Nepal
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BEHAVIOURAL INSIGHTS AND IMPACT STUDY ON **POCKET PARK**

July 2021

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ACKNOWLEDGMENT

Amid the unplanned settlement, growing urbanization, and increasing pollution, the need for pocket parks, especially in the cities of Nepal, is more than ever. Keeping in mind, VRIKSHA foundation developed a pocket park at Jawalakhel, with the support of Lalitpur Metropolitan City, the United Nations Development Programme (UNDP), and the World Wide Fund for Nature (WWF) in early 2020. In this context, a study— BEHAVIOURAL INSIGHTS AND IMPACT STUDY ON POCKET PARK—has been carried out to measure the effect of the pocket park and the associated behavioral change in nearby households, entrepreneurs, and park visitors after its construction.

This study, commissioned by the United Nations Development Programme (UNDP), was conducted by Bikash Udhyami which includes the group of experts Mr. Tulasi Nepal, Assistant Professor Mr. Naveen Adhikari, Mr. Santosh Gartauala, and Mr. Bipin Sinjali. The research was conducted in close supervision and technical guidance from Ms. Purnima Shakya Bajracharya, Head of Exploration, Mr. Bisam Gyawali, Head of Experimentation, Ms. Aliska Bajracharya, Head of Solution Mapping of UNDP Accelerator Lab Nepal, and Mr. Elvis Lundberg, Disability Inclusive Development UNV Program Officer of UNDP.

Apart from the study design team from UNDP Accelerator Lab and Bikash Udyami, this study would not have been possible without the joint effort from the enumerators, representatives from the local governments, local people, and entrepreneurs. We greatly appreciate their effort and cooperation during the study.

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURE

LIST OF ABBREVIATION

GoN	Government of Nepal
KII	Key Informant Interview
PwDs	People with Disability
UNDP	United Nation Development Programme
WWF	World Wide Fund for Nature

EXECUTIVE SUMMARY

Background

VRIKSHA foundation developed a pocket park at Jawalakhel, with the support of Lalitpur Metropolitan City, the United Nations Development Programme (UNDP), and the World Wide Fund for Nature (WWF) in early 2020. Before constructing the pocket park, the space area was filled with construction materials, unmanaged huts, and garbage. Despite being just opposite to a big hospital (Alka Hospital Pvt. Ltd), and surrounded by several commercial buildings, the place was misused for a long time. The construction of the pocket park started in that location in December 2019 and was completed in January 2020. With an area of around 600 square feet, the pocket park is featured with greenery, lighting, seating arrangement, a wheelchair-friendly aisle, and many more.

The study was carried out to measure the effect of the pocket park and the associated behavioral change in nearby households, businesses, and park visitors. For this study, a total of 202 responses were collected using a retrospective pre-post survey, out of which 104 were from park visitors, 57 from entrepreneurs, and 41 responses from household people. Similarly, to garner insights on whether the pocket park has generated any impact on the local policymakers or not, the Key Informant Interview was administered with the policymakers and the leaders within the municipality. Descriptive statistics such as average, the percentage change have been used to analyze data.

Major Findings

The survey with households suggested that physical attributes of the space area are improved by about 2.5 times to pre-construct scenarios. Similarly, from a psychological perspective, the park has contributed to changing people's experiences such as pleasantness and relaxation while being in the park. These experiences were changed by more than 2 times to the surveyed households. When it came to performing the physical activities in the park, households and visitors have increased activities like exercising, resting, waiting, walking, and so on by more than 2.3 times, benefiting social cohesion, health and well-being. However, the study found that people appeared to be somehow reluctant to contribute and collaborate with other community members, local policymakers, and entrepreneurs in the issues of open spaces, such as initiating other pocket parks and managing them.

The visitors also found the park transfigured in almost all the aspects that the survey questions asked. They reported that overall space area's attributes such as physical condition, space arrangement, greenery, and so on have increased by about more than 1.5 times on average. From the perspective of persons with disabilities, especially wheelchair users, space areas have been made suitable and comfortable for them, however, they see a lot to be improved in the park in

regard to the easy accessibility from the entrance as well as the exit point of the park. People with psychosocial disabilities found the park pleasant and accessible, but they want more improvement in the lighting system and more space in the pocket park area.

The survey also captured the impact of the park on local businesses. And, it has been found that park has a no larger contribution to increasing the business activities like's sales volumes, increase in asset value and so on. Similarly, the park also did not contribute to fostering a relationship between entrepreneurs with community people and local policymakers. However, it has contributed to increasing the safety and security in the business area by decreasing the incidents of brawling, illegal parking, and so on.

The study also found that the metropolitan city has initiated dedicated projects to convert open public spaces into parks. Local policymakers seem sensible towards the issues of open space in their surroundings. However, they pointed out the acquisition of encroached public land is one of the major challenges to convert public spaces to parks.

Recommendations

Based on the findings and suggestions gathered during the study, it was observed that there required concrete steps for better improvements while constructing similar parks.

- **Physical Attributes:** To improve the physical attribute of the park, almost all the respondents recommended the need for a public toilet, drinking water facility, and more greenery in the park. They also suggested adding shedding to the existing park to make it more useful. Branding of the park with an appropriate name was also recommended to give it a more specific identity.

- **Collaborations:** The finding suggested that there was a tenuous collaboration among the park's stakeholders such as households, local businesses, and policymakers to discuss and take joint action on the issues of the pocket park, such as maintenance and sustainability, therefore, the role and responsibility of joint users committee with the people from households, local entrepreneurs, and local policymakers need to be expanded to make the pocket park sustainable and properly maintained.

  Though there appears some level of collaboration between the community, local institutions, enterprises, and local government while constructing the park, it is essential to continue and strengthen such collaboration for future maintenance and sustainability of the park. Besides, strong collaboration among the local community, entrepreneurs, and local policymakers is needed to develop similar other parks. Since the importance of public space is still beyond the public discussion, initiating campaigns and fostering strong collaboration among local people with local policymakers and entrepreneurs will further encourage to have more voices in this issue.

- **Inclusive designs:** To make the parks more inclusive and user-friendly, the design of the park should be prepared and tested from the perspective of child-friendliness and persons with disabilities from the very beginning. To make the existing park accessible to wheelchair users, the entrance and exit of the parking area are to be improved so they can enter the park and exit without difficulty. The internal track designed to ride a wheelchair should also be improved by smoothing the track. To make the park suitable for visually impaired people a hand railing should also be placed.

- **Respecting tradition and customs:** While constructing pocket parks/open spaces, special attention should be given to preserving the traditional architecture and customs. Therefore, the people of local communities should be included from the very beginning of—park design to making the park sustainable.

- **Sustainability:** To maintain and protect the park, more responsibility should be given to the local community along with the local governments.

I INTRODUCTION

1. Background of the study

VRIKSHA foundation developed a pocket park at Jawalakhel, with the support of Lalitpur Metropolitan City, the United Nations Development Programme (UNDP), and the World Wide Fund for Nature (WWF) in early 2020. The pocket park was designed to create breathing space and tackle urban issues in Lalitpur City by transforming unused public spaces into pocket parks for everyone, regardless of their age, ethnicity, and disability. At the same time, it was expected to increase positive messages, promote mental well-being and promote the city's aesthetic beauty.

Before constructing the pocket park, the space area was filled with construction materials, unmanaged huts, and garbage. Despite being just opposite to a big hospital (Alka Hospital Pvt. Ltd), and surrounded by several commercial buildings, the place was misused for a long time. The construction of the pocket park started in that location in December 2019 and was completed in January 2020. With an area of around 600 square feet, the pocket park is featured with greenery, lighting, seating arrangement, a wheelchair-friendly aisle, and many more.

FIGURE 1: SPACE AREA OF THE POCKET PARK AT PULCHOWK, LALITPUR

Pre-construction scenario of the space area

The post-construction scenario of the park

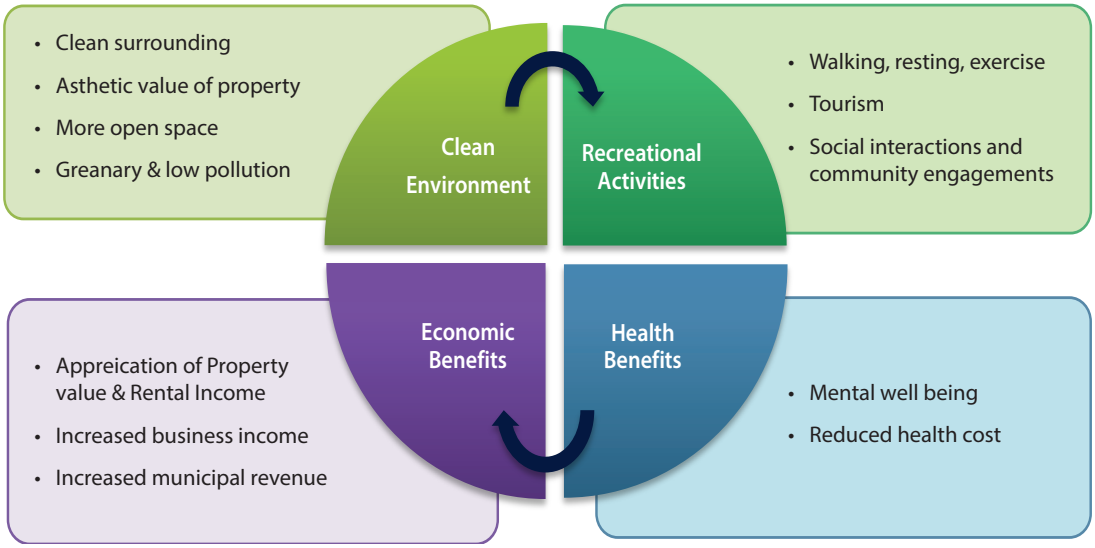
In this context, the study has assessed the park's impact on the targeted people in line with the objective of park development. The park has expected to benefit people of surrounding areas, businesses, and park visitors, including wheelchair users and hospital visitors. The study also explored how this initiation could help the local government officials improvise their plans and designs for constructing similar parks.

2. The benefit of the Public Park

Parks provide environmental, health, recreational, and economic benefits to the public. The better managed green infrastructure such as the park offers a clean environment adding aesthetic value to the surrounding. The public may benefit from recreational activities such as relaxation, exercise, tourism, and cultural programs. Parks promote more social interactions and community engagement which contribute to social cohesion. They also provide space during emergencies such as fire, damage of personal building, and in the event of a natural disaster such as an earthquake.

Children and the elderly groups derive more benefits from the park by better utilizing their leisure time. Such activities are directly linked with the mental well-being of an individual. The parks also offer economic benefits. They appreciate the property values, increase business income due to increased visitors' flow, and contribute to municipal revenue.

