

# Reclaiming the In-Between: Understanding Urban Voids and Their Impact on Urban Growth. A case study of Buldhana

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**Abstract**— Cities are living ecosystems woven together by the everyday lives of their people. Yet, driven by rapid, piecemeal growth, emerging Tier-2 and Tier-3 Indian towns often lack robust planning frameworks, leaving behind fragmented, underutilized parcels known as urban voids. Stranded under infrastructure or left neglected, these dead zones act as silent wounds in a neighbourhood. They breed safety concerns, invite decline, and slowly erode a community's well-being. However, in an era where shared open space is a luxury, these liabilities hold the secret to a town's revival—acting as hidden canvases waiting to be reclaimed.

This research steps into the gap, offering a human-centered framework to rescue overlooked spaces within the Buldhana Municipal Council. Choosing Buldhana as a classic archetype of secondary Indian towns, the study shifts focus from macro-level urban theories to the practical constraints of managing internal spatial decay. Instead of relying purely on satellite data, this study blends technical spatial tracking with lived experiences. High-resolution Geographic Information System (GIS) mapping and field observations are paired with community surveys, capturing the real frustrations and hopes of local residents.

To give planners an actionable tool for recovery, a Multi-Criteria Decision-Making approach was used to build an Urban Voids Priority Index (UVPI). This index ranks spaces based on community needs, accessibility, ownership, and safety. The findings reveal a deeply human paradox: while Buldhana has an abundance of trapped, wasted land, its families suffer from a severe lack of safe places to gather.

To bridge this disconnect, this paper advocates for tactical urbanism and place making. It maps out how low-cost, community-driven design tweaks can incrementally turn discarded corners into vibrant pocket parks or markets. Ultimately, this study offers a warm, scalable roadmap for local leaders, proving that by repairing broken, "in-between" spaces, we can fundamentally elevate the safety, comfort, and joy of everyday small-town life.

**Keywords**— Lost Spaces, Underutilized Spaces, Urban Voids, Urban Voids Priority Index, Vacant Land.

## I. INTRODUCTION

The physical structure and functional dynamics of cities have been greatly changed by the fast process of urbanization and ongoing spatial development around the world. Urban growth is usually linked to more development and land use, however it also creates spaces in the city that are underdeveloped, unused and vacant. These spaces – often called urban voids – are areas where previously planned functions or connections to other urban activities have been either carried out or abandoned. Urban voids have long been regarded as 'wilderness' areas, and as abandoned spaces in the city, but their role as measures of urban change and possible spaces for urban regeneration are increasingly recognised.

The term urban voids took on greater importance with the writings of Roger Trancik in 1986 who termed these areas as "lost spaces" in cities that do not positively contribute to the urban environment. Trancik says lost spaces are the unintended consequences of today's urban development: "They lack spatial definition, connectivity, social and functional value." This concept has since been developed to incorporate the concept of "vacant plots," abandoned

buildings, space along transportation corridors, underutilized public lands, and transitional areas in need of redevelopment. These spaces can differ in scale, property, and physical attributes but they all have in common their isolation from the social, economic and spatial processes of the city.

Urban voids are the result of a variety of planning, economic, social and physical factors. Inconsistent planning and zoning, and poor urban design can leave behind unused spaces. Abandonment of land and buildings is due to economic drivers like land speculation, industrial decline and lack of investment. Functionality of urban spaces also decreases due to social changes such as the migration of people, demographic change, shifting user preferences, and a decrease in the level of community participation. Furthermore, land shape, infrastructure, environmental factors, and lack of access are often a result of physical constraints, which contribute to the development of empty or underutilized urban spaces.

Urban voids hold a great deal of importance in urban development and quality of life. In the absence of management, these areas can cause visual blight, environmental degradation, informal dumping, encroachment and feeling unsafe. Can break the continuity of

the urban area and decrease the efficiency of land use in urban areas. In recent years, however, urban voids are seen less as a problem and more as an opportunity for sustainable urban redevelopment in the contemporary context of urban planning literature. By designing and implementing suitable interventions, urban voids can be converted into public open spaces, community facilities, green infrastructure, recreational areas and mixed-use developments to boost urban vitality and resilience.

Due to recent developments in Geographic Information Systems (GIS) and spatial analysis methods, urban voids are now able to be more systematically identified and assessed. GIS methods can be used to help map, classify, and spatially analyze underutilized urban space, which can be useful decision-making tools for planners. In addition, the development of multi-criteria assessment frameworks and Urban Void Priority Index (UVPI) approaches has changed the focus of void identification to prioritizing the redevelopment of voids according to their redevelopment potential, accessibility, environmental value, and socio-economic importance.

