

Impact of Community Involvement in Urban Plantation and Landscape

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Abstract: To explore the value of plants in creating a positive community atmosphere, urban planners have looked at the role of plants in several related areas such as environmental preferences and perceptions, neighborhood satisfaction and economic impact including residential property value and value to recreation and tourism. In urban tree-planting planning, sociological factors may be more important than biological factors in terms of tree survival because planting without community involvement in planning or implementation lacks support at the grass root level and is therefore open to all kind of hazards. Faisalabad is the third biggest city of Pakistan and is presently undergoing a developmental transition from a sort of semi-rural to an urban outfit with new roads, parks, green belts and waterways under construction and old ones being renovated. A research study was designed to assess the changing requirements and responses of the population of residential areas and institutions of the city in respect of landscaping/tree plantation. A questionnaire was developed to document the perception of people visiting the sites and interviews were held with the residents who were prepared to donate funds for landscaping activities. The landscape plan/design was developed on the basis of document analysis according to the requirements of the people both visiting and residing there. Different features like walking tracks, dust bins, child play areas, flowering shrubs for semi privacy and trees for complete privacy were included in the landscape design. All the selected trees and shrubs were evergreen because they require minimum maintenance and contributed more to greenery in the dry environment. The design received a quick response from the community and had great impact on Faisalabad environment. All the wasteland in the interior city has been greatly improved and it helped to curb pollution, enhance biodiversity and beautify the city at the same time. The general community as well as industrial communities funded the project, which showed that whole community of Faisalabad was keen to improve upon the environment, which ultimately reflected the changing attitude of citizens of Faisalabad towards landscaping. It was also evident that without community involvement, urban planning cannot work no matter planning and execution process.

Keywords: Tree Survival, Residential Areas, Land Scaping, Tree Plantation

Introduction

Maintenance of purity and safety of environment in the face of increasing urbanization, industrialization and mechanization of social life are challenging problems facing the mankind at this juncture. With the onslaught of the industrial revolution in 1800's the worldwide trend towards urbanization increased and, resultantly, a rapid pollution of the city environment became a matter of great concern. Huge quantities of pollutants i.e. solid, liquid and gas are being let out in air, water and land, particularly near roads and industrial site. This causes rise in temperature, increases glare and creates dust, smoke and noise pollution.

To a large extent these problems have their solution in plantation and sustainable urban planning. Plants help to trap and hold pollutants (dust, ash, pollen and smoke) and control high frequency noise. They also absorb CO₂ and other gaseous pollutants and in turn relensnish the atmosphere with oxygen.

Vegetation in cities includes open space, railway track and roadside plantation etc., as well as woodland, public parks, school grounds, home gardens and green belts. There is a concept to have at least 20 per cent of the

cities under the open space in the form of green belts, parks, playgrounds etc. (Browne, 1991). They not only provide a pleasant atmosphere to the citizens to escape momentarily from machines, noise and drudgery to work, but also add to life systems and environment. Greenery attracts rains, absorbs summer heat, adds oxygen to air, prevents pollution, saves the soil from erosion and shelters avian life. Green spaces are major tourism attractions, which generate revenues from lodging, food and recreational services, and improve quality of life of the community. Green space increases property value by 6-12 % or even more. In Salem, Oregon, for example, urban land next to a green space was worth \$ 1,200 more per acre than urban land only 1000 feet away (Weyehauser, 1986). Honey man (1987) concluded that the introduction of green belts into the urban landscape could be of important psychological benefit to humans.

Perry (1990) defined sustainable landscape as the one that provided more benefits than the cost of maintaining it. He was of the view that the target of sustain ability could be achieved by maximizing the environmental, economic and human benefits of landscaping. Kaplan

(1992) concluded that landscape was very important to the psychological health and emotional well being of people and absorbed large amounts of gaseous pollutants. In Agenda 21 (1992) governments recognized that they could not solve the environmental problems on their own and that the communities and community-based organizations had to be involved if the world was to achieve true ecological sustain ability and solve the current environmental crisis.