FIGURE 2: BENEFITS OF A PARK[1]



Several studies were conducted to examine the impact of green space on human health, self-reported well-being, and quality of life in the green area's neighborhood community (Benton et al., 2018) worldwide. These studies reported that green spaces positively impacted the community well-being measured in terms of health, life satisfaction, and many more. When green infrastructures are developed in a community, it is assumed to bring community people closer to each other and increase social cohesion and community interactions, resulting in a sense of security (Dipeolu et al., 2020). Miam et al. (2012) conducted a study using the Key Informant Interview (KII) and actual observation method to assess the impacts of Madhupur National Park on Local Peoples' Livelihood in Bangladesh. They found that people living in the park's proximity could earn income from business activities due to a flow of visitors.

[1] Konijnendijk, C. C., Annerstedt, M., Nielsen, A. B., & Maruthaveera, S. (2018). *Benefits of urban parks. A systematic review.* A report for IFPRA (International Federation of Parks and Recreation Administration). Copenhagen/Alnarp.

Similarly, by using descriptive and inferential statistics, Iorpenda et al. (2020) found that parks can positively impact the quality of recreation, depending on park access, aesthetics, cost efficiency, park security, biodiversity, and park layout. They collected data using purposive sampling from the park beneficiaries. Numerous other studies have been carried out to explore the potential benefits and impacts of urban parks on socio-economic well-being and environmental protection with positive correlation[2].

Keeping in view the benefits of Public Parks, the Government of Nepal has prioritized the construction of public parks[3]. Amid the unplanned settlement, growing urbanization, and increasing pollution, the need for such parks, especially in the cities of Nepal, is more than ever. The Urban Development Strategy (2017) aims to have at least 5 % of the total area as an open space in each ward. The same strategy seeks to mitigate urban problems such as air and waste pollution while promoting public health, aesthetic beauty, greenery, and the city's culture and arts through availing open spaces and parks. The Urban Environment Management Guideline (2011) delineates the norms, codes, and requirements of Public Park and open spaces. Likewise, the metropolitan cities have also internalized the need for public parks and have reflected them in their periodic plan. In such context, this paper aims to understand the recreational, health, and economic benefits of a park taking a newly constructed part in Lalitpur as a case.

2 Konijnendijk, C.C., Annerstedt, M., Nielsen A.B., Maruthaveeran,S. (2013). *Benefits of Urban Parks a systematic review.* The International Federation of Parks and Recreation Administration. https://worldurbanparks.org/images/Newsletters/IfpraBenefitsOfUrbanParks.pdf

3 Government of Nepal (GoN) (2017). *National Urban Development Strategy-2017,* Ministry of Urban Development, Government of Nepal. Kathmandu

II METHODOLOGY

This study uses a mix-method to identify the benefits from the park, combining both quantitative and qualitative information. Quantitative information was collected through a well-structured questionnaire administered with visitors, residential households, and the business community in the park surrounding. The qualitative insights were derived from the officials of Lalitpur Metropolitan city through semi-structured Key Informant Interviews (KIIs).

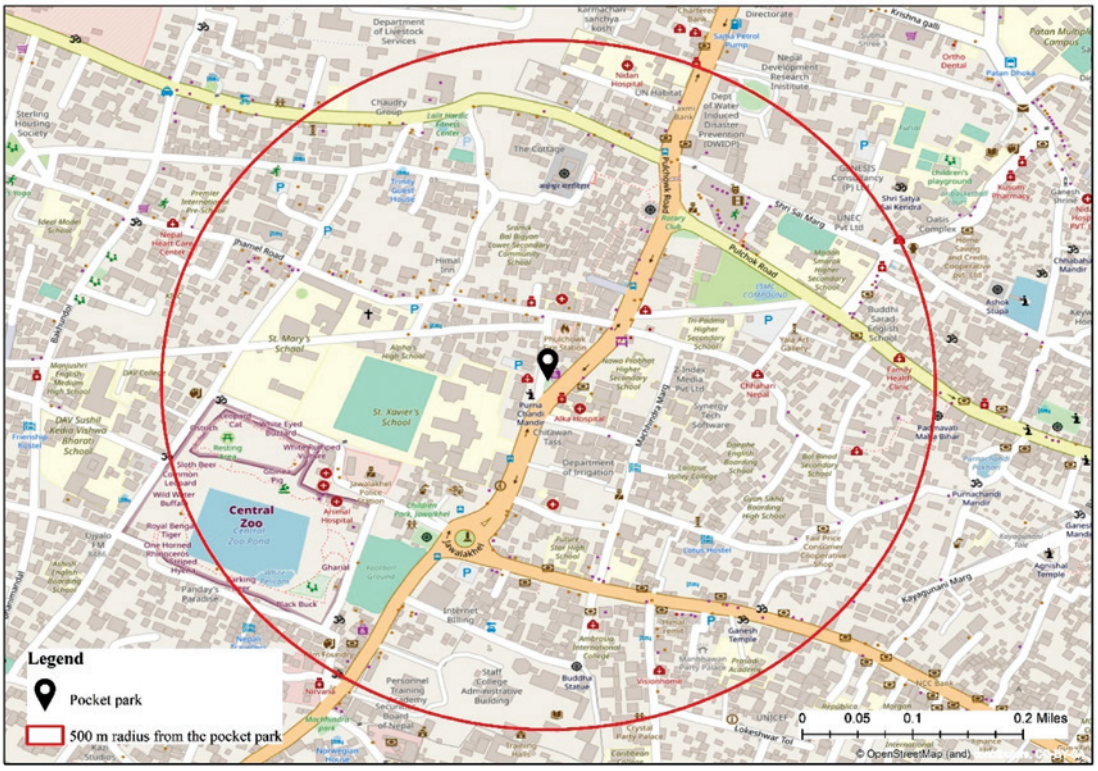
1. Sampling Design

The samples were collected from the individuals and entrepreneurs living within the 0.5 KM radius from the park and regular park visitors, including persons with disabilities. The study targeted the residential areas and local people to collect data on local people's perspectives on the pocket park and their perceived changes in behavior.

A random sampling technique was followed to select the respondent among the park visitors. Every third visitor was chosen randomly among the park visitors entering the park between 9 AM-5 PM during a particular day. This was carried out for ten consecutive days. Through the social innovation experiment, 104 responses from park visitors were collected, including six persons with disabilities.

For a household survey, a systematic random sample was followed. A tentative number of households within a radius of 500 meters from the park was obtained through a discussion with the ward office of the Lalitpur Metropolitan City office. In absence of a complete frame, every second household was selected for an interview among the local residential households. A similar strategy was followed for selecting the business entities. Here, every second entrepreneur was selected for the interview. The research team conducted door-to-door visits of households and business enterprises to participate in the survey using structured questionnaires. Forty-one individuals living in households and 56 people working in small to medium enterprises within a 0.5 KM radius were interviewed.

FIGURE 3: SURVEY LOCATION AND COVERAGE



Source: *Open Street Map (2021)*

2. Respondent Groups and Sample

2.1 Respondent Groups

Parks may create an impact in several ways based on their usability. Therefore, park users have been categorized into nearby households, local entrepreneurs, and park visitors. Questionnaires for each group were prepared to capture group-specific characteristics. Further, in order to derive insights about the park from a local policy maker's perspective, the Key Informant Interview (KII) was also administered with officials of Lalitpur Metropolitan City and community leaders.

3. Data Collection approach

Ideally, baseline information would be required to compare the outcomes between baseline (pre-construct) and end-line (post-construct) scenarios. As there was no data available to reflect the pre-construct scenarios of the pocket park, a retrospective survey was carried out to generate pre-and-post data. Pre-construct data were generated by asking about visitors' perception and visualization of the space before constructing the park. To minimize the recall bias, respondents who can well recall experiences/perceptions were interviewed.

3.1 Retrospective Pre-post Survey

The method of the retrospective pre-post survey has been used to measure the changes in practice and behavior of households/communities and entrepreneurs. In this method, respondents were asked to rate their pre-and post-experiences after constructing the park. This provided two sets of responses for two different periods. The pre-construct responses would be based on recalling actual experiences they had gone through. They have to recall their experiences/perceptions going back to the pre-construct scenario of the park. This became the baseline data of the study. Similarly, to collect data that reflect post-construction experiences, respondents were asked to rate their real-time experiences/perceptions. To measure actual changes, the recalled experiences/perceptions of respondents of pre-construct scenarios were compared with the real-time experiences with post-construct scenarios.

3.2 Prototyping

To identify attributes, trends, and patterns of the park visitors, including persons with disabilities, the method of social innovation experiment has been developed and administered. Due to the absence of pre-construct information, prototypes like sketches and pictures were used as toolkits to generate the pre-construct information. The visualization tools are attached in Annex 9.

The respondents were asked to provide a score on a number of park-related attributes, quality attributes of the park, and changes in personal and social activities. The perceived behavioral change of park visitors has been explored and measured by exposing the research participants to the park's pre and post construct scenarios. The visualized perceptions of visitors concerning the pre-construct scenario have been measured and compared with the actual perceptions.

3.3 Key Informant Interview (KII)

With the impetus gained from the experiences of this project, local government is better positioned to initiate similar other projects, including different facets that are likely to affect the decision-makers at the local government regarding construction, management, and utilization of open spaces. For this, the KIIs have been carried out with the Mayor, and two ward chairpersons of the Lalitpur Metropolitan City, including the president of Tamrakar Sewa Samaj, Lalitpur. At the same time, we explored the sustainability aspects of utilizing open spaces through KIIs. A semi-structured questionnaire was developed and administered to the relevant officials.

4. Data Collection Tools

4.1 Questionnaire & Checklist

A set of questionnaires for each respondent group was prepared. In addition to the background information of the respondent such as age, gender, educational level, and occupation, the questionnaire contained series of questions to collect the information on perception about park attributes, benefits, and impacts. The respondents were asked about the pocket park's contribution to change in the quality of life, social interaction, and physical activities using a score-based question. For the score, the respondents were asked to provide a score between 1 to 5 based on their perception about and experience with the park. For the KII, a semi-

structured questionnaire was prepared. Detail of surveyed questionnaire and semi-structured KII questionnaire has been given in Annex 8 and 9 respectively.

Kobo-toolbox application was used to digitize the questionnaire and record the responses via electronic devices (tablets/ mobiles). This was to ensure that errors in response recording are minimized and efficiency in data collection time is optimized.

