DRAFT FINAL REPORT

ACTION AREA PLAN

AGRABAD

May 2025

PREPARATION OF CHATTOGRAM METROPOLITAN MASTER PLAN

Prepared in Association with

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Chattogram Development Authority

Ministry of Housing and Public Works

People's Republic of Bangladesh

PREPARATION OF CHATTOGRAM METROPOLITAN MASTER PLAN (PERIOD: 2025-2050)

Draft Final Report

ACTION AREA PLAN: AGRABAD

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EXECUTIVE SUMMARY

The Action Area Plan for the redevelopment of Agrabad Central Business District (CBD) and Debarpar is a comprehensive strategy aimed at transforming one of Chittagong's most important urban areas into vibrant, sustainable, and economically prosperous spaces. This plan seeks to address existing urban challenges such as traffic congestion, inadequate infrastructure, lack of public spaces, and underutilized waterfronts while creating opportunities for growth, commerce, and enhanced quality of life. The redevelopment of these areas is designed to serve as a model for sustainable urban transformation, balancing the needs of commerce, residential living, and recreation in a way that supports both economic development and environmental stewardship.

Agrabad Central Business District (CBD), currently the economic heart of Chittagong, faces significant urban challenges, including overcrowding, poor infrastructure, and limited pedestrian-friendly spaces. The primary objective of the redevelopment is to revitalize this area into a modern, high-density, mixed-use urban hub. The plan focuses on creating a business district that not only attracts local and international investment but also provides spaces for living, working, and recreation. The integration of residential and commercial spaces within mixed-use developments will promote a 24/7 urban environment. The design will incorporate green infrastructure, sustainable architecture, and improved public spaces to enhance the livability and environmental sustainability of the area.

The development of Debarpar, located just south of Agrabad CBD, offers a unique opportunity to enhance the city's recreational and cultural infrastructure. The lakefront area, currently underutilized, will be transformed into a vibrant public space with cultural venues, parks, walking trails, and recreational facilities. The waterfront will become a key urban destination, providing both residents and visitors with access to green spaces, leisure activities, and cultural experiences. The development of the lakefront will also promote tourism and enhance the local economy by introducing cafes, restaurants, shops, and cultural institutions such as galleries and performance spaces. Environmental preservation will be a key component of the lakefront development, ensuring that the natural beauty and ecological health of the lake are maintained.

Both Agrabad CBD and Debarpar Lakefront will be developed to foster economic growth by attracting businesses, investments, and tourism. The integration of mixed-use developments will create a balanced environment for commercial, residential, and leisure activities, which will support local businesses and create job opportunities.

Sustainability will be central to the redevelopment, with a focus on green infrastructure, energy-efficient buildings, and the preservation of natural resources. Environmental strategies such as renewable energy systems, smart water management, and green transportation solutions will be incorporated to minimize the ecological footprint of the development.

The plan ensures that the benefits of the redevelopment are accessible to all, particularly in terms of affordable housing and public spaces. The inclusion of affordable residential units and public amenities will enhance social inclusivity, creating spaces where communities can interact, work, and live harmoniously.

Key infrastructural improvements, including roads, utilities, public transport, and waste management systems, will be implemented to support the increased demand created by the redevelopment. Traffic management strategies, such as one-way systems and dedicated bus lanes, will be introduced to ease congestion, while pedestrian-friendly walkways and bike lanes will encourage sustainable mobility.

The redevelopment will occur in three phases:

Short-Term (1-2 years): Focus on infrastructure improvements such as road networks, traffic management, and utility upgrades. Initial landscaping and small-scale public spaces will be developed in the Debarpar Lakefront.

Medium-Term (3-5 years): The construction of mixed-use developments in Agrabad CBD, along with larger-scale public spaces and green areas in both the CBD and lakefront. Expansion of public transport systems will also occur during this phase.

Long-Term (5+ years): Completion of major developments in both areas, including the finalization of the lakefront's cultural and recreational facilities. Full integration of sustainable technologies, smart city systems, and public amenities.