In general, communities have very important role in acquiring, maintaining, and developing an adequate system of management of open spaces and recreational spots. They always express a desire to have parks and open spaces to shape up and guide urban development. In urban tree planting programs, sociological factors may be more important than biological factors in the survival of plantation, because lack of involvement of the community in planing or implementation has no grass roots support. Ames (1980) recognized that, with the community involvement from the initial conceptualization through planting and maintenance, tree survival increased and many human benefits resulted, such as enhancement of the sense of community among participants, a positive social identity for the participants, increased personal identification with the neighborhood and allowance for their personal control over the neighborhood.

Faisalabad is the city of burgeoning population, sprawling suburbs and thriving industry. It is the third most populated city of Pakistan, whose population has increased from 1 million in 1981 to almost 2 million in 1998. It lies in semiarid region and subjected to high windstorms, high temperature and low rainfall. The city is divided by a big canal, which dissects the city into two unequal parts. It is connected to number of major cities/towns in all directions through roads, which are being now widened and improved to meet the fast growing traffic requirements in all directions. Noise, dust, smoke, gaseous pollution, scorching heat, growing rural-urban migration, unplanned urban growth and rapid proliferation of industries are the characteristic features of this city.

A few years ago, Municipal Corporation Faisalabad started an ambitious program of improving the aesthetic and environmental aspects of the area, particularly along side the roads but was faced with serious budgetary problems and resultantly considered alternative sources to overcome these constraints. Participation of local communities in the development and maintenance of green belts/squares etc. was considered to be the most appropriate approach to achieve the desired results. Data presented here are a part of the study conducted by University of Agriculture Faisalabad on involvement of community in urban plantation and landscape.

Materials and Methods

Faisalabad City: Faisalabad is the third biggest city of Pakistan, with a population of about 3.5 million people. Its elevation is 184 meters (612 ft.) above sea level. Faisalabad was founded in 1895 as a part of the British

government's program for colonization of West Pakistan. Climate wise, Faisalabad comes in the semiarid region. It is hot & dry in summer and cool & dry in winter (Punjab Development Statistics, 1999).

Faisalabad is an industrial city and is known as Manchester of Pakistan, mainly due to the presence of large textile industry and market. Because of the industry, Faisalabad is facing many problems including pollution, over population, health issues like hepatitis, tetanus, cholera, etc. and many other related diseases.

Selection of the Site: The layout map of Faisalabad City with location sites is given in Fig. 1. Four sites selected for this study were located on the important and busiest roads of the city. These sites included 3 green belts and one square; out of the 3 green belts 2 are proper green belts and 1 is a combination of green belt and squares.

Field Survey: Field survey of the selected sites was carried out to find out the existing conditions of these sites and to plan improvements. Questionnaire was developed keeping in view the requirements of the study, which were:

- To understand the perception of public/community about development of green spaces.
- To assess the willingness of the community in sharing cost of development and maintenance of the green areas.
- To ascertain role/contribution of the community in the development and maintenance of green areas.
- To assess the satisfaction level of public/community after the completion of projects.

Two separate questionnaires i.e. one for general public and the other for developers/investors were developed. For general public interviews, 120 respondents were contacted randomly at three different times of the day i.e. morning, afternoon and evening.

The second questionnaire was meant for detailed interviews of the people who had financed these projects. In this category 20 respondents were interviewed. A detailed discussion was carried out to know about the objectives of the investors for the development of green belts and squares.

The distribution of the general public respondents on the basis of age, education and sex is given in Table 1.

