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Transforming Rooftop Terraces to Third Places in Urban India

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Abstract

This research explores the potential of residential rooftop terraces as a 'third' place for community activities in urban India, where increasing density has throttled access to open spaces. During the COVID-19 lockdown, usage of shared and private terraces saw a surge and was being used for various purposes. An online survey was conducted to assess the usage types and to understand potential preferences for taking advantage of this largely underused resource. Response from across India within varied age groups and types of terrace users indicated opportunities for more than socialising, amidst passively cooled roofs. Almost all who had access to a roof terrace wanted to use the space in a manner that is inclusive and engaging for the residential community. Formulation of recommendations, based on this community aspiration and sharing with building permit authorities, is one of the outcomes of this study.

Keywords: Urban Residential design; Lockdown; Rooftop; Terraces; Community space; Third Place.

Introduction

Many cities, especially in the developing world are not making enough way for their community places as demands of other land uses have eaten up all but some pockets. Space crunch, high cost of land but most importantly little heed for the human psyche has gone about making a city unliveable even while it remains the principal economic engine of current civilisation.

In India, projections of the population living in Urban areas are on an exponential rise as obvious from the following graphic.

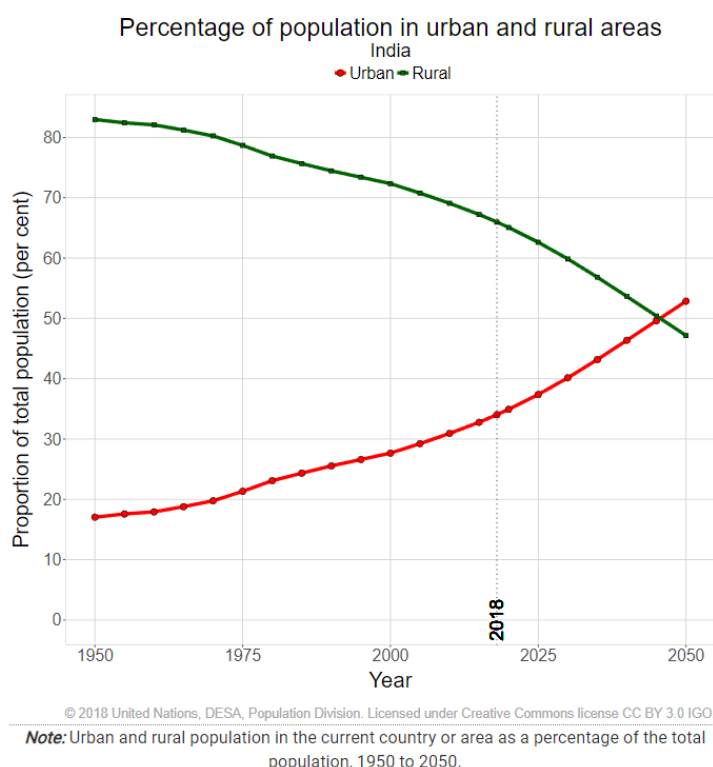


Figure 1: Projection of population proportions in India by the year 2050.
 (Source: **United Nations**, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision)

Cities	Access to Open Space			
	Share of urban area allocated to open public space (%)	Share of urban area allocated to streets (%)	Share of urban area allocated to streets & open public space (%)	Proportion of population living within convenient walking distance to open public space (%)
Coimbatore	0.4	11.2	11.6	18.8
Hindupur	0.4	9.0	9.5	24.2
Hyderabad	1.5	19.4	20.9	40.2
Jaipur	4.4	16.8	21.2	18.5
Jalna	0.7	7.0	7.7	20.1
Kanchipuram	0.5	14.9	15.5	34.3
Kanpur	2.6	6.2	8.8	19.2
Kolkata	0.9	8.6	9.5	27.7
Malegaon	1.3	7.0	8.4	25.0
Morena	0.9	7.5	8.4	39.8
Mumbai	1.8	11.3	13.0	35.3
Nellore	0.8	19.7	20.6	35.3
Pali	0.6	5.5	6.0	23.3
Parbhani	0.5	5.2	5.7	10.2
Patna	1.6	10.1	11.8	36.8
Pune	2.2	12.1	14.3	30.8
Singrauli	4.9	8.3	13.1	28.0
Sitapur	4.4	5.3	9.7	28.6
Surat	1.0	9.5	10.4	45.0
Thoothukkudi	0.6	8.4	9.0	24.2
Tumkur	1.4	19.1	20.5	60.4
Vijayawada	4.2	17.1	21.3	45.7

