

Revival of Public Parks in Wardha

Triple Bottom Line Approach:

Consideration of Social, Economic and Environmental factors in Sustainability of Parks in an Urban area.

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Abstract— A multitude of factors contribute in making a sustainable type of park in urban or semi-urban areas. The present study undertakes the role of social, economic and environmental factors in designing and maintaining parks in cities. Getting time for oneself and that too in natural surroundings is like a breeze of fresh air amidst the hustle and bustle of a city life. It shapes human psychology and contributes to one's well-being. An appropriate park can be a very beneficial tool for human relaxation, entertainment and health. This study suggests that while designing or reviving a park in a city; social, economic and environmental factors are quintessential consideration points for proper development of parks. This study also puts forward recommendation and guidelines for enhancement of quality of parks and maintaining long term viability of parks in a city.

Keywords— Parks, sustainability, social, economic, environmental, urban.

I. INTRODUCTION

Nature and its offerings are the ultimate foundations of life and health. Parks are a key to access them, especially, in an urban civilization. The concrete technological jungle of a city has helped humans connect two poles of the globe, at the same time, the increasing towers have drawn us away from our mother nature [35]. Also, the ill effects of pollution, work stress has reminded today's robotic cemented man the importance of nature and connecting to it has become the growing need of the hour [25]. Lack of consideration of factors like population growth at the onset of urban design planning has led to improper space allocation leading to major problems like overcrowding, scarcity of public spaces, etc. which is escalating day by day [4]. End result of which is both the quality of human life as well as the environment we live in has been hampered. Even existing public spaces are not user friendly.

Parks are constructed in an attempt to make people interact with nature, to refresh their thoughts from their busy schedules and also allow them to spend quality time with family and friends. In addition, parks are like an ornament and enhance the beauty of a city [20]. It also helps in developing human relationship with the nature and people around. Proper location of a park and the facilities provided in a park create attachment between people and provide opportunities for intercultural interaction within people from different strata of society [12].

Access and proximity to safe and good quality parks has various benefits. It improves mental and physical health of people, builds social relationships [13]. This has been linked to physical and psychological health benefits, especially for the elderly age group. For children, accessible and safe parks foster active play leading to physical, mental and social development of the child [24]. These potential benefits of parks may be hampered due to various concerns. The barriers to park usage include park related crimes and safety issues, injury or accident prone areas in a park, gender related concerns, social or cultural norms [13]. In addition, the long distance of a park from human settlement areas leads to lack of awareness of its existence among the public, in turn affecting the accessibility to a park due to additional transportation time and expense [3]. The surroundings of a park area including the weather and pollution levels in its vicinity also have an impact on its acceptance by the general public.

The growing population in today's world has stressed the need to provide good quality parks in congested cities which can only be achieved through renovation, rehabilitation and up gradation of the already existing parks in many space crunched cities [1]. The increased pollution levels also demand the same. Despite so many opportunities and requirements for the improvement of parks, we are lacking in major aspects to provide park related benefits to the public [12]. So it is our goal in this paper to survey the literature and study the correlation between various social, economic and environmental factors related to the sustainability of a park. We must not forget that parks serve as 'lungs' for compact urban areas [31]. There are various environmental, social and economic benefits of parks. Parks help to lower temperature and cool the surrounding atmosphere, collect and store rain water, help in carbon sequestration as well as provide a home for wildlife [21]. By providing a cooler atmosphere, parks indirectly help in reducing the total energy consumption spent indoors for air conditioning. In the long run parks do help in reducing the health care related expenses by contributing to good physical and mental health and also reduces the psychological and respiratory problems caused by noise and air pollution [12]. Di Nardo F et al. reviewed the most updated literature regarding the relationships between green spaces and wellness. They concluded that many contradictory and unexpected results probably occurred because of differences in measures and definitions of green space, the self-reported measures of 'well-being' and variations in population habitats and geographical locations [9].

II. DEFINITIONS

A. *Urban Park*

It is also known as a municipal park or a public park, it is a park in cities and other incorporated places to offer recreation and green space [28].

B. *Social*

A party of people assembled to promote sociability and communal activity [6].

C. *Economical*

Using the minimum time or resources necessary for effectiveness or relating to an economy, the system of production and management of economic growth [6].

D. *Environmental*

Concerned with the ecological effects of altering the environmental pollution or relating to the external conditions or surroundings, environmental factors [6].