The project's progress will be monitored using clear Key Performance Indicators (KPIs) related to infrastructure development, environmental sustainability, social impact, and economic growth. Regular evaluations will assess whether the project is meeting its objectives and adjust strategies where necessary to ensure the long-term success of the development.

This Action Area Plan represents a visionary approach to urban redevelopment, aiming to create two interconnected districts that support economic growth, environmental sustainability, and social well-being. By transforming Agrabad CBD and Debarpar Lakefront into mixed-use, sustainable, and vibrant spaces, this plan will help position Chittagong as a modern and inclusive urban center, providing benefits for its residents, businesses, and visitors alike. The successful implementation of this plan will contribute to the long-term resilience and prosperity of Chittagong, setting a benchmark for future urban developments across Bangladesh.

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1. INTRODUCTION

Agrabad Central Business District (CBD) and Debarpar are two pivotal areas within Chittagong, Bangladesh, each with its own potential for development and transformation. Agrabad CBD serves as the city's primary commercial hub, hosting a mix of corporate offices, retail outlets, and public institutions. It is the economic heartbeat of Chittagong, driving much of the city's trade and industry. However, this strategic area is grappling with several challenges, including traffic congestion, limited pedestrian spaces, lack of green zones, and insufficient public amenities. With urbanization increasing rapidly, these issues are impeding the area's growth and diminishing its efficiency as a business center.

Figure 1: Aerial View of Debarpar Waterbody Showing Its Underutilized Potential

Debarpar, located just south of Agrabad CBD, is an underutilized space with significant potential. The waterbody itself, covering about 13.91 acres, is a natural asset that remains largely inaccessible to the public. The surrounding land is fragmented, with limited infrastructure linking the lake to the rest of the city. Despite this, the offers a unique opportunity to develop a vibrant recreational, cultural, and commercial space that could complement the business-driven nature of Agrabad CBD.

This Action Area Plan aims to address the challenges facing both Agrabad CBD and Debarpar by integrating them into a cohesive development framework. By aligning with the Chittagong Metropolitan Master Plan (CMMP), this plan seeks to enhance the urban environment, improve infrastructure, and create a balanced urban ecosystem. The objective is to foster a mixed-use, sustainable development that promotes economic growth, community engagement, and environmental sustainability. This redevelopment plan will not only transform these two areas into attractive business and recreational spaces but also enhance the overall quality of life for residents and visitors alike.

2. STUDY AREA AND SITE ANALYSIS

The study area for the redevelopment of Agrabad Central Business District (CBD) and Debarpar spans two strategically located urban zones in Chittagong. These areas are critical to the city's economic vitality, yet they are currently facing a variety of urban challenges. In this section, a detailed analysis of both sites will be provided, focusing on their existing conditions, physical boundaries, infrastructure, and the opportunities and challenges they present for future development.