Table 1: Distribution of the Respondents By:
A: Age

AGE (years)	f	%
Less than 25	34	28.3
25-40	58	48.3
Above 40	28	23.4
Education		
Under matric	36	30.0
Matric-F.A/F. Sc	61	50.8
Above F. A/F. Sc	23	19.2
Sex		
Male	106	88.3
Female	14	11.7
Total	120	100.0

Results and Discussion

The study was designed to:

- Find out how could the people of Faisalabad city play their role in the beautification and environmental improvement of the city through development of squares and green belts?
- How did the people visualize and appreciate the improvement, brought about by the development of such squares and green belts? and
- Does the involvement of people improve the sustainability of the system? The answers to these questions are given below:

Role of community in the Beautification of the City

Perception of General Public: The data given in Table 2 show that respondents were divided in their opinion about the form of community participation in the development of green belts and squares. A large majority (57.5 and 78.2%, respectively) was of the view that they should play their role by motivating others. In terms of financial and labour force contribution, only 41.8% and 43.3%, respectively of the respondents were prepared to make such contributions for developing green belts, while the remaining majority did not consider it to be their role. On the other hand, greater majority thought that community should contribute financially (50.8% cases) and in form of labour force (60.8% cases) for developing squares.

Data in Table 3 also indicate that the majority (number varied) of the respondents were of the view that establishment and post-development care of green belts and squares was the responsibility of developers, general public and the nearest residents, while NGO's got only around 40.8% votes in this regard. The maximum number of respondents (73.3%) considered it to be developer's responsibility for establishment of green areas while post-development care (70.8% cases) and maintenance of cleaning (58.3% cases) were thought to be mainly the responsibility of the general public. Also the largest majority (65.0%) voted that security after the development should be carried by the nearest community, and 85.8% people did not think that keeping the place clean should be the responsibility of developers. As shown in Table 4, 55% respondents considered that Govt. must play its role in motivating people by creating awareness, training of people and using new methodologies.

The survey showed that respondents had a reasonably clear perception about the type of plantation in the open spaces in city (see Table 5). A vast majority (87.5%) preferred flowering plants followed by evergreen plants (82.5%), while 75.8% of the respondents liked seasonal plants and 40.8% preferred shrubs. However, only a small number (18.3%) thought fruit plants were necessary.

Perception of Investors: It is important to note that even the majority of the developers also thought that it is the common responsibility of Govt. (78.0 cases), local community (77.0 %) and developer (82.0 cases) (see Table 6) to develop the green area. However, it was very encouraging to find that developers accepted the

responsibility of financial contribution (65% cases), providing labour (75% cases) and security arrangement (56% cases) for care and maintenance of the green areas after their development (Table 7). Furthermore, 100% of the developers considered such project to be necessary for the community (Table 8). When asked about the motives behind their interest in the development, 100% of the respondent replied that it was to control pollution and increase the beauty of the city, while no one agreed that it was for tax relief (Table 9).

Satisfaction Level of the Community after the Completion of the Green Areas Projects

General Public: A comparison of the data regarding the perception of the respondents before and after the development about the impact of green belts and squares on community convincingly proved that "seeing in believing". The %age of positive votes regarding the impact of squares after the completion increased from 17.5 to 75.0% in terms of enhancement of beauty and from 23.3 to 70% in terms of control of pollution. The increase was from 14.2 to 60.8%, from 10.8 to 70.8%, from 13.3 to 76.7 and 14.2 to 50% in terms of improvement in traffic system, improved usage of roads, increase in greenery and improved lighting system, respectively (Fig. 2). Similarly, the perception of the community regarding the impact of green belts completely changed and became positive after their completion (Fig. 3). Before the establishment, only 16.7, 14.2, 17.5, 11.7, 10.0 and 12.5% of the respondents thought that green belts would enhance beauty, control pollution, increase greenery, improve healthy activities, improve lighting system and provide shade, respectively. The corresponding percentage increased to 80.0, 76.7, 77.5, 84.2, 74.2 and 71.7%, respectively which was approximately 4 to 8 times increase over the initial perception after the people had actually witnessed the improvements. Thus, it was easy to conclude that the initial perception of the community about the possible impact of green spaces was not close to reality and it was easily changed after the squares and green belts were actually established which was probably the most effective way to change their perception. The reason for such a change can be viewed from the photographs of the selected sites before and after the project was completed (see Photographs a-b). The overall improvement in qualitative parameters of human life also showed dramatic change based on the opinion polls before and after the completion of the projects. For example, the percentage of people who felt fresh due to green spots increased from only 6.7 to 93.3% after completion. Similarly, these percentage increased from 14.2 to 85.8%, from 13.3 to 86.7% and from 35.0% to 65 % in terms of their opinion regarding children wandering in streets, improvement in quality of life and increase in social interaction among the people (Fig. 4). The survey regarding the satisfaction level of the community about planning/construction of squares and green belts indicated the interest of the stake holders (community) and also the utility of the green areas for the public. An overwhelming majority considered the