E. *Environmental factors*

Environmental factors include everything that changes the local environment. This includes natural forces like weather and human effects like non-biodegradable litter [6].

F. *Health*

“A state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity” [22].

G. *Wellbeing*

A valid population outcome measure beyond morbidity, mortality, and economic status that tells us how people perceive their life is going from their own perspective [13].

H. *Parks*

Use the term parks for recreation and cultural activity. This may also include trail, landscaping and local or neighborhood open space. It ranges from small local urban parks to community gardens [31].

‘High quality’ parks are accessible, comfortable and safe. These spaces are well maintained and provide adequate facilities, including lighting, relaxation amenities, tracks for walking, jogging and cycling paths, shelter and seating facilities. High quality parks offer the opportunity for interaction with nature and also encourage a variety of other activities like exercise, play and social interaction [31]. It is important in establishing and maintaining the quality of life of a community, ensuring the health of families and youth, and contributing to the economic and environmental well-being of a community and a region [7].

III. SOCIAL FACTORS

Parks are a very important part of any city and contribute to the upbringing of its community. Parks provide a space for outdoor activities like public gatherings, recreational and

social events. Parks improve the quality of life and are beneficial to its user’s health [13]. Parks create opportunities for contact with nature, help in creativity expression and building of fresh new thoughts [8]. People hang out in parks and thus they help in making a positive contribution to human society by building human relationships [24]. People find solace in parks by being close to nature and get piece of mind, thus temporarily freeing them from their stressful work, related problems which in turn helps them in their vocation [30]. Physical activities like jogging, running, exercising, yoga training at parks makes people physically fit and thus in a way contributes in reducing the health sector expenses [15]. Parks help in connecting people from different walks of life thereby helping exchange of ideas among varied minds. This in turns helps the society to build new relationships based on factors of mutual trust among different people [10]. It temporarily shifts people from their routine chaos and helps in relieving stress from their responsibilities in their day to day life [23].

Parks have a significant impact on the development of children and the prevalence of happiness in the neighborhood [19]. During the designing process of a park, planner should flexibly adjust the park design based on the actual need of the local community instead of going through a standard checklist. At some places, parks may be perfect as picnic spots, at some they may act as markets for farmers, based on the community needs. Increasing the number of parks also helps in reducing crime rates, especially among youth by diverting their thoughts and indulging them in constructive activities [35]. By giving the youths a safe place to interact with one another, parks keep them out of the streets and its associated troubles and in turn create a safe environment for the society [2]. Crime and safety fears often extend beyond parks to surrounding neighborhoods or streets, reducing the accessibility of these areas. All these act as barriers for park usage in terms of perceptions of crime and neighborhood safety [36]. Many American communities, a midnight basketball program is organized, keeping the play court open late till night helping to reduce youth crime rates [11]. It seems that when people make interactions among themselves in a peaceful atmosphere like parks, they tend to make new friends and participate in recreational activities [5]. A positive effect takes place immediately on their mental health thereby reducing stress levels and increasing the quotient of individual and group happiness. There are many documents, reports and articles published in the literature related to frameworks for understanding connections between human health and nature. According to the World Health Organization, quality of the air we breathe, the water we drink, the food we eat and many other features of the natural environment play a significant role in human health outcomes [2]. Approximately one-quarter of the global disease burden and over 80 per cent of the diseases and injuries they monitor are affected by modifiable environmental factors. Such factors relate primarily to environmental degradation. A number of health related problems like obesity, diabetes, hypertension, heart diseases and depression have been linked to reduced physical activity [16]. Parks serve as grounds for physical training especially for people from low income families who cannot afford a gym membership. Parks equipped with proper amenities for physical training can help people remain physically active. Many studies have shown connections between physical health of human beings and the surrounding [25]. These studies have revealed many advantages such as increased immune system

functioning, reduced anxiety and stress levels in addition to improved cognitive function [15]. Parks which provide adequate meaningful spaces for exercise and physical activities can reduce obesity trends [16]. A park makes its surrounding neighborhood walk a more pleasant and enjoyable experience. Parks provide kids a safe place to connect with nature and helps in healthy development of children. Children often engage themselves in unstructured plays in a natural outdoor yet enclosed space like parks [3]. It improves the cognitive capacity of such children who are observed to develop imaginative rich ideas, with a calm and focused attitude yet with an increased level of physical activity and positive social interaction [2]. In the absence of unstructured outdoor play, structured outdoor experiences as part of educational programs have been shown to have significant health benefits for children [19].