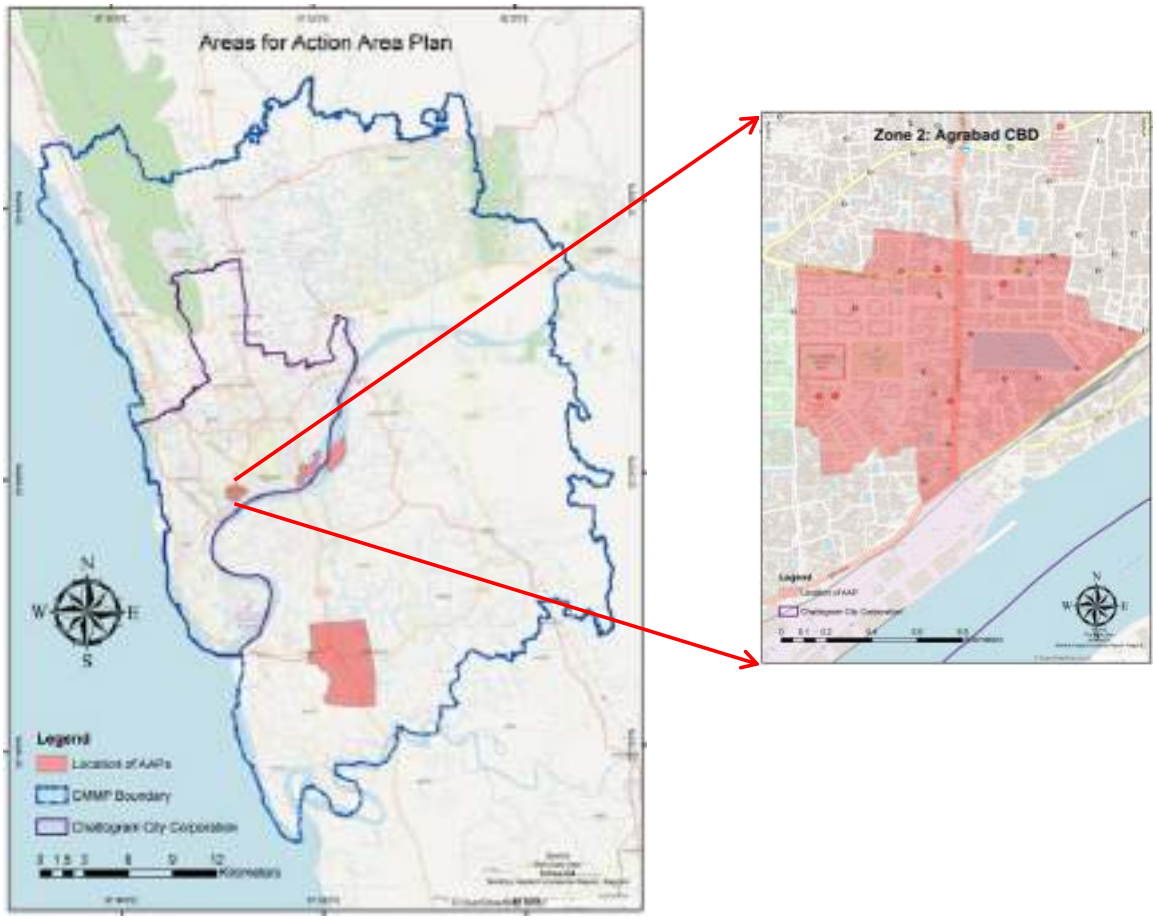

Figure 2: Physical Boundaries and Land Use Map of Agrabad CBD

2.1 AGRABAD CENTRAL BUSINESS DISTRICT (CBD)

2.1.1 PHYSICAL BOUNDARIES AND LAND USE

Agrabad CBD is located within the Double Mooring Thana, a central part of Chittagong, characterized by a Grid-Iron road network. The area is approximately 638.82 acres in size and serves as the primary commercial hub of the city. It contains a mix of high-rise office buildings, retail outlets, and government institutions, making it the focal point for business and trade in Chittagong. Despite its significance, the area is increasingly overcrowded, with a rapid increase in both business and residential demand.