*Table 1: Open space availability and accessibility in select Indian cities
(Source: 2020 (Availability and Proximity) – UN report)*

We are therefore strongly inclined towards stating that the need for ‘third’¹ spaces in the urban context is more critical than ever to combat rising health issues – both physical and mental. It is now common knowledge that frequent interaction with naturally ventilated, open-to-sky spaces during work or relaxation significantly improves efficiency and a sense of comfort for users. This in turn can lead to a good quality of life in overall day-to-day existence as well as contribute to a continuously healthy subsistence (Amen, 2021, Aziz Amen, 2022, Amen et al., 2023, Amen & Nia, 2020). While it may be almost impossible to go through life without any channels of stress, it may be well possible to reduce the prevalence of causes thereof. Additionally, avenues for de-stressing may be simple in character but difficult to tread due to the complexities of modern life such as lack of opportunity in easy access due to distance and cost involved.

In urban India, residences are either part of a large, medium or small campus or units on individual plots. Most of the units in housing schemes within campus have flat roofs. These therefore offer terraces with many advantages as will be discussed in this paper.

There is a dire need for accessible outdoor spaces in the promotion of interaction for a sustainable social fabric as the weakening of social bonds in a ‘connected’ world (Putnam 2000) has been well recorded.

It is perhaps for this objective that Sustainable Development Goals also reflect similar aims. Specifically, “SDG 11: Sustainable Cities and Communities – Provide optimistic urban future by giving more avenues for social

¹ American sociologist Ray Oldenburg developed the notion of a “third place”: a space for informal, free social interaction, essential to democracy

sustainability.” The importance of the opportunity to reduce inequalities and differences by providing an informal setting in a widely accepted comfortable zone cannot be over-emphasised.

Much as there is a discussion on the best places to live on this earth, many are the lists that get generated in order of quality of life, music scene, nightlife, epicurean delights, and so on. It takes quite an effort to convince search engines to look for the city with the most engaging places for the community.

The most common answers to questions asked about the typological variations of community places include parks, beaches, public squares and then malls, public monuments, and libraries. Of course, these are places that are not just large spaces, to begin with, but possess and emanate a magnetic charm so that all and sundry are attracted to visit again and again. The magic perhaps is in the curiosity value and in the myriad things that can be performed within its precincts. It is understood but not understandable that many cities especially in the developing world are not making enough way for their community places to meet the demands of factories, housing, commercial spaces and motorways. Yet, right above many residential units is an apt resource, that could translate itself into a willing community space if considered. Terraces by virtue of their location, are endowed with a certain level of privacy and free of any vehicular traffic.

Spaces on rooftop almost create another parallel world (Hai 2014) at a level removed from the ground and in the time of lockdown, it has moved into the vision and consideration of many of us who had neither noted nor realised its existence. Beyond the drying of clothes, the occasional plant bed, or a rare solar PV cell, have citizens begun to discover the potential of this elevated world. In times of concern for gender-inclusive and child-friendly spaces, this resource offers significant opportunities for effective realisation.

“Maybe its attraction lies in the openness of the space, or in being just that much higher than most, or in the feeling of standing in an open oasis, sometimes unencumbered by walls”, (Rooftop Architecture: Building on An Elevated Surface, 2015).

With the idea that in the time of lockdown, rooftops may have moved into consideration of many city dwellers of our country, it was decided to reach out to urban Indians through a survey if accessing terraces was a lockdown phenomenon, types of activities preferred on rooftops of this predominantly tropical region with extended summer and monsoon seasons.

Material and Methods

A pilot survey study was conducted to

1. Introduce the potential of using Roof-top residential terraces beyond gardening and solar panels
2. To understand the perception of terraces in the day-to-day life of the respondents
3. To comprehend the usage preference of various age groups in Urban India
4. To be aware of the public opinion about the features and activities to be introduced or considered for the research
5. To formulate parameters based on responses to incorporate as part of requirements in local building by-laws

The data was collected using the Forms tool from Microsoft Forms and shared via a link on the WhatsApp app. The survey conducted, included convenience sampling i.e., only people who could be contacted online via WhatsApp were sent the survey. It also involved some amount of snowballing where with the progress of the survey, individuals who had already participated in the survey, populated it amongst more individuals. It was sent to people from various parts of India with varied professional/educational backgrounds in order to receive varied and unbiased responses. It was also populated amongst people from various age groups starting from 17 years and above as a result of which variations in opinion could be obtained. Due to the COVID-19 pandemic lockdown in June 2020, the survey was kept solely online. The survey was kept anonymous for a few reasons – a) To maintain respondent confidentiality, their names/addresses were not asked in the survey; b) To receive candid responses.

