



Revitalizing Mithi Khadi: An Urban Regeneration Proposal for Surat in Western India

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Abstract: This research paper delves into the challenges confronting the Mithi khadi area and presents a comprehensive redevelopment proposal aimed at creek realignment, land recuperation, and infrastructure enhancement. The study's objectives encompass the identification of existing infrastructure and dormant land, exploration of creek development alternatives, and assessment of associated challenges and proposed solutions. Focused on the Mithi khadi stretch outlined in Town Planning Scheme: 62-A (Chhedchha-Oviyan-Sabargam-Antroli), the study underscores the imperatives of ecological restoration, creek realignment, length reduction, and infrastructure augmentation. The envisaged creek redevelopment project stands as a pivotal measure in addressing the area's challenges while fostering ecological and socio-economic amelioration. By adhering to the goals of the town planning scheme and prioritizing ecological rehabilitation and infrastructure advancement, the project endeavors to establish a sustainable and resilient urban milieu. The paper underscores the indispensability of efficient implementation, stakeholder engagement, and continual monitoring for ensuring long-term success and augmenting residents' quality of life. Moreover, synchronizing such endeavors with the drafting of town planning schemes holds the potential to streamline development processes and augment revenue generation, thereby nurturing a well-organized and financially sound urban landscape.

Index Terms - Creek Redevelopment, Creek Realignment, Develop Infrastructure, Recover Fallow land.

I. INTRODUCTION

In cities, the uninterrupted use of land exacerbates the connection with natural resource depletion. Landscapes have historically served as infrastructure, but nature's role within a larger technological framework has faced significant rejection, particularly during the 20th century when singularly functional engineering to control environmental processes became the prevailing approach. Especially in urban areas, efforts to efficiently manage nature often result in irreparable harm to ecosystem services. Urbanization processes drastically alter the urban water cycle and the responses of river systems to the constructed environment. In the initial shift from the industrial phase of urbanization in the latter half of the 20th century, many cities have discovered new opportunities for development between former industrial complexes and waterfronts, ideally located along their internal waterways. In recent years, this type of urban project has become a new norm in exploring the future of contemporary cities on a global scale.

Surat city in India is experiencing rapid growth, with the perennial river Tapi flowing through it. According to the 2011 census data, the city's population has exceeded six million. This remarkable population growth is driven by urbanization and migration to cities. The increasing population has strained urban areas, leading to uncontrolled urban expansion. To address this, the state government has expanded the municipal area under the jurisdiction of the municipal corporation to regulate and promote sustainable development.

The city of Surat is intersected by the Tapi river, with its network of natural tributaries, including Varachha, Koyali, Mithi, Kankara, Bhedwad, Khajod, Sonari, and Mindhola, covering about 57 km within the city. These tributaries play a vital role in carrying polluted water to the river, significantly impacting water quality, quantity, aquatic life, and ultimately, the Arabian Sea.

Surat has undergone substantial urbanization in recent years, with industrial development in close proximity to surrounding villages and towns, leading to both positive and negative consequences. Creeks, natural small streams, can serve as effective surface stormwater networks and recreational areas if properly developed, preventing unauthorized encroachment. However, pollution issues, such as unauthorized encroachment and waste dumping, disrupt these water bodies, resulting in ecological imbalances, groundwater contamination, and unusable land near them.

Sustainable development, defined as meeting present needs without compromising future generations' abilities to meet their own needs, is imperative. Overpopulation leads to increased waste generation and resource consumption. Without effective city management, resources available to meet the city's needs diminish. Water bodies in urban areas are particularly vulnerable to such challenges in achieving sustainable development.

II. PROBLEM DEFINITION

- The land corresponding to the stream area is fallow and the land area is highly polluted and unorganized.
- Unplanned ponds have been created around the bay and the waterbody stinks in the neighborhood.

- Waste land is used for dumping of waste and other irregular activities.
- Streams have irregular extra bends, which divert and disturb the flow of water. During the rainy season, when the water comes from the upper reaches, the water spreads to the nearby area and creates a flood situation.
- This excessive twist causes an unnecessary increase in the length of the bay. In that case, whenever development is proposed on the bay, the budget is increased unnecessarily.

III. AIM OF THE STUDY

- Realign the Mithi khadi and recover adjacent land and develop infrastructure.

IV. OBJECTIVE OF THE STUDY

In support of the study aim, a set of objectives are identified and mentioned here with,

- To identify developed infrastructure and adjacent fallow land nearer to bay.
- Exploring options for development of creek.
- Preparation and evaluation of challenges concerning problems and development proposal.

V. SCOPE OF WORK

- This study will be limited to Mithi khadi stretch defined in Town Planning Scheme: 62-A (Chhedchha-Oviyan-Sabargam-Antroli)
- This study will be focusing on Ecological restoration, Creek realignment, Creek length reduction, Infrastructure development.