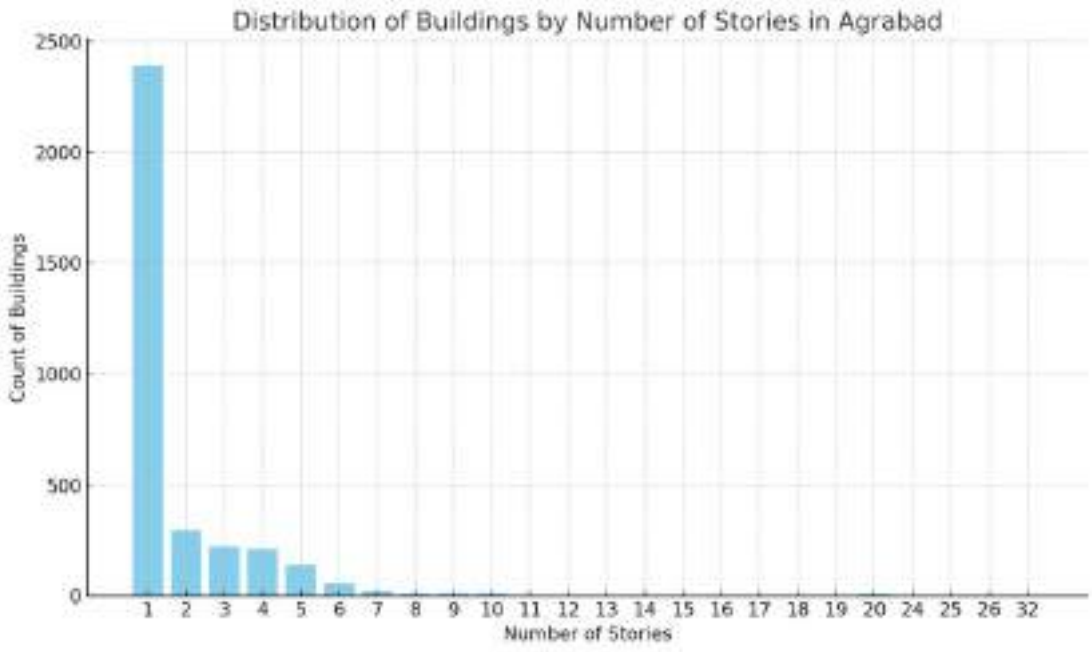

Figure 3: Land Use Analysis Highlighting Residential and Service Areas in Agrabad

Key Observations:

- Residential (Housing) is the dominant land use, covering over 100,000 sqm.
- Government Lodging and Storage (Service Activity) also occupy significant portions.
- Administrative/Public Services and Professional Services follow, indicating a mixed-use character.

Figure 4: Urban Form of Agrabad CBD with Commercial Density and Road Congestion

The urban fabric of Agrabad is heavily commercial, with office buildings dominating the skyline. These structures often lack adequate parking facilities and public spaces, leading to congestion and inefficient use of the available space. The narrow roads and lack of pedestrian-friendly infrastructure exacerbate the problem, making the area less accessible and attractive for both businesses and residents.

Figure 5: Overview of Agrabad Showing Skyscrapers, Elevated Expressway

Figure 6: Existing Green patches along with administrative structures

2.1.2 INFRASTRUCTURE AND CHALLENGES

Agrabad CBD's infrastructure is under significant strain due to Chittagong's rapid urban growth. The road network, while extensive, is frequently clogged with traffic, particularly during peak hours. This congestion is compounded by the absence of well-planned public transport systems and insufficient pedestrian pathways. The lack of proper traffic management contributes to road safety concerns, particularly in areas where pedestrians and vehicles share the same space.

Additionally, the area's environmental conditions are deteriorating. With little green space and a high density of concrete structures, the district experiences the urban heat island effect, making it uncomfortable for pedestrians and residents. The area's waterfront along the Karnaphuli River is also underutilized, with minimal access for public engagement.

2.1.3 RECOMMENDATIONS

- **Optimize Residential Land:** Enhance housing density through vertical expansion to free up land for public services and green areas.
- **Integrate Storage Areas:** Redevelop underutilized storage spaces into mixed-use zones or relocate them to industrial outskirts.
- **Strengthen Administrative Zones:** Cluster administrative buildings to create civic hubs and reduce traffic fragmentation.
- **Support Services Consolidation:** Concentrate scattered service activities (e.g., tailors, laundry) into structured commercial centers.
- **Prioritize Green Infrastructure:** Allocate a portion of informal or low-usage zones to parks, urban forestry, and water-sensitive design.

2.2 DEBARPAR

2.2.1 SITE LOCATION AND EXISTING CONDITIONS

Debarpar is situated to the south of Agrabad CBD, bordered by Sheikh Mujib Road to the west and the Chittagong Commerce College to the north. The lake itself covers approximately 13.91 acres, offering a natural asset that remains largely disconnected from the surrounding urban areas. The has tremendous potential to be developed into a recreational and commercial space, but it is currently underutilized and lacks proper infrastructure to connect it with the surrounding areas.