The questions in the survey (Appendix A) were aimed to be concise and easy to understand for anybody who could read English. The average time required by the participants to do the survey was 6 minutes to prevent survey fatigue and receive usable data. The number of questions in the survey ranged from 7-22 depending on the nature of the rooftop of their dwelling. Majority of the questions were designed to choose option(s). For the preferential order of community activity, a Likert scale was given for five activities. There was one open-ended question to capture any comments from respondents. At the end of the survey, consent regarding the survey responses was included.

The questionnaire was populated all across India, and responses were received on various aspects of their rooftop terrace like time spent, nature of the activity, preference of community activity, etc. Respondents were optionally asked to provide their email addresses for future communication regarding the study. The survey was online for a span of 7 days. A total of 359 valid responses were received in this pilot study.

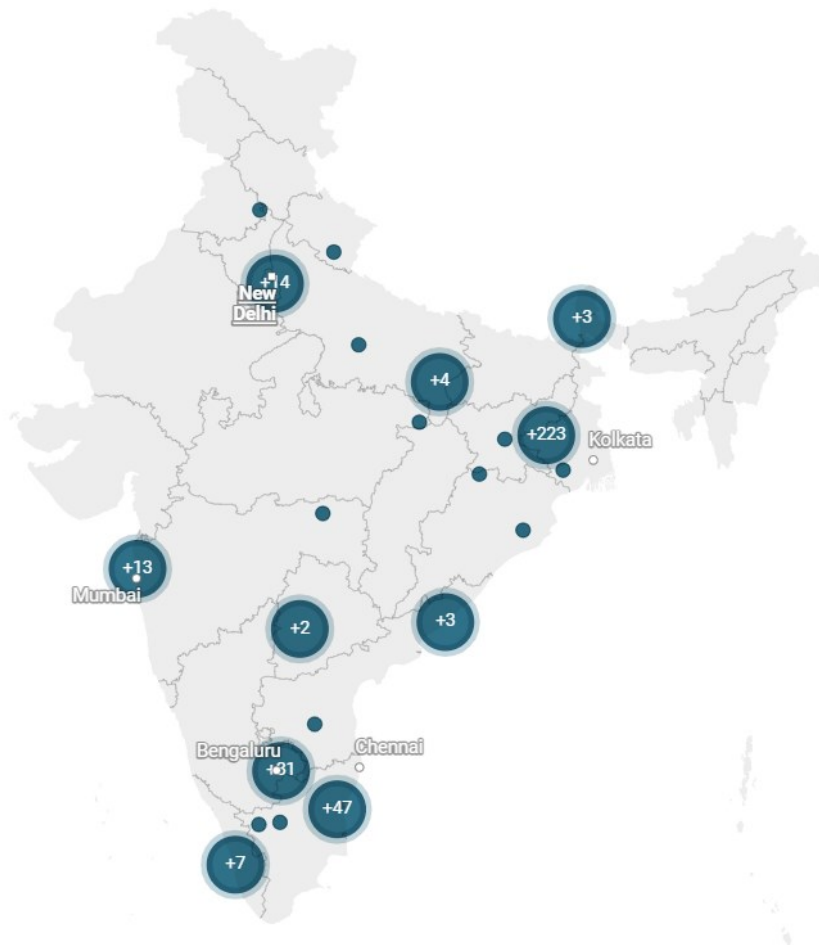
Quantitative data were analysed using Microsoft Excel and represented using Datawrapper and Excel for comprehension and presentation. The formulation of guidelines was based on the results, to provide maximum impact with minimal intervention in the spaces.

Scope and Limitation

This pilot study was limited to residential rooftops only and did not include other building typologies. Random samples were collected to get the perception and potential of uses for community usage purposes. To draw recommendations and propose to local authorities, in-person visits were not possible due to covid. Implementation is left to authorities and does not fall in the scope of this part of the study.

Results

The survey received valid responses from 359 respondents from across various urban locations in India.



Source: Author • Map data: © OSM • Get the data • Created with Datawrapper

Figure 2 : Survey responses across various cities.

Access to Terrace: Out of the total respondents, 301 individuals reported having access to a terrace, while 58 respondents stated that they did not have access to a terrace due to various reasons, safety and security being the primary reason.

