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## **Citizen Perceptions of Green Space Park in Pokhara, Nepal**

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### **Introduction**

Pokhara valley is located in western Nepal at an elevation of about 3,000 feet above sea level. It was declared a municipality in 1959 with an estimated population of 4,000. Since then, the city of Pokhara has faced tremendous growth pressure. Its population reached 200,000 in 2005 -- a 50-fold increase in population in 46 years. Land prices have increased at a much higher rate than the population. Most of the arable land has been replaced by roads and buildings. There is a concern that Pokhara is facing growth pressure similar to that of Kathmandu Valley, as described by Pradhan and Perera (2005). As land prices soar, there is tremendous pressure on public land for development, and the municipality has not been able to maintain open space for public use.

Pokhara has established few sites as public parks, and most of these parks are small parcels of land fenced for protection from cattle and water buffalo with few or no plants/flowers and other resources for leisure time activities. There are no plans for the development of a nature park or a green space area where people could see, feel and touch ornamental plants and flowers. Furthermore, the city lacks an open green space where people could walk, jog or spend leisure or free time.

Prithwi Narayan Campus (P.N. Campus) is the largest campus of Tribhuvan University. Situated on the bank of the Seti River in Pokhara, its buildings and property are spread over 35 hectares. This is one of the largest plots of open land within metropolitan Pokhara. The campus buildings occupy only a part of this area; most of the land owned is open. In 2006, UNDP Global Environmental funded a project of the Free Student Union of P.N. Campus to develop this open space as Green Space Park, where university students could learn about environmental conservation and demonstrate the use of open space to serve the leisure and recreational needs of the growing urban population of Pokhara.

To engage stakeholders and seek public support in the development of the Green Space Park, a systematic needs assessment was planned. The literature on people's participation in open green space development was reviewed. Shivanand and Suzana (2005) conducted a survey to determine attitudes toward urban green spaces and found that urban green space attitude is a multidimensional construct. Zhang and Gobester (1998) conducted a study on leisure preferences and open space needs in an urban community and found that leisure preferences varied by age and generational status. Trakolis (2001) studied local people's perceptions of planning and management issues and concluded that engaging the local community in the decision-making process through surveys may avoid future conflicts. The needs assessment survey was planned and conducted to determine citizen perceptions and attitudes toward the urban green space park. Specifically, the objectives of the needs assessment were:

1. To seek information about the recreation and leisure time activities of the people of Pokhara.
2. To ascertain the public perceptions about the development of P.N. Campus land as Green Space Park.

3. To find out what the people of Pokhara would like to see in the Green Space Park being developed on the P.N. Campus land.
4. To ascertain public opinion on how the Green Space Park could be managed in a sustainable manner.

This study was conducted with the belief that involving communities or listening to citizen voices leads to their participation in the program (Fear, 1988; Carter and Beaulieu, 1992; Curry, 2000). The P.N. Campus administration and its Free Student Union need this information for planning and implementing various aspects of the Green Space Park including the kinds of gardens and types of open space to be maintained to meet citizen needs and preferences. Because attitudes influence behavior toward urban green spaces, it was felt that a survey of public opinion would contribute to the sustainable management of the Green Space Park.

### **Methods and Procedures**

The population of this study consisted of all adults in the population of Pokhara—college students and faculty members, school teachers, civil servants and professionals, business leaders, and members of non-governmental organizations and the general public.

This study used a combination of personal interviews and drop-off surveys for data collection. The instrument was developed after a careful review of literature on public opinions about nature parks, leisure time and recreational activities. The survey questions were developed after careful review of the planned activities of the P.N. campus Green Space Park. The instrument was two pages long with mostly closed-ended questions. Respondents were asked to indicate the kinds of things they would like to see at the Green Space Park being developed, their leisure time activities, and the extent to which they would like to contribute to the development of the park.

The needs assessment instrument was developed in English and translated into the Nepali language by a Nepali linguist at Michigan State University. The instrument was field tested to ensure that each question accurately conveys the intended meaning. Twelve master's-level students of P.N. Campus were recruited and trained to administer the personal interviews and drop-off surveys for data collection. They also received training on how to identify and select a sample of the people of Pokhara to obtain a representative sample of each segment of the population. Once trained, the students administered the survey during December 2006 and February 2007. Altogether, 2,277 adults completed and returned the survey. Data from the personal interviews were combined with the survey data, and analyzed using SPSS 15.0.

### **Findings**

#### **Characteristics of Respondents**

Two-thirds (66.7%) of the respondents were male. About one-fourth (25.5%) were 19 years or younger. Almost half (47.8%) were between 20 and 25 years of age (Table 1).

Respondents were asked to indicate their caste or ethnicity. About half (49.4%) of the respondents were Brahmins; others were Chhetri (16.6%), Gurung (9%), Magar (8.2%), Newar (7.8%) and Dalit (5.2%).

Half (50.1%) of the respondents were students. Other occupations included teaching (17.5%), government service (14.7%), business (13.8%) and service within non-governmental organizations (1.5%).