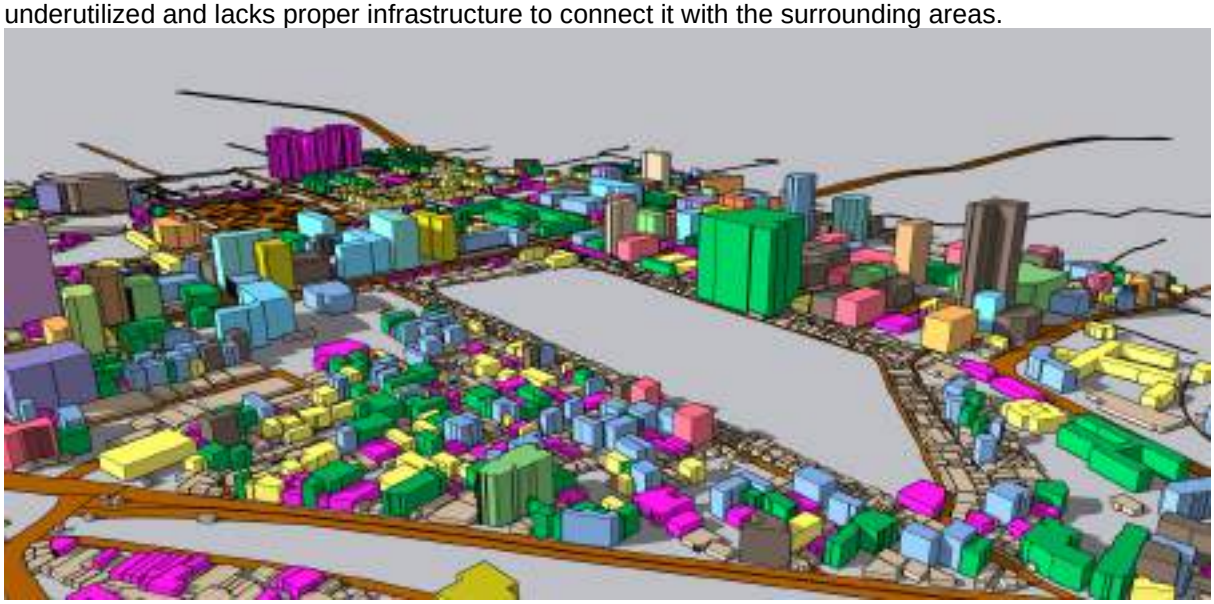

Figure 7: Existing Conditions of Debarpar and Surrounding Structures

The land surrounding Debarpar is predominantly occupied by low-income housing, including a government housing colony. Debarpar holds considerable historical significance within the city's urban development narrative. Established during the British colonial era, this approximately 14-acre man-made reservoir was constructed to serve the water needs of railway employees and port workers, reflecting the infrastructural priorities of the time. Over the decades, Debarpar has remained a vital yet underutilized asset. The surrounding area, predominantly occupied by low-income housing and a

government housing colony, underscores the lake's role in supporting residential communities. Despite its potential, inadequate urban planning and infrastructure have limited the lake's integration into the broader urban fabric, resulting in a lack of accessibility and connectivity.

2.2.2 INFRASTRUCTURE AND OPPORTUNITIES

Debarpar suffers from a lack of pedestrian pathways, recreational spaces, and community facilities. The surrounding infrastructure is fragmented, with limited access roads and poorly maintained streets. However, the waterbody has a unique opportunity which can transform into a vibrant space that can attract both residents and tourists.

Figure 8: Potential Zones for Green and Recreational Space around Debarpar

Figure 9: Proposed Connectivity Enhancements for Debarpar Lakefront

In addition to the lake, the surrounding area offers potential for the creation of green spaces, public parks, and cultural zones. The development of well-planned pedestrian routes and recreational areas could transform the waterbody into a community hub that complements the commercial activities in Agrabad CBD. The potential for tourism development is significant, with the lake providing a serene backdrop for cafes, restaurants, and cultural institutions such as museums and art galleries.

