the history of Haryana. It direct indicates the rapidly deforestation in state of Haryana. (Fig.1)

**Fig-1: Forests in Haryana during 1970-71 to 2010-2011.**




Above Fig-1 clearly reflects year wise percentages of forest area in Haryana during 1970-71 to 2010-2011. By the study of this graph we can easily analyze the percentage of forest area in Haryana.

## DISTRICT WISE SPATIAL AND TEMPORAL CHANGES OF FORESTS IN HARYANA:

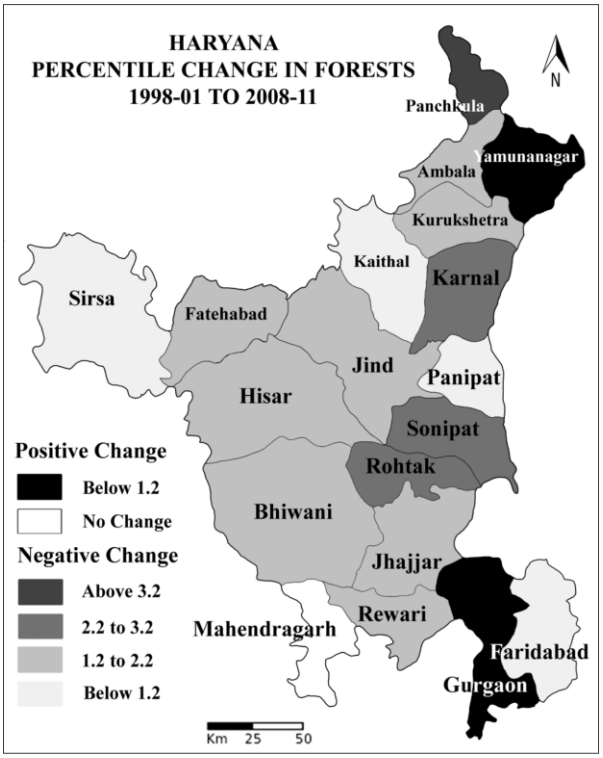
Below Table-2 represents district wise percentile changes of forests in Haryana between the two triennium years i.e. 1998-2001 and 2008-2011. It reflects Panchkula (28.41%) has highest while Mahendragarh (1.03%) has the lowest forest coalescent districts of Haryana in the period of 1998-2001 whereas, in the period of 2008-2011, Yamunanagar (8.72%) has uppermost but Rohtak (0%) and Jhajjar (0%) has lowermost forest coalescent district of Haryana. Mahendragarh (1.03%) is only district which has no change in both triennium years. The most important fact is that none of any district has below 1% of forest in the period of 1998-2001 while in the period of 2008-2011, two districts has 0% forest in Haryana.

**Table-2: District wise Percentile Change of Forests in Haryana**

| Sr. No. | Districts | Percentage of Forests 1998-2001 | Percentage of Forests 2008-2011 | Percentile Changes |
|---|---|---|---|---|
| 1 | Ambala | 2.01 | 0.65 | -1.36 |
| 2 | Panchkula | 28.41 | 3.51 | -24.9 |
| 3 | Yamunanagar | 7.56 | 8.72 | 1.16 |
| 4 | Kurukshetra | 1.79 | 0.40 | -1.39 |
| 5 | Kaithal | 1.32 | 1.02 | -0.30 |
| 6 | Karnal | 2.84 | 0.41 | -2.43 |
| 7 | Panipat | 3.10 | 2.31 | -0.79 |
| 8 | Sonipat | 3.29 | 0.31 | -2.98 |
| 9 | Rohtak | 3.19 | 0.00 | -3.19 |
| 10 | Jhajjar | 1.40 | 0.00 | -1.40 |
| 11 | Faridabad + Palwal* | 1.44 | 0.32 | -1.12 |
| 12 | Gurgaon + Mewat* | 1.11 | 1.12 | 0.01 |
| 13 | Rewari | 2.65 | 1.32 | -1.33 |
| 14 | Mahendragarh | 1.03 | 1.03 | 0.00 |
| 15 | Bhiwani | 1.93 | 0.50 | -1.43 |
| 16 | Jind | 2.16 | 0.36 | -1.80 |
| 17 | Hisar | 1.48 | 0.25 | -1.23 |
| 18 | Fatehabad | 1.61 | 0.27 | -1.34 |
| 19 | Sirsa | 1.17 | 0.23 | -0.94 |
| | Haryana | **2.61** | **0.9** | **-1.71** |

Table 2 clearly highlights that the state has a forest share of 2.61 percent out of the total geographical area in 1998-01. Panchkula, Yamunanagar, Karnal, Panipat, Sonipat, Rohtak and Rewari are the districts having higher figures than the state average.

However, fewer shares of forests to the state's average has been identified in Ambala, Karnal, Kaithal, Jhajjar, Faridabad, Gurgaon, Mahendragarh, Bhiwani, Jind, Hisar, Fatehabad and Sirsa. If it has been observed in 2009-11 periods; the total area under forests has declined in the state, it is now 0.9 percent of the total area of the state. Panchkula, Yamunanagar, Kaithal, Panipat, Gurgaon, Rewari and Mahendragarh districts are such whose percent of forest share is more than the state average. On the other hand, districts having less than the state average are Ambala, Kurukshetra, Karnal, Sonipat, Rohtak, Jhajjar, Faridabad, Bhiwani, Jind, Hisar, Fatehabad and Sirsa. While comparing the figures of two triennium period, Haryana depicts the decline of 1.71 percent in the forest. It reveals the critical condition of the state. Inspite of this the state has introduced many schemes to increase the vegetation cover, conserving biological diversity and to fulfill the basic needs of people for firewood, minor forest produce and timber. District wise percentile change in forests has shown in table-2 and map-1.




Because of the successful efforts of government, Yamunanagar and Gurgaon districts reveals increase in forests i.e. 1.16 and 0.01 percent but in Gurgaon forests increase is very less. However, rest of districts shows the negative changes in forests from 1998-01 to 2008-11 periods. Very high decline (above 3.2 percent) has been observed in Panchkula district i.e. 24.9 percent. High decline (2.2 to 3.2 percent) has been identified in Rohtak, Sonipat and Karnal districts. Where as moderate decline (1.2 to 2.2 percent) depicts in maximum districts such as Jind, Bhiwani, Jhajjar, Kurukshetra, Ambala, Fatehabad, Rewari and Hisar. Low decline (below 1.2 percent) can be seen in Sirsa, Faridabad and Palwal, Panipat and Kaithal districts. The study also reveals that only one district i.e. Mahendragarh has no change in forests between the two triennium periods.

## CONCLUSION:

Forestry activities in the state are mainly dispersed over rugged Shiwalik Hills in north, Aravalli hills in south, sand dunes in west and wastelands, saline-alkaline lands and waterlogged sites in the central part of Haryana. Overall it reveals that forest area has been rapidly decreasing in the state in recent years which represents the critical condition of the state. This may create the problem of ecological imbalance, climate change, desertification, floods and draughts in future. The main reasons for the declining forests is growing population their demands and desires, urbanization and industrialization. Also the demand of timber and firewood is growing with population. Thus, to fulfill the demands of growing population as well as to maintain ecological balance it is necessary to rehabilitate the degraded forest area and bring new areas under forest. To achieve these objectives afforestation should be carried out and new schemes should be introduced by the forest department and they must implement with proper care.

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