

Sustainability: an Approach in Planning to Raise the Quality of Life Through Open Space Development

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Abstract: A presentation of the notion of sustainable development through the eye of a town planner, by elucidating how open space development would change the character of the city and augment towards harmony in the socio-environmental chords of sustainable development. It is an attempt to put forward awareness about the sustainability and environmental risk to ultimately reconcile ecological, social and economic factors of society. It is an attempt to reflect on socio-environmental dimension of the open space planning by addressing urban metamorphosis.

Keywords: Sustainability, Urban metamorphosis, Environmental risk, Diversity, Open space development, Quality of life, People's participation

Introduction

Sustainability offers the judgment about ability of mankind to protect and protract the quality of life of future generation. Sustainable development comprehends the growth which respects the limits to environmental resources; maintains genetic diversity, and establishes optimum use of energy. Sustainability is synchronized with the basic principles of environmental law rendered by precaution, prevention, and remedy at source, along with use of the best available technology.

The research paper would present the notion of sustainable development through the eye of a town planner. By elucidating how an open space development would change the character of the city and augment towards harmony in the socio-environmental chords of sustainable development. It is an attempt to put forward the awareness about the sustainability and environmental risk to ultimately reconcile ecological, social and economic factors of society. It is an attempt to reflect on socio-environmental dimension of the open space planning by addressing urban metamorphosis.

The case study of one of the metropolitan city in India, covered in research paper, would emphasize on the relation between diversified social fabric and opportunities that an open space development offers to raise quality of life. India is the land of people who embrace variety of cultures, traditions, customs, and languages, beliefs, values, festivals, dances, music, art, and even clothing. Open space development would be

the excellent platform to reflect collective knowledge of these diversified groups. Moreover, this would help encouraging the exotic series of panorama throughout the city in terms of social affairs, festivals, culture, art, architecture, visual art forms, movies, technology. The people's participation in the open space development execution would let them mark unlimited talent beyond a narrow privileged circle and from the widest possible base.

Sustainability

The World Commission on Environment and Development of the United Nations in 1983 defined sustainable development as: "paths of progress which meet the needs and aspirations of the present generation, without compromising the ability of future generations to meet their needs."

It is concurrent with the basic principles of environmental law portraying precaution, prevention, and remedy at source; polluter pays, along with use of the best available technology.

In order to achieve a global goal of sustainability, contribution from every human being to nation is essential; meaning both macro level and micro level planning steps should be established. To achieve sustainability one should improvise the capacity of living state, by adopting required changes, innovating techniques for survival and utilizing available resources wisely and efficiently. The focus of this research paper is on the physical parameters of development mainly open spaces and its relation to sustainability. The case study of one of the

metropolitan city of India, 'Pune' has been carried out to evaluate the research assumption.

Urban form is the cause of urban metamorphosis to great extent and vice-versa. The swelled built-up areas mainly in the urban areas of India are cramping open spaces in core areas. In order to face the challenges related to high density, load on infrastructure, traffic congestion, market demands, real estate, health hazards *etc.* city has to be planned. Open spaces are breathing spaces of cities. In order to make city breathe, it is important to clear up choked arteries of the city and develop it further to grasp increasing population load.

Need of urban open spaces

India is expected to be the second largest manufacturing country in the next five years followed by the third ranked country Brazil, as per Deloitte Touche Tohmatsu Ltd (Deloitte). According to the Grant Thornton Global Dynamism Index, India is the fifth best country in the world for dynamic growing business. However, the other side of the coin prospects the influx of population in mainly the metropolitan cities as well as the percentage increase in population's demands; essentially in terms of infrastructure, housing and amenities. This indicates the definite rise on the burden on services like water, power and solid waste disposal over and above industrial waste disposal, and pollution management. Therefore, management of housing shortage along with severely stressed existing basic amenities like open space, one of the few existing basic amenities, would be the foremost challenge for planners. Considerably, one might speculate the need for open space in moderating and relaxing the load on urban morphology; as open space development brings about the development of society with respect to enhancement of social network and community interaction. So far, job opportunities in metropolitan cities is the major platform for people to communicate and cooperate with each other, which signifies the influx of diversified inhabitants in terms of the advancement towards dynamic, exotic, in unison, and balanced social environment. Social fabric is one of the significant backbones of historical human settlement that governs the developmental pattern worldwide. Hence, in true sense, open spaces would be the breathing spaces which could help balancing the social environment for urban fabric. Thus it is an attempt to address the