design, location, structure and area covered by squares as good or satisfactory and only 8.3% of them did not approve the design while 9.2, 14.2 and 25.9% criticized location, structure and covered area, respectively (Table 10).

Similarly, only 1.6, 8.4, 9.2 and 15.0% thought the design, location, structures and covered areas of greenbelts was not so good while the other were satisfied. Respondents were also satisfied about the availability of green plots (77.5%), shady trees (85.0%) and jogging track (83.7%). The respondents were however unhappy about the lack of swings of children (65.8%) and sitting arrangements (48.3%) (Table 11). The majority of the respondents did not think that the development of squares/green belts created difficulties for the community (Table 12).

The positive impact of the development of green spaces in Faisalabad city has been widely appreciated by the news media as well (e.g. see daily Nawa-I-Waqat, Faisalabad, 29-10-2000

Investors: Data given in Table 13 showed that 88% of the investors had a say in the choice of the site and they were fully satisfied with the use of their money and land for the development of green spaces (Table 14). They were completely satisfied about the attitude of various agencies involved in the development process (Table 15). However, about 25% of the investors pointed out some difficulties from the general public, while relatively less difficulty was encountered from Government (12%) and local community (10%) (Table 16).

Relatively, a greater majority of the developers was satisfied about growth, condition and number of evergreen plants and shrubs, while they were not so satisfied about flowering and seasonal plants in terms of these parameters (Table 17).

This data showed that investors were keenly observing the sustain ability aspects of their investment. Overall, 93% of the respondents had the opinion that the development greatly improved the environment (Fig. 5). The families of respondents also had similar views (Fig. 6).

Sustain ability of Developments: The sustain ability of development of green spaces is the key issue which can be addressed from different angels. The most important

of these are the level of satisfaction of various players after the development is completed, the willingness of the general public and investors to share the responsibility of care and maintenance after the development was completed, and the willingness of the investors to reinvest in such projects in the future. Also, the change in the perception about the utility of such projects for the community and responsibility of various players involved in the project after the completion of the project could be an important indicator. The overall picture that emerges as result of survey was very encouraging. The level of satisfaction of the general public and investors was very high after the completion of the project (Tables 10-17). The perception of the public about the utility showed a strong positive shift after the completion (Fig 2-6). The increase in the frequency of visitors after the development also proved that the utility of green areas was increased (Fig. 7). Both the general public and the investors were prepared to share the responsibilities of care and maintenance after the completion of the project. However, all the investors did not want to invest more in the future on such projects. This was possibly due to the fact that they had made investments very recently (with in the last few months) on these projects and would not spend more money and time immediately. However, these examples will motivate many new investors and the process is expected to continue in the future. The general public perceived clear differences among the various development projects regarding their utility and the impact on beautification of the city (Table 18).