5. Data Analysis

Descriptive statistics such as mean, percentage, standard deviation have been used to analyze data. First, the average score was obtained for each parameter for both pre-and post-construct scenarios. The difference in average score between pre and post construct scenarios was then calculated to gauge the level of change in the selected parameters. A two-tail paired t-test was performed to see the statistical significance of the changes. While the change in average scores was used to quantify the changes between pre and post construct situations, the findings were further supported with qualitative information derived from KII. The data collected during KII was later transcribed on a thematic basis and that information was used in the relevant section. In order to clean and analyze survey data, Excel has been used.

6. Limitations of the Study

Collecting primary data amid the COVID-19 was a challenge. In addition, the study has a few methodological limitations that the reader should consider. First, the study has no baseline information. Accordingly, a pre-construct scenario was created with a visualization tool. We believe the use of such a tool has helped in minimizing the recall biases. Second, the study measures the changes in intermediate outcome variables such as a change in environment, lifestyle of the public, business activities, and so on between pre and post construct scenarios. The use of the word 'impact', therefore, should be understood in its rudimentary form as no counterfactual analysis is done in the study. Third, this report aims to identify the dimensions where the construct of the park could offer benefits to the public. Accordingly, scores generated here are based on personal opinions and feelings of the respondents and interviewees and their perceptions about the park. Fourth, since a few people with disabilities (PwDs) participated in the survey, their responses should not be generalized to the overall population of PwDs.

7. Characteristic of respondents

The survey was conducted with 202 people altogether. Among them, 104 were park visitors, 57 were entrepreneurs and 41 were local household individuals. In every cohort of the respondent, the proportion of females was less than 30%. Out of 104 park visitors, six were the person with disabilities (PwDs). Among them, three PwDs were wheelchair users, and two were with psycho-social disability and the remaining one was visually impaired.

TABLE 1: NUMBER OF SURVEY PARTICIPANTS

Types of respondents	Number of respondents	Male (%)	Female (%)	Number of respondents with disability
Park visitors	104	77.9	22.1	6
Entrepreneurs	57	71.9	28.1	0
Households	41	78.0	22.0	0
Total	202	76.2	23.8	6

Source: *Field survey, 2021*

The age of the respondents ranged from 16 to 70 years with the average age being 39, 38, and 32 years for households, entrepreneurs, and park visitors, respectively.

TABLE 2: RESPONDENT'S AGE (COMPLETED YEAR)

Age of respondents (in year)	Average age	Minimum age	Maximum age
Households	38.8	16	59
Entrepreneur	38.2	16	65
Park visitors	32.2	18	70

Source: *Field survey, 2021*

Table 3 shows that more than 40% of the respondents from each group have completed above grade 12. Only a small proportion of the survey participant reported having no formal education. At the same time, about one in three survey participants seems to have completed grades 9-12.

TABLE 3: EDUCATIONAL LEVEL OF RESPONDENTS

Educational status (in percentage)	Households	Entrepreneur	Park visitors	Total
No formal Schooling	7.3	8.8	5.8	6.9
Below grade 8	19.5	12.3	12.5	13.9
Grade 9-12	29.3	36.8	35.6	34.7
Above grade 12	43.9	42.1	46.2	44.6
Total	100.0	100.0	100.0	100.0

Source: *Field survey, 2021*

III RESULTS AND DISCUSSION

1. Impact of the Pocket Park on Survey Participants

In the vicinity of the pocket park, at least within a radius of 500 meters, no other parks were available. In this context, the construction of such green space could benefit people in several ways through the increase in physical activities, help them understand the importance of open spaces among others.

The effect of the park on the household's psychological, sociological, and decision-making behaviors was assessed and analyzed. Change in psychological perception was measured through households' feelings on the attributes of pocket parks. Similarly, the sociological dimension was assessed through the behavioral change of the households in physical activities. How these perceived psychological and behavioral changes have driven them to change their understanding of the open space was then measured and explained.

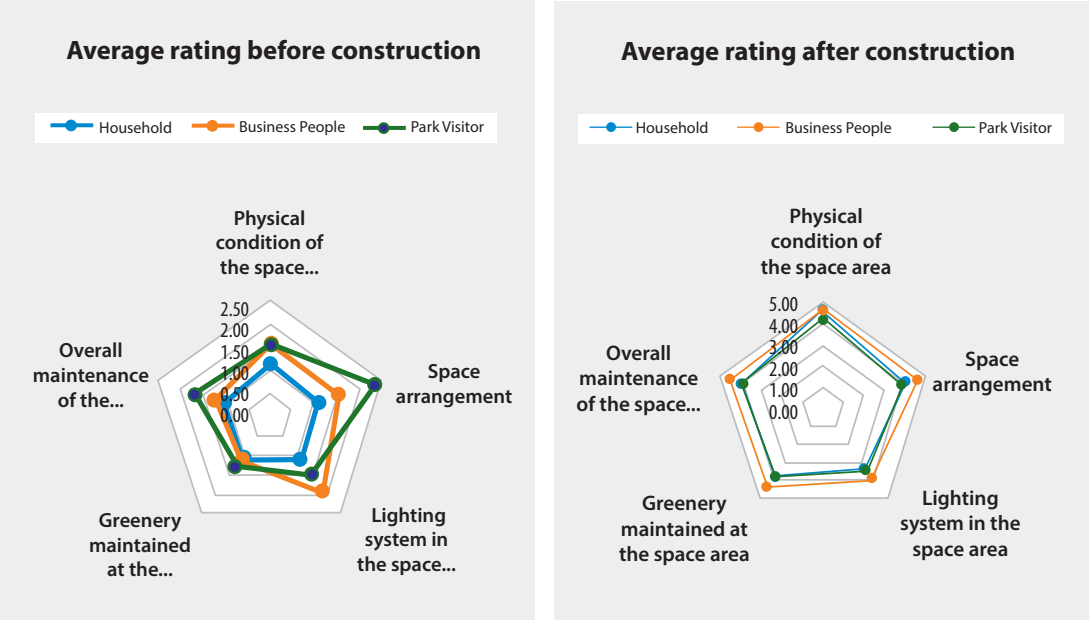
The pocket park is located in the business area of Jawalakhel, Lalitpur. Assuming pocket park construction could generate more business and lured more customers/clients, the study also tried to capture the magnitude of change if they realized any.

Similarly, with being a busy area crisscrossing thousands of people every day, the park could benefit visitors in a number of ways. In this context, this study explored the magnitude of changes observed by the visitors in terms of the attributes and benefits of the park.

2. Perception towards Physical Attributes of the Pocket Park

The findings suggested that the construction of the pocket park has greatly changed people's perception of the indicators measured under the physical attributes of the park. As the space area was encroached and not properly utilized before, the survey also reflected how people observed changes in the area against the physical attributes. Prior construction, across all the categories of survey participants, the average rating to physical attributes are found to be somewhere between 1 to 2.5, one being 'the poorest quality' and five beings 'extremely good' quality of park attributes. The survey found that households have rated the space area as the poorest amongst other attributes before the park construction, whereas the park visitors seem to be rating more generously compared to the households and entrepreneurs to the same. Variation in the ratings was due to the difference in survey techniques while collecting the data. Households were sharing their perception based on their own actual observation/experience, while visitors had to give their rating on the basis of the pre-construction scenario of the space area.

FIGURE 4: CHANGES IN THE PHYSICAL ATTRIBUTES OF THE SPACE AREA



***Source**: Analysis form survey data, 2021*

After the construction of the park, all survey participants—households, entrepreneurs, and park visitors—have provided ratings with more than 4 scorings for these attributes. Compared to pre-construct scenarios, the result clearly indicates that the place has been transfigured in a number of ways, making it physically attractive and user-friendly. However, the magnitude of such change was found to be different depending upon the group of respondents. For instance, compared to household and park visitors, the entrepreneurs provided marginally higher ratings to these attributes.

The mean difference scores which explain the magnitude of change in the physical attribute of the park show significant changes that have been observed after the construction of the park. Such score is 3.43 points, an improvement of 291% for the physical condition of the space area in the household group, followed by 3.14 (202%) and 2.63 (169%) points for entrepreneurs and park visitors respectively. The trend of having almost more than 2 points mean difference across all the attributes on a scale of 5-point rating exhibits above 200% improvement on positive changes to the appearance of the space area after constructing the park.

It is important to note that the space area was in a dilapidated condition prior to the construction of the park. Now, it has been transfigured into a space with lighting, greenery, proper seating arrangements, attractive concrete foundation, and so on. In this context, it was no surprise to have a generous rating. The only concern was the measurement of the magnitude of such change in the space area that people have realized. The survey showed a notable change that was statistically significant at less than 1 percent significance level (see annexes 1, 2, and 3).

TABLE 4: MEAN DIFFERENCES FOR PHYSICAL ATTRIBUTES

Physical Attributes of the park	Mean Difference of Average Rating pre- and post-construction of the park		
	Household	Entrepreneurs	Park Visitor
Physical condition	3.43	3.14	2.63
Space arrangement	2.98	3.05	1.59
Lighting system	2.28	1.98	2.03
Greenery maintained	2.77	3.30	2.50
Overall maintenance	2.92	3.22	2.19
Child Friendliness	1.54	-	-

