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Comparative Analysis of Social Sustainability at Four Locations of Indore City by ANOVA Technique

Ar. Soma Anil Mishra [1], Dr. R.K.Pandit[2], Dr. G.V. Kulkarni[3]

[1]*Research Scholar, Dept of Architecture, M.I.T.S, Gwalior.*
[2]*Professor and Head, Dept. of Architecture, M.I.T.S, Gwalior.*
[3]*Director, I.P.S Academy, Indore.*

Abstract:- Sustainable development is the thought process behind well being of humanity. It expects the sustenance of mankind on earth. As per the idea of sustainable development lays stress on encompassing all the three parameters of sustainability, meaning balance between socio-economic activities with environment ultimately, the process should enhance the quality of human life. The development should encourage human bonding in the society and feeling of neighbourhood satisfaction by fulfilling community needs. Finally sustainable development is devolvement which accompanies welfare of the society by including some design elements in the safe built environment. Some alterations in physical environment can bring in the feeling of safety for the society.

Indore is a fast growing city of Madhya Pradesh in India. The research paper aims at analysing the Social Sustainability at four locations of the city. The four locations have been selected as per their socio-economic status. The comparative analysis has been done by ANOVA, SPSS 21.

Study showed that when the city is developing and maintaining parameters of Social Sustainability then all its neighbourhoods follows the paths of development. It is a good sign towards positive growth.

Keywords:- Social Sustainability, City, Basic Needs, Policies, Justice, Welfare, Crime, Legislation.

I. INTRODUCTION

Literal meaning of the word 'sustain' is to hold up; to bear; to support; to provide for; to maintain; to sanction; to keep going; to keep up; to prolong; to support the life of. It experts also say that it is equitable distribution of resources and opportunities. Adopting sustainability understands the interconnections among economy, society and environment. It implies to using methods, systems and materials that will not deplete resources or harm natural cycle. [19]

Sustainable settlement enables its citizens to live a good quality of life by using minimal natural resources.[16] Hence sustainable city is one that is capable of providing the basic needs of the citizens along with the required civic amenities infrastructure including housing, education, transportation, employment, good governance, social comfort and equity, health, medical care, economic development and prosperity for future generations.

The cities where socio-economic issues and interests are brought together in harmony with environmental conditions are capable for ensuring continuity in change. [5]

New social systems are evolving which in turn are changing built environment. Also change in built environment influence social setting. They both counter balance each other. Hence human well-being effect built environment and natural environment. This integrated human, natural and build environment constitute the anthropogenic earth. [22] A new model of sustainability encompasses a series of interwoven transformations in knowledge and value, society and demography, people and cities, equity and power, governance and economy, technology and environment, all within the arena of civilizing globalization. [13]

For really trying to attain Sustainable Urban Transformation, One must know thresholds of human well-being, socio-cultural status of society and established life style of citizens along with environmental development. Otherwise development may have to defend repulsion from the social values of society and their set norms. [9]

Experts think that sustainability should be applied at local scale, i.e. at the level of municipalities, cities and metropolitan regions. Challenges are best expressed when actors are mobilized. [3]

The inter-connected spaces and build a mental map in their mind and build perception of the city as a whole. This helps in studying the social conditions of the space and build safe society. [21]

The positive aspects of high density, mixed use areas, intensive urban core-job/housing areas, where people could live, work, shop and play without the use of automobile shall be the sustainable urban space of 21st century. [24] The concepts of social and cultural sustainability can be situated within the housing context. There are two strands of housing; these strands are taking care of environmental resources and ecological factors and influence of socio-cultural factors. If they are taken care of, as an integrative approach, sustainable development can be achieved. [6] Quality of life has to be taken care of, for promoting sustainable development. The complex nature of quality of life in a particular society requires good research of Social sustainability. [23] Emphasis needs to be laid upon social issue of sustainability and crime in particular. The adopted system approach draws together three key themes of designing out crime, namely: the design of the built environment, the ongoing management of the built environment and design to reduce opportunities of crime. [7]