Table 2: Perception of the People Regarding the Community Involvement in the Development of Squares and Green Belts

Type of Contribution	Yes Freq. (%)	No Freq. (%)
Green Belts		
Financial	49(41.8)	71(58.2)
Labour force	52(43.3)	68(56.7)
Motivating others	69(57.5)	51(42.5)
Squares		
Financial contribution	61(50.8)	59(49.2)
Labour force	73(60.8)	47(39.2)
Motivating others	95(78.2)	25(21.8)

Table 3: Perception of Respondents About the Responsibility of Various Agencies in the Development and Maintenance of Green Belts/Squares after Completion

Agencies	Establishment		Care & maintenance		Security		Cleaning	
	Yes	No	Yes	No	Yes	No	Yes	No
Investors	88 (73.3)	32 (26.7)	81 (67.5)	39 (32.5)	66 (55.0)	54 (45.0)	17 (14.2)	103 (85.8)
General public	70 (58.3)	50 (41.7)	85 (70.8)	35 (29.2)	70 (58.3)	50 (41.7)	70 (58.3)	50 (41.7)
Nearest residents	66 (55.0)	54 (45.0)	65 (54.2)	55 (45.8)	78 (65.0)	42 (35.0)	65 (54.2)	55 (45.8)
NGOs	49 (40.8)	71 (59.2)	48 (40.0)	72 (60.0)	47 (39.2)	73 (60.8)	50 (41.7)	70 (58.3)
Government	70 (58.3)	50 (41.7)	75 (62.5)	45 (37.5)	70 (58.3)	50 (41.7)	68 (56.7)	52 (43.3)

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Table 4: Opinion of the Respondents about the Role of Government in Motivating to Create a Better Environment

Opinion	Frequency	Percentage
Yes	66	55.0
No	54	45.0
Total	120	100.0

Method	Frequency	Percentage
Training of people about environment protection	59	49.2
Adoption of new technologies	59	49.2
Creating awareness among the people	62	51.7

Table 5: Perception of Respondents About the Plant Types

Plant types	Yes	No
	Freq. (%age)	Freq. (%age)
Evergreen	99(82.5)	21(17.5)
Seasonal	91(75.8)	29(24.2)
Flowering	105(87.5)	15(12.5)
Shrubs	49(40.8)	71(59.2)
Fruit plants	22(18.3)	98(81.7)
Any other	26(21.7)	84(78.3)

Table 6: Opinion of Developers Regarding the Responsibilities of Various Agencies for Developing Green Spaces

Agency	Opinion	
	Yes (%)	No (%)
Government	78.0	22.0
Investors	82.0	18.0
Local community	77.0	23.0
Others	60.0	40.0

Table 7: Opinion of Respondents about the Responsibility of Various Agencies in the Care and Maintenance of Green Spaces after Development

Development	Govt. (%)	Investors (%)	Other (%)
Finance	10.0	65.0	25.0
Labor	10.0	75.0	15.0
Security	15.0	50.0	35.0

Table 8: Opinion of the Investors about the Necessity of such Projects for the Community

Opinion	Yes (%)	No (%)
Necessary	100.0	0.00

Table 9: Motives of the Investors Behind the Development of Green Spaces

Motives	Yes (%)	No (%)
Increase the beauty of city	100.0	0.0
Control pollution	100.0	0.0
Advertisement	12.0	88.0
Tax relief	0.0	100.0
Refreshment of people	76.0	24.0
Control encroachment	76.0	24.0

Table 10: Perception of People about the Planning of the Squares

Aspects	Good Freq. (%age)	Satisfactory Freq. (%age)	Not good Freq. (%age)
Design	51(42.5)	59(49.2)	10(8.3)
Location	46(38.3)	70.0(52.5)	4(9.2)
Structures	46(38.3)	57(47.5)	17(14.2)
Covered area	61(50.8)	28(23.3)	31(25.9)
Any other	31(25.8)	26(21.7)	63(52.5)