Source: *Analysis form survey data, 2021*

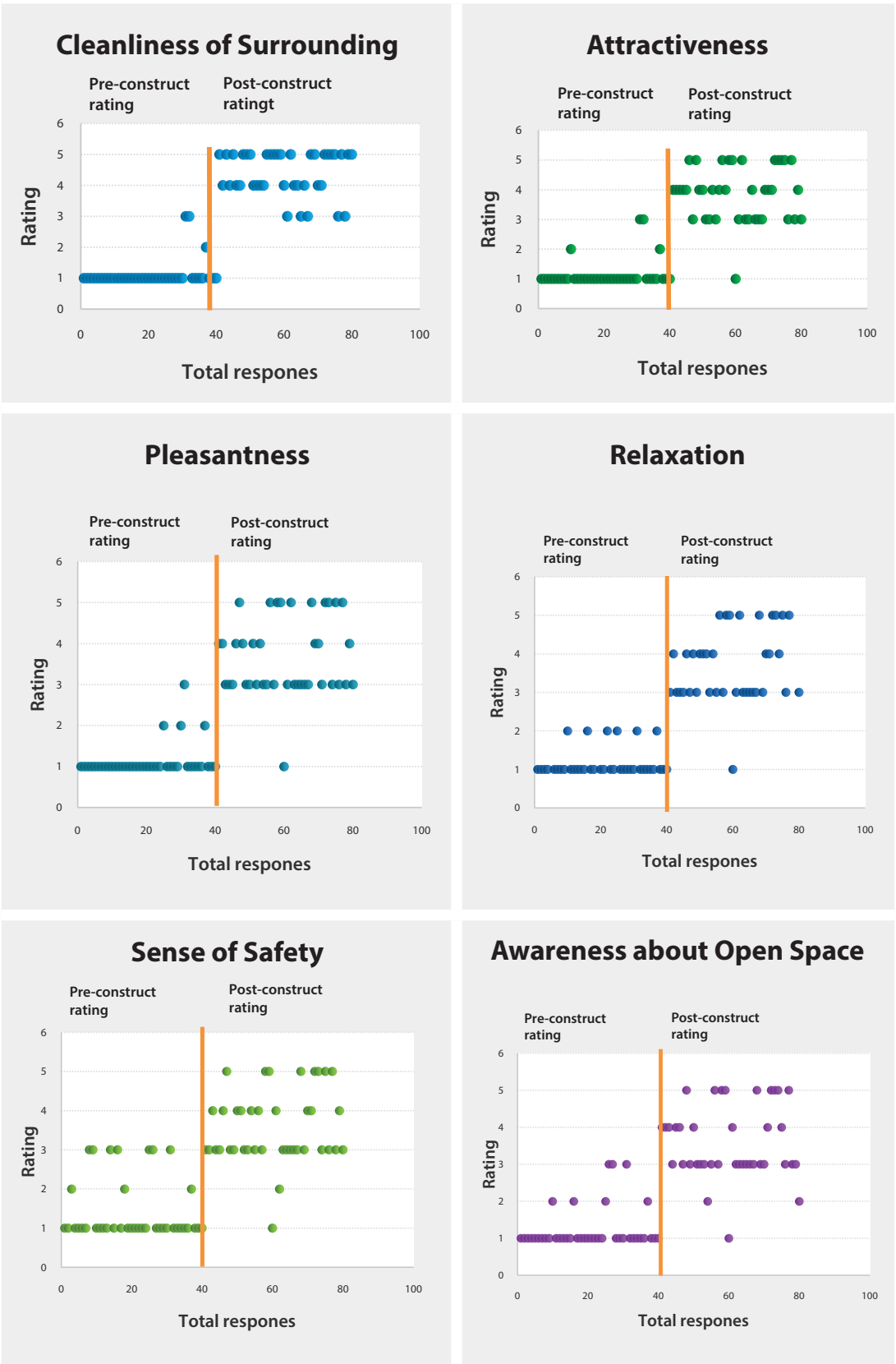
3. Psychological Perception of the households towards the Attributes of Park

The study tried to explore the psychology of individuals living in the nearby households while being in the space area before and after the construction of the park. Pleasantness, cleanliness of surrounding, relaxation, sense of security, and many other aspects that could reflect households' psychology around the park has been measured and analyzed. The implicit assumption of measuring psychological aspects was to investigate whether these aspects have created any impacts on the behaviors, particularly, of household people around the park-related activities.

The survey revealed households' positive outlook towards the psychological aspects measured after the construction of the park. It can be seen from figure 5 that people had an unfavorable feeling towards the space area before the construction of the park, with most of the responses clustered around rating 1. Since the space area of being filthy, unsuitable to do activities like resting, exercising, waiting, it can be easily understood that space would not provide any benefit to the people who visited that place. However, after the construction, the ratings were more towards average to higher, depending upon how each individual perceived the change post-construction of the park.

FIGURE 5: DISTRIBUTION OF PRE-POST RESPONSES FOR PSYCHOLOGICAL PERCEPTION

Orange line in the graphs differentiate the pre and post-construction scenario of the same population



Source: *Analysis form survey data, 2021*

It has been found from the mean difference that feeling about cleanliness has changed 3.28 points with about 300% positive changes, followed by attractiveness (237%) and pleasantness (227%). Similarly, the feeling about relaxation has also increased by almost 218% and the sense of safety by 151%. With these positive changes in all dimensions of the psychological aspects, it can be assumed that the park has been capable to change survey participants' park-related activities, behaviors, and decision-making. The statistical significance of the perceived changes supported the robustness of such changes. All changes are significant at less than one percent p-value.

TABLE 5: MEAN DIFFERENCE OF HOUSEHOLD'S PSYCHOLOGICAL PERCEPTION

Personal feeling about the quality of park's attributes	Average rating before construction	Average rating after construction	Mean Difference
Cleanliness of the surrounding (1= Not clean, 5= Clean)	1.13	4.40	3.28
Attractiveness of the space area (1= Not attractive, 5= Very Attractive)	1.15	3.88	2.73
The pleasantness of the space area (1=Unpleasant, 5= Very pleasant)	1.13	3.68	2.55
Relaxation in the space area (1= Tensed, 5= Relaxed)	1.16	3.68	2.53
Sense of safety due to the space area (1= Dangerous, 5= Safe)	1.43	3.58	2.15
Awareness about the importance of the space area (1= Not aware, 5= Highly Aware)	1.25	3.58	2.33

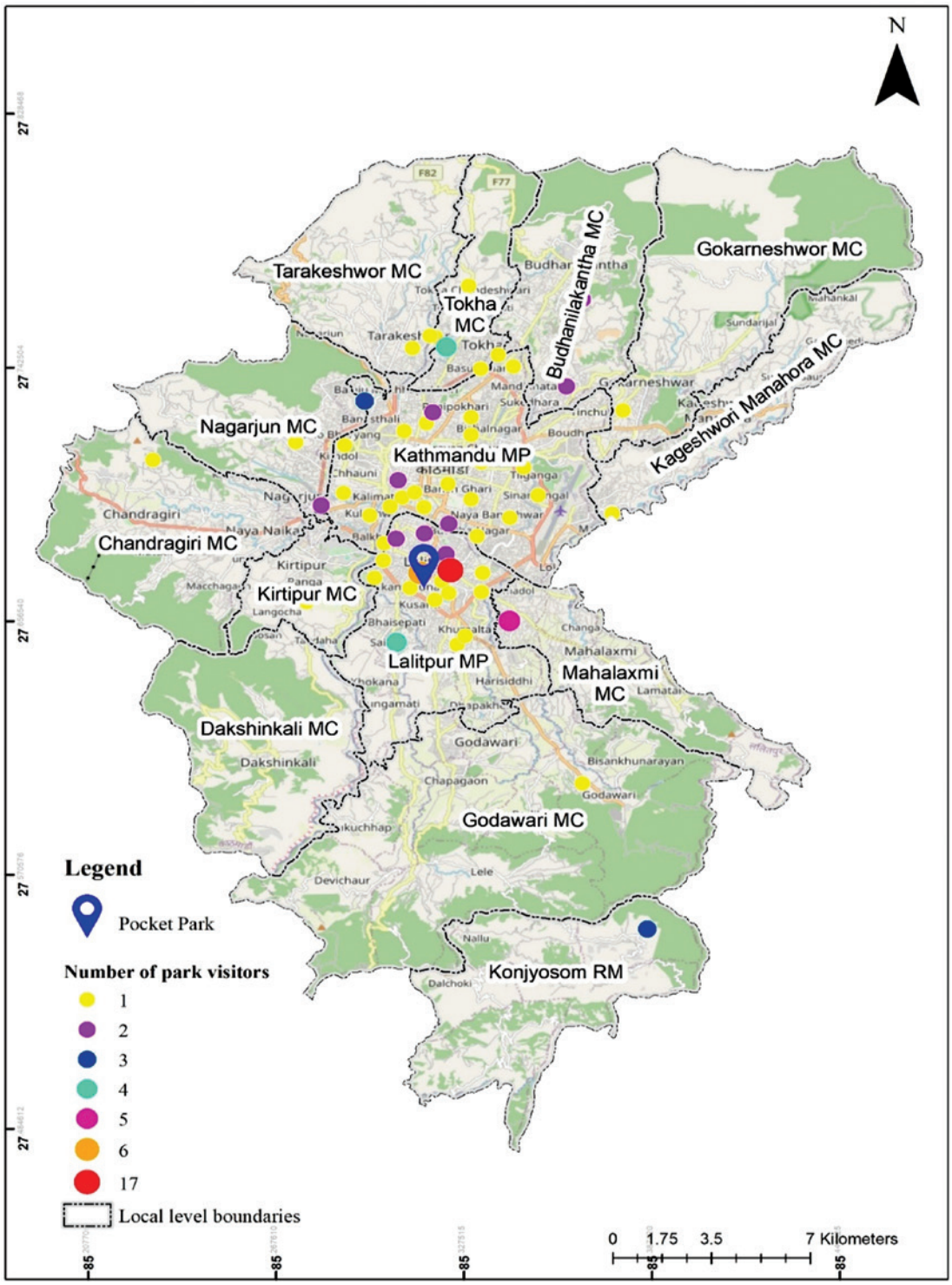
Source: *Analysis form survey data, 2021*

4. Physical and Social Activities on the Park

As discussed in the previous section, the positive changes in the households are expected to change their involvement in park-related activities. Hence the individuals residing in the nearby households were asked whether they have experienced a change in their daily activities particularly on exercising, recreation, socializing, and so on after the construction of the park.

Before constructing a pocket park, the neighborhood reported almost no personal and social activities there while park visitors imagined the chances of few social activities. Since the household respondents were rating these activities based on their real experiences while park visitors responded on the basis of pictorial visualization, there has been visible variation between actual and imaginary experiences.

FIGURE 6: DISTRIBUTION OF PARK VISITORS



***Source**: Open Street Map (2021), Google Earth Pro (2021), and Field Survey 2021*

The study found that there has been a significant increase in park-related activities after its construction. At the same time, park visitors also reported that the area was suitable and safer for waiting, resting, exercising, and socializing. It is interesting to note that the average rating across these activities among household people and park visitors was found to be almost similar in the post-construct scenarios.

FIGURE 7: ACTIVITIES IN THE PARK

Source: *Analysis form survey data, 2021*

In the case of household, the mean difference of 3.08 point, with 268% changes, for using the park for resting purposes shows that people have started utilizing the space by more than 2.5 times compared to the pre-construct scenario followed by waiting, socializing such as gathering and talking with friends and other community people.

Similarly, there has been a significant decrease in the practice of illegal parking of vehicles (51%), followed by a decrease in the practice of dumping waste/construction materials in the space area (55%). All the changes are statistically significant with less than 1 percent significance level.

In terms of the usefulness of the park for resting, waiting, exercising, socializing, and so on, the average rating points reflected stronger preferences towards lighter tasks such as walking, waiting and resting. This choice was particularly due to the smaller size of the park. The visitors also expressed that the construction of the park has also contributed to increasing the safety and security of the surrounding by 47% after the park construction. All the results reported significant at less than 5% P-value.

