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Socio-environmental Implications of the Establishment of Roadside Plantation at Jhang Road, Faisalabad

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Abstract: Study on the extent of establishment of roadside plantation was carried out at Jhang Road Faisalabad during 2000. The study was aimed at finding out possible solutions to degraded conditions of Jhang Roadside plantation, through field survey (site survey) and social survey (evaluation of public perception). It was also intended to be helpful in future planning involving plantation in the cities in particular along roads. It was concluded that for sustainable roadside plantation, future planning should be carried out, taking into account, public perception and local conditions. At the same time management of the plantation should be improved by the employment of professionals as well.

Key words: Roadside plantation, species, survey, management planning

INTRODUCTION

In Pakistan, the recent increase in road network has inevitably resulted in an increase in the area of road verges. According to an estimate, the total length of large and small roads in Pakistan is 228,206 kilometers (km). The verges of these roads are estimated to cover an area of thousands of hectares (Akbar, 2002). Environmental pollution in urban areas is increasing rapidly, especially in developing countries including Pakistan. Condition of green spaces in our urban environment is quite deplorable. City of Faisalabad is no exception to that. Whatever green spaces in the parks and along the roads are there getting little attention and care. It is necessary to conserve them for posterity to redress this problem. Policies regarding green belts along roadside have to be based on sound realities. Accumulation of these facts should include an appraisal of existing condition and constraints, which impede the formulation and implementation of workable plans. An integral part of plan is public viewpoint, because any plan unacceptable to people is not likely to have desired results. Burch and Grove (1993) argued that community participation shapes individual and group perception of their environment and themselves.

Urban plantation plays a vital role in the development of environment that enhances beauty of cities, suitable for human health and conserves biodiversity. Olembo and Rham (1987) stated that quality of urban life depends largely on the amount and quality of green space within it or close to it. Long and Nair (1999) stated that when green space is occupied by trees has both aesthetic and recreational value. Roadside plantation is considered to play a vital role in the protection of urban environment, which includes control of solar radiation, temperature, noise, erosion, wind and glare that is polluted by road transport, both by private cars and commercial vehicles (Alexander, 1993).

Reflection of light by vegetation along with the cooling effect of evapo-transpiration contributes significantly to the difference of air temperature between city block and a near by park. Plants help to reduce air pollutants like sulphur dioxide, hydrogen fluoride, nitrogen dioxide, ammonia and ethylene. EPD (1998) reported that plants absorb carbon dioxide and release oxygen in the atmosphere, which makes the environment clean. Use of plants as windbreak is well-known and effective method of controlling wind speed. Trees contribute a lot towards improvement of safety on roads i.e. they serve as optical guides along the driving lane of the road, help to make driving less risky by facilitating early recognition and estimation of the speed of approaching vehicle. By dense planting in median strips between major highways, glare from on coming headlights can be reduced. Increasing areas under plants biodiversity of cities can be strengthened up to 25% (WWF., 1990).

Roadside plantation is an important component of green spaces. Plants along the roads act as a link between the greenery of the country and that of urban areas. Trees

grown along roads may be the only attempt in a large city to maintain vegetation in a particular urban environment. Qasim and Dunnet (1997) perceived contribution of city vegetation and garden to improve environmental quality.

Keeping in view the importance of trees along roadsides, this project was aimed at finding out possible solutions to degraded condition of the Jhang roadside plantation. The project was also intended to be helpful in future planning involving plantation in the cities along the roads.

MATERIALS AND METHODS

Jhang Road starting from Sabzimandi (Vegetable market) Chowk up to the main gate of Ayub Agriculture Research Institute was considered for this research. Selection of the road for the purpose of the project was done because of its importance. It is a two-way avenue. Some of the important institutions are also located along this section of the road. Its importance is further argued by linking of road with the traffic coming from Multan, Layyah, Gojra, Tobataik Sing and the road, leading to airport.

The study was completed in two-phases i.e. field survey and social survey.