Demographics of respondents: A total of 156 females, 144 males and 1 person who did prefer to state gender were the ones who had access to a shared or a private terrace. The age distribution of respondents is as follows:

- 17 to 25 years: 62 respondents
- 26 to 35 years: 72 respondents
- 36 to 45 years: 64 respondents
- 46 to 60 years: 83 respondents
- Above 60 years: 20 respondents

Nature of Terrace and Interest in Community Activity:

Accessibility, interest and Nature of the terrace	Individual Terrace	Shared Terrace	Total responses
Access available to a terrace	130	229	359
Engage in community activities	61	102	163

Table 2: Type of Terraces available to respondents Accessibility, Interest and Nature of terrace

Among the respondents who were inclined towards community activities, 47% had access to individual terraces and 53% to shared terraces.

Demographics of those interested in Community activity: A total of 86 females, 75 males and 1 person who did prefer to state gender were interested in some part of community activity on their terrace. The age distribution of respondents is as follows:

- 17-25 age group: 34 respondents
- 26-35 age group: 46 respondents
- 36-45 age group: 35 respondents
- 46-60 age group: 36 respondents
- Above 60 age group: 11 respondents

Preferential Order of Activities: The survey provided respondents with a list of community activities and asked them to choose their order of preference using a Likert scale.

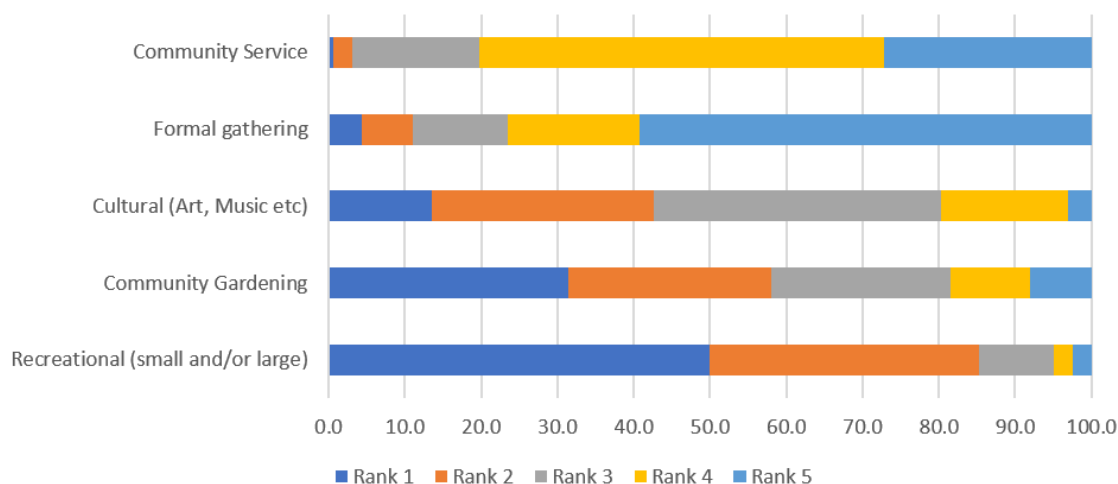


Figure 3: Community activities' ranking percentage shown in different colours based on Likert scale choice by respondents

The first preference distribution of responses for each activity is as follows:

- Recreational Activity: 81 respondents selected this as their first preference.
- Community Gardening: 51 respondents favored community gardening as their top choice.
- Cultural Activities: 22 respondents showed a preference for cultural activities including Art, Music, etc.
- Formal Gatherings: 7 respondents indicated a preference for formal gatherings.
- Community Service: 1 respondent indicated a preference for Community Service.

Discussion

The survey results provided insight into the current scenario in Urban India's residential terraces.

Among those who did not have access to a terrace, almost half cited safety and security as the main reason for denied access. This indicates that safety is to be ensured in residential designs of the terrace spaces to make it more accessible and in turn, can be included as an extension to spaces available for use in a residential setting.

Across the respondents who had access to a terrace, the visit frequencies increased by 52% during the lockdown period. Respondents visiting the terrace to socialise went up by around 60% compared to pre-COVID-19 times. Since many neighbourhoods were hot zones, people visiting for fitness purposes increased by a greater deal of 75%. As the usage of the space for various purposes increased due to the lockdown, people started taking cognizant of the potential of the space available to them right above their living spaces. Many expressed the missed-out opportunity in the remarks section “Real utility of having a terrace really came to know during lockdown” a Male from age group 46-60 from Ghaziabad in Northern India commented.

This realisation might have led more than 50% of the respondents to answer positively about community-related activities on the rooftop terrace. This shows that realising the potential for transforming rooftops into community spaces is high with support from users due to the understanding of the elevated open space available.

There is a strong indication to include recreational activities as a top priority. Design should include allowance for group recreational activities that are inclusive in nature, in forms like relaxed seating areas, playing options with temporary props (nets, mats) that could be stored away when not in use and fitness options with semi-permanent gymnasium fixtures fit for outdoors. Efficient storage spaces should be considered to ensure the safety and protection of props.