TABLE 6: MEAN DIFFERENCE IN ACTIVITIES

Physical and social activities in the park	Mean Difference of Average Rating	
	Household	Park Visitor
Walking	3.08	-
Waiting	3.05	2.51
Rest	2.95	2.83
Exercising	2.08	2.00
Socializing	2.51	2.15
Recreation	2.25	2.17
Dumping waste	-1.59	-
Illegal parking	-1.18	-
For the safety and security of the surrounding	-	1.16
In the case of emergencies like an earthquake	-	2.25

Source: *Analysis form survey data, 2021*

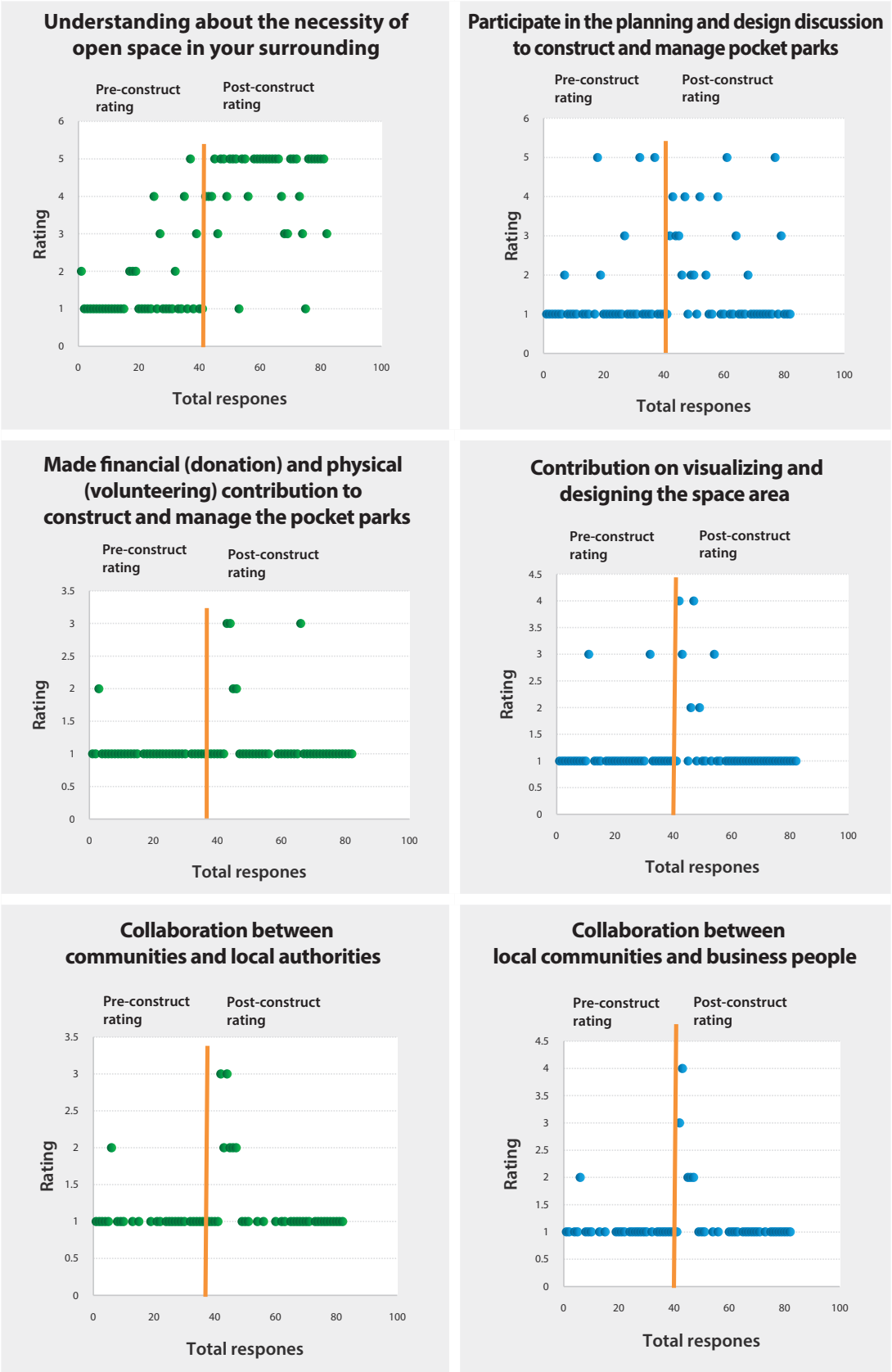
5. Impact of the park on household's understanding and decision making

Prior to the construction of the park, people from the local community actively participated in discussions related to the managing of the pocket park. They mainly contributed water and electricity required for the construction of the park. The President of the Tamrakar Samaj (an institution of the Tamrakar ethnic group) said that the community was impressed by the concept of such a park. Mr. Chiribabu Maharjan, Mayor of Lalitpur Metropolitan City, recalled that the local community people wholeheartedly supported the construction of the park. In this context, the construction of the park is expected to change households' participation and decision-making when it comes to dealing with the issues of open space areas.

It has been found that people's realization about the necessity of well-managed open space and greenery in their surroundings has increased by more than twice over time. Similarly, people's interest in making a financial and physical contribution towards the construction and management of the pocket parks/parks/open spaces in their surroundings has also been found to increase by 18%. However, as reported earlier, few local people already contributed during the construction of the pocket park but the change in outcome does not reflect the people's interest in financial and physical contribution at the current scenario. Additionally, despite noticing positive changes, the participation of people in planning and designing, and contributing to visualizing the park with arts and design is not found to be statistically significant at less than 5 percent. With being not significant, we cannot assert that these changes have taken place in peoples' behavior after the park construction.

FIGURE 8: DISTRIBUTION OF HOUSEHOLD RESPONSES FOR MAKING DECISIONS AND CHOICES

Orange line in the graphs differentiate the pre and post-construction scenario of the same population



Source: *Analysis form survey data, 2021*

The analysis of Key Informant Interviews (KII) with the Mayor, ward chairpersons of ward no. 4 and 13, including the President of the Tamrakar Samaj, showed that few people in the local community contributed in making the pocket park which is also reflected from the response of households. However, there are not enough people contributing to such efforts though there are visible positive changes. There could be two explanations for this behavior. One is that local people might not have received the opportunity to contribute to other similar projects, and the second reason could be a tenuous collaboration among the local people and locally elected representatives.

TABLE 7: MEAN DIFFERENCE IN HOUSEHOLD'S UNDERSTANDING AND DECISION MAKING

Making choices and Decisions	Average rating before construction	Average rating after construction	Mean Difference
Understanding the necessity of open space in your surrounding (1= Did not change, 5=changed completely)	1.48	4.38	2.90
Participate in the planning and design discussion to construct and manage pocket parks/parks/ open spaces in your surrounding (1= Never, 5= Always at the time of need)	1.41	1.90	0.49
Made financial (donation) and physical (volunteering) contribution to construct and manage the pocket parks/parks/ open spaces in your surrounding (1= Never, 5= always at the time of need)	1.03	1.21	0.18
Contribution on visualizing and designing the space area (1= Never, 5= always at the time of need)	1.11	1.32	0.21

Source: *Analysis form survey data, 2021*

6. The practice of collaboration among stakeholders

When it comes to strengthening collaboration among community people, local enterprises, and local authorities such as mayors, ward chairpersons to develop and manage pocket parks/open spaces, the study did find a tenuous collaboration of community people with the local authority and no such collaboration of business community with local people and authorities.

From KII, it appeared that there was some collaboration at the initial stage of park construction among community people and local authorities. However, such collaboration has not been seen in the post-construction scenario.

TABLE 8: MEAN DIFFERENCE OF THE PRACTICE OF COLLABORATION AMONG STAKEHOLDERS

Average rating on the status of collaboration	Entrepreneurs			Local Community		
	Before construction	After construction	Mean Difference	Before construction	After construction	Mean Difference
Collaboration with business/ local community to manage and sustain the space area (1=Never, 5= Always at the time of need)	1.21	1.15	-0.06	1.03	1.27	0.23
Collaboration with local policymakers to manage and sustain the space area (1=Never, 5= Always at the time of need)	1.18	1.12	-0.06	1.03	1.26	0.23

Source: *Analysis form survey data, 2021*

7. Impact of Pocket Park on Local Businesses

The pocket park is located in the business area of Jawalakhel, Lalitpur. Assuming pocket park construction could generate more businesses and lure more customers/clients, the study tried to capture the magnitude of change if they realized any.

The study found that the construction of the park appeared to be impactful only to make the business place more attractive with about 27% increment, compared to the pre-construct scenario, followed by an increase in sense of safety and security in their business surrounding by 9 %. Besides, the park has contributed to a decrease in the practice of throwing waste in the space area by about 50%.

However, the study shows that the park has not created any impact on other business activities such as the increase in the number of customers/clients, the monetary value of the business, and the volume of business transactions. Since the park occupies a small area and is suitable for only a small number of visitors; it might not contribute to increasing the business activities at a larger scale.

TABLE 9: CHANGE IN BUSINESS ACTIVITIES

Business activities	Average rating before construction	Average rating after construction	Mean Difference	% Change
Number of costumers/ buyers/ clients visiting to purchase/get goods/services (1= Few, 5=Many)	3.00	3.11	0.11	3.70
Safety and security of the business/property (1=unsafe, 5=very safe)	4.42	4.84	0.42	9.47
Waste disposal in the space area (1= Always, 5=Never)	4.80	2.47	-2.33	-48.48
Attractiveness of business location due to the space area (1= Not attractive, 5= Very Attractive)	2.85	3.63	0.78	27.27
Monetary value of business property (1= Low, 5= Extremely high)	3.42	3.47	0.05	1.60
Business volume in terms of monetary value (Rupees) (1= Significantly decreased, 5= significantly increased)	3.00	3.11	0.11	3.70

Source: *Analysis form survey data, 2021*

FIGURE 9: GLIMPSES OF THE FIELD SURVEY

Source: *Field survey 2021*

8. Suitability of the Park to the Persons with Disability

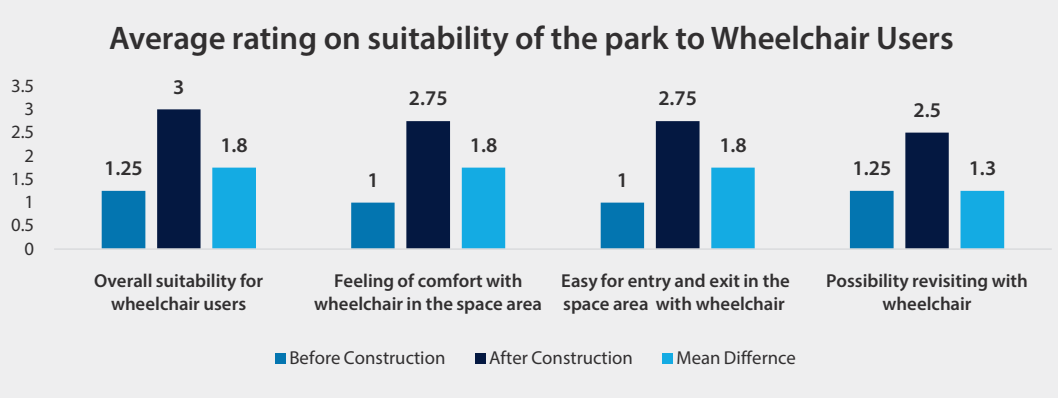
While converting the space area into a park, it has been made as much accessible as possible to persons with disabilities (PWDs), especially to wheelchair users. During the survey, six PWDs participated in the survey, among whom 3 were wheelchair users, one visually impaired, and 2 with psychosocial disabilities.