Although there is an increased interest in the global research of urban voids, most studies have been conducted on large metropolises and on urban structures. In India, the scattered attention towards small and medium-sized cities has led to the emergence of many underutilized urban spaces due to their rapid urbanization, limited resources and changing land use patterns. Under these conditions, local-specific methodologies incorporating spatial analysis and prioritization tools to assist with evidence-based planning decisions are still needed.

## II. INTRODUCTION

### A. Definition

Conceptualisation of the spaces can be traced back to (Trancik 1986) who used the term “lost spaces” for sites of the city that is left behind by the vision of modernism. The authors cite (Trancik 1986), who argues that these areas are frequently side-effects of large-scale infrastructure projects, zoning and the use of car-friendly urban development methods that focus on transportation and separation of land uses rather than city space and human scale. Access to lost spaces is often inadequate, there is no clear purpose for the space and few users use the space, and as a result, the space will be neglected and eventually falls into disrepair.

The concept of urban voids is connected with the general theories of urban design and spatial organization. In his book *The Image of the City* (1960), Lynch stressed on the need for legibility and coherence in urban settings. If he didn't actually say “urban voids” he certainly showed how when spaces are undefined or neglected, they can break the content of a mental map of the city, making it less navigable and less meaningful for the user. In a similar fashion, (Jacobs 1961) attacked the modernist planning ideas that produce lifeless

and unsafe urban areas, saying that successful vibrant cities rely on mixed land use, lively streets, and constant human activity. In this regard, urban voids are the opposite of vibrant and integrated urban areas.

The discourse on urban spaces was further developed by (Carmona et al.2003) who studied the design and management of public spaces. They believe that the level of success of urban areas relies on elements like accessibility, activity, comfort and sociability. If these things don't occur, then spaces remain underuse and will eventually become urban voids. This point of view focuses on the contribution design quality and management can make in either preventing or contributing to the creation of these spaces. Once again, (Shirvani 1985) noted that city design elements such as land use, circulation and open spaces were needed to be integrated into a coherent city design. Such lack of integration frequently creates disorganized spaces with no useful purpose.

In addition to the design elements, economic and socio-political processes are also important with regard to the creation of urban voids. The market dynamics and land valuation affects the pattern of urban development, and often results in the emergence of vacant or underutilized plots within cities, as explained in Bertaud (2018). Likewise, Couch et al (2003) talk about the phenomenon of urban voids, which can be formed by industrial abandonment, brown fields and derelict spaces in the process of urban decline and regeneration. Such areas tend to be especially focused around a transition in the economy such as where existing land uses have lost relevance.

The work of de Solà-Morales (1995) brought with it a major change in the perception of urban voids, with de Solà-Morales introducing the notion of “terrain vague”. The attitude towards these places was negative in previous works, but de Solà-Morales (1995) highlights the uncertainty and potential found in these spaces, which are open, flexible and capable of change. They are a departure from the numerous planning frameworks that have been established and are more flexible, innovative, and exploratory in their approach to space. The idea has had an impact on current practice, as we see the growing appreciation of temporary uses, informal activities and community based interventions to enliven urban voids.

Principle of sustainable urban development is also closely associated with the idea of reclaiming and reusing the urban voids. Efficient use of existing land resources has become of major importance as cities are faced with the need for optimum use of lands due to land scarcity, environmental degradation, and urban sprawl. To mitigate some of the stresses on the outskirts of the city, to encourage compact development and to improve environmental sustainability, these empty and underutilised spaces can be reused (Bertaud, 2018). Gehl (2011) states that designing places that are friendly to people, fosters social interaction and enhances quality of life is of paramount importance. The

transformation of urban voids to active public space, green areas or Community hubs corresponds with these principles and is a step towards more liveable cities.

Further technological developments have increased the capability of studying and analyzing urban voids. Geographic Information Systems (GIS) are indispensable for spatial analysis and researchers are now able to map, quantify and assess land-use patterns and urban structures using them. GIS based studies can be used to identify unused and under-used areas, analyze spatial distribution of these areas, and determine the linkages between them, infrastructure, accessibility and other land uses. This allows for a more objective and data-driven approach to planning interventions. Even though tools like these are available, the methodologies used to identify and classify urban voids have not been standardized, especially in smaller cities where resources available for data collection and technical capacity might be limited.

The concept of urban voids in the Indian context is interrelated with fast urbanization, unplanned growth and a lack of plan implementation. In most city centers the city has grown irregularly, and a large number of residual spaces have developed. Such gaps continue to exist due to weak enforcement of development controls regulations, slow implementation of projects, and land tenure issues. There has been relatively little research on small and medium size cities, where planning challenges and resource restrictions are more in nature, compared to several studies that have been conducted on metropolitan cities.