2.3 OPPORTUNITIES FOR INTEGRATION AND DEVELOPMENT

Agrabad CBD: The redevelopment of Agrabad CBD presents an opportunity to integrate modern infrastructure with a focus on mixed-use development. This could include the construction of multi-purpose buildings that combine residential, office, and commercial spaces, creating a vibrant 24/7 district. Pedestrian-friendly initiatives such as wider sidewalks, public plazas, and green spaces would significantly improve the quality of life for workers and residents. Improved traffic management, including dedicated pedestrian zones and efficient public transportation systems, would also help reduce congestion.

Debarpar: The development of Debarpar offers a rare opportunity to create a well-connected recreational zone that serves as a counterpoint to the commercial intensity of Agrabad CBD. Enhancing the lake's accessibility through pedestrian walkways, bike lanes, and improved road networks would encourage public engagement with the space. The integration of cultural and leisure facilities, such as cafes, amphitheaters, and galleries, would further attract visitors and foster community interaction. Additionally, preserving the ecological functions of the lake and surrounding greenery will be critical to ensuring a sustainable environment for the development.

Both Agrabad CBD and Debarpar are essential to Chittagong's urban fabric. While Agrabad CBD continues to be the city's commercial center, it requires significant upgrades in infrastructure and public spaces to accommodate future growth. Debarpar, on the other hand, presents a unique opportunity to create a vibrant and sustainable recreational hub. Together, these two areas can complement each other, creating a well-balanced urban environment that integrates commercial, residential, and recreational spaces in a sustainable and people-centric manner.

3. CASE STUDIES

3.1 CASE STUDY 1: CANARY WHARF REDEVELOPMENT, LONDON, UK

Figure 10: Canary Wharf Redevelopment – Transformation of London's Docklands

Canary Wharf in London is one of the most iconic examples of transforming an underutilized docklands area into a global financial hub. Originally a declining port area, the site underwent a large-scale redevelopment in the 1980s–90s, with massive investment in commercial infrastructure, transport connectivity (Docklands Light Railway, Jubilee Line), and urban design. The plan emphasized high-rise commercial towers, green public spaces, and waterfront leisure areas. Today, Canary Wharf houses leading multinational corporations and is known for its sustainability initiatives, including energy-efficient buildings and pedestrian-friendly zones.

Figure 11: High-Density Commercial Core in Canary Wharf

Figure 12: Public Space Integration in Canary Wharf

Correlation with Agrabad: Agrabad's proximity to Karnaphuli River and its role as Chattogram's commercial core offer similar opportunities for a waterfront-centric CBD model. Just like Canary Wharf, a focus on high-standard infrastructure, transit integration, and phased development can reposition Agrabad as a modern economic center in Bangladesh.

3.2 CASE STUDY 2: MARINA BAY REDEVELOPMENT, SINGAPORE

Figure 13: Aerial Perspective of Marina Bay Redevelopment in Singapore

Singapore's Marina Bay is a master-planned waterfront precinct developed to extend the city's downtown core. It integrates commercial, residential, cultural, and recreational spaces in a compact, mixed-use model. Critical success factors include strong government vision, public-private partnerships, and extensive land reclamation and infrastructure upgrades. Iconic landmarks like Marina Bay Sands, Gardens by the Bay, and the Helix Bridge have made it a global urban model. Emphasis on public access, greenery, and water management has further strengthened its livability.

Figure 14: Public Access and Landmark Integration at Marina Bay

Correlation with Agrabad: The development of Deba as a waterbody-centric recreational zone parallels Marina Bay's design. Chattogram can apply similar strategies such as waterfront activation, pedestrian networks, and iconic civic spaces to boost tourism, public engagement, and environmental value in Agrabad.