The educational level of respondents ranged from “no schooling” to graduate school. About one-tenth (11.8%) of the respondents indicated 0 to 10 years of schooling and over one-fourth (28.4%) had completed high school. Almost half (47.1%) of the respondents were students at various colleges in Pokhara. The remaining respondents (12.8%) represented the business community, university lecturers/staff members, school teachers and civil servants, whose education was 16 years of schooling or higher.

Table 1. Demographic characteristics of respondents.

<b>Demographic characteristics</b>		<b>Frequency</b>	<b>Percent</b>
Gender	Male	1472	66.7
	Female	735	33.3
	Total	2207	100.0
Age	19 years or younger	523	25.5
	20 to 34 years	981	47.8
	35 years and older	548	26.7
	Total	2052	100.0
Caste	Brahmin	945	49.4
	Chhetri	317	16.6
	Gurung	173	9.0
	Magar	157	8.2
	Newar	149	7.8
	Dalit (Kami, Sarki, Damai)	100	5.2
	Others	72	3.8
	Total	1913	100.0
Occupation	Student	1086	50.1
	Business owners	298	13.8
	Teaching	380	17.5
	Government service	319	14.7
	Non-governmental organization	32	1.5
	Others	51	2.4
	Total	2166	100.0
Education	0 to 10 years	241	11.8
	11 to 12 years	581	28.4
	13 to 15 years	965	47.1
	16 years and more	262	12.8
	Total	2049	100.0

## Attitudes about Green Space Park at P.N. Campus

More than nine out of 10 (91.2%) of the respondents indicated that they had visited the P.N. Campus and its vicinity.

First, respondents were asked to indicate the extent to which they would like to see a Green Space Park accessible to the public at P.N. Campus on a 1 to 5 scale, with 1 being highly undesirable and 5 being highly desirable. Respondents were asked to rate the desirability of various kinds of flowers and plants at Green Space Park. Findings are presented in Table 2.

Table 2. Desirability of Green Space Park at P. N. Campus land.

	N	Highly Undesirable (%)	Undesirable (%)	Neutral (%)	Desirable (%)	Highly Desirable (%)	Mean (SD)
A green space park accessible to public at P.N.Campus	2272	0.2	0.1	2.9	36.4	60.5	4.6 (.6)
Local plants of Pokhara including wildflowers	2206	0.4	0.8	4.4	37.7	56.8	4.5 (.7)
Flora and fauna (plants) found in other parts of Nepal	2207	0	0.6	4.6	35.7	59.2	4.5 (.6)
Exotic plants and flowers	2198	1.5	2.8	11.6	35.3	48.9	4.3 (.9)
Medicinal and aromatic plants	2208	0.4	1.6	6.0	30.9	61.1	4.5 (.7)
Ornamental plants	2198	1.5	2.9	9.6	38.3	47.7	4.3 (.9)
Perennial and evergreen plants	2224	0.4	0.5	5.4	28.4	65.3	4.6 (.7)

Mean score is based on a scale of 1 to 5 (1= Highly Undesirable, 2 = Undesirable, 3 = Neutral, 4 = Desirable, and 5 = Highly Desirable)

Almost nine out of 10 respondents indicated that they would like to see a Green Space Park on P.N. Campus land (Table 2). When asked what types of plants they desired at the park, almost two-thirds (65.3%) indicated that the perennial and evergreen plants are highly desirable, and nearly two-thirds of the respondents (61.1%) indicated that medicinal and aromatic plants are highly desirable. Respondents said they would like to see plants and wildflowers found locally or in other parts of Nepal.

The survey asked respondents to indicate the extent to which they agreed or disagreed with various types of gardens within the Green Space Park. Findings in Table 3 show that a rose garden, an orchid garden, a butterfly garden and flower demonstration plots were the most desired kinds of garden by the respondents.

Table 3. Respondents' garden preferences at P.N. Campus Green Space Park.

	N	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (SD)
Formal gardens (e.g., Japanese or Chinese garden)	2225	1.8	2.1	12.4	35.5	48.3	4.3 (.9)
Rose garden	2219	0.4	1.0	5.3	30.8	62.5	4.5 (.7)
Orchid garden	2202	0.4	1.2	9.7	34.9	53.8	4.4 (.7)
Butterfly garden	2222	0.5	1.4	8.6	32.1	57.4	4.4 (.8)
Annual flowers	2209	2.0	5.0	15.1	33.0	44.9	4.1
Flower demonstration plots	2223	1.4	2.4	9.4	30.6	56.2	4.4 (.9)

Mean is based on a scale of 1 to 5 (1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree)

In addition to plants and flowers, respondents were asked to indicate their agreement or disagreement on the types of structures and/or facilities within the P.N. Campus Green Space Park. A list of park features such as natural walking trails, greenhouse and nursery, water ponds and fountains, yoga center, picnic and recreation facilities, cricket playground, swimming pool, flower shop and sightseeing vista points were presented for ratings.

Table 4. Agreement on various Green Space Park features.