Human relationship has strong Impact on space. This can have effect on the social environment. Problems related to environmental quality is strongly related to the success and failure of a market place, in turn affects the business. [11] Sustainable development has taken a global dimension, still there is a close mutual interaction needed between local and global process. Regional differences and particularities are very important. [8]

II. SOCIAL SUSTAINABILITY

Sustainable development is the thought process behind well being of humanity. It expects the sustenance of mankind on earth. As per the idea of sustainable development lays stress on encompassing all the three parameters of sustainability, meaning balance between socio-economic activities with environment ultimately, the process should enhance the quality of human life. [2] There exist three strands of sustainable development, which are environmental, social and economic sustainability. For sustainable development, respect for all the three areas is necessary. [7]

It is expected from decision makers to take care of social conditions and future changes possible along with economic and environmental aspects. [4]

The human values may be complementary in the society among citizens and sometimes they may compete with each other, whatever is the situation, balance should be maintained to achieve the process of sustainable development. [12]

As the society is comprised of citizens who know best about their past and future needs, hence public participation in decision making is very important and helpful for sustainable development. [15]

If social interactions, traditional and local celebrations are respected, then the neighbourhood will keep on developing. [17]

Policies should be made after studying the past, present and future aspirations. They should be versatile and adaptive to the changing conditions. [14]

The activities responsible for development should enhance the community activities and encourage the citizens to build a society which respects life and healthy living. [20]

The principles indicate that the development process and policies adopted must take care of the ecosystem and all habitats therein. [2]

The development should encourage human bonding in the society and feeling of neighbourhood satisfaction by fulfilling community needs. Finally sustainable development is devolvement which accompanies welfare of the society by including some design elements in the safe built environment. Some alterations in physical environment can bring in the feeling of safety for the society. [18]

Fear of crime is a major issue of social sustainability which has been neglected and not incorporated within the arena of sustainable development. [10]

Sustainability is commonly misunderstood as ‘green’ whereas holistic concept of sustainability must encompass economic and social sustainability achieving equity and balance among all three strands. All the three parameters of sustainability – environmental, economic and social, should be given equal attention and importance by decision makers for achieving sustainable development. [1]

III. HYPOTSESIS

There is no significant difference of Social Sustainability in four locations of Indore city.

Sub – Hypothesis shall be as below:

Ho(i) There is no significant difference of Sustainability of Basic Needs at four locations of Indore city.

The hypothesis is tested by One Way ANOVA. 80 respondents from each of the four locations are selected and ANOVA is used to analyse the difference. For 95% of confidence interval, the value of Fischer’s Test is 171.960 with total degree of freedom being 319; the significance value/e value reported by SPSS is 0.000. This

means hypothesis is accepted that there is no significant difference in Social Sustainability of basic needs among four locations of Indore City.

Means value of Sustainability of Basic Needs at Zangeerwala is 3.8448, that at Sapna Sangeeta Area is 2.9604; Mean at Nehru Nagar is 3.9229 and same at Bhagiratpura is 2.5698. The means are not significantly different to statistically reject the hypotheses, but close observation shows that Zangeerwala area and Nehru Nagar area are slightly better in case of Sustainability of Basic Needs than Sapna Sangeeta Area and Bhagiratpura.

Ho(ii) There is no significant difference between Social Sustainability of safety at Social Sustainability four locations of Indore city.

The hypothesis is tested by One Way ANOVA. 80 respondents from each of the four locations are selected and ANOVA is used to analyze the difference. With 95% of confidence interval for mean, the value of Fischer's Test is 295.045 with total degree of freedom of 319, the significance value/e value reported by SPSS is 0.000. This means hypothesis is accepted that there is no significant difference between Social Sustainability of safety at four locations in Indore city. It further indicates that at all the four locations under study area; Social Sustainability of safety occupies certain level which is not much high or low as compared to each other.