VI. NEED OF STUDY

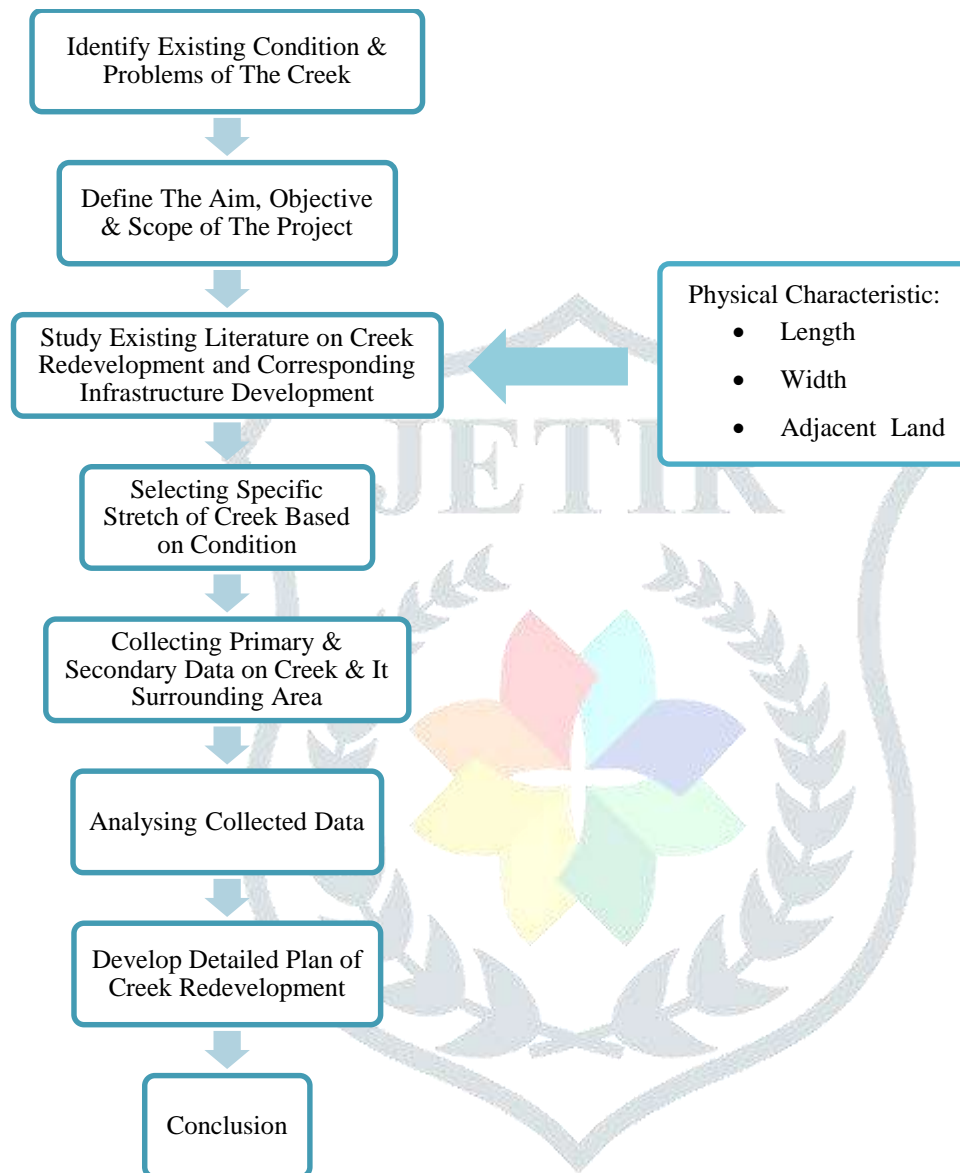
Creeks, being integral components of the natural drainage system, merit special attention for preservation. Consequently, the adoption of an integrated planning approach becomes imperative for sustainable development. Surat city is demarcated into nine zones, with the majority of significant creeks traversing these zones. Industrial growth within these regions distinguishes them in terms of their developmental potential compared to other zones in Surat city. The southern zone, in particular, assumes a pivotal role in the overall development of the city. Some of the largest industries, such as Pandesara GIDC, Sachin GIDC, and Kadodra Industries, house manufacturing and processing factories that release their polluted waste into nearby creeks as they pass through the industrial zones. This has led to the occurrence of unpleasant odors in urban areas within south zone A and south-east zone.

These creeks have naturally formed as a result of a village-by-village sewerage network. As the urban population has increased, urban sprawl has expanded, and various industries have set up shop near the creeks, offering employment opportunities. Consequently, the effluents discharged by industries and sewerage networks have merged with small streams, thereby transforming these streams into creeks. Owing to their natural origin, these creeks feature irregular meanders in their courses, thereby elongating the creek network and resulting in land wastage in the immediate vicinity of the streams. This land is heavily contaminated and lacks organization. Additionally, unregulated ponds have formed around the bay, contributing to unpleasant odors in the surrounding neighborhoods. The irregular twists in the streams divert and obstruct the flow of water. During the rainy season, when water rushes down from the upper reaches, it inundates nearby areas, leading to instances of flooding, a predicament confronted by Surat city.

In addressing these issues and facilitating improved future development in the region, I have proposed the revitalization of the creek system, with a specific focus on the Mithi Khadi creek. During the monsoon season, Mithi Khadi is among the first to overflow at the Saniya Hemad stretch. This overflow disrupts the surrounding areas, and the polluted effluents from Kadodra industries are discharged from the creek, resulting in health-related concerns for local residents. This problem primarily stems from the limited water flow capacity of the stream and its velocity. The primary hindrance to flow velocity is the meandering course of the creek, causing water to disperse when it descends from the upstream areas. As Mithi Khadi openly traverses urban areas, residents often dispose of solid waste and other materials into it, leading to blockages. Consequently, water levels rise on the opposite side of the flow, resulting in flooding in low-lying areas during the monsoon season.

To address this predicament, the Surat Municipal Corporation (SMC) initiated creek development within the urban area through the construction of a road. However, this road features sharp turns and an irregular pathway within the city, impeding vehicular speed and causing blind spots on the road, which, in turn, lead to accidents. To avert such situations in future planning endeavors, I recommend the realignment of the creek in peri-urban areas characterized by lower development levels and closer proximity to agricultural regions. This strategic move will help mitigate the aforementioned issues in the times ahead.

VII. METHODOLOGY



VIII. LITERATURE REVIEW

The natural characteristics of riverbanks cannot be understood without considering the communities within the riverbank zone. Within this zone, various ecological communities comprising both living and non-living elements exist along the landforms surrounding the riverbed. These natural riverbank communities encompass aspects like hydrology, landforms, soils, aquatic species, as well as living habitats such as vegetation and animals. They are distributed across the river basin and fulfill various functions benefiting from the riverbank system. For instance, the type of vegetation along riverbanks is determined by the specific soil and water conditions in a given area, implying the presence of diverse ecological communities along the river. Additionally, different landforms and channel slopes contribute to the formation of various riverbank features such as pools, reefs, rapids, cascades, and steppes. Consequently, changes in the stream, including sediment load and soil type, significantly influence the plant species growing along the riverbanks.

Redevelopment projects along this interface must therefore strike a balance between urban planning and design disciplines on one hand and environmental and ecological considerations on the other. The urban waterfront, more than any other urban neighborhood subtype, has undergone significant transformations in its role in contemporary urban life. In today's urban renaissance, previously abandoned post-industrial watershed lands are being revitalized. Unlike many other urban redevelopment initiatives, waterfront redevelopment occurs in ecologically sensitive—though often highly degraded—habitats. Hence, projects in this area should not only incorporate principles from urban development but also address the unique historical, architectural, and environmental challenges presented by these sites, often necessitating innovative solutions. This makes such redevelopments pioneering in various urban planning and design paradigms, especially given the increasing demand for urban real estate in the twenty-first century.