Gardening is the second preferred option that also has multiple benefits. One of the sources to cool part of the roof, gardening also ensures to involve the community in a regular manner for maintenance and thus increasing the engagement of interested individuals.

For Cultural activities, which was the third preferred option, shading devices like pergolas, electrical services, and storage for furnishings could promote cultural activity to create a vibrant community.

These recommendations are based on the initial study and for implementing these in a neighbourhood or a campus, the context should be understood to cater to the needs and requirements of user groups.

There were few organised and informal terrace-based activities happening successfully even before COVID-19 times (Figure 4 and Figure 5). These were initiatives organised by individuals that evolved organically with a lot of effort from them to ensure the space served their purpose, whether it is accessibility, electrical connectivity, storage areas for props or services. They give a great glimpse of how the spaces could be utilised as third places for a variety of activities. Also, other locations where similar community activities were held is not clearly known as these are mainly individual or small group working in silos.



Figure 4: A musical community activity initiated by individuals in an urban locality in Chennai, India (Source: Motta Maadi Music's Facebook page)



Figure 5: A community sharing circle gathering called Motta Maadi sandhippu by Amazing Human Being, India (Source: Amazing Human Being's Facebook page)

While designing residential spaces, the terrace spaces should be viewed as a valuable resource and treated as such. These preferences indicate that with minimal intervention in providing basic infrastructure and services, terraces could be transformed into much-needed third spaces. This action would help in placemaking for its users by integrating the community's aspirations into strengthening the sense of belonging. This also provides opportunities to reduce inequalities and differences in an informal setting and in their own comfort zone.

The benefits of utilising this resource are multifold. At the Individual level, Physical wellness with access to fitness-related activities, Social with cultural and recreational activities and Psychological with access to open and free space with sky view. This also eliminates travel time to access a third place. If a range of activities is offered in the neighbourhood with various terraces allotted, one could engage in activities that are meaningful to them and also spend more time that is saved from travel.

At the neighbourhood and community levels, a sense of security would be established for residents with the increased number of people outdoors to watch out. This could also lead to many creative pursuits, with the availability of space to express them.

Conclusions

This study served as the first step of a participatory process in utilising the under-used resource of rooftop terraces as a Third Place. More inclusive and engaged spaces would create a positive impact in the neighbourhood and in turn the larger human society. It is imperative to include rooftop terrace from the planning stage for new residential development and provide the required infrastructure to enable the activities to take place to foster social sustainability.

Future Considerations

Studies designed for a specific neighbourhood or residential campus scale could be undertaken to understand specific needs and incorporate necessary interventions to serve the users. It would also be beneficial to execute a pilot project in a small community and conduct Post-Occupancy Evaluation in terms of usage of space, feedback from users and the overall well-being of the occupants. This study focused only on residential rooftop terraces and the potential of utilising rooftop terraces of other building typologies can be explored.

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Conflict of Interests

The authors declare no conflict of interest.

Appendix A

Questionnaire

Part I (For all respondents)

1, Email

2. Which age group do you belong to? (You have to be 17 years or above to take part in this survey)

3. What is your gender?

4. PIN (Postal Index Number) Code of your residence location

5. Do you have access to a terrace?

6. Reason for no access to terrace

Part II (only for people with access to terrace)

1. Is the terrace shared with members from other households?

2. How many people have access to this terrace (approximately)

3. On an average, how many people did you see on your terrace when you visited (BEFORE the lock-down was imposed)?

4. On an average, how many people did/do you see on your terrace when you visited (DURING the lock-down)?

5. What is the approximate area of your usable terrace?

6. How often did you visit your terrace (BEFORE the lock-down was imposed)?

7. Why do you think you did not use the terrace often enough?

8. How much time did you spend on your terrace (BEFORE the lock-down was imposed)?

9. How would you describe as the nature of your visit (BEFORE the lock-down was imposed)?

10. How often do/did you visit your terrace? (DURING the lock-down)

11. How much time do/did you spend on your terrace (DURING the lock-down)?

12. How would you describe as the nature of your visit (DURING the lock-down)?

13. Which feature(s) does your terrace currently have?

14. What aspect would you like to add to your terrace to make it appealing/to increase usability?

15. Would you like to use your terrace for community related activities?

Part III

1. Order of your preference for Community related activities

Part IV (For all respondents)

1. Your email address (Optional)

2. Please leave your additional remarks or comments here

3. All information provided here are true to my knowledge and I'm submitting this form voluntarily.

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