Means value of Social Sustainability of safety at Zangeerwala is 4.1694, that at Sapna Sangeeta Area is 2.3750; Mean at Nehru Nagar is 3.8528 and same at Bhagiratpura is 2.0500. The means are not significantly different to statistically reject the hypotheses, but close observation shows that Zangeerwala area and Nehru Nagar area are slightly better in case of Social Sustainability of safety than Sapna Sangeeta Area and Bhagiratpura.

Ho (iii) There is no significant difference between Social Sustainability of health at four locations of Indore city.

The hypothesis is tested by One Way ANOVA. 80 respondents from each of the four locations are selected and ANOVA is used to analyse the difference. With 95% of confidence interval for mean, the value of Fischer's Test is 210.306 with total degree of freedom of 318; the significance value/e value reported by SPSS is 0.000. This means that the hypothesis is accepted and there is no significant difference between Social Sustainability of health at four locations of Indore city.

Mean value of Social Sustainability regarding health at Zangeerwala is 4.4025, at Sapna Sangeeta is 3.5200; similarly Nehru Nagar shows mean value of 4.6633 and Bhagiratpura has 3.2400. The means are not significantly different to statistically reject the hypotheses.

Ho (iv) There is no significant difference between Social Sustainability in case of Gender Equality at four locations of Indore city.

The hypothesis is tested by One Way ANOVA. 80 respondents from each of the four locations are selected and ANOVA is used to analyse the difference. With 95% of confidence interval for mean, the value of Fischer's Test is 70.942 and total degree of freedom of 319, the significance value/e value reported by SPSS is 0.000. This indicates that the hypothesis is accepted and there is no significant difference between Social Sustainability of Gender Equality at four locations of Indore city.

Mean value of Social Sustainability regarding Gender Equality at Zangeerwala area is 3.00, at Sapna Sangeeta is 2.29; similarly Nehru Nagar has mean value of 3.43 and in Bhagiratpura is 2.29. The means of all the four locations of research are not significantly different to statistically reject the hypotheses.

Ho (v) There is no significant difference between Social Sustainability of Participation at four locations of Indore city.

The hypothesis is tested by One Way ANOVA. 80 respondents from each of the four locations are selected and ANOVA is used to analyze the difference. With 95% of confidence interval for mean, the value of Fischer's Test is 199.356 and total degree of freedom of 318, the significance value/e value reported by SPSS is 0.000. This indicates that the hypothesis is accepted and there is no significant difference between Social Sustainability of Participation at four locations of Indore city.

Mean value of Social Sustainability regarding Participation at Zangeerwala area is 3.7898, at Sapna Sangeeta is 2.6739; similarly mean value at Nehru Nagar is 4.0380 and at Bhagiratpura mean value is 3.0091. The means of all the four locations under study for the research are not significantly different to statistically reject the hypotheses.

Ho (vi) There is no significant difference between Social Sustainability of Justice and Welfare at four locations of Indore city.

The hypothesis is tested by One Way ANOVA. 80 respondents from each of the four locations are selected and ANOVA is used to analyse the difference. With 95% of confidence interval for mean, the value of Fischer's Test is 306.801 and total degree of freedom of 319, the significance value/e value reported by SPSS is 0.000. This indicates that the hypothesis is accepted and there is no significant difference between Social Sustainability of Justice and Welfare at four locations of Indore city.

Mean value of Social Sustainability regarding Justice and Welfare at Zangeerwala area is 4.1850, at Sapna Sangeeta area is 2.5850; similarly mean value at Nehru Nagar is 3.8725 and at Bhagiratpura is 2.2675. The means of all the four locations are not significantly different to statistically reject the hypotheses.