### Need of Study

The city's space structure has undergone dramatic changes in India due to rapid urbanization, leading to a rise in land pressure, public space and urban infrastructure. This expansion has caused problems of inefficient land utilization, environmental degradation, and deterioration of urban environment. In this context, urban voids—underused, unused or abandoned areas in the urban fabric—are a challenge and opportunity to sustainable urban development. These areas may not be given a prominent consideration in planning processes despite their potential to positively impact the social, environmental and functional needs of the city, yet they still occupy valuable land.

This is especially pronounced in small and medium cities like Buldhana, where few planning interventions have taken place, spatial data is not available and development regulations are not properly implemented leading to many underutilised spaces. These gaps act as a brake on spatial continuity, a loss of connectivity and impact the visual and functional quality of urban space. Voids in urban context are of great importance, but are seldom systematically identified and evaluated. Thus, there is a need for this study to identify, map and evaluate the urban voids through GIS based approach and field observation, which can give an outline for prioritization and incorporation within future urban

development plans.

### B. Problem Statement

Rapid and often unplanned urban growth has led to the emergence of many under-used and neglected spaces, called urban voids. In city of Buldhana these voids are manifested as empty parcels, remnant lands, abandoned lands and poorly used public spaces with low connectivity to the existing urban landscape. Although they take up space within the city, they do not provide much social, functional or environmental value to the city in terms of social and cultural amenities.

Poorly defined, poorly assessed, and poorly planned use of these areas has resulted in inefficient land uses, visual degradation, decreased connectivity, and lost opportunities for urban development. Hence, it is necessary to have an all-encompassing spatial plan to recognize, analyse and prioritize urban voids in Buldhana Municipal Council. This study aims to fill this gap by investigating the redevelopment potential of urban voids, their characteristics and supporting sustainable land management and urban planning decisions.

### Aim

To identify, map, and analyze urban voids in Buldhana Municipal Council using GIS-based methods and propose suitable redevelopment strategies for urban development, and study its impact on urban growth.

### Objectives

The objectives of the research are to,

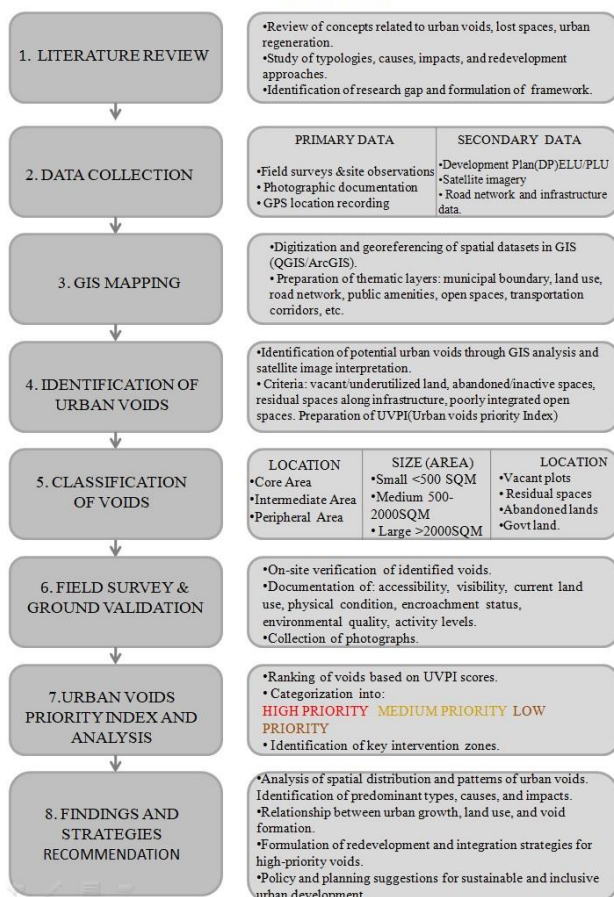
1. *To Define Urban Voids:* Ensure that there is a concise understanding of what constitutes urban voids for measurement purposes, especially in the context of Buldhana.
2. *To Quantify Urban Voids in Buldhana:* Analyze and map the distribution and extent of urban voids within the city.
3. *To Classify Urban Voids:* Develop a classification system based on the characteristics of voids.
4. *To evaluate the potential of these spaces:* For adaptive reuse and community engagement through design or policy frameworks.
5. To Carry Out the *Urban Voids Priority Ranking Index*.