A body of water, or a water body, refers to any substantial accumulation of water, typically found on the surface of a planet. While this term commonly denotes oceans, seas, and lakes, it also encompasses smaller bodies of water like ponds, wetlands, canals, bays, and creeks. Unfortunately, development projects frequently overlook the protection of water bodies, diverting them for alternative uses. Therefore, it is imperative to prioritize the conservation, protection, and rejuvenation of water bodies in urban areas. Water bodies play a pivotal role in the sustainable development of an area, providing additional social, psychological, and environmental value. This includes enhancing the aesthetic appeal and overall quality of a place, thus contributing to the city or

town's image. Additionally, water bodies increase the social and recreational value of an area, attracting residents and substantially boosting property values.

IX. STUDY AREA

The selected stretch falls within the H-NODE zone of the Surat urban area, which is subdivided into four town planning schemes: 61, 62A, 62B, and 63. These schemes encompass several villages, including Chhedchha, Oviyan, Sabargam, Antroli, and Niyol. Currently, all town planning schemes are undergoing processing at the authority level, making this stretch a prime candidate for redevelopment. Notably, only scheme 62A is directly affected by the presence of Mithi Khadi.

Under town planning scheme No. 62-A, encompassing the areas of Chhedchha, Oviyan, Sabargam, and Antroli, the total area measures 16,87,578.20 square meters. This scheme encompasses four village blocks. The stretch of Mithi Khadi within this scheme spans a length of 2.65 kilometers, covering an area of 71,179 square meters. Additionally, there is a recreational zone surrounding the stretch, measuring 41,332 square meters.

The vicinity surrounding Mithi Khadi is densely populated with various structures, including residences, warehouses, and agricultural plots. Moreover, there are several small lakes and unused land areas in close proximity to the khadi, serving as repositories for khadi wastewater and emitting unpleasant odors that affect neighboring areas. Photographs from the site survey can be found in Annexure-A.

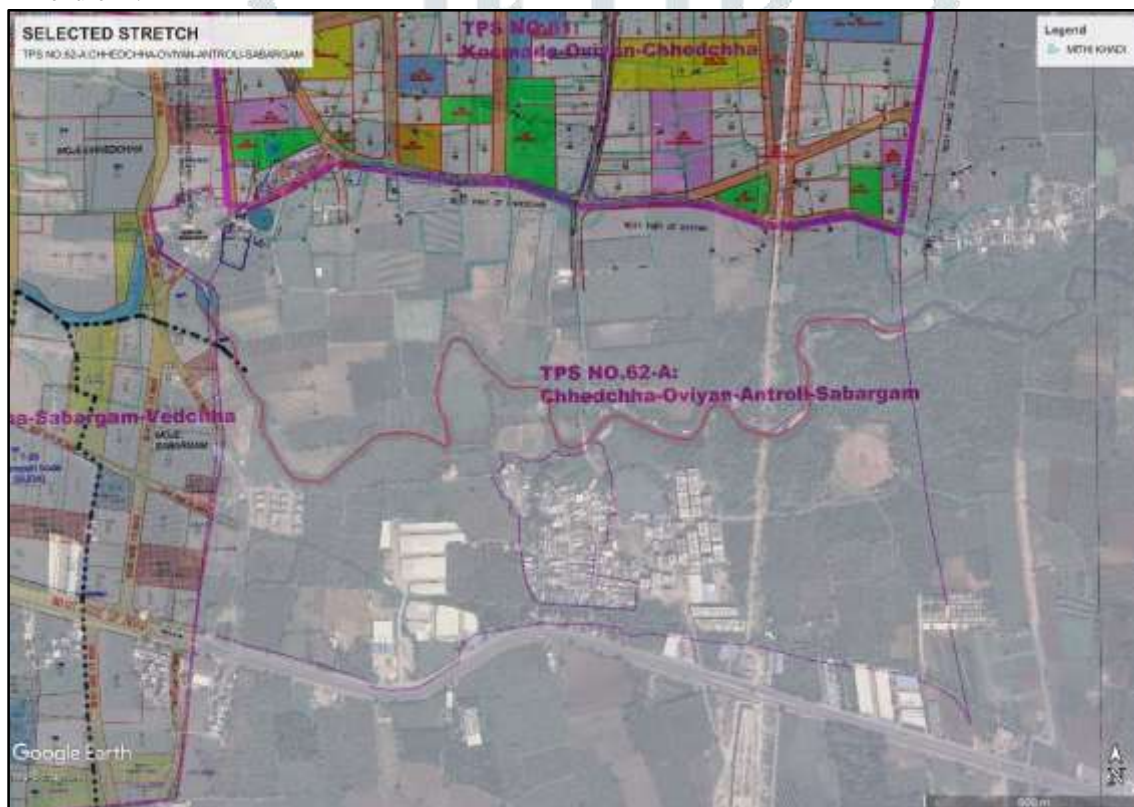


Figure 1 Mithi Khadi Selected Stretch
(Source: Google Earth Pro)

X. DATA COLLECTION

There are two types of data sources,

1. Primary Data
2. Secondary Data

1. Primary Data Collection

Primary data collection for creek redevelopment involves gathering information directly from the source through various methods. Here are some primary data collection methods that can be used for creek redevelopment.

A. Field Observations

Conducting on-site observations of the creek and its surrounding areas to assess current conditions, identify potential hazards or environmental issues and gather qualitative data on the creek's ecosystem and land use patterns. Site survey map attached in Annexure A.

2. Secondary Data Collection

Secondary data for creek redevelopment encompasses the gathering of existing information from diverse sources to inform planning and decision-making processes. One fundamental aspect of this process involves conducting comprehensive data collection. This step serves as the cornerstone for informed decision-making and strategic planning within the creek redevelopment project. By meticulously gathering data from various authoritative sources such as village maps, survey details, development plans, and boundary delineations, the project researcher ensures access to accurate and comprehensive information about the study area.