IV. RESULTS

SUMMARY SHEET FOR ANOVA

S.No	Hypothesis Statement	Significance Level	Hypothesis Judgment
1	There is no significant difference of Social Sustainability of Basic Needs at four locations of Indore city.	0.000	Accepted
2	There is no significant difference between Social Sustainability of Safety at four locations of Indore city.	0.000	Accepted
3	There is no significant difference between Social Sustainability of Health at four locations of Indore city.	0.000	Accepted
4	There is no significant difference between Social Sustainability in case of Gender Equality at four locations of Indore city.	0.000	Accepted
5	There is no significant difference between Social Sustainability of Participation at four locations of Indore city.	0.000	Accepted
6	There is no significant difference between Social Sustainability of Justice and Welfare at four locations of Indore city.	0.000	Accepted

V. CONCLUSIONS

The research signifies that at all the places; citizens lead more self-determined lifestyle that they did 20 years back. It is possible that the social status and standard may vary but the hold of people towards their own lifestyle has changed everywhere. Similarly in all the 4 locations daily needs are fulfilled and people are satisfied. People may have their own house or rented house, reliability of water and adequacy of electricity has increased over the period of 20 years. People in all the four places are satisfied being parts of mixed use colony rather than totally residential or more commercial areas. Mixed use colony provides them more satisfied and somewhat secured life. Moreover, at all the four places, some means have been adopted to attain safety, citizens/ government has implanted mechanical security systems and formal surveillance system. Social security is either based on public services or family solidarity at all the four locations of Indore City. Communal riots and anti-social activities have lessened over last 20 years, the fear of domestic crime like burglary and theft also eve-teasing and chain snatching incidents have become very rare over last 20 years in the city as a whole. Various safety means have been adopted and planning of neighborhood is also cohesive, hence Social Sustainability level is improving at similar pace in all the four areas selected under the study of this research.

At all the four locations of Indore City, people have proper medical aids when required and medical facilities/ hospitals are within occupants' reach in all the four locations. Fire stations are also within their vicinity and epidemic or other contagious diseases are rare in all the places. Further people of all the four locations under study of this research, lead healthy life and their neighborhoods are Social Sustainable from health point of view.

At all the four locations of Indore city, Social Sustainability of Gender Equality prevails in similar manner. Overall justice between men and women is satisfactory; both the genders have equal opportunity for working for lively-hood. Also girl children are sent to school everywhere. Some areas have special programs for women education and in all the four neighborhoods household violence rate has come down over the period of 20 years.

Social Sustainability of Participation at all the four locations are of similar kind. At all the four places, source of entertainment in community participation is of similar type. Some citizens have feeling of cohesion among themselves and some do not. The areas have similar frequency of honkers and vendors in the neighborhoods. Most of the people in all the four places depend upon helpers for their household jobs. People are somewhat reluctant to visit their friends' places without any specific reasons. Citizens have feeling of ownership for their localities in all the four places. The communities' cohesiveness is maintained in the similar manner as it was 20 years back. People depend upon their immediate neighbors during emergency. Some areas are psychologically happening whereas others are monotonous. Social integration level has improved in all the four locations, some areas already had good social integration and now it has been better; the areas which did not have social integration in the past are also improved over last 20 years to social needs.

Further, urbanization has affected standard of life in all the selected 4 locations and to cope up with new atmosphere, education level of people have been improved by the citizens themselves and they find themselves free to follow traditional family pattern as per need therein. Social Sustainability of Justice and Welfare at all the four locations under study of the research are of similar type. At all the four locations, citizens enjoy considerable social justice, authorities work for the betterment of societies everywhere. Also in all the four locations, people have faith in the existing justice system. Senior citizens are respected everywhere and in all the four places there are avenues open for unemployed people of the city.

It has been observed from the results of ANOVA that all the four areas selected for this research are socially sustainable in the similar manner. There is no significant difference in cases of basic needs, Safety, health, gender equality, participation and Justice and Welfare aspects of Social Sustainability in all the four locations of Indore city. Somewhat similar pattern is followed throughout the city.

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