socio-economic dimension of open space corridor development and contextualize it with the strength in disparity of social fabric.

India is the second largest populated country in the world. The land and water percentage i. e. most basic natural resources are unevenly distributed as far as geography is concerned. Previously, development was based on the settlement pattern, but the current scenario is more of a chaos, as the growth in the cities is unbearably taking place. Increasing number of metropolitan cities and rise of megacities in developing country like India indicates the growth rate of population and need of basic infrastructure, services and amenities in urban areas. Rural part of the country is still in the very backward stage and unaware of global growth and hesitant to move on because of ancestral property. This gives fare idea of social character of rural India. On the other hand, urban India is booming with technology, youth population, unemployment, pollution, unhygienic conditions, overly crowded city infrastructure and rushed life. This kind of lifestyle hardly offers one the quality of life. People living in the cities mostly spend their time in travelling from one place to another for office work or in the offices. The influx of Information Technology has increased the migration of youth from all over India to metro and mega cities of India. Pune is ranked the seventh metro city in India with population of 3,115,431, as per provisional reports of Census India. Although Pune city has population of 3,115,431; its urban population is 5,049,968, which includes Dehu, Dehu Road, Kirkee, Pimpri and Chinchwad, and Pune. This city faces scarcity of open spaces, making it more and more compact and uncomfortable to live in. The number of increasing vehicles in the city has reached up to 7000 vehicles/month, since the year 2002. Due to constant increase in floating and immigrant population, the air pollution has reach to maximum extent in the city and is now choking the metropolis in its own vehicular exhaust. At present, average air pollution levels in the city are rising to alarming concentrations contributed by 40 % vehicular pollution and toxic waste.

Introduction to study area and formulated methodology

Pune, being the eighth metropolitan city has its own distinct identity and urban character. With the passage of time, rapid natural growth of

population and influx of migrants and activity had overtaken physical development and physical growth of the city. Urbanization is a serious threat on urban open spaces. People's social and cultural behavior calls for developed open spaces with adequate facilities and infrastructure, and providing for recreational demands requires an open space system to suit the needs of various population groups. To provide opportunity for active and passive recreation, open space planning is required. It is therefore necessary to conduct a careful study of the existing open spaces in terms of their types, their development or degradation over the period of time and their effectiveness in contributing to the social, environmental and economic needs of the city. Major change was detected in the vacant land use category and significant change in agricultural and commercial use in last few years. Land use is the indirect reflection of land values, as the price in the fringe areas is much lower than the areas near central areas of the city. Presently, the increasing shift in the land values of urban fringe of Pune is identified, due to great demand. Also, analysis of existing land use pattern shows that the percentage of total land area allotted for recreation is insufficient to cater to the demands of growing population. Open spaces at the peripheral area of the Pune city offers opportunities as being developed as recreational spaces. Pune city is dotted with several plots of natural beauty, historical importance and religious significance. Encroachment of open spaces is the main issue observed in Pune. Illegal, haphazard occupied open spaces are destroying the scenic beauty of hilly areas. This is transforming the open spaces into hub of illegal activities. So the safety of open spaces has become the significant issue. Some open spaces are still unnoticed and some of them are experiencing impacts of uncontrolled visitors. The relentless trend of building development and the absence of enforcement of building regulations the city is headed towards taking the shape of a concrete jungle, affecting mass of open spaces. For sustainable existence of the city, planning of open spaces as a spearhead of urban planning is a must. In the existing physiographic setup, to promote open space management system, an integrated planning for organized open spaces is required.