These efforts are essential for establishing a thorough understanding of the geographical layout, land ownership structures, regulatory frameworks, and existing infrastructure, laying the groundwork for effective and sustainable redevelopment initiatives.

A. Procuring Village Maps

Village maps of Chhedchha, Oviyan, Sabargam, and Antroli are essential references for understanding the geographical layout and demarcation of the study area. These maps provide valuable insights into the spatial distribution of land, settlements, and infrastructure, enabling planners to identify potential redevelopment opportunities and challenges. Copies of village maps are appended in the Annexure B.

B. Gathering VF-7 Survey Number Details

Meticulously gathering the latest VF-7 survey number details within the study area boundary is critical for establishing a precise understanding of land parcels and ownership structures. This information helps in identifying landowners, land use patterns, and potential conflicts or constraints that may affect the redevelopment process. The most recent VF-7 records are accessible on the website: Any RoR [<https://anyror.gujarat.gov.in/home.aspx>]

C. Acquiring SUDA Development Plan of 2035

The acquisition of the SUDA development plan of 2035 is integral to the data collection process as it provides valuable insights into the creek's path and surrounding land use through zoning details. Understanding the planned development framework allows project planners to align redevelopment efforts with long-term strategic objectives and regulatory requirements. Copies of the necessary development part plans are included in the annex. B.

D. Obtaining AutoCAD Files

Obtaining AutoCAD files depicting the Mithi Creek's surrounding villages and DP road network enriches spatial understanding and aids in the visualization of potential redevelopment scenarios. These files provide detailed information about the existing infrastructure and land features, enabling planners to assess the feasibility of proposed interventions and optimize project designs.

E. Including TPS No. 62-A Boundary

The delineation of TPS No. 62-A boundary from SUDA contributes to a comprehensive overview of the study area's administrative boundaries and regulatory frameworks. Understanding the regulatory context and jurisdictional boundaries is essential for ensuring compliance with relevant regulations and coordinating with relevant authorities throughout the redevelopment process.

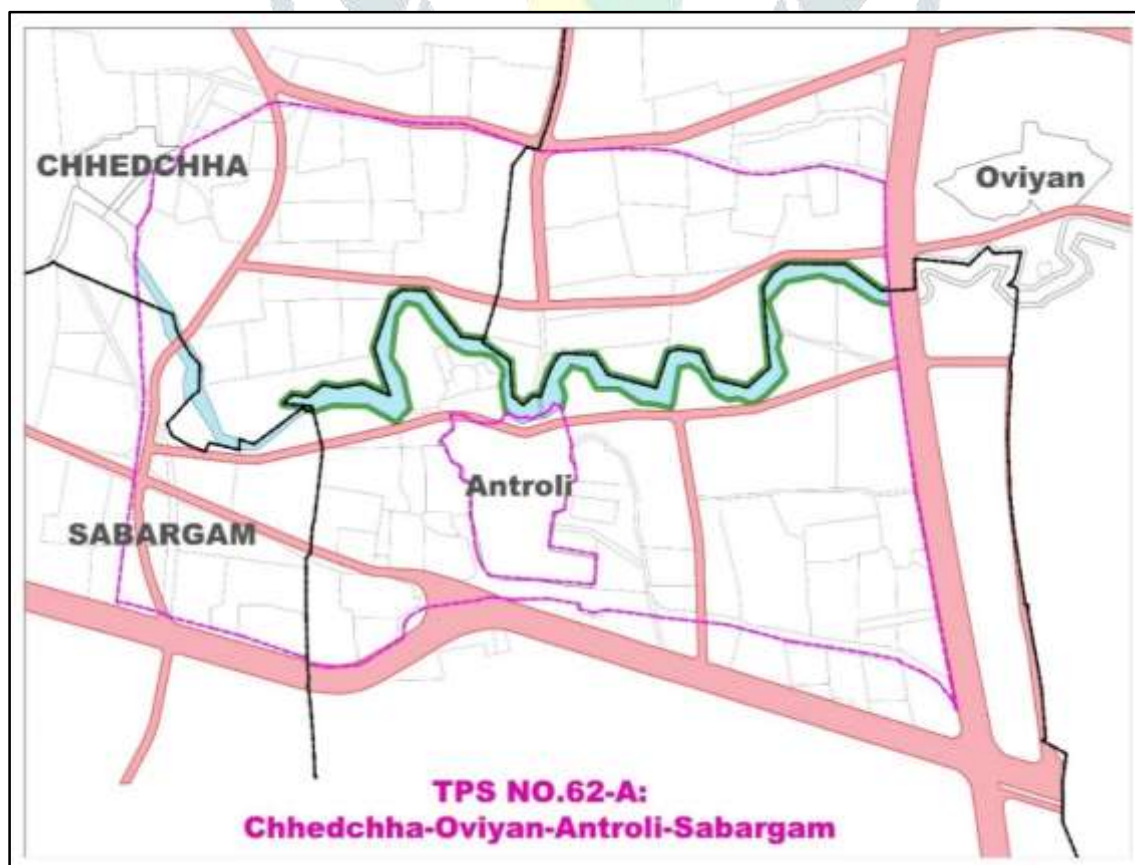


Figure 2 TPS NO.:62-A: Boundary, Survey Boundary, Village Boundary, DP Road network, Khadi Boundary
(Source: Surat Urban Development Authority)

F. Ground Level of Stretch

Utilizing the ground elevation feature provided by Google Earth Pro, we meticulously gathered essential data concerning ground elevation levels in relation to sea level. This methodological approach serves as a pivotal means to discern the foundational principles governing water flow dynamics. By establishing a baseline measurement of ground elevation relative to sea level, we can effectively identify the fundamental rules guiding the movement of water within the studied terrain.



Figure 3 Google Earth Pro: Ground Elevation Profile
(Source: Surat Google Earth Pro)

XI. DATA ANALYSIS

Begin with a thorough analysis of both primary and secondary data collected for the creek redevelopment project. This step involves reviewing and interpreting various datasets to gain a comprehensive understanding of the project's scope and requirements.

A. Consultation with Surat Urban Development Authority (SUDA)

Engage in consultations with officers from the Surat Urban Development Authority to seek expert advice and guidance on the proposed town planning scheme. These discussions are essential for understanding the challenges and complexities associated with implementing such projects.