### C. Methodology

This study *Figure 1*. The study is a mixed-method approach which combines Geographic Information System (GIS) based spatial analysis and field surveys along with qualitative assessment to identify, analyse and prioritise urban void spaces in the Buldhana Municipal Council area. The methodology is of sequential steps Identify, Classify, Analyze, Prioritize, and Propose. The research was first started by conducting a thorough literature review to gain insight into the concept, typologies, causes, and effects of urban voids, to set up the analytical framework and the evaluation criteria. Secondary data such as Development Plans, land-use maps, satellite imagery, municipal records

and census data were gathered from relevant sources to grasp the current urban fabric of Buldhana. Spatial datasets were prepared and analyzed using GIS tools to locate and map urban voids as a result of the vacancy, underutilization and lack of functional integration in the urban fabric. The identified gaps were categorized by size, location, physical characteristics and land-use context. To confirm the mapped voids and to record the current condition, accessibility, adjacent land use, environmental quality and use of the voids, field surveys and site observations were undertaken. The assessment process was complemented by photo documentation and interaction with stakeholders. Spatiological and field data were gathered to evaluate the identified urban voids through an Urban Void Priority Index (UVPI) which considers the parameters accessibility, impact, redevelopment potential and spatial characteristics. The index was employed for ranking and prioritizing the voids that need to be addressed.

Reclaiming the In-Between: Understanding Urban Voids and Their Impact on Urban Growth. - case study of Buldhana.  
**METHODOLOGY**



**Figure 1. Methodology of Research (Author Generated)**

### III. STAGE 2 INVESTIGATION: LITERATURE REVIEW

The literature shows that overall urban voids are a complex phenomenon, which can arise from a mix of planning, economic and social issues. Conventionally, they are

regarded as negative space or space that is undesired, but now there is an awareness of the value of these spaces as an urban resource. Developing a problem-oriented approach has created new opportunities for research and practice, with a focus on the reuse of existing buildings, community engagement, and sustainability. But there are still a lot of research gaps regarding context specific studies which cater for the peculiarities of smaller cities like Buldhana.

#### 1. FIRST, WE SHAPE THE CITIES, AND THEN THEY SHAPE US (GEHL, 2010)

Key Principles: “IF BETTER CITY SPACE IS PROVIDED, USE WILL INCREASE” the better the quality of spaces in cities the better will be the quality of life.

#### 2. THE SOCIAL LIFE OF SMALL URBAN SPACES (WHYTE n.d.)

Key Principles: If we learn to take advantages of our small urban spaces, if we design new ones and repair old ones we will improve the streets and quality of life.

#### 3. LIFE, SPACE AND BUILDING (GEHL n.d.)

Key Principles: If we want to create better city, spaces working with scale is the most difficult and most sensitive urban planning discipline.

#### 4. CONCEPT OF URBAN VOID (Roger Trancik)

Key Principles: The concept of urban voids gained prominence through Roger Trancik’s Finding Lost Space (1986), where he described “lost spaces” as underutilized, disconnected, and ill defined urban areas that fail to contribute positively to their surroundings. These spaces may be built or unbuilt, open or private, but are loosely characterized by a lack of function and integration within the urban fabric.