Table 11: Perception of the People about the Planning of Green Belts

Aspects	Good Freq. (%age)	Normal Freq. (%age)	Not good Freq. (%age)
Design	74(61.6)	44(36.7)	2(1.7)
Location	65(54.1)	45(37.5)	10(8.4)
Structures	63(52.5)	46(38.3)	11(9.2)
Covered area	67(55.8)	35(29.2)	18(15.0)
Sitting arrangement	8(6.7)	54(45.0)	58(48.3)
Swings for children	10(8.3)	31(25.9)	79(65.8)
Green plots	43(35.8)	50(51.7)	27(22.5)
Shady trees	39(32.5)	63(52.5)	18(15.0)
Jogging track	69(57.5)	23(29.2)	28(23.3)
Any other	11(9.2)	31(25.8)	78(65.0)

Table 12: Opinions of the People about the Problems Created by the Development

Opinion	Yes		No	
	Freq.	%age	Freq.	%age
Problem for the local community	30	25.0	90	75.0
Traffic problem	29	24.2	91	75.8
Damage to the public property	45	37.5	75	62.5

Table 13: The Agencies responsible for the Choice of the Sites

Choice	Yes (%)	No (%)
Developers	88.0	12.0
Govt.	88.0	12.0
Community	76.0	24.0
Others	64.0	36.0

Table 14: State of Satisfaction of the Investors about the Proper use of their Money and Land

Assets	Yes (%)	No (%)
Use of money	88.0	12.0
Use of land	88.0	12.0

Table 15: Opinion of the Investors about the Role and Attitude of the Different Departments

Department	Role (%)			Attitude		
	Yes	Positive	Normal	Yes	Positive	Normal
Canal department	100.0	100.0	-	-	-	-
M.C.F.	100.0	100.0	-	-	-	-
T.N.T	36.0	-	100.0	-	-	-
WAPDA	64.0	100.0	-	-	-	-
Police	12.0	-	100.0	-	-	-
Sui gas	0.0	0.0	0.0	-	-	-
NLC	36.0	100.0	-	-	-	-
Environmental cell	100.0	100.0	-	-	-	-

Table 16: Opinion of Investors about the Difficulties Encountered from Different Agencies

Difficulties From	Yes (%)	No (%)
Local community	10.0	90.0
General public	25.0	75.0
Government	12.0	88.0
NGO's	0.0	100.0
Your organization	0.0	100.0

Table 17A: Opinion of the Developers about the Growth, Condition and Number of various Types of Plants after Development

A: Growth

Types of plant	Satisfactory (%)	Poor (%)
Ever green	55.0	45.0
Shrubs	60.0	40.0
Flowering	50.0	50.0
Seasonal	40.0	60.0

Table 17B: Condition of Plants

Types of plant	Good (%)	Normal (%)	NotGood (%)
Ever green	80.0	12.0	8.0
Shrubs	76.0	14.0	10.0
Flowering	30.0	25.0	45.0
Seasonal	25.0	20.0	55.0

Table 17C: Number of plants

Types of plant	Good (%)	Normal (%)	B. Average (%)
Ever green	75.0	10.0	15.0
Shrubs	70.0	12.0	18.0
Flowering	30.0	20.0	50.0
Seasonal	30.0	15.0	55.0

Note: Fruits plants were not grown.

Table 18: Ranking of Newly Developed Squares and Green Belts in Faisalabad City as Assessed by the Respondents

Squares	Ranking
Amtex square	1st
Chenab square	2 nd
Novelty square	3 rd
Pepsi square	4 th
Chenab club square	5 th
R. station square	6 th
G.T.S. square	7 th
Iqbal square	8 th
D. type square	9 th

Green Belts	Ranking
Summundri road	1st
Canal road	2 nd
Jaranwala road	3 rd

Conclusion

From the above discussion it could be concluded that participation of the community in the development of green spaces could be instrumental in their establishment and maintenance, which greatly improved the sustainability prospects of such projects. Conversely, the successful completion of such projects would greatly improve the perception of the community about positive impact of green spaces, which would further increase the prospects of their establishment and maintenance. role of vegetation. *Landscape Urban Planning* 15: 85-106.

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