

## **Perception of People of Bhopal Towards the Restoration of Ecological Balance with Development Of Green Spaces**

<sup>1</sup>Mudasir Gani Wani , <sup>2</sup> Ghulam Mohd Rather , <sup>3</sup>Fayaz Ahmad Nengro  
<sup>1,2,3</sup>Govt.Degree College (Boys) Baramulla, Jammu Kashmir,

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**ABSTRACT:** To know the perception of people of Bhopal regarding the restoration of ecological balance due to development of greenspaces. A vast analysis was done in this regard from the three different areas of Bhopal i.e. a commercial area (Jahangirabad), an industrial area (Bharat Heavy Electricals Limited/BHEL), a residential area (Baghsavania). During analysis it was found that respondents of Jahangirabad were found more in favour of developing green spaces so as to maintain ecological balance as compared to BHEL and Baghsavania area. While Baghsavania were found least towards development of green spaces. However majority of respondents were found against development of green spaces and few percentage of respondents also avoid this query and did not like to talk, mainly due to lack of knowledge and information regarding the essence of ecological balance. The data was collected with the help of observations, interviews and discussions with respondents, for which a survey was carried in which door-to-door and face-to-face interviews and discussions were held and so result was obtained.

**KEYWORDS:** Green space, Restoration, Ecological balance, Biodiversity, Residential area

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### **I. INTRODUCTION:**

Ecological balance a state of dynamic equilibrium within a community of organisms in which genetic, species and ecosystem diversity remain relatively stable, subject to gradual changes through natural succession. The ecological balance is the equilibrium between, and harmonious coexistence of, organisms, including plants, animals & human life and their environment. If the balance gets tipped in any direction, it will have an adverse effect on the rest. Ecological balances are tools for the evaluation of environmental impacts which develop during the life cycle of a product, i.e. from extraction of raw materials, during manufacture, use, recycling, re-use and final disposal of the product. Ecological balances are necessary for the recording, transparent preparation and evaluation of product-related impacts on environment. The product-related ecological balance is called as well "LCA" which is the abbreviation for "Life Cycle Assessment. The ecological balance is as well a suitable tool for the improvement of the environmental properties of products and the production process itself. Therefore production companies and service providers should prepare their ecological balances in order to examine the effects of their production processes on the environment. Trees in urban systems provide a variety of ecosystem services including biodiversity conservation, removal of atmospheric pollutants, oxygen generation, noise reduction, mitigation of urban heat island effects, microclimate regulation, stabilization of soil, ground water recharge, prevention of soil erosion, and carbon sequestration

(**Bolund and Hunhammar 1999**). Wildlife sanctuaries are undeniably important for biodiversity conservation tools, but research findings in Jodhpur city reinforce the idea that with a network of urban green spaces and support from local people cities can serve as de facto sanctuaries for some species. A recent El Niño Southern Oscillation (ENSO) resulted in die-off of mammals in the Kumbhalgarh Wildlife Sanctuary (KWS) in Rajasthan. This die-off coincided with the La Niña-induced drought of 2000, and two consecutive monsoon failures. Indeed, Hanuman langurs (*Semnopithecus entellus*) suffered a population crash of nearly 50% from 1999 to 2001 in KWS. But, langurs in Jodhpur city were buffered against drought because of the availability of urban green habitat and food (**Waite et al. 2007**). Even the trees in backyard provide the benefit of biodiversity conservation networks in urban ecosystems (**Hillary et al. 2002**). The case of Kerwa Forest Area in Bhopal is another Indian case in point. Kerwa Forest supports several threatened and endangered plant, animal, and bird species. It also plays a critical role as a carbon sink with a total storage of about 19.5 thousand tons of aboveground carbon (**Dwivedi et al. 2009**). Biodiversity in urban green spaces can be large. If declines in some species are to be arrested or reversed, conservation effort will need to focus much more strongly on understanding and managing urban populations, because these might buffer some species against regional population depletion.