	N	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean (SD)
Greenhouses	2225	0.6	1.5	8.7	32.9	56.3	4.4 (.8)
Nurseries and seedbeds	2223	1.0	2.3	11.2	37.4	48.0	4.3 (.8)
Ponds and water fountains	2224	1.7	3.2	10.9	31.3	52.9	4.3 (.9)
Yoga centers and sightseeing points	2219	1.5	3.2	11.2	33.7	50.4	4.3 (.9)
Natural walking trails	2233	1.2	1.4	8.0	31.0	58.4	4.4 (.8)
Swimming pool	2210	17.8	17.7	19.2	21.2	24.1	3.2 (1.4)
Picnic and recreation facilities	2212	17.7	16.8	16.6	24.3	24.6	3.2 (1.4)
Cricket playground	2202	13.9	11.8	19.4	27.0	27.9	3.4 (1.4)
Flower shop on campus gate	2170	16.0	12.9	17.7	25.1	28.2	3.4 (1.4)

Mean score is based on a scale of 1 to 5 (1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree)

Findings in Table 4 show respondents' ratings on the various Green Space Park features. The most agreed upon features or elements of the Green Space Park are nature walking trails, greenhouse and nursery, water fountains, yoga centers and sightseeing vista points. Almost half of the respondents disagreed or expressed a neutral opinion about having a swimming pool, picnic or recreational facilities, a cricket playground or a flower shop.

### Use of Green Space Park

The survey attempted to determine the level of interest of the people of Pokhara to visit the Green Space Park once it is developed. Respondents were asked to indicate how often they would visit the park by checking the appropriate box in a 8-point scale (i.e., once a day, several times a week, once a week, once in two weeks, once in a month, once in six months, once in a year and not at all). Findings in Table 5 show that one-fourth (25.8%) would visit the park on a daily basis; about one-fifth (16.9%) would visit it several times in a week; about two-fifths would visit at least once a month; and only a few (i.e., 0.6%) indicated that they would not visit the park.

Table 5. Frequency of park visit.

Frequency of Visits	Frequency	Percent
Once a day	574	25.8
Several times in a week	375	16.9
Once in a week	527	23.7
Once in two weeks	160	7.2
Once in a month	243	10.9
Once in six months	171	7.7
Once in a year	158	7.1
Not at all	13	0.6
Total	2221	100.0

### Willingness to Contribute to Green Space Park Development

Once respondents indicated that they would visit the Green Space Park, they were asked several follow-up questions. When asked if they would like to help build the Green Space Park, almost all (98%) responded positively. Respondents were further asked how they would make a contribution to the development of Green Space Park. Findings in Table 6 show that the majority would contribute their time (53.2%), money or finance (10.9%), and technical assistance (12.2%) to help develop the Green Space Park.

Table 6. Type of contribution to build the Green Space Park.

Type of Contribution	Frequency	Percent
Volunteering time	1126	53.2
Financial support	230	10.9
Technical support	258	12.2
Others	504	23.8
Total	2277	100

Respondents were further asked to suggest ways to generate resources for sustainable management of the Green Space Park. Most of them suggested establishing a user fee to visit the park. A user fee in the form of an entrance fee -- NRs.5 per day, NRs.50 per month or NRs.250 per year -- was suggested for individual users. For groups such as schools or group visits organized by non-governmental organizations, the daily entrance fee of Rs.150 was suggested.

One-way Analysis of Variance was used to determine differences in perceptions of the types of plants and gardens to be established in the Green Space Park by occupational category of respondents. Findings showed that respondents affiliated with NGO Service had lower preferences for ornamental plants, perennial and evergreen plants, and medicinal and aromatic plants than the other respondent groups, and the differences were statistically significant. The same group showed less interest in formal gardens, including a rose garden, and the mean scores were significantly different from those of other groups.

Similarly, significant numbers of college students disagreed with other groups on the desirability of having a swimming pool, picnic and recreation facilities, and a cricket playground within the Green Space Park, and the differences in mean scores were statistically significant.

### Conclusions

The people of Pokhara strongly support the idea of developing a Green Space Park on P.N. Campus land and would like to see nature trails, greenhouse and nursery sheds, and various ornamental plants and evergreen trees in the Green Space Park. A rose garden, an orchid garden, a butterfly garden and flower demonstration plots are the most preferred features of the Green Space Park. Once the park is developed, people plan to visit it frequently. The citizens of Pokhara -- including students, civil servants, business owners, teachers and representatives of non-governmental organizations -- are willing to help develop such a park by volunteering time and contributing technical support or financial support. To maintain the park on a sustainable basis, people approve the idea of charging a user fee to enter the park. A daily entrance fee of NRs 5 or NRs 50 per month was suggested for individuals and NRs 150 per day for group visits. Overall, citizens are very supportive of the development of Green Space Park.

This is a unique project that engages university students in identifying the needs and desires of the people of Pokhara about open green space. They have planned a Green Space Park utilizing the open land of the P.N. Campus. The student leaders at P.N. Campus are setting an example of how they could contribute to local community development, nature conservation and environmental education through constructive leadership.

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