Hence taking these factors into consideration, methodology is derived; which would clarify the

significant path to achieve sustainable urban open spaces in Pune.

In addition to this, the classification of open spaces, their ownership, physiographic study, land cover, land price, soil quality, vegetation quality, land character, environmental threats, multiple suggestions by environmentalists and civic groups gave the current scenario of open spaces with reference to other predominant land uses in the city. Identifying the percentage of the open space and its class/category helped in analyzing quantitative as well as qualitative scenario in each ward of the city.

Observations, Identified Issues

As per secondary data, from the Pune Municipal Corporation (PMC), only 0.1Ha/1000 population area exists for gardens and parks. As per the planning standards, required area should be 0.2Ha/1000 population. Area under playground in PMC is only 0.02Ha/1000 population, where as in standards it should be 0.4Ha/1000Population. This shows the scarcity of gardens and playgrounds in Pune. The 1987 development Plan had reserved 70 hectares of land in various parts of the city for playgrounds. However, till date, the PMC has acquired only 3.5 hectare of it (Sunday Times of India, Pune, 7 October 2012). From the above information, a vast difference can be analyzed in demand and supply. In the quantitative analysis it is observed that many of the gardens are below 0.5 Ha areas, which are not satisfying the need of all age groups, so a continuous large area or connected open space is required to serve all age group's need. The development of Mutha riverfront and projects related to hill encroachment are still on paper. Poor implementation of development plan due to financial and administrative constraints are some issues observed in Pune. With the changing time, health conscious generation demands for jogger's parks, technological advancement in facilities and infrastructure. Poor maintenance of infrastructure, disorganized places, inadequate landscape furniture, and play-equipment in park are some major problems. Also hawkers and beggars infest parks. No organized space is planned for hawkers near parks. The vehicular traffic has tremendously increased in Pune city but comparatively parking facilities are inadequate. So that people visiting garden, tend to park their vehicle on roadsides, which ultimately results in congestion.