B. Acknowledgment of Challenges

Recognize through consultations with SUDA officers that executing town planning schemes post-sanctioning of the draft poses significant challenges. Understanding these challenges is crucial for making informed decisions and formulating effective strategies.

C. Understanding Land Parcel Finalization

Gain an understanding that once land parcels are finalized, landowners acquire full rights over their respective plots. This highlights the importance of proactive decision-making and strategic planning before this stage to ensure successful project implementation.

D. Meticulous Scheme Formulation

Meticulously craft the town planning scheme based on expertise, knowledge, and planning principles. Prioritize the redevelopment aspects of the project during the formulation of the draft scheme to align with long-term strategic objectives and regulatory requirements.

E. Adherence by Land Parcel Owners

Emphasize that land parcel owners are obliged to adhere to the decisions made by the authority regarding the town planning scheme. This obligation arises from the fact that such projects are sanctioned directly by the state government, necessitating compliance with government directives.

F. Notification Mandate

Ensure that the authority is mandated to provide notification of the government's directives to landowners. Transparency and communication are crucial in keeping all stakeholders informed throughout the project implementation process.

G. Land use pattern

Land use pattern in the development plan of study area,

Sr. No.	Type of Area	Area (Sq. Mt)
1	Gamtal	76,729.43
2	Open Plot	1385187.77
3	DP Road network area	113150
4	Khadi covered area	71,179
5	Recreational area	41,332

XII. PLANNING PROPOSAL

Commencing with the planning proposal for creek redevelopment, this endeavor marks a pivotal step towards the revitalization and sustainable utilization of the creek area. With its inherent ecological significance and potential for community enrichment, the redevelopment initiative embodies a strategic vision aimed at harmonizing urban development with environmental conservation. Through meticulous planning and stakeholder collaboration, this proposal seeks to reimagine the creek area as a vibrant hub of activity, while preserving its natural beauty and ecological integrity.

A. Existing Condition of Mithi Creek

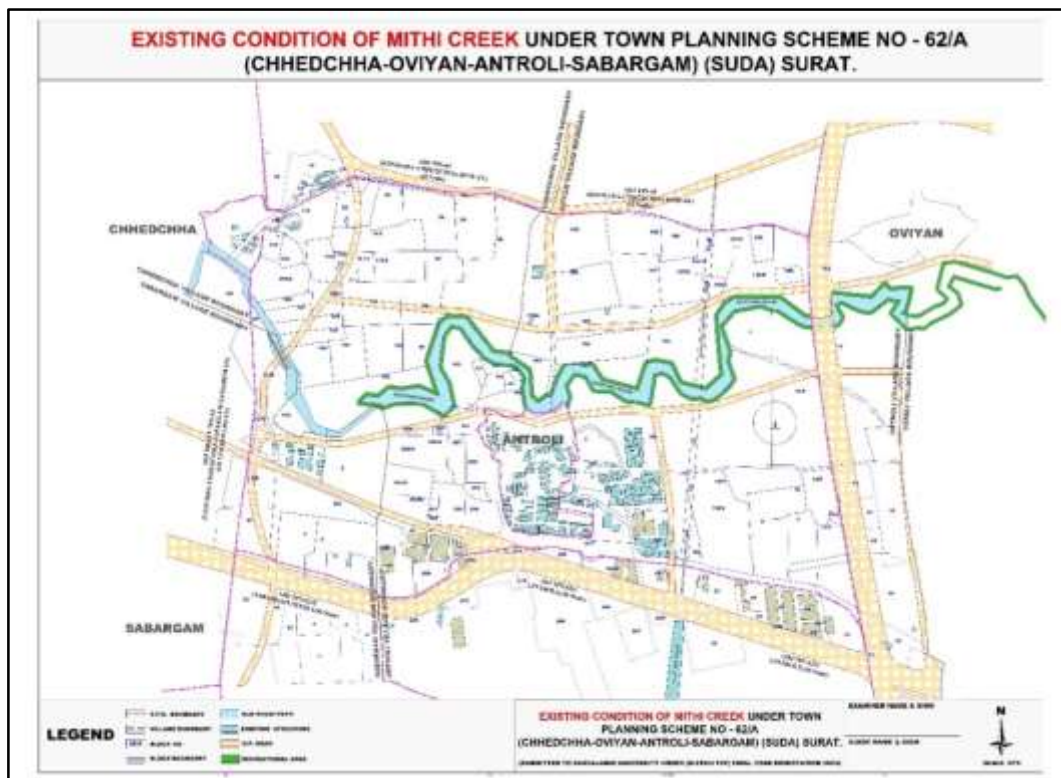


Figure 4 Existing condition of Mithi creek
(Source: Researcher)

B. Planning Proposal of Mithi Creek

The planning proposal focuses on the realignment and reduction of the length of the creek path. The reduction in length directly correlates with decreasing the area covered by the creek, compared to its existing path. The proposed realignment aims to provide a uniform width channel for flowing water, facilitating smoother water flow with the incorporation of gentle curves. Additionally, the recovered land from the reduced creek path proves beneficial for the implementation of the town planning scheme and the provision of other necessary infrastructure.



Figure 5 Planning Proposal of Mithi Creek
(Source: Researcher)

Comparison of Existing and Proposed Condition

Sr. No.	Type	Existing Condition	Planning Proposal
1	Length of creek	2679 meter	1869 meter
2	Covered area	71598 Sq.mt.	55980 Sq.mt.

C. Impact of Proposed Creek Realignment

The proposed realignment of the creek path has significant implications for the land boundaries within Block No. The alteration in the natural watercourse affects the existing demarcations, potentially encroaching upon private properties. As a result, the government is obligated to address this situation by providing compensation to affected landowners.

Compensation and Land Acquisition Process:

- **Reassessment of Boundaries:** Surveyors and land experts will meticulously reassess the boundaries of the affected parcels. This involves accurately determining the extent of land impacted by the creek realignment.
- **Valuation of Affected Land:** The value of the land that falls within the revised creek path will be assessed. This valuation considers factors such as location, land use, and market rates.
- **Compensation Calculation:** Based on the valuation, the government will calculate the compensation owed to each landowner. This compensation aims to mitigate the loss incurred due to the altered land boundaries.
- **Legal Formalities:** Landowners will be informed of the compensation amount, and legal procedures will be followed to ensure a fair and transparent process.
- **Land Acquisition:** Once compensation is determined, the government will acquire the affected land. This acquisition facilitates the implementation of the proposed project, which necessitated the creek realignment.