In recent decades the scientific understudy of how trees, parks and open spaces benefit people in cities has expanded substantially, to include social, economic and environmental domains. Urban parks, forests and open space systems provide many for city dwellers. Series of studies (Kuo, 2003) has determined that having trees in public housing neighborhoods lowers level of fear, contribute to less violent and aggressive behavior, encourages better neighbor relationship and better coping skills. Tree has not only their physical existence but also have close association with socio-economic life of people. The world's forests have an undisputed and vital role in sustaining natural and human environment. Green spaces are one of the important factors to maintain healthy environment. They not only provide better atmosphere but also add the shining of the area. Greenspace is an area of land that usually surrounds a town or city. (Dunn, 2000) states that the roads with the trees look more stable and prosperous and boost up the neighborhood property. Trees and plantation along roadside are effective in enhancing the aesthetic quality of resident rail area (Schroeder & Cannon, 1997). Participation of local communities in the development and maintenance of green spaces was considered to be the most appropriate approach to achieve the desired result. Vegetation in the cities includes open spaces, railway tracks and roadside plantation, woodland, public parks, school gardens, home gardens and greenbelt. Roadside plantation is an important component of green spaces, plants along the road act as link between the greenery of the country and that of urban areas. Trees along roads may be only attempt in a large city to maintain vegetation in a particular urban area. Qasim & Dunnet (1997) perceived contribution of the city vegetation and garden to improve environmental quality. The quality of urban environment depends largely on the amount of quality of green space (Olembo and Rham, 1987). Long and Nair (1999) stated that when green space is occupied by trees has both aesthetic and restoration and so maintain ecological balance. While roadside plantation is considered to play vital role in the protection of urban environment, which includes control of solar radiation, temperature, noise and soil erosion, wind and glare that is polluted by road transport, both by private cars and commercial vehicles (Alexander, 1993). Plants keep the environment in hygienic conditions and maintain the ecological balance, so as to protect and conserve the plantation; it is the responsibility of every person to maintain harmony with the plantation.

## II. MATERIALS METHODS

Madhya Pradesh is endowed with rich and diverse forest resources. Lying between latitude 21° 6' and 26° 54'N and longitude 74° and 82° 47'E. It is a reservoir of biodiversity. The geographical area of the state is 308,144km<sup>2</sup>, which constitutes 9.38% of the land area of the country. The forest area of the state is 95,221km<sup>2</sup> constituting 31% of geographical area of the state and 12.44% of the forest area of the country. As per the latest estimates of Forest survey of the India, published in the state Forest Report (SRF) 2003, suggested that the total forest cover of Madhya Pradesh is 76,429km<sup>2</sup> which is 24.79% of the land area, dense forest constituting 13.57% and open 11.22%. So about one third of the state is forested and offers a unique and exciting panorama of wildlife. Bhopal city is capital of Madhya Pradesh (India). Besides excellent location of Bhopal; city is blessed with beautiful landscapes, busy commercial centers, peaceful residential areas and historical monuments. Geographical location of Bhopal City lies within North latitude 23° 16' and east longitude 77° 36'. Bhopal has a humid-subtropical climate, with mild, dry winters, a hot summer and a humid monsoon. To collect the data and to know the perception of people of Bhopal towards development of green spaces, three different areas of Bhopal were selected namely

- [1] Baghsavania, a residential area
- [2] Bharat Heavy Electricals limited (BHEL), an Industrial area
- [3] Jahangirabad, a commercial area

Since there should be a proper design for carrying a research process and the process must be appropriate and suitable. Most reasonable and notable method of collected data used was to do survey. During survey door-to-door and face-to-face interviews and discussions were made with people irrespective of their caste and creed. The perception of respondents towards development of green space for maintaining ecological balance was recorded in the form of a questionnaire in which public response was recorded in the form of Yes/No/ and Neutral.

## III. RESULT AND DISCUSSION:

In the view to know the perception of public of Bhopal that development of green spaces can help in maintain the restoration of ecological balance, 188 respondents were administered a query in Baghsavania residential area of Bhopal through our questionnaire and response was collected in the form of Yes/No/Neutral. Out of 188 respondents 27 i.e. 14.36% respondents response was recorded as Yes, while rest of respondents 161 i.e. 85.63% say No and there was no respondent to say Neutral. As shown in table 1 and fig. 1 Likewise in BHEL an industrial area of Bhopal, 235 respondents were administered this query in which 44 i.e. 18.70% of respondents say Yes means they were aware about this fact. While as 158 i.e. 67.20% of respondents say No, means they were not aware about this fact.