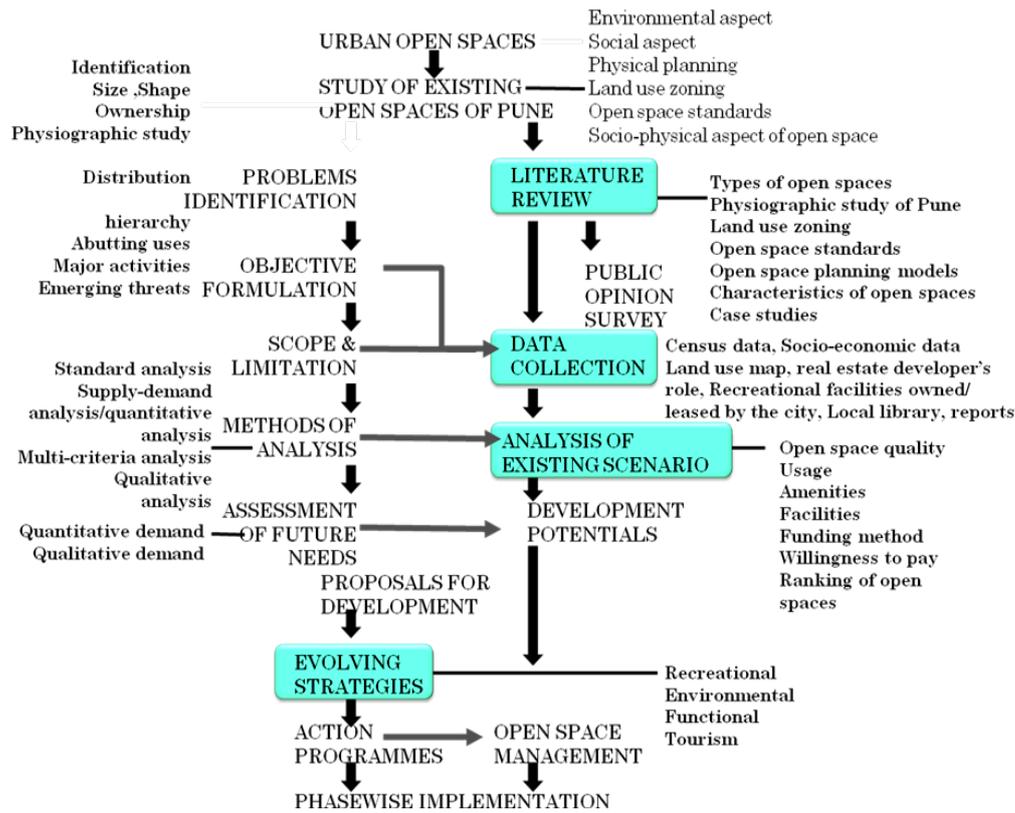


Figure1. Methodology- an approach.

Open space: definition, categories, hierarchy and activities

In order to understand the role of open space development in sustainability, it is important to first understand open space, its categories, hierarchy, and functions. The open space has been defined as an essential part of the urban heritage, a strong element in the architectural and aesthetic form of a city, plays an important educational role, ecologically significant, important for social interaction and community fostering, supportive of economic objectives and activities, helps in reducing the inherent tension and conflict in deprived parts on urban areas, provides for the recreational and leisure needs of a community has an economic value in that of environmental enhancement (Council of Europe, 1986). In addition to this, open space has been described from a user's point of view as being an arena that allows for different types of activities encompassing necessary, optional and social activities. (Geht, 1987).

Based on use or function of open spaces broad categories of open spaces could be natural, urban,

recreational, cultural, utility open spaces. Further classification hence includes:

Agricultural lands, mines and quarries, borrow pits, forest area, watershed areas, significant geological features like river beds, streams, etc. as natural open spaces. Civic spaces, incidental open spaces, amenity green spaces as urban open spaces, parks and playgrounds as recreational open spaces. Historic sites, archeological preservation sites as cultural open spaces. Circulation and utility corridors, reserved open spaces for water lines, drains, power lines, garbage disposal areas as utility open spaces.

All these categories are well dispersed in Pune city and are serving or linked with different population catchment areas. Some are part of colonies and societies, where distance and time threshold is well served while planning open spaces; while in some part of the cities, mostly utility and recreational open spaces are encroached upon by temporary or permanent slums. So it does not ensure the purpose making people deprived of accessibility to these open spaces.