In summary, the government's commitment to compensating landowners ensures equitable treatment during this transformative phase. The successful implementation of the project hinges on addressing land boundary adjustments and providing just compensation to those impacted.

NOTE:

In order to circumvent the protracted process of land acquisition, this proposal is strategically implemented under the umbrella of the town planning scheme. By doing so, the proposal can be seamlessly integrated and executed within the existing framework. Additionally, the proposal is designed to accommodate adjustments within the designated deduction area of open plots. Moreover, the proposed area occupies less space compared to the existing conditions, thereby facilitating a smoother implementation process. This approach ensures efficient utilization of resources while minimizing bureaucratic hurdles associated with traditional land acquisition procedures.

D. Preparation of Town Planning Scheme

Preparing a town planning scheme, which involves strategic urban development and land management. Here are the key steps:

a. Prepare a F-Form under TPS 62/A(Chhedchha-Oviyan-Antroli-Sabargam)

All the survey numbers listed below fall within the jurisdiction of the town planning scheme area.

Chhedchha:

3/P, 91, 92, 93/1, 93/2, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109/1, 109/2, 110, 111/1, 111/2, 112, 113, 114, 115, 116, 117.

Oviyan:

150/P, 155, 156, 157/A, 157/B, 157/C, 158, 159/A, 159/B, 159/C, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169.

Antroli:

1/P, 2, 3, 4, 5, 6/A, 6/B, 6/C, 7/A, 7/B/1, 7/B/2, 8, 9, 10, 11/P, 14, 15/P, 17, 270, 287, 288, 289, 290/A, 290/B, 291, 292, 293, 294, 295, 296, 297, 298/A, 298/B, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308.

Sabargam:

5, 6, 7, 8/A, 8/B, 9, 10, 11/B, 11/C, 21.

With the help of above list of block no. prepare a f-form.

Contents of Form F

The form typically includes the following details,

- Owner Information: Names of property owners.
- Tenure: Details about land tenure.
- R.S. No.: Reference survey number.
- O.P. No., Area
- F.P. No., Area
- Value of Structure: Estimated value of structures (if applicable).
- Remarks: Any additional comments or notes.

Form-F document of Town Planning Scheme-62/A (Chhedchha-Oviyan-Antroli-Sabargam) available only for researchers and other authority.

b. Prepare a Layout of Town Planning Scheme

In the execution of the creek redevelopment project and the corresponding town planning scheme, the first imperative is the establishment of a continuous road network in alignment with project requirements and the existing town planning framework. This road network should seamlessly integrate with the surrounding infrastructure, facilitating efficient connectivity and accessibility.

Following the establishment of the road network, the next phase entails the reconstitution of final plots within the boundaries of open plots. This process involves meticulous delineation and demarcation of land parcels, ensuring adherence to legal boundaries and regulatory requirements. Moreover, emphasis is placed on fostering well-connected connectivity throughout the reconstituted plots, thereby optimizing access to essential amenities and services.

Furthermore, particular attention is devoted to shaping the reconstituted plots in a manner conducive to future development endeavors. This entails the provision of adequate space and infrastructure to accommodate potential growth and expansion initiatives. By prioritizing proper shape and connectivity, the redevelopment project and town planning scheme lay the groundwork for sustainable urban development and community enhancement.

Using Google Earth Pro to visualize the overlap of the town planning scheme can provide valuable insights into connectivity and feasibility. By overlaying the town planning boundaries onto the satellite imagery, you can assess how the proposed development integrates with existing infrastructure and terrain features. This visualization can help identify potential challenges or opportunities for optimizing connectivity, as well as assessing the feasibility of implementing the proposed development within the designated area. Additionally, Google Earth Pro's tools for measuring distances and elevations can further enhance the analysis of connectivity and feasibility, providing a comprehensive

Understanding of the project's implications on the surrounding landscape.

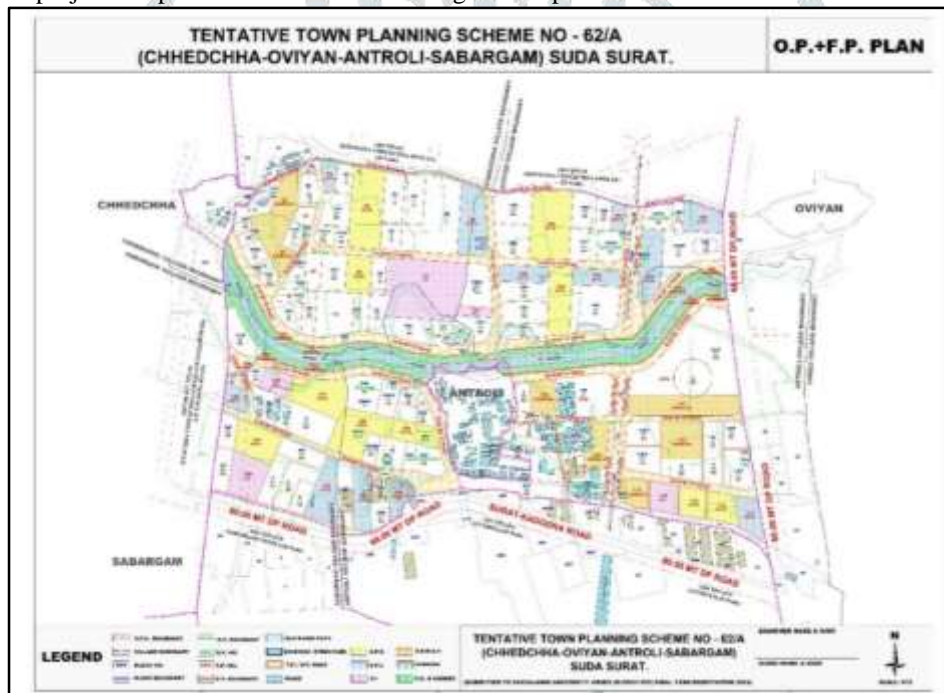


Figure 6 Tentative Town Planning Scheme No-62/A (Chhedchha-Oviyan-Antroli-Sabargam) (Source: Researcher)