Field survey was carried out to prepare an inventory of plants along the road. The information collected was used for recommendation of any future plan and comparing results of Social Survey. Where as social survey was conducted through interviews of passersby on a structural format. Sample was simple random wherein groups were later identified. Total 1550 observations were recorded. Social survey was intended to explore the public opinion regarding existing roadside vegetation, extent to which it is liked by the people and the ways to improve it. Data were stratified according to following values like;

- Age (Three age groups between young (18-30), middle (30-50) and old (50 years or more),
- Profession (Employees, Businessmen and others like Vendors, Labourers, Students, Unemployed and Retired),
- Education level low (Matriculation or below), middle (Intermediate, Bachelors) and high (masters and above),
- Mode of travel (Automobile travelers, Cyclists and pedestrians) and
- Frequency of visits i.e. frequent visitors (daily), weekly and infrequent visitors (monthly or more).

The data thus collected were analyzed statistically using MS Excel, ANOVA-Two-way analysis without replication.

RESULTS AND DISCUSSION

The results of the survey were to be used to find out answers to the questions like I. People's perception about the roadside plantation, ii. Effect of education, age, profession and mode of travel on perception, iii. People's concern about vegetation around them, iv. Identification of problems, v. Role of public perception in solution to problems and vi. To explore possibilities of public participation in care and management of roadside plantation.

It is evident from the data (Table 2) that eucalyptus dominated the plantation along the roadside with 58% trees of this species.

In case of liking of the plantation on the road, majority of the respondents (57%) expressed their liking (Table 1). The choice of plantation along the road was about, 53% for environmental protection, followed by 30% for beauty or ornamental purpose. While exploring the possibilities of public participation in care and management of the roadside plantation, it was found that 72% of the respondents emphasized that both people and government administration should be responsible. About 10% of the respondents suggested that people should participate in the plantation drives.

For improvement of the roadside plantation, 51% of the respondents were of the view that measures for protection of plants can be helpful for sustainable vegetation. Other choice included better management and more plantations. Majority of the respondents (57%) thought that there was no disadvantages associated with the plants and liked the vegetation. However 43% of the respondents gave remarks about the disadvantages of plants along the road like they can harm by falling, can hide the view if densely planted near the turns. It was suggested that the successful implementation of scheme of planting with the object of providing shade to travelers will go a long way to improve ecological balance, aesthetic sense and utilization of roadside wasteland strip. The loss of natural linear habitats such as the verges of roads, railway embankments and riverbanks has restricted wildlife to isolated remains of natural vegetation. The vital importance of such habitats, therefore, has to be appreciated. Underground sewerage and water supply system and overhead wires can be a serious threat to the

Table 1: Public response of various aspects of roadside plantation

Respondent (Independent) variables	Levels of Respondent variable	Response (Dependent) variables (expressed in % value)							
		Liking of plantations		Perceived benefits			Responsibility of care and management		
		Yes	No	Beauty	Environment	Shade	Private	Public	Both
Education level	Low	50	50	36	57	7	13	20	67
	Middle	64	36	27	46	27	8	13	79
	High	65	35	18	61	21	7	7	86
Professions	Employees	57	43	23	67	10	8	6	86
	Business	55	45	47	32	21	11	44	45
	Others	64	36	33	42	25	0	0	100
Mode of travel	Automobile	56	44	30	52	18	5	13	82
	Cycle	33	67	28	44	28	9	10	81
	On foot	69	31	29	71	0	31	23	46
Frequency of visit	Daily	61	39	27	57	16	5	5	90
	Weekly	51	49	33	50	17	16	42	42
	Monthly	47	53	35	53	12	14	33	53
Age	Young	60	40	35	50	15	8	16	76
	Middle	48	52	21	64	15	8	8	84
	Old	73	27	25	42	33	10	20	70
	Mean	56.86	43.14	29.81	52.53	17.66	10.20	17.33	72.47

Table 2: An inventory of plants along Jhang road Faisalabad

Local Name of plants	Botanical / technical Name	No. of Plants	% of total population present
Bottle brush	*Callistemon lencilatus*	34	02.35
Bougainvillea	*Bougainvillea Species*	67	04.60
Chandni	*Taberna montana*	70	04.81
Eucalyptus	*Eucalyptus camaldulensis Dehn.*	849	58.35
Thevetia	*Thevite nerifolia*	99	06.80
Lagerstroemia	*Lagerstroemia spp*	96	06.60
Roses	*Rosa species*	140	09.62
Shoe flower	*Hibiscus rosa sinensis*	64	04.40
Miscellaneous		36	02.47
Total		1455	100.00

roadside vegetation. Collaboration of work is essential between service providers, Forest Department and road authorities to protect roadside vegetation so that they are able to ensure minimum interference in the continuous growth of the plants.

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