##### A. Significance of the Study Area

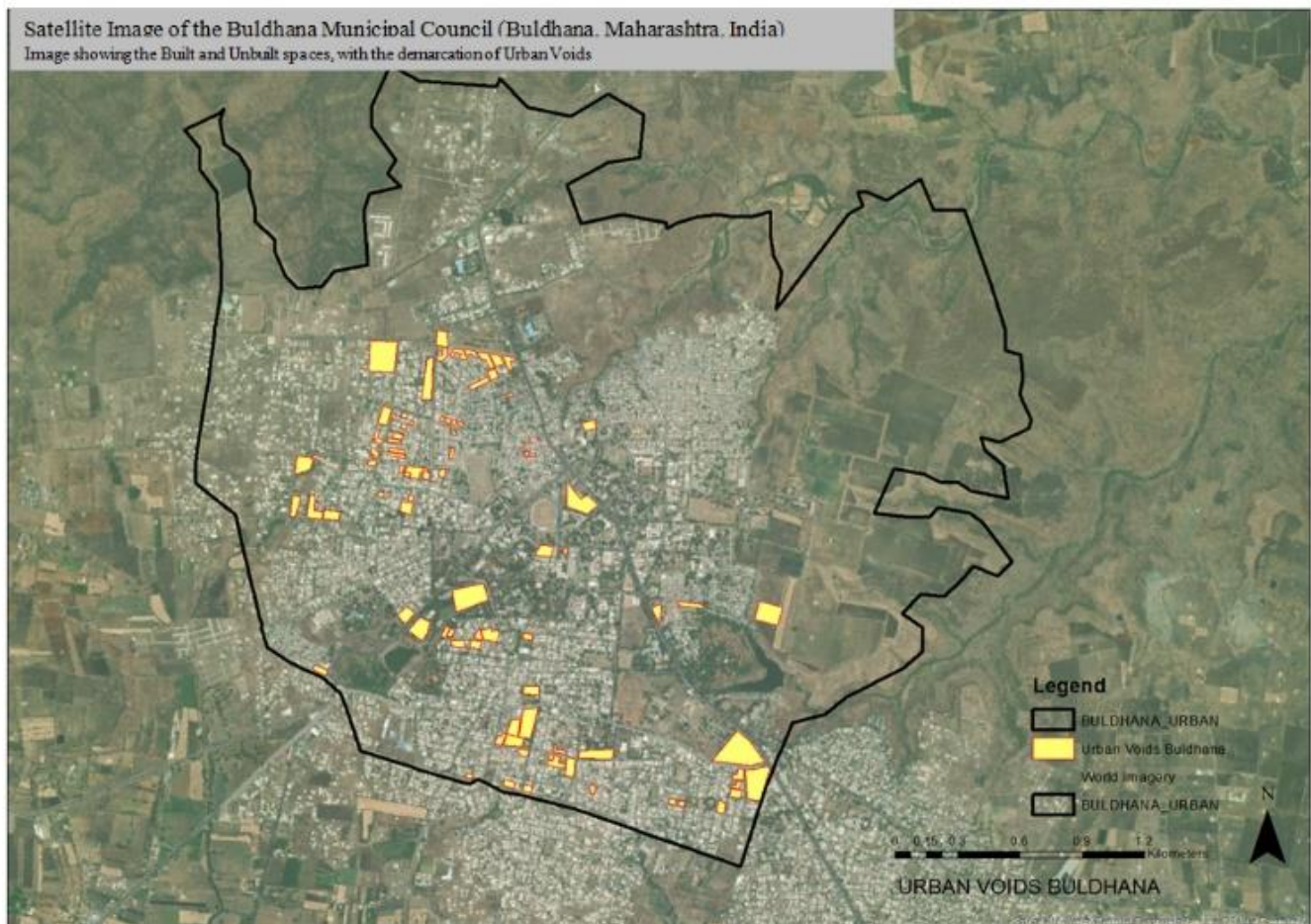
Studying urban voids in Buldhana Municipal Council is important because they can help optimize the use of urban space and contribute to sustainable urban development. Buldhana is a district headquarters and this means that effective utilization of the available land is required to cater for the increasing demands of urban population in the area. The urban voids are spaces which are valuable but unused which can be developed into an amenity for the public, a green space or community facility. Their study also can point out the areas of weakness in planning and land management, or offer ways to improve the quality of life and the environment in the city.

##### B. Figure-Ground Analysis for Identification and Quantification

The analysis of urban void in Buldhana Municipal Council started with Identification and quantification of these voids through a figure ground analysis on Google Earth Pro. The choice of the platform was based on the availability of the

high resolution satellite images, that allowed for a detailed visual analysis of the city's built-up areas and open spaces. This analysis was used to investigate the relationship between built forms (figure) and open and vacant space (ground), in order to determine the gaps, underutilised parcels and discontinuities in the urban fabric. The urban voids were identified and mapped based on their spatial

features, size and location. These identified voids were then moved to ArcGIS for additional spatial analysis and database development. The voids were digitised, typology and characteristics classified and shown with different colour codes in ArcGIS. This process allowed for a systematic knowledge of spatial distribution, size and form of urban voids throughout the study area.