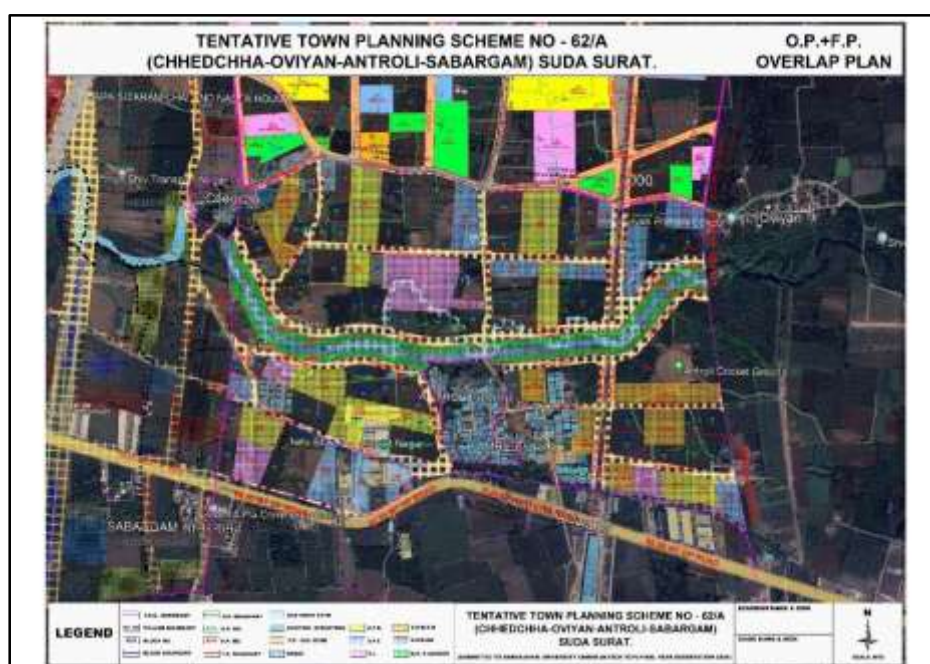


Figure 7 Overlap Map with Adjoining TP Scheme (Source: Researcher)

Land Use

Land use of Town Planning Scheme 62/A (Chhedchha-Oviyan-Antroli-Sabargam),

Sr. No.	Details	Nos.	Area (SQ.MT)	Area (HA)	%
1	Total Scheme Area		1687765	168.78	100.00
2	Total Open Plot Area	91	1687765	168.78	100.00
3	Total Final Plot (Except From Reservation Plot)	91	906769	90.68	53.73
4	Reservation Plot Nos and Area				
	Sale For Residential	10	158599	15.86	9.40
	Sale For Commercial	13	121459	12.15	7.20
	S.E.W.S.H	7	90120	9.01	5.34
	Garden	4	72879	7.29	4.32
	Social Infrastructure	5	78814	7.88	4.67
	Parking	4	18563	1.86	1.10
	Total Reservation Area	43	540434	54.04	32.02
5	Total Area of Final Plot	134	1447260	144.73	85.75
6	Road		240562	24.06	14.25
	Total		1687765	168.78	100.00

E. Detail Planning Proposal

In the town planning scheme 62/A (Chhedchha-Oviyan-Antroli-Sabargam), a reservation has been designated to surround the new path of the creek. The primary objective of this reservation is to facilitate the development of robust infrastructure. As part of this scheme, two specific strips are proposed:

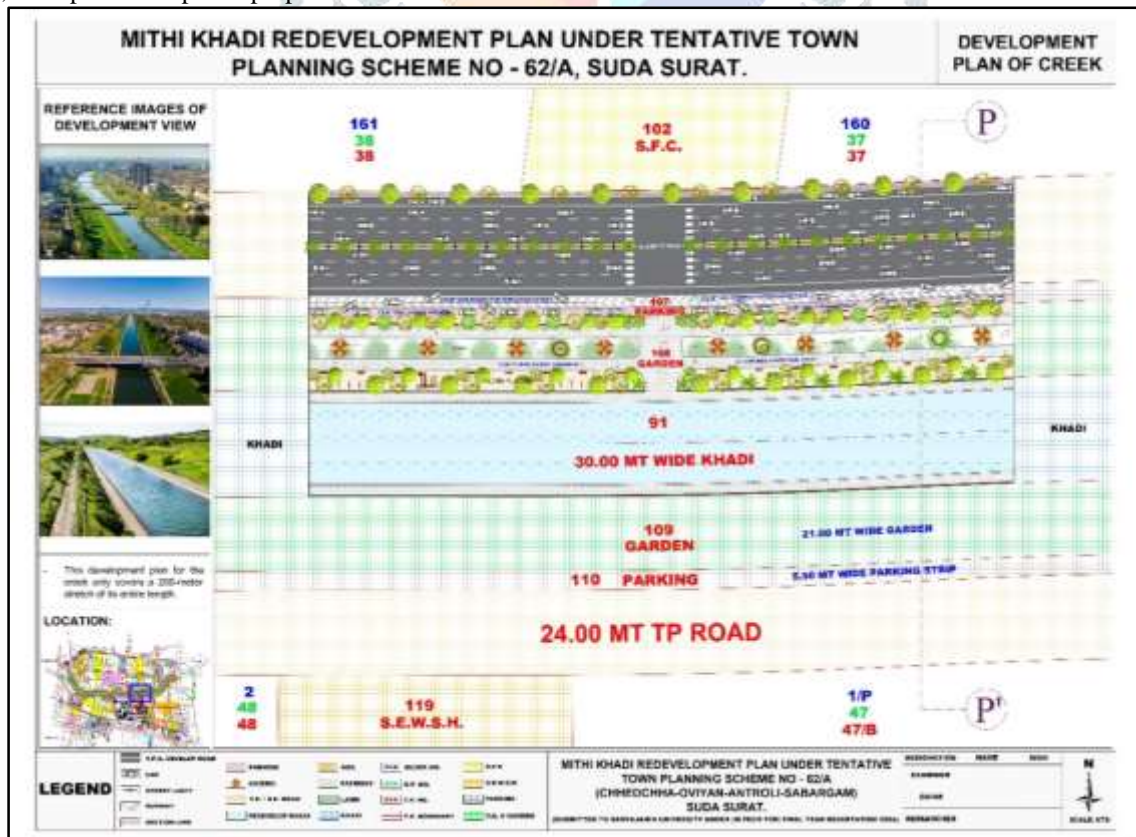


Figure 8 Development Plan of Creek
(Source: Researcher)

A 21-meter-wide garden strip: This green space serves multiple purposes

- **Aesthetic Enhancement:** It contributes to the overall beauty and visual appeal of the area.
- **Recreational Space:** Residents can enjoy leisure activities in this green zone.
- **Environmental Sustainability:** The garden strip adds to the ecological balance by providing greenery and supporting biodiversity.