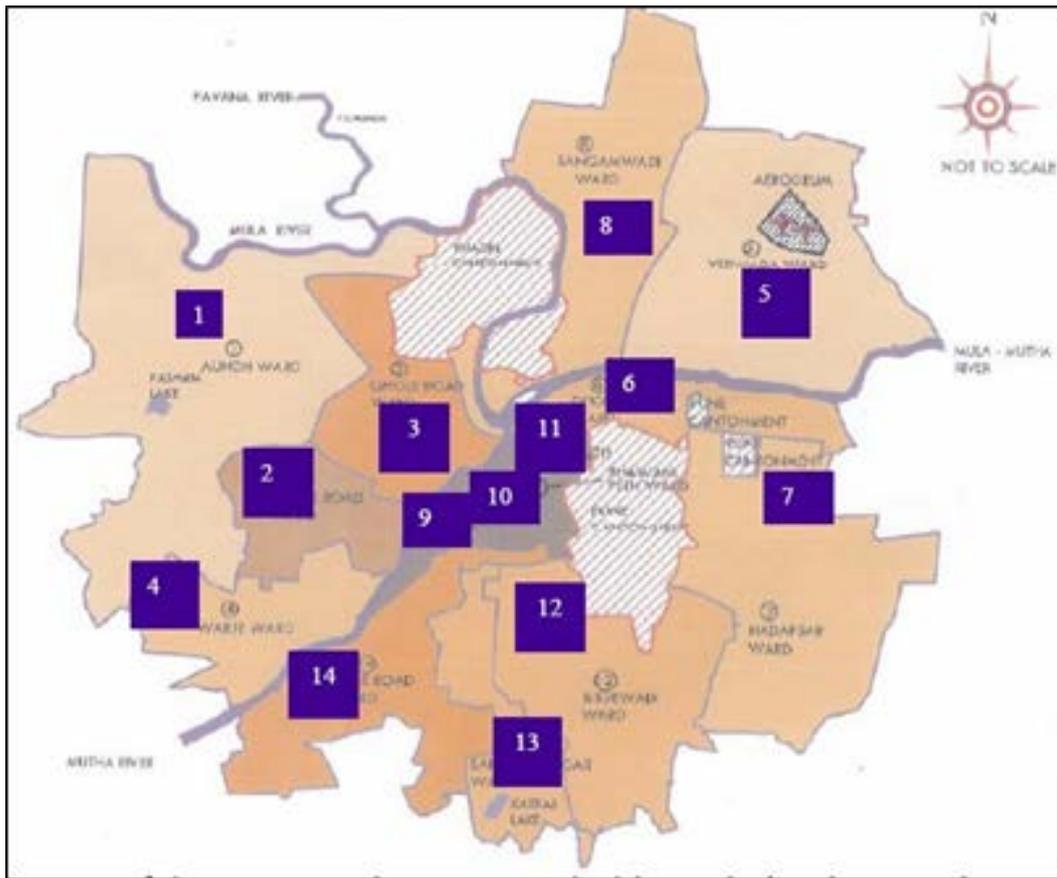


Figure 2. Pune: wards.

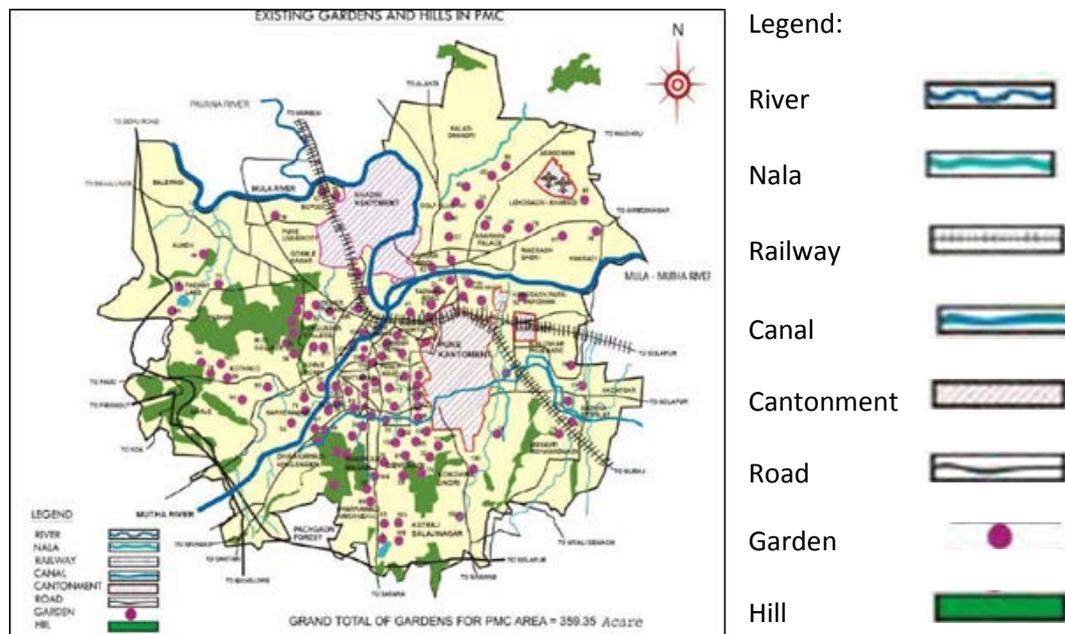


Figure 3. Pune: Existing open spaces.