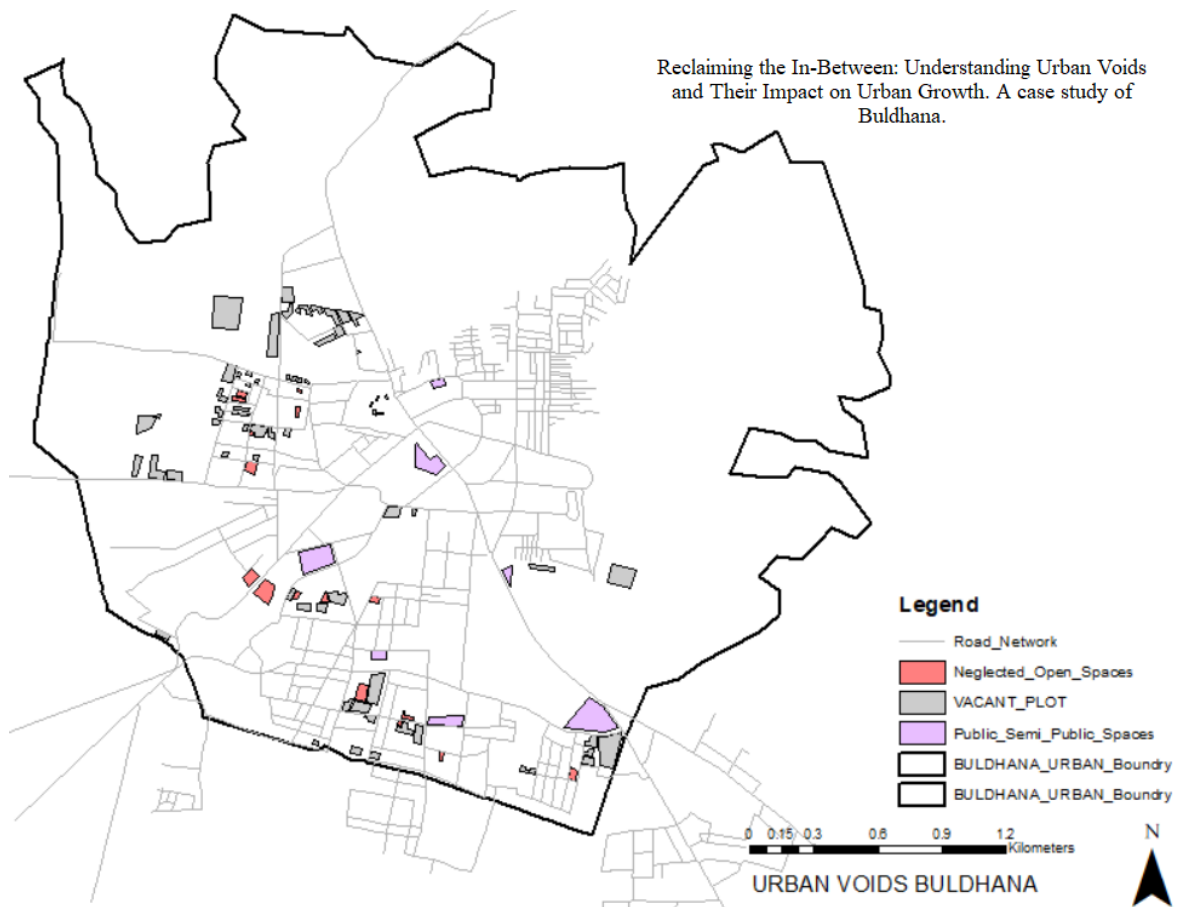
**Figure 2.** Image from Google Earth Pro of Buldhana Municipal Council with demarcated the Urban Voids.

### C. Field Survey and Validation

After the preliminary identification of urban voids by the use of GIS and satellite images, a reconnaissance survey was carried out throughout the study area to check their existence and condition. Site visits were conducted to document the physical features of each void, to secure photographic evidence, and observations of accessibility, surrounding land use, activity levels and condition of the site. The identified urban voids were then cross referenced with the Existing Land Use (ELU) map obtained in the secondary data collection to find the existing use of the land. The Proposed Land Use (PLU) map from the Development Plan was used to analyse these spaces and to understand how these spaces are planned for and redeveloped in the future. The comparison led to the discovery of discrepancies between

current conditions and proposed land use, and to the identification of areas that have considerable redevelopment potential.

A survey using a structured Google Form was distributed to the public to include their perception of the study. The questionnaire concentrated on the awareness, perceived impacts, usability and redevelopment potential of urban voids within the city. To get the views of the respondents, the identified voids were also ranked in terms of accessibility, safety, visual quality, and future utility. The survey results were used to gain insights into perceptions within the community and were incorporated into the Urban Void Priority Index (UVPI) framework to help prioritize and rank urban voids for intervention.



**Figure 3.** Base Map of Buldhana Municipal Council with demarcated the Urban Voids. (Author generated)

#### IV. STAGE 3 ANALYSIS AND SYNTHESIS

##### A. Result and Discussions

This section details the results of the identification, mapping, classification and assessment of urban voids in the Buldhana Municipal Council area. GIS based spatial analysis, field surveys and public perception data was used to create and assess an extensive inventory of urban voids. The findings offer the information needed to understand the

spatial distribution, typology, active use and redevelopment opportunities of these undervalued spaces. In addition, the Urban Void Priority Index (UVPI) was used to prioritize and rank the voids identified using selected assessment parameters. Opportunities for sustainable urban regeneration and better land use within the study area are discussed with the findings of urban growth pattern, characteristics of land use and planning implication.