FIGURE 10: PERSONS WITH A DISABILITY VISITING THE PARK

Source: *Field survey 2021*

The wheelchair users shared pleasant experiences, to some extent, while being in the park. They expressed that there have been efforts made to make the park wheelchair accessible, but they suggested better modifications in the smoothness of the ramp at both the entry and exit points. Similarly, the visually impaired person visiting the park found it to be not suitable for them, especially referring to the noise from the vehicles and the lack of hand railings inside the park to support them while walking on the ramp.

FIGURE 11: SUITABILITY OF THE PARK TO WHEELCHAIR USERS



Source: *Analysis form survey data, 2021*

9. Park experience of persons with psychosocial disability

During the survey, qualitative information around the accessibility and usefulness of the park has been collected interviewing two people with psychosocial disability-one female and one male. They both found the park's attributes pleasant, and the place is equally friendly to people with psychosocial disabilities.

The female visitor found the amazing and nice and architecture is well set up. She says "the environment of the park is quite peaceful, and the landscape was mesmerizing. However, the area might not be suitable for women in the evening" She attributed insecurity as the main reason for such feelings.

Meanwhile, she also talked to the people around the parks and had a warm conversation with them. She compared her experience being in the park with an experience she had of visiting a park in the Australian Embassy. According to her being in the park at the noon is nice to her.

She suggested improving the lighting system of the park so that the place would be more secure to the visitors. In her opinion, such lighting would also ecstasies the mood of people, like them.

There was not much diffidence in the experiences of male visitors compared to the female visitor. He also found the park nice and fine. "The experience being in the park is good and satisfiable" he stated. In his opinion, he is comfortable with the people surrounding the park.

He was satisfied with the structure and landscape of the park too. However, he found the parking area is a little precarious and said that tall buildings around the park may challenge the safety and security of the visitors and the park. He further said, "tall building around the park would harm the park if there is an earthquake". Like a female visitor, he also suggested that a good lighting system should be there which would help to turn the visitor's mood up.

10. Impact of park's construction on local government and community people

During the study, in order to explore how a small initiation of constructing pocket parks has encouraged local governments and community people to think about and plan for other pockets, Key Informant Interviews (KIIs) have been conducted with the relevant people. From these conversations, it has been found that the construction of pocket parks has worked as a catalyst to start a healthy discussion among the local community people and local government. Similarly, the local government has also endorsed policy and programs to initiate and support parks' construction in Lalitpur Metropolitan. Particularly, the construction of this pocket park seems to have provided an impetus to design a park not only suitable to the able people but also the people with disabilities.

Their views on the pocket park and the possible challenges they had to face have been discussed in detail in the box below.

Mr. Chiri Babu Maharjan
Mayor, Lalitpur Metropolitan City, Lalitpur

VIEWS:

The idea of the pocket park has been enshrined in policies and programs of the Municipality's annual budget. Two of the relevant programs are the Green Project and BLUE Project with the objective to expand greenery and renovate the traditional ponds respectively. The municipality has envisioned transforming the abandoned public properties into a public park in a few years. Substantially, the replication of the park has been under construction in the cities like Jawalakhel, Lagankhel, Kumaripati, Shankhalmul, Dhobighat, etc.

As per the policy provision, the Users Committee-which is mandatory for public projects. Such committees are being financed mainly by the municipality in addition to the supportive aids from United Nations Development Programme and various volunteer organizations like Vriksha Foundation thus far.

The municipality has been harmoniously coordinating with organizations like Vriksha Foundation for its technical and architectural support to develop parks/pocket parks/open spaces. The maintenance of the park is currently being handled and managed by the Lalitpur Metropolitan City Office. For future sustainability, the plan is to delegate maintenance services to local organizations or community groups.

In these projects, there is overwhelming support from the residents across the city. Further, international organizations like Asian Development Bank, World Bank, UNDP, private innovative organizations, and volunteer organizations are keen to participate, support, and learn from this project idea.

MAJOR CHALLENGES:

There are several challenges before and during the construction of parks. The foremost is the acquisition of land for the park. Numbers of people are residing in public property unauthentically. They try to resist such projects. Further, the city area is a vital place for business. Big multiplex poses a serious challenge and tries to influence stakeholders.

Mr. Narayan KC
Chairperson, Ward No.4, Lalitpur Metropolitan City

VIEWS:

The wards had facilitated the team involved in the construction of the pocket park. There were discussions between the residents, local community leaders, ward chairperson, mayor of the municipality, UNDP, and the team that led the initiative. There was a harmonious consensus among all to execute the plan. The residents had encouraging and supportive cooperation during the process.

MAJOR CHALLENGES:

The major challenge before construction was the acquisition of land. Several voices were raised inside and outside the site by the vested interest groups who were using the public property illegally. Besides, proper maintenance of the park has also been a challenge.

Mr. Ganesh KC
Chairperson, Ward No. 13, Lalitpur Metropolitan City

VIEWS:

Chairpersons of Ward No. 4, 5 and 13, were involved in the formation of the User's Committee Groups. Collective efforts were given to involving the Committee in the planning, preparatory, implementation, and coordination phases. Financial support was managed through a joint contribution of the municipality, wards, and other stakeholders of the park.

MAJOR CHALLENGES:

The foremost challenge in the execution of the idea was land acquisition. There was a conflict of interest due to the involvement of the big business multiplexes. Another challenge was the differences of opinion between the architects of the team and the local community. The local community was willing to preserve the traditional architecture and customs. So, they were reluctant to modernize the design of the park according to the needs of different people, including PwDs.

Mr. Ravindra Tamrakar,
President of Tamrakar Samaj, Lalitpur Metropolitan City

VIEWS:

The local communities were encouraged by the construction of parks. The idea of the park was first introduced in a program organized by the team of Vriksha Foundation, UNDP including various volunteer organizations. Residents fully supported the idea and contributed during the construction of the park, especially the provision of water supply and electricity. The President of the Tamrakar Samaj (an institution of the Tamrakar ethnic group) said that the community was impressed by the concept of the park. He added that the community wanted to have similar parks in the area as it is getting more congested with the rising numbers of concrete buildings for businesses. He specifically added the importance of green spaces and spaces for recreation together with family and friends.

MAJOR CHALLENGES:

The community has concerned that big business tycoons can impede such projects. Further, the continuous maintenance of the parks is another challenge since the community has not been assigned any direct role in this aspect apart from the verbal agreement on protecting and managing the park.

IV SUMMARY AND CONCLUSION

The study was carried out to measure the effect of the pocket park and the associated behavioral change in nearby households, businesses, and park visitors. For this study, a total of 202 responses were collected using a retrospective pre-post survey, out of which 104 were from park visitors, 57 from entrepreneurs, and 41 responses from household people. Similarly, to garner insights on whether the pocket park has generated any impact on the local policymakers or not, the Key Informant Interview was administered with the policymakers and the leaders within the municipality. Descriptive statistics such as average, the percentage change have been used to analyze data.

The survey with households suggested that physical attributes of the space area are improved by about 2.5 times to pre-construct scenarios. Similarly, from a psychological perspective, the park has contributed to changing people's experiences such as pleasantness and relaxation while being in the park. These experiences were changed by more than 2 times to the surveyed households. When it came to performing the physical activities in the park, households and visitors have increased activities like exercising, resting, waiting, walking, and so on by more than 2.3 times, benefiting social cohesion, health and well-being. However, the study found that people appeared to be somehow reluctant to contribute and collaborate with other community members, local policymakers, and entrepreneurs in the issues of open spaces, such as initiating other pocket parks and managing them.

The visitors also found the park transfigured in almost all the aspects that the survey questions asked. They reported that overall space area's attributes such as physical condition, space arrangement, greenery, and so on have increased by about more than 1.5 times on average. From the perspective of persons with disabilities, especially wheelchair users, space areas have been made suitable and comfortable for them, however, they see a lot to be improved in the park in regard to the easy accessibility from the entrance as well as the exit point of the park. People with psychosocial disabilities found the park pleasant and accessible, but they want more improvement in the lighting system and more space in the pocket park area.

The survey also captured the impact of the park on local businesses. And, it has been found that park has a no larger contribution to increasing the business activities like's sales volumes, increase in asset value and so on. Similarly, the park also did not contribute to fostering a relationship between entrepreneurs with community people and local policymakers. However, it has contributed to increasing the safety and security in the business area by decreasing the incidents of brawling, illegal parking, and so on.

The study also found that the metropolitan city has initiated dedicated projects to convert open public spaces into parks. Local policymakers seem sensible towards the issues of open space in their surroundings. However, they pointed out the acquisition of encroached public land is one of the major challenges to convert public spaces to parks.

V RECOMMENDATION

Based on the findings and suggestions gathered during the study, it was observed that there required concrete steps for better improvements while constructing similar parks.

- **Physical Attributes:** To improve the physical attribute of the park, almost all the respondents recommended the need for a public toilet, drinking water facility, and more greenery in the park. They also suggested adding shedding to the existing park to make it more useful. Branding of the park with an appropriate name was also recommended to give it a more specific identity.

- **Collaborations:** The finding suggested that there was a tenuous collaboration among the park's stakeholders such as households, local businesses, and policymakers to discuss and take joint action on the issues of the pocket park, such as maintenance and sustainability, therefore, the role and responsibility of joint users committee with the people from households, local entrepreneurs, and local policymakers need to be expanded to make the pocket park sustainable and properly maintained.

  Though there appears some level of collaboration between the community, local institutions, enterprises, and local government while constructing the park, it is essential to continue and strengthen such collaboration for future maintenance and sustainability of the park. Besides, strong collaboration among the local community, entrepreneurs, and local policymakers is needed to develop similar other parks. Since the importance of public space is still beyond the public discussion, initiating campaigns and fostering strong collaboration among local people with local policymakers and entrepreneurs will further encourage to have more voices in this issue.