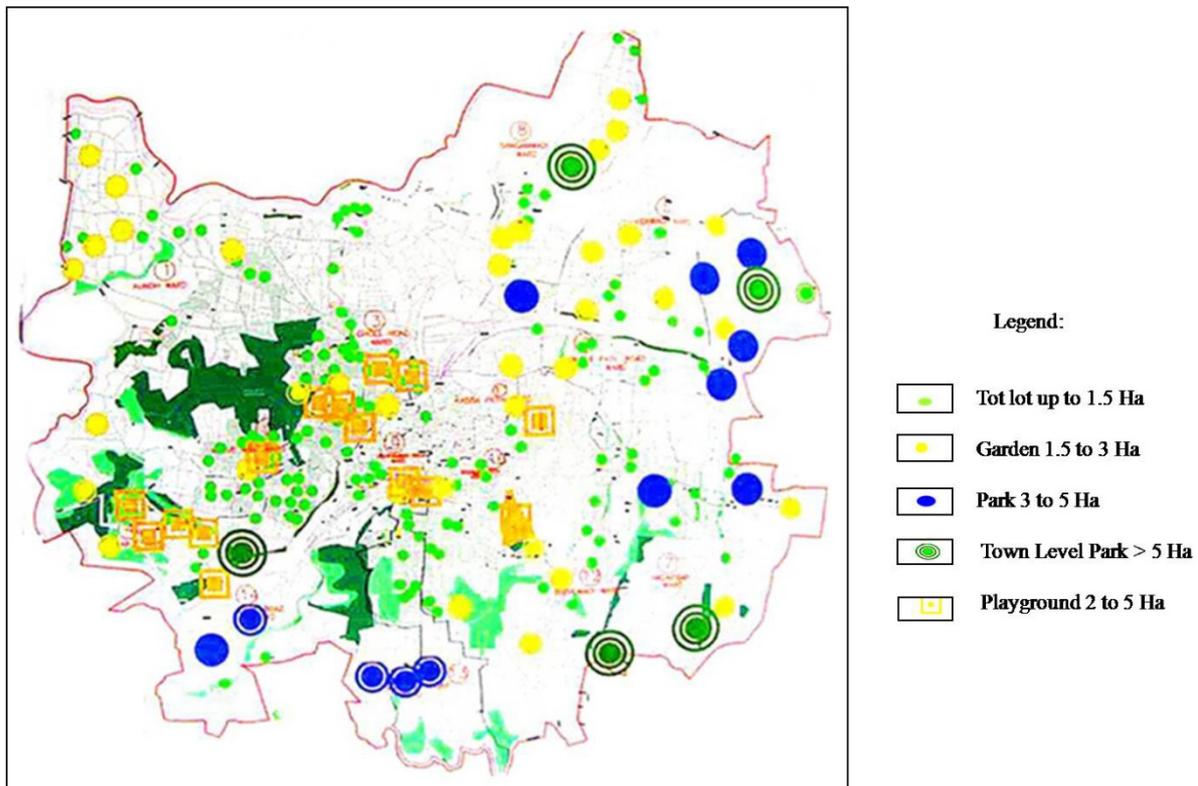


Figure 4. Pune: Existing open spaces areas wise distribution.

Analysis

The survey data helped in understanding the existing hierarchy of open spaces and their ward wise distribution in the city. This further helped in calculating ward wise need of open space.