It was found during the survey that about 33 respondents i.e 14.04% did not show any response simply due lack of time or may be due to their shyness and hesitation as shown in shown in table 1 and fig. 1 Similarly in Jahangirabad which is a commercial of Bhopal, 203 respondents were administered this problem and following result was obtained. Out of total 66 i.e. 32.51% of respondents say Yes, while as 121 i.e. 59.60% of respondents say No for the same problem. Also about 16 i.e. 7.8% respondents did not respond and show a Neutral response, as shown in table 1 and fig. 1 . Upon analysis it is now clear that there is less positive perception of people of Bhopal regarding the restoration of ecological balance by developing green spaces in all available patches of land. Jahangirabad was found more towards developing green spaces and Bagsavania was found least familiar regarding green spaces development while percentage of people favoring developing of green spaces were found in between the two. During analysis it is evident that majority of people were found against the development of green spaces. Proportion of people against the development of green spaces linearly increases as we proceed from Jahangirabad, BHEL and to Bagsavania, with Bagsavania at the top of such respondents while Jahangirabad at the bottom. Another group of respondents from BHEL and Jahangirabad simply avoid this issue due to lack of interest and awareness. While few percentage of respondents also did not like to talk about the issue. The major reasons behind were their lack of awareness regarding the essence of environment, essence of ecology and its various other aspects. They find themselves at the bottom towards the importance of forests and other green plants regarding how it can help in regulating ecological balance, regulating water cycle and other important issues like global warming, climate change, ozone depletion, and acid rain. The majority of respondents even were found in dilemma and they show complete ignorance how developing green spaces can play an active role in controlling air pollution, noise pollution and soil pollution.

Study Areas	Yes %	No %	Neutral %
Jahangirabad	32.51	59.60	7.80
BHEL	18.70	67.20	14.04
Bagsavania	14.36	85.63	0.0

Table.1 Shows perception of respondents in all the three study areas of Bhopal towards the importance of green spaces for maintaining ecological balance.

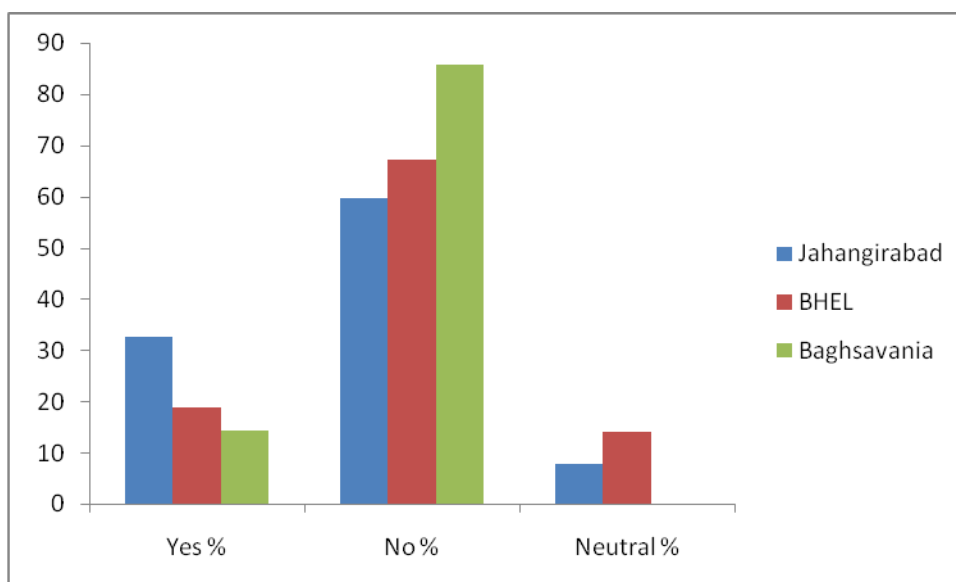


Figure.1 shows graphically the perception among the respondents in all the three study areas of Bhopal towards the importance of green spaces for maintaining ecological balance.

#### **IV. CONCLUSION:**

This research was meant to assess the perception of people of Bhopal towards maintaining the ecological balance in nature by developing green space all along the vacant available spaces of earth. The study was carried in three areas of Bhopal city viz, Baghsavania (a residential area), Bharat Heavy Electrical Limited (an industrial area) and Jahangirabad (a commercial area). The gathering of data initiates through interviews, observations and discussions through surveys. On the basis of which result was obtained. Since our study was based on to sensitize the people towards importance of vegetation including forests and to record their perception towards maintain of ecological balance by green spaces, which they gained throughout their life activities

During face-to-face interviews, direct observations, discussions and upon result analysis, the following main findings were obtained.

- [1] Perception of people of Bhopal towards maintaining ecological balance by developing green spaces decreases linearly from commercial area to industrial area and to residential area of Bhopal.
- [2] People of Jahangirabad were found more towards developing of green spaces for maintaining ecological balance than BHEL. While least proportion of people from Baghsavania were found in favour of developing green spaces.
- [3] However majority of respondents from all the three areas were found against the development of green spaces for maintaining ecological balance. The reason found was only lack of their awareness towards the importance of green spaces and so ecological balance.
- [4] Some proportion of respondents from industrial area and commercial area did not like to talk about the issue. They simply try to avoid the problem due to their shyness and hesitation.

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