3.3 CASE STUDY 3: DHARAVI REDEVELOPMENT PROJECT, MUMBAI, INDIA

Figure 15: Dharavi Redevelopment Plan for Informal Settlement Formalization

The Dharavi Redevelopment Project aims to transform Asia's largest informal settlement into a structured, mixed-use urban area. While still under development, the plan involves resettling residents into high-density housing while freeing up space for commercial, educational, and healthcare facilities. Community involvement, compensation, and legal support are critical to its implementation. The project also stresses infrastructure modernization—sanitation, roads, digital connectivity and inclusivity in planning.

Figure 16: Infrastructure Planning and Community Housing in Dharavi

Correlation with Agrabad: Agrabad also features large informal markets and underplanned housing areas, especially near Deba. The Dharavi model underscores the importance of integrating marginalized communities into formal urban systems through careful planning, resettlement support, and public participation. Agrabad can adopt a similar inclusive and participatory redevelopment ethos.

3.4 JUSTIFICATION AND RELEVANCE TO AGRABAD

These international case studies demonstrate that successful urban redevelopment hinges on strategic planning, mixed-use integration, and inclusive frameworks. Canary Wharf shows how a business district can emerge from underutilized waterfronts; Marina Bay highlights the role of recreational and iconic public spaces; and Dharavi reinforces the need for social equity and careful resettlement. Agrabad's current challenges—traffic congestion, informal development, and fragmented land use—mirror elements from each of these global examples. By aligning its vision with tested international practices while adapting to local contexts, the redevelopment of Agrabad can set a precedent for sustainable and inclusive urban transformation in Bangladesh.

4. VISION AND GOALS FOR DEVELOPMENT

The redevelopment of Agrabad Central Business District (CBD) and Debarpar aims to transform these vital areas into integrated, dynamic spaces that offer a balance of commercial, residential, and recreational activities. The vision for this transformation is grounded in creating a sustainable urban environment that addresses current challenges while unlocking the full potential of these areas. This vision will be achieved through smart urban design, infrastructure enhancements, and community-centered development. The overarching goal is to build spaces that are economically viable, socially inclusive, and environmentally sustainable, while improving the quality of life for the people of Chittagong.

4.1 VISION

The vision for the redevelopment of Agrabad CBD and Debarpar is to create a world-class urban environment that serves as the commercial and cultural heart of Chittagong. This development will serve as a model of modern urbanization by seamlessly integrating commercial spaces with recreational and residential zones, creating a multi-dimensional district that is vibrant both day and night. By revitalizing the city's waterfront, enhancing green spaces, and improving infrastructure, this redevelopment will provide an enriched urban experience for locals and visitors alike.

Agrabad CBD will evolve into a modern business hub with state-of-the-art infrastructure and enhanced accessibility, fostering innovation, commerce, and sustainable growth. At the same time, Debarpar will be transformed into a cultural and recreational haven, offering a peaceful retreat from the bustling urban center. This revitalization will not only elevate the economic potential of both areas but also improve social dynamics by creating spaces for interaction, leisure, and community engagement.

4.2 GOALS FOR DEVELOPMENT

4.2.1 SYNTHESIZED ACTION PLAN

The redevelopment of Agrabad Central Business District (CBD) has emerged as a critical priority for the Chattogram Development Authority (CDA) in response to the area's unplanned growth and infrastructural inadequacies. Originally envisioned in the Chittagong Metropolitan Master Plan (CMMP) of 1995 as a prestigious commercial and administrative hub, Agrabad's current form is fragmented, with mismatched land uses, inadequate infrastructure, and severe congestion. The area today accommodates a dense mix of commercial buildings, public offices, residential colonies, parks, and informal markets, all developing organically without strategic coordination. This disorganized urban fabric has led to severe pressure on roads, particularly at the Agrabad intersection, and has compromised the area's potential as a dynamic, livable, and economically thriving city center.

To respond to these challenges, the action plan proposes a series of integrated interventions aimed at transforming Agrabad into a modern, high-functioning CBD with mixed-use efficiency, sustainable public spaces, and efficient transportation systems. The first key intervention involves the comprehensive upgradation of the commercial zone. This includes introducing modern urban design guidelines that promote