A 5.5-meter-wide parking strip: This strip is designed for parking facilities

- **Efficient Parking:** It ensures convenient parking options for residents and visitors.
- **Traffic Management:** Properly planned parking areas help manage vehicular movement within the development.

By incorporating these reservations into the town planning scheme, the aim is to create a well-rounded and harmonious urban environment that prioritizes both functionality and quality of life for residents.

Section

The section shown in Figure 26 is depicted in the plan below.

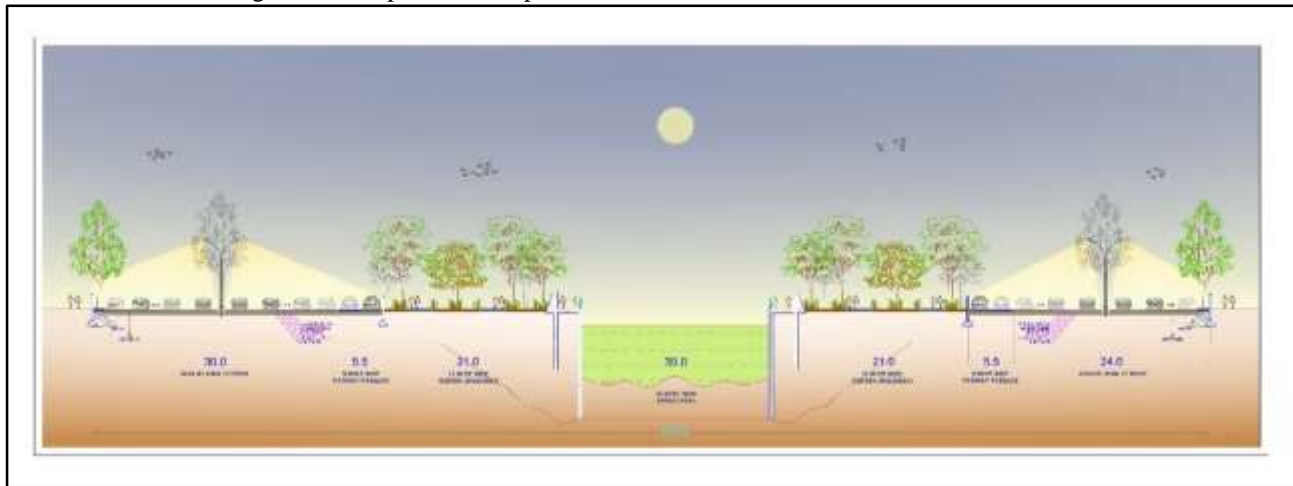


Figure 9 Section View of Development Stretch
(Source: Researcher)

F. Ecological Restoration

The implementation of a creek redevelopment project can significantly impact the ecology of the area. To restore and enhance the ecological balance, consider the following steps:

a. Surrounding Garden Development

Design and develop a surrounding garden adjacent to the creek.

This garden strip serves multiple purposes:

- **Aesthetic Enhancement:** It adds beauty and visual appeal to the area.
- **Recreational Space:** Residents can enjoy leisure activities in this green zone.
- **Environmental Benefits:** The garden contributes to air purification, carbon sequestration, and overall environmental health.

b. Plantation and Biodiversity

- Introduce a diverse range of native plant species in the garden.
- These plants will provide habitat for insects, birds, and other wildlife.
- Consider flowering plants, shrubs, and trees to attract pollinators and create a balanced ecosystem.

c. Air Quality Improvement

- The garden's greenery will contribute to fresh air by absorbing pollutants and releasing oxygen.
- Trees play a crucial role in mitigating air pollution.

d. Pollution Control

- The garden acts as a buffer zone, helping to control pollution from nearby areas.
- It filters runoff water and prevents pollutants from reaching the creek.

e. Wildlife Habitat

- The planted area becomes a habitat for animals and birds.
- Birds, butterflies, and small mammals find refuge in the green space.

By integrating these steps into the creek redevelopment project, we create a harmonious environment that benefits both humans and nature.

XIII. CONCLUSION

In conclusion, the creek redevelopment project holds immense significance in addressing the various challenges plaguing the Mithi khadi area. Through a comprehensive assessment of the problems, objectives, and scope of work, the project aims to realign the creek, recover adjacent land, and develop infrastructure to enhance the overall ecological and socio-economic landscape. By aligning with the goals outlined in the town planning scheme and focusing on ecological restoration, creek realignment, length reduction, and infrastructure development, the project seeks to create a sustainable and resilient environment for the community. Moving forward, it is imperative to ensure effective implementation of the proposed solutions, foster stakeholder collaboration, and monitor the project's progress to achieve long-term success in revitalizing the creek area and improving the quality of life for residents.

XIV. RECOMMENDATION:

It is recommended to implement projects of this nature concurrently with the draft town planning scheme preparation to maximize the overall development process's efficiency. By coordinating these initiatives, authorities can optimize land use planning and infrastructure development, leading to the creation of a well-organized urban area. Additionally, prioritizing the recovery of land areas in the project can significantly enhance revenue potential through land sales. This additional revenue source not only offsets development expenses but also eases financial strain on the government treasury. Ultimately, aligning project

implementation with town planning scheme preparation fosters the establishment of a sustainable, financially robust, and efficiently functioning urban environment.

The provision of plot validation certificates holds significant implications for properties situated along creek sides, particularly concerning the implementation of redevelopment projects. This report seeks to examine the adverse effects of the current policy on such projects.

REFERENCES

No references were available.