- **Inclusive designs:** To make the parks more inclusive and user-friendly, the design of the park should be prepared and tested from the perspective of child-friendliness and persons with disabilities from the very beginning. To make the existing park accessible to wheelchair users, the entrance and exit of the parking area are to be improved so they can enter the park and exit without difficulty. The internal track designed to ride a wheelchair should also be improved by smoothing the track. To make the park suitable for visually impaired people a hand railing should also be placed.

- **Respecting tradition and customs:** While constructing pocket parks/open spaces, special attention should be given to preserving the traditional architecture and customs. Therefore, the people of local communities should be included from the very beginning of—park design to making the park sustainable.

- **Sustainability:** To maintain and protect the park, more responsibility should be given to the local community along with the local governments.

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VII ANNEXES

1. Households' response towards physical attributes of the park

1' indicates the 'lowest quality of the attributes and '5' the 'highest quality.

Attributes of the park	Average rating before construction	Average rating after construction	% Change	t Stat	P-Value
Physical condition of the space area	1.18	4.60	291	26.65	1.23E-26***
Space arrangement	1.08	4.05	277	18.82	3.59E-21***
Lighting system in the space area	1.08	3.36	212	11.55	5.44E-14***
Greenery maintained at the space area	1.08	3.85	257	18.04	3.17E-20***
Overall maintenance of the space area	1.08	4.00	271	11.55	5.44E-14***
Accessibility of the space area	1.08	3.77	250	15.93	2.06E-18***
Child Friendliness of the space area	1.19	2.73	130	7.31	1.30E-08***

Note: *** p ≤001, ** p ≤01, * p ≤ 05

Source: *Analysis form survey data, 2021*

2. Entrepreneurs perception towards park attributes

(Rating '1' indicates the 'lowest quality of the attributes and '5' the 'highest quality)

Attributes of the space area	Average rating before construction	Average rating after construction	% Change	t Stat	P-Value
Physical condition	1.55	4.70	202.30	26.64	4.04E-33***
Greenery maintained	1.11	4.41	298.39	28.34	1.69E-34***
Attractiveness	1.36	4.55	235.53	30.05	8.15E-36***
Overall maintenance	1.25	4.47	256.52	26.63	9.89E-33***
Lighting system	1.88	3.85	105.56	12.24	3.19E-16***
Space arrangement	1.52	4.57	201.18	25.31	5.54E-32***

Note: *** p ≤001, ** p ≤01, * p ≤ 05

Source: *Analysis form survey data, 2021*

3. Park visitors' perception towards park attributes

(Rating '1' indicates the 'lowest quality of the attributes and '5' the 'highest quality)

The attribute of the Space Area	Average rating before construction	Average rating after construction	% Change	t Stat	p-value
Physical condition	1.55	4.17	169.6	26.98	3.14E-48***
Greenery maintained	1.25	3.75	200.0	22.67	7.85E-42***
Attractiveness	1.66	4.05	143.4	22.66	8.16E-42***
Overall maintenance	1.67	3.87	131.0	29.68	2.76E-52***
Lighting system	1.48	3.51	137.0	22.02	9.41E-41***
Space arrangement	2.32	3.90	68.5	12.47	3.15E-22***

Note: *** p ≤001, ** p ≤01, * p ≤ 05

Source: *Analysis form survey data, 2021*

4. Psychological perception of households towards the quality of the park attributes

Quality of park's attributes	Average rating before construction	Average rating after construction	% Change	t Stat	P-Value
Cleanliness of the surrounding (1= Not clean, 5= Clean)	1.13	4.40	291	25.38	7.39E-26***
Attractiveness of the space area (1= Not attractive, 5= Very Attractive)	1.15	3.88	237	18.46	7.03E-21***
Pleasantness of the space area (1=Unpleasant, 5= Very pleasant)	1.13	3.68	227	15.56	2.56E-18***
Relaxation in the space area (1= Tense, 5= Released)	1.16	3.68	218	14.05	2.09E-16***
Sense of safety due to the space area (1= Dangerous, 5= Safe)	1.43	3.58	151	11.44	4.97E-14***
Awareness about the importance of the space area (1= Not aware, 5= Highly Aware)	1.25	3.58	186	13.15	6.49E-16***

Note: *** p ≤001, ** p ≤01, * p ≤ 05

Source: *Analysis form survey data, 2021*

5. Household's physical and social activities in the park

(Rating '1' indicates the lowest usefulness and '5' the highest usefulness, except for dumping of waste and illegal parking)

Physical and social activities in the park	Average rating before construction	Average rating after construction	% Change	t Stat	P-Value
Walking	1.40	4.48	220	14.44	3.12E-17***
Waiting	1.20	4.25	254	16.72	2.21E-19***
Rest	1.10	4.05	268	17.97	3.60E-20***
Exercising	1.03	3.10	203	10.26	1.69E-12***
Socializing	1.00	3.51	251	13.45	5.03E-16***
Recreation	1.10	3.35	205	15.35	3.99 E-18***
Dumping waste/ construction material	2.87	1.28	-55	6.40	1.61E-07***
Illegal parking	2.30	1.13	-51	7.36	6.93E-09***

Note: *** p ≤001, ** p ≤01, * p ≤ 05

Source: *Analysis form survey data, 2021*

6. The usefulness of the park to visitors

(Rating '1' indicates the lowest usefulness and '5' the highest usefulness)

Usefulness of Park	Average rating before construction	Average rating after construction	% Change	t Stat	p-value
Taking rest	1.49	4.32	189.7	35.78	6.63E-60***
For waiting	1.55	4.06	162.1	28.01	5.61E-50***
In the case of emergencies like earthquake	1.99	4.24	113.0	23.83	1.05E-43***
For recreation	1.21	3.38	179.4	24.13	3.51E-44***
Socializing	1.50	3.65	143.6	23.56	2.84E-43***
For physical exercises	1.55	3.55	129.2	20.70	1.73E-38***
For safety and security of the surrounding	2.37	3.48	47.2	12.40	3.67E-22***

Note: *** p ≤001, ** p ≤01, * p ≤ 05

Source: *Analysis form survey data, 2021*

7. Behavioral changes of household in making decisions and choices.

Making choices and Decisions	Average rating before construction	Average rating after construction	% Change	t Stat	P-Value
Waste disposal practice in the space area (1= Always, 5= Never)	4.08	2.03	-101	8.33	4.24E-10***
Understanding the necessity of open space in your surrounding (1= Did not change, 5=changed completely)	1.48	4.38	197	13.73	1.61E-16***
Participate in the planning and design discussion to construct and manage pocket parks/ parks/ open spaces in your surrounding (1= Never 5= Always at the time of need	1.41	1.90	35	1.62	0.11
Made financial (donation) and physical (volunteering) contribution to construct and manage the pocket parks/parks/open spaces in your surrounding (1= Never, 5= always at the time of need)	1.03	1.21	18	2.02	0.056*
Contribution on visualizing and designing the space area (1= Never, 5= always at the time of need)	1.11	1.32	19	1.21	0.23
Collaboration between communities and local authorities such as mayors, ward chairpersons regarding pocket park construction and management (1=Extremely Weak, 5= Extremely Strong)	1.03	1.26	22	2.24	0.03**
Collaboration between local communities and entrepreneurs regarding pocket park construction and management (1=Extremely Weak, 5= Extremely Strong)	1.03	1.27	23	1.88	0.06*

Note: *** p ≤001, ** p ≤01, * p ≤ 05

Source: *Analysis form survey data, 2021*

8. Questionnaire used in the survey

BEHAVIORAL INSIGHTS AND IMPACT STUDY ON POCKET PARK

My name is……. ……. I am from Bikas Udhyami, Kathmandu Nepal. We are conducting this survey to measure the impact of the pocket park in Jawalakhel. Bikas Udhyami is conducting this survey on behalf of UNDP Nepal. Your honest response will be valuable for assessing the actual impact that the park may have generated. If you are willing to participate in this survey, it will take about 15 minutes of your time.

We assure you that

a. All personal information asked within this questionnaire will be kept confidential according to the Statistical Act, 2015.

b. Your information will be used only for study purposes.

Please note that

a. I will ask you questions only if you agree to participate in this survey.

b. You may discontinue the interview at any point **in** time if you feel uncomfortable.

c. You can refuse to answer any question if you do not feel comfortable.

Do you agree to participate in this survey? Yes/ No

[CONTINUE WITH THE QUESTIONS IF THE RESPONSE IS "YES"]

IDENTIFICATION

1. Respondent ID :

2. Type of Respondent :

(Note: Enumerator should choose questions from section first, second and third respectively for households/users committee member, business, and park visitors.)	Households (Except users committee member)	1
	Business	2
	Park visitors	3
	Users committee members	4
	Others (Please specify)	5

3. Enumerator's Code (automatic record from the device)

4. Interview Date: (automatic record from the device)

5. Survey Start and End time (automatic record from the device)

RESPONDENTS' SOCIO-ECONOMIC CHARACTERISTICS

Sn.	Question	Option	Code
1	Name of respondent	……	
2	Sex of respondent	Male	1
		Female	2
		Other	3
3	Age of the respondent (Completed years)	Years……	
4	Do you have any kind of disability	Yes	If no skip to Q5.
		No	
5	If yes, what kind of disability do you have?	……	
6	Address of the respondent (Current address)	……	
7	Types of occupation/business of the respondent	……	
8	Education level of the respondent (Completed level)	No formal Schooling	0
		Below grade 8	1
		Grade 9-12	2
		Above grade 12	3

SECTION I:
IMPACT OF THE POCKET PARK ON HOUSEHOLDS/ USERS COMMITTEE MEMBERS

1. The attributes of the park

How do you personally evaluate the attributes of the assigned area space before and after the construction of the pocket park? (Assign 1 to indicate the 'lowest quality of the attributes and 5 to the 'highest quality)

Sn	Attributes of the space area	Before construction of the park					After construction of the park				
1	The physical condition of the space area	1	2	3	4	5	1	2	3	4	5
2	Space arrangement	1	2	3	4	5	1	2	3	4	5
3	Lighting system in the space area	1	2	3	4	5	1	2	3	4	5
4	Greenery maintained at the space area	1	2	3	4	5	1	2	3	4	5
5	Overall maintenance of the space area	1	2	3	4	5	1	2	3	4	5
6	Accessibility of the space area	1	2	3	4	5	1	2	3	4	5
7	Child Friendliness of the space area	1	2	3	4	5	1	2	3	4	5

2. Psychological perception about the quality of park's attributes

How do you personally feel about the attributes of the assigned area space before and after the construction of the pocket park?