The survey was carried out in order to analyze quantitative and qualitative aspects of open spaces and to find out the user group, their satisfaction of open spaces in Pune. Primary survey suggests that about 99% people agree to the need of open spaces and its development, out of which only 39% are ready to pay fees for the

maintenance of open spaces. To understand the type of open space people like to visit often, activity performed and issues related to it, a priority ranking analysis was made. It has been observed that most of the user groups prefer visiting open spaces of regional and neighborhood scale (each 31%), while about 14% people visit cluster/colony level open spaces for various activities at different time of the week and day. These visitors include both males and females. According to different purposes open space was categorized and analyzed as per type, area, time, frequency.

Table 1. Existing and required area of gardens and playgrounds in Pune.

	Existing (area in Ha)	Required (area in Ha)
Park	338.71	602.15
Playground	70.87	1204.30
Total	409.58	1806.45
Park/1000 population	0.10	0.2
Playground/1000 population	0.02	0.4

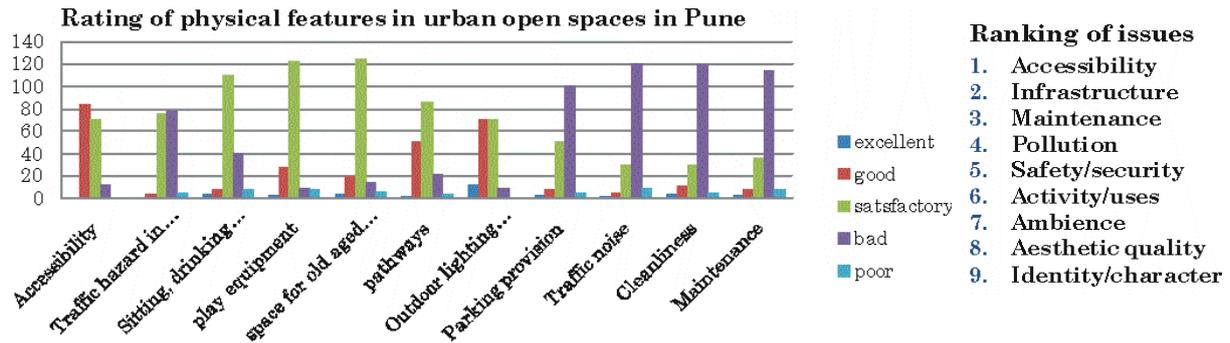


Figure 5. Rating and ranking of issues related to open spaces in Pune.

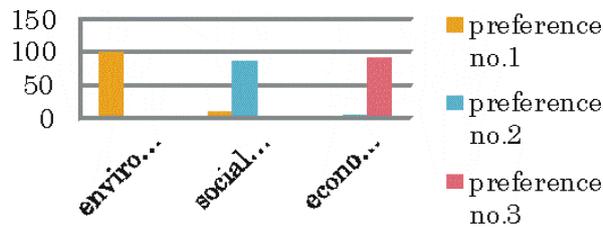


Figure 6. People preference to need of open spaces for various purposes.

Diversity: the strength of society embraced through open spaces

Diversity derives innovation and creativity in society. Pune city’s culture revolves around different ethnic groups. Embracing the diversity through social mobility would encourage development of society. Open space development would be the excellent platform to experiment with. Social activities, festivals, concerts, art, exhibitions of diversified groups together would encourage the striking panorama throughout the city and definitely enhance the urban design of the city. People from different background when given a platform would come together, share their knowledge, culture and would come up with a new and broad perspective to life. Open space development program has potential to showcase the creative talent from various ethnic groups. The instigation of such active and passive activities has potential to attract market, so it would generate employment opportunities for many. Also, generated funds could be used for the maintenance of these public open spaces. Hence, this development program has the potential to change the face of the city by inclusive planning. Additionally, people’s participation in the open space development execution would let them tap unlimited talent

beyond a narrow privileged circle and from the widest possible base.