Learning to play in natural surroundings like a park helps improve hand eye coordination in children. It also increases their ability to learn and grasp new thoughts and ideas and improves brain sing ability [5]. Interacting with other children in group plays in parks helps build better emotional stability and improved mental health in children at a young age [32]. It also provides great opportunities for parent-child bond formation. Thus the benefits of childhood physical activity are not time or age limited [3].

Good accessibility to safe public parks results in frequent usage of parks. Gender is also an important consideration while considering social factors related to park [14]. Women from low socio-economic communities are important beneficiaries of the physical and social health potentials of visiting parks and green spaces. While considering social factors, we have to improve facilities for the community which enhance the quality of life, focusing on community specific needs. Good facilities in parks can contribute to the general quality and standard of life in the community [7]. A community with good parks and other facilities is a pleasant and sociable place to live with a lively outdoor and cultural life. Good facilities provide exposure and opportunities for a wide variety of intellectual, cultural, and physical activities. It includes services like public transportation which can ease the stress of communicating and travelling thereby reducing air pollution, traffic and also conserve energy [20].

It is important to keep personal health high and health care cost low. Several studies have shown that a park helps to improve physical and mental health and it plays important role in the health of a community [13]. A 2003 study featured in the Journal of Epidemiology and Community Health showed that increasing percentage of green space has significant relation to overall general health. Work of Edward Wilson, famous American biologist has explained psychological benefits of parks. His study has shown that humans cannot be separated from nature and that being connected to nature is quintessential for psychological well-being [35].

An article in the Journal of Management of Environmental Quality, 2012, explains how parks can aid in increased social interactions in cities. In crowded cities, social interaction becomes difficult due to distance and traffic issues and leads to lack of personal communication among people [6]. Parks offer spaces for people to interact. Studies have shown that seniors living in the interior of a city who have accessibility to green space communities, have significantly higher social ties with

their neighborhoods than those with less access to places like parks [37]. Every community is in need of good facilities. There are some standards for development of good facilities. Good and relevant facilities can be provided at parks only if the community is involved in the aspects of planning and development of parks [25]. Parks should be well managed, beautiful, welcoming, accessible, healthy, safe, clean, well maintained, flexible, exciting and functional. Good facility does not always be expensive but it should be best designed in a way so that available resources are properly used and not wasted. The facility should also be sustainable over time. It should be able to provide the function it is expected to deliver without damage over time. For instance, playground equipment's at parks should be tough enough to stand up to years of whatever children can dream up to do with it [19].

IV. ECONOMIC FACTOR

Parks in cities improve the local tax base thereby increasing the property values [21]. There is a high demand for residential areas adjoining parks and people are willing to pay a higher price for such areas. In addition, entry charges in parks as well as the various recreation programmes which are conducted in parks generate sizeable revenue which can further be utilized for the development of these parks [3]. The recreation programmes include events held at parks related to sports activities, art exhibition, musical plays and festival celebrations on national holidays [32]. It also helps create awareness among people. New York Forests, a national conservation organization that promotes forestry, estimates that trees in cities save \$400 billion in storm water retention facility costs. The events held at parks along with the facilities provided at parks helps improve the economic status of the community by attracting businesses and tourism faculty. It helps in employment generation for the society [21]. The employees at a park are additionally benefitted by the pleasant and soothing atmosphere in the park. This in turn encourages the working force and helps in keeping the best in the employees. A good working force self learns the importance of good management and maintenance of a park and this in turn values the self-respect of the working community [4].

Proper maintenance of a park requires economic stability. It can be achieved by making sure that the revenue generated from park related activities and park provided facilities is adequately utilized for the maintenance of the park [36]. Any park should be financially sustainable with money available for maintenance and other ongoing expenses. Various possible sources of generating revenue should be explored by the management committee of the park. Management committee is responsible for regular and appropriate maintenance of a park. [6]. It should make sure that proper bills are generated and that adequate budget is allocated for a park and that the norms are followed.

Revenue can be generated through public funding, community and individual contributions. Instead of self-expenditure on buying items for a park with cash, one can look for material donations from community members, founding members, through large individual donations or by way of fund raising events [21]. A fund raising event for example can be the development of a product and its subsequent sale. In order to get a good sale, the product must be of excellent quality and at the same time be affordable and provide good value for money. Most important of all, the product must be in demand.