Sn	Quality of attribute of the park	Before the construction of the park					After construction of the park				
1	Cleanliness of the surrounding (1= Not clean, 5= Clean)	1	2	3	4	5	1	2	3	4	5
2	Attractiveness of the space area (1= Not attractive, 5= Very Attractive)	1	2	3	4	5	1	2	3	4	5
3	Pleasantness of the space area (1=Unpleasant, 5= Very pleasant)	1	2	3	4	5	1	2	3	4	5
4	Relaxation in the space area (1= Tense, 5= Released)	1	2	3	4	5	1	2	3	4	5
5	Sense of safety due to the space area (1= Dangerous, 5= Safe)	1	2	3	4	5	1	2	3	4	5
6	Awareness about the importance of the space area (1= Not aware, 5= Highly Aware)	1	2	3	4	5	1	2	3	4	5

3. Personal and social activities in the park

How do you evaluate the frequency of your activities in the assigned area space before and after the construction of the pocket park? (Please assign scale 1 for 'Never' and 5 for 'Always' at five-level evaluation scale)

Sn	Activities	Before the construction of the park					After construction of the park				
1	Using space area for walking	1	2	3	4	5	1	2	3	4	5
2	Using space area for waiting	1	2	3	4	5	1	2	3	4	5
3	Using space area to rest	1	2	3	4	5	1	2	3	4	5
4	Using space area for exercising	1	2	3	4	5	1	2	3	4	5
5	Using space area for socializing such as meeting friends	1	2	3	4	5	1	2	3	4	5
6	For recreation	1	2	3	4	5	1	2	3	4	5
7	Dumping waste/ construction material	1	2	3	4	5	1	2	3	4	5
8	Illegal parking	1	2	3	4	5	1	2	3	4	5

4. Making choices and Decisions

How do you evaluate the change in behavior and practice in terms of the following issues related to pocket park/open space?

Sn	Decisions and Choices	Before the construction of the park					After construction of the park				
1	Waste disposal practice in the space area (1= Always, 5= Never)	1	2	3	4	5	1	2	3	4	5
2	Understanding about the necessity of open space in your surrounding (1= Did not change, 5=changed completely)	1	2	3	4	5	1	2	3	4	5
3	Participate in the planning and design discussion to construct and manage pocket parks/parks/ open spaces in your surrounding(1= Never, 5= Always at the time of need	1	2	3	4	5	1	2	3	4	5
4	Made financial (donation) and physical (volunteering) contribution to construct and manage the pocket parks/parks/open spaces in your surrounding (1= Never, 5= always at the time of need)	1	2	3	4	5	1	2	3	4	5
5	Contribution on visualizing and designing the space area (1= Never, 5= always at the time of need)	1	2	3	4	5	1	2	3	4	5
6	Collaboration between communities and local authorities such as mayors, ward chairpersons regarding pocket park construction and management (1=Extremely Weak, 5= Extremely Strong)	1	2	3	4	5	1	2	3	4	5
7	Collaboration between local communities and entrepreneurs regarding pocket park construction and management (1=Extremely Weak, 5= Extremely Strong)	1	2	3	4	5	1	2	3	4	5

5. Did you find the physical attributes of this park beneficial? If yes, could you explain what are the major 5 benefits/ advantages you gained by using the park's attributes?

6. In your opinion, what major 5 improvements are required to make parks' attributes more beneficial?

7. In your experience, did air pollution in Kathmandu valley demotivate you to visit the pocket park? If yes, could you explain how it demotivated you?

SECTION II:
IMPACT OF THE POCKET PARK ON BUSINESS ACTIVITIES

1. Attributes of the park from the entrepreneurs perspective

How do you personally evaluate the attributes of the assigned area space before and after the construction of the pocket park?? (Assign 1 to indicate the 'lowest quality of the attributes and 5 to the 'highest quality)

Sn	Attributes	Before the construction of the park					After construction of the park				
1	Physical condition of the space area	1	2	3	4	5	1	2	3	4	5
2	Space arrangement in the space area	1	2	3	4	5	1	2	3	4	5
3	Attractiveness of the space area	1	2	3	4	5	1	2	3	4	5
4	Lighting system in the space area	1	2	3	4	5	1	2	3	4	5
5	Greenery maintained at the space area	1	2	3	4	5	1	2	3	4	5
6	Maintenance of space area	1	2	3	4	5	1	2	3	4	5

2. Business activities and collaboration

How do you evaluate the impact of the assigned area space before and after the construction of the pocket park on your business activities?

Sn	Decisions and Choices	Before the construction of the park					After construction of the park				
1	Number of costumers/ buyers/ clients visiting to purchase/get goods/services. (1= Few, 5=Many)	1	2	3	4	5	1	2	3	4	5
2	Business volume in terms of monetary value (1= Significantly decreased, 5= significantly increased) (Note: **Business volume** is the rupees amount that "someone" pays for "something')	1	2	3	4	5	1	2	3	4	5
3	Attractiveness of your business location due to the space area (1= Not attractive, 5= Very Attractive)	1	2	3	4	5	1	2	3	4	5
4	Monetary value of your business property (1= Low, 5= Extremely high)	1	2	3	4	5	1	2	3	4	5
5	Waste disposal in the space area (1= Always, 5=Never)	1	2	3	4	5	1	2	3	4	5
6	Safety and security of the business/ property (1=unsafe, 5= very safe)	1	2	3	4	5	1	2	3	4	5
7	Collaboration of entrepreneurs with local community to manage and sustain the space area. (1=Never, 5= Always at the time of need)	1	2	3	4	5	1	2	3	4	5
8	Collaboration of businesspeople with local policymakers to manage and sustain the space area (1=Never, 5= Always at the time of need)	1	2	3	4	5	1	2	3	4	5

3. Did you find the physical attributes of this park beneficial? If yes, could you explain what are the major 5 benefits/ advantages you gained by using the park's attributes?

4. In your opinion, what major 5 improvements are required to make the park's attributes more beneficial?

SECTION III:
PERCEPTION OF PARK VISITORS

1. Attributes of the pocket park

How do you personally evaluate the attributes of the assigned area space before and after the construction of the pocket park? (Assign 1 to indicate the 'lowest quality of the attributes and 5 to the 'highest quality)

Sn	Attributes	Before the construction of the park					After construction of the park				
1	Physical condition of the space area	1	2	3	4	5	1	2	3	4	5
2	Space arrangement in the space area	1	2	3	4	5	1	2	3	4	5
3	Attractiveness of the space area	1	2	3	4	5	1	2	3	4	5
4	Lighting system in the space area	1	2	3	4	5	1	2	3	4	5
5	Greenery maintained at the space area	1	2	3	4	5	1	2	3	4	5
6	Overall maintenance of the space area	1	2	3	4	5	1	2	3	4	5

2. Suitability of park to users

How do you personally evaluate the suitability of the assigned area space before and after the construction of the pocket park**?** (Assign 1 to indicate the 'No suitability at all' and 5 to 'best suitability')

Sn	Suitability of the park	Before construction of the park					After construction of the park					Remark
1	Suitability of the space area	1	2	3	4	5	1	2	3	4	5	
3	Overall suitability of the space area to wheelchair users	1	2	3	4	5	1	2	3	4	5	Only ask wheelchair users
4	Easy for entry and exit in the space area for wheelchair users	1	2	3	4	5	1	2	3	4	5	Only ask wheelchair users
5	The feeling of comfort with wheelchair in the space area	1	2	3	4	5	1	2	3	4	5	Only ask wheelchair users
6	Possibility of using space area frequently with wheelchair	1	2	3	4	5	1	2	3	4	5	Only ask wheelchair users

3. The usefulness of the pocket park

How do you personally evaluate the usefulness of the assigned area space before and after the construction of the pocket park? (Assign 1 to indicate the 'not useful at all' and 5 to 'Extremely useful')

Sn	The usefulness of the space area	Before the construction of the park					After construction of the park				
1	Taking rest	1	2	3	4	5	1	2	3	4	5
2	For waiting	1	2	3	4	5	1	2	3	4	5
3	For physical exercises										
4	For recreation	1	2	3	4	5	1	2	3	4	5
5	Socializing										
6	In the case of emergencies like earthquake	1	2	3	4	5	1	2	3	4	5
7	For safety and security of the surrounding	1	2	3	4	5	1	2	3	4	5

4. In your opinion, what 5 major things need to be done to improve the park and make it more sustainable and beneficial in the future?

5. In your experience, did air pollution in Kathmandu valley demotivate you to visit the pocket park? If yes, could you explain how it demotivated you?

Thank you for your time and cooperation!

8. Checklist for conducting Key Informant Interviews

Name: _____

Sex: _____

Education level: _____

Institution name: _____

Position: _____

Date of interview: _____

Time of Interview: _____

A. The following questions regarding the various facets of pocket parks will be asked to the Mayor/ deputy mayors and ward chairpersons of Lalitpur Metropolitan City.

1. When did you realize and start to think about developing pocket parks in your municipality/ward?
2. Have you assessed the feasibility of constructing pocket parks in your city area?
3. What major factors triggered you to construct pocket parks?
4. When did you start constructing the pocket park?
5. How many pocket parks have you constructed in your municipality/ward?
6. How have you been collaborating with CSOs and local community organizations?
7. What is your opinion regarding the community's perception of the pocket park and open space?
8. How did you assess the benefits of the pocket parks after constructing them?

9. What are the major differences, in people's perception about the open space and their behavioral change, you found before and after constructing the pocket park at Pulchok?

10. In your opinion, what are the major challenges of constructing pocket parks in your municipality/ ward?

11. Do you have a plan for the sustainability of the pocket parks you have developed?

12. How do you plan to tackle the challenges/problems associated with constructing and managing the pocket parks?

13. Did your municipality introduce any policies/plans to revitalize the unutilized small open spaces?

14. What have you learned after being involved in the pocket park development?

15. How have/might you use these learnings in other similar projects?

16. What are your future plans in regard to the construction/expansion of pocket parks?

17. Finally, what are the attributes you think pocket parks must have to make it accessible, including people with disabilities?

B. The following questions, regarding the various facets of pocket parks, will be asked to users' committee leaders of the pocket park area in Lalitpur Metropolitan City.

1. How did your community participate with local government and park builders in the design and construction of the pocket park?

2. How did you assess the benefits of the pocket parks to this community after their construction?

3. In your opinion, what are the major challenges of constructing and sustaining pocket parks?

4. What have your community learned after involving in pocket park development?

5. Finally, what can be done to make more pocket parks and make them sustainable?

9. Images used to collet pre-construct data from park users.

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