Need of Strategies, Guidelines, and Proposals

Urban open spaces not only affect the townscape, but also provide ecological diversity and form essential structural and functional elements to make cities and urban areas more livable. They are one of the crucial elements of all cities. Urban open spaces are also of vital importance with regards to their relevance for healthy citizen, social wellbeing, economic benefits and delivery of sustainable ideas which enhances the quality of urban life. Pune city is dotted with several spots of natural beauty, historical importance and religious significance. Maintaining the character, ambience and usability and also making it sustainable is the demand of time. Hence considering all above factors, proposals are suggested in terms of suitability and stability, using primary and secondary survey analysis. Broad proposals are based on zonal characteristics and recommendations for specific strategies, methods for conserving and managing the open spaces are suggested.

Local authority of Pune should plan to develop park and green spaces in each neighbourhood to make this city green, liveable and sustainable. Local authority should develop urban open spaces in Indian context, which could range from the vacant spaces between plots, wasteland along river banks, hilly areas, biodiversity parks, playgrounds, agricultural lands, civic open spaces, incidental open spaces, archaeological preservation sites, historical sites, garbage disposal areas, utility corridors. This physical entity of open space could be an expression of emptiness, chaos, entertainment, interaction etc. and could add to the sustainability as well as the image of the city. Theme parks, open space beautification projects, wilderness, biodiversity parks, use of biosphere reserve model and opportunistic model, public awareness about environmental and economic benefits, people's participation in planning process, all these ideas would help in sustaining the quality as well as quantity of urban open spaces in the city.

Physical Planning Strategies and Guidelines at the City Level

The amount of open spaces for active and passive recreation must be dependent upon the proposed or anticipated densities. Developed urban open spaces should be located near institutional land uses like schools, temples, churches, health centers, and cultural halls without disturbance by thorough traffic. Pedestrian's needs should be taken care of by providing adequate services, facilities along with maintaining ambience of the pathway. The pedestrian circulation areas should also be provided with adequate street furniture like lampposts, properly located dustbins, benches, paving, etc. along with seating spaces where so required. Directional signs, public safety, interpretations for educating users should be increasingly well thought and adequately provided.

Solution strategies for a sustainable open space management

I. Partnership / Program Solution Strategies

- Identifying and prioritizing open spaces based on location, size and usability sites within the City

- To promote and facilitate opportunities to develop events.

- Promoting more "in the Park" type of activities.

- Working with the Tourism Department to develop strategies throughout the year.

- Working in partnership with the different local community art groups.

- Encouraging active and passive activities in collaboration with governmental or non-governmental organizations in order to embrace diversity.

II. Design & Inventory Solution Strategies

- Highlighting recommendations for site up-gradation and infrastructure improvements

- Identifying locations and program opportunities for different seasonal activities. (*e.g.* Circus at the riverfront)

- Identifying locations and program opportunities for various company employees to work for maintenance of open spaces.

- Organizing adventure programs on the seasonal basis, to promote open space development within city.

III. Financial Sustainability

- Charging fees for using of the open spaces to support urban open space.

- Seeking out partnerships, alliances and sponsorships.

- Developing volunteer programs (*e.g.* adopt-a-park).

- Actively seeking donations and establish endowment funds.

- Generating revenue from bookings, special events, concession operations, lessons and programs, advertising, etc.

Conclusions

Urban morphology is molding the form of the urban open spaces from activity spaces to interaction spaces and finally, as breathing spaces. Strategies in terms of physical development, enhancement, public participation and response, financial management, design and inventory, integrated approach towards urban open spaces would give prospects about sustainability of urban open spaces. These strategies would also assist for facing issues like scarcity of organized urban open spaces, increased environmental hazards, and encroach-

ment problems. A change in the demographic composition of the society and impact of technological development on the sustenance of city are major dilemmas of the current time. Open space development is the augmentation towards resolving such problems. Open spaces truly is not just a physical entity; its development is the way to bridge the gap between diversified groups. It is a step forward to sustainable development.

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