##### B. Quantifying the Urban Voids in Buldhana

**Table 1.** Quantifying Urban Voids in Buldhana

| Type of Urban Void                         | Number Identified | Percentage (%) | Area (SQM)   |
|--------------------------------------------|-------------------|----------------|--------------|
| Vacant Plots                               | 66                | 74.16          | 155443       |
| Neglected Open Spaces                      | 16                | 17.98          | 27362.4      |
| Government-Owned Vacant/Underutilized Land | 7                 | 7.86           | 623626       |
| Total                                      | 89                | 100            | 806431.4 Sqm |

The identification and spatial distribution of urban voids is discussed in this section. The identification and spatial distribution of urban voids is discussed in this section. The total number of urban voids identified in the Buldhana Municipal Council boundary using GIS based mapping and

field survey is 89 which are spread across the study area of about 21 sq. km. The voids were categorized into three broad groups depending on their physical features, ownership and present utilization. The inventory includes 66 open spaces that are vacant, 16 open spaces that are neglected, and 7

Government-owned lands that are vacant or underutilized. The spatial analysis results show that urban voids are not evenly distributed across the city, but rather are mostly found in the developed urban core and along recent urban growth areas. The most prevalent voids are vacant plots, representing almost 74% of total identified voids. These spaces are largely associated with residential and mixed use development, suggesting an irregular development pattern and undeveloped parcels of land among developed areas. The neglected open spaces are about \*\*18 % of the identified voids\*\* and are typically poorly maintained, not clearly used and not accessible to the public. Over time, some of these locations have become de-legitimized and have little impact today on the urban scene. The remaining 8% are government owned vacant or under-used lands, strategically important for their size and potential for public use redevelopment.

### C. Key Findings

Study area: 21 km<sup>2</sup>

Urban voids identified: 89

The majority (74.16%) of the plots are vacant.

Growth corridors and the developed core are the areas where urban voids are concentrated.

The voids that are owned by the government have the greatest redevelopment value, but they're not as numerous.

The identified voids represent many areas of poor urban form and poor land use patterns.

The spaces offer opportunities for placemaking, tactical urbanism, public amenities, and development of green infrastructure.

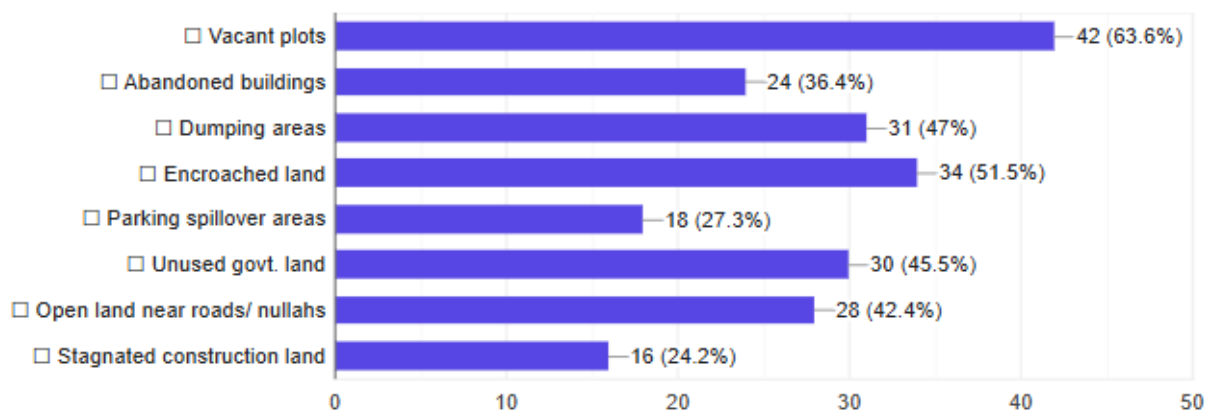
### D. Classification of Urban Voids

The voids of urban areas found in Buldhana Municipal Council were classified into three different categories as per their existing condition, utilization pattern and ownership. There were 89 identified urban voids, of which 66 were plots with no building, 16 were neglected open spaces and 7 plots were government land and were either unused or under used.