Money can be generated from facilities provided by a park, from membership payments, yearly dues or contributions [4]. Revenue is generated by existing parks and recreational facilities provided therein. There can be good returns from investments made for park generated through the local economy by way of creating local jobs, increased sales taxes, and visitor expenditures on lodging, food and transportation [26]. A letter from Adrian Benepe, Commissioner of New York city, addressed various options for funding like partnerships with other government agencies, focusing on new construction vs. maintenance, use of volunteers, donations from foundation [34].

V. ENVIRONMENTAL FACTOR

Our surrounding environment is in a state of constant change. Some changes are visible such as those caused by heavy rain or flooding while others are not that easy to notice like ongoing geological changes. In today's scenario, temperature is increasing day by day and it is causing a so called heat island effect especially in cities. Heat island effect, in turn, depends on the location and structural organization of a city and is higher in urban than rural areas [23]. Multipurpose facilities or programmers benefit to improve the quality of life and atmosphere and also maintain healthy human psychology. Parks help maintain biodiversity and conserve the quality of natural resources over time [20]. Parks and open spaces provide many environmental health benefits to the community. Parks help to collect storm water [37]. Trees and grass absorb unpaved ground water and are more efficient a method for managing storm water than sewers or drainage ditches made from concrete [8]. Parks also contribute to increase green spaces of a city and thus help in saving money spent on constructing sewers or artificial drainage systems. It is a well-known fact that dark surfaces create heat island effect. In contrast, parks help to reduce the land temperatures and cool its surrounding air [11]. It is proposed that natural environment, natural settings containing plants, water and other features such as views of sky, a lake or sea have calming effects of reducing mental stress in humans [37]. Author Bowler, DE et al. reviewed multiple studies and suggested that natural environment may have direct and positive impact on human well-being [9].

Metro and semi metro cities with their increasing industries witness increased levels of air, water and noise pollution day by day. Parks in the vicinity of a crowded, congested road or a market help in reducing noise pollution generated therein [23]. The benefit also depends on the distance of parks from the source of noise pollution like surrounding roadways and traffic [35]. Trees help in reducing air pollution levels and provide a cleaner and healthier air to breathe and in turn may protect from respiratory disorders and lung cancers [25]. Considering the increasing amount of pollution related deaths occurring in today's world, parks may help reduce mortality rate in highly polluted cities in the long run [23]. In Atlanta city, U.S.A., trees remove 19 million pounds of pollutants each year. Studies show that plantation of million trees benefits for removal of harmful environmental pollutants. Some numbers include \$2.21 million annual from the removal of 283 tons of pollutants. \$5.15 million from 280,000 tons of carbon storage. Various economic benefits achieve through the profit from garage model of parks. It utilize for maintenance and operating parks [34].

Each park creates its own ecosystem. Parks provide natural habitat to many insects, birds, reptiles and animals [26]. Parks help to improve water quality, protect groundwater, prevent flooding, improve the quality of the air we breathe, provide vegetative buffers to development, produce habitat for wildlife and provide a place for children and families to connect with nature and recreate outdoor activities [32]. Place to teach the younger generation about the importance of preserving natural ecosystem and environment [6]. Efficient usage of energy and resources does not require an unreasonable amount of expenditure or maintenance. Parks help in preserving open spaces appropriately [30].

VI. CONCLUSION

Parks are important for an overall healthy development of our cities and should be included as a major part of any town planning. The present paper serves the purpose of determining the design criteria for a self-sustainable park in a city. This may relate to the social, economic and environmental factors discussed. These three factors need to be identified and considered in future set up and policy making for planning and designing in urban spaces, thereby help building efficient parks. These factors can serve as guidelines and should be taken into consideration by those involved with decision making process of urban design and development, and help creating an environment friendly park for all genres of citizens that is generally lacking in our parks at present.

Parks have significant benefits for the people in a community. Firstly, Parks help to build a stronger community in numerous ways. They benefit the economy. Parks provide habitats for many animals. Secondly, parks become a center for health development and control health related ailments thereby associating themselves to the health sector and its associated costs. Involvement of community during the development and up gradation of parks will help ensure that parks eventually meet the community's needs. Appropriate and adequate collaboration with other developmental groups and individuals from different fields will make the process of a sustainable park go more smoothly.

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