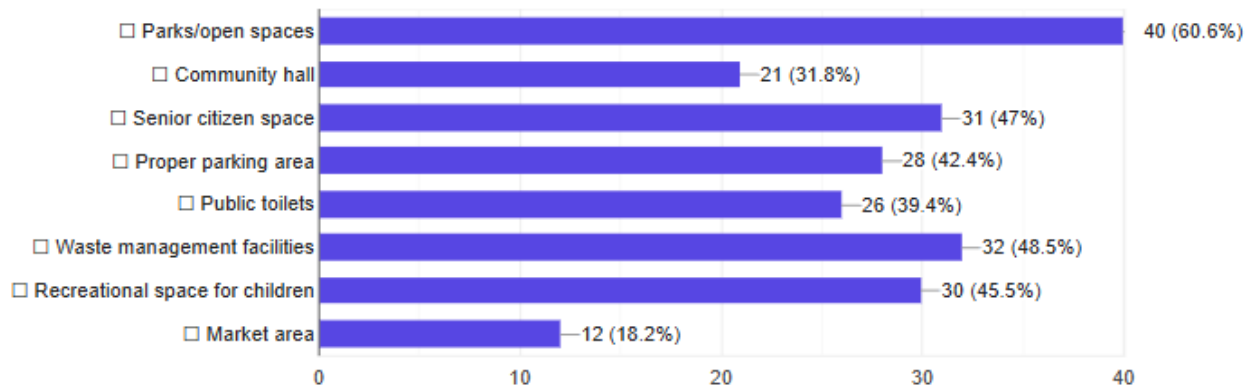
Empty plots are the most numerous and are mostly interspersed in residential and mixed lands, showing the fragmentation of urban development. Poorly maintained public open space, such as the absence of use or low functionality loss from the urban fabric, are considered neglected open space. While not as large a share of the total area, government-owned vacant land are strategic spaces that have a high amenity and development potential. This classification allows an understanding of the nature and distribution of urban voids in Buldhana, and is used to prioritize the urban voids and to assess for redevelopment.

### E. Impact and Potential of Urban Voids

The survey results suggest that the voids in urban areas have significant effects on the urban environment and the quality of life in Buldhana. The most frequently cited problems with these areas were garbage dumping, mosquito breeding, encroachment, dense vegetation and illegal activity. Over 50% of respondents felt that urban voids are unsafe, and that they are responsible for contributing to environmental degradation, lessening neighborhood attractiveness, and social concerns. These results indicate that lack of maintenance of public areas has a negative impact on the quality of life and the use of the city. The survey also shows that there are many urban voids that have a great deal of potential in redevelopment. Most respondents noted the importance of having parks, open spaces, recreation facilities, waste management systems and community facilities in their communities. The most popular redevelopment options were public parks, mixed-use amenities and community spaces. Moreover, most of the respondents found redevelopment of urban voids important and willing to involve in the initiatives taken by the community. The results show how urban voids can be revitalized into valuable public space that can improve urban livability, environmental quality, social interactions, and contribute to sustainable urban development.



**Figure 4.** Existing use of Urban Voids Responses collected in the survey from locals  
(Author generated)



**Figure 5.** Redevelopment preferred. (Responses collected in the survey from locals)

## V. INFERENCE

A total of 89 urban voids were identified in Buldhana Municipal Council area, which includes 66 vacant plots, 16 neglected open spaces, and 7 underutilized government owned lands. The high proportion of empty lots suggests disjointed urban development and that the city has a significant amount of land resources that are not being utilized. The spatial analysis showed that these voids are mainly located in the developing and transitional areas which are related to the uneven urban development and the lack of land-use planning. In addition, many of these spaces were observed in field that are poorly maintained, littered, encroached, are overgrown, and are not easily accessible, which has caused adverse visual, environmental and social effects.

The urban voids are directly linked to the urban growth and development in Buldhana. These spaces are underused and break the continuity of urban fabric, waste land use and limit the connectivity between neighborhoods and public amenities. They also cause environmental damage, safety concerns and a loss of the quality of the urban environment. This has created significant challenges with regards to the utilization of valuable land for public infrastructure, recreational spaces and community facilities in a way that meets growing needs. The study also points out that these voids have tremendous redevelopment potential, however. The surveys of public perception showed that there was a high demand for the transformation of these areas to become parks, open space, community facilities and other public amenities. Hence, the neglected urban spaces can be recovered and incorporated in the urban fabric through adequate planning interventions and prioritization through Urban Void Priority Index (UVPI) in Buldhana, which will aid in sustainable urban growth, better livability and more effective utilisation of land.

## VI. CONCLUSION

The results indicate that urban voids in Buldhana have a social, environmental and spatial impact, which is most evident in terms of garbage dumping, encroachment, safety

issues, and lack of maintenance. These unused areas have adverse impacts on the quality and use of the urban space. But, the study also shows that they have significant redevelopment potential: respondents strongly preferred to transform these spaces into parks, community spaces, recreational facilities and other public spaces. Urban voids can be redeveloped successfully and incorporated into the urban fabric, as demonstrated by the high level of public support for redevelopment. Hence the identification of urban voids and prioritization of such voids are significant exercises to improve urban livability, efficient use of land and sustainable development in Buldhana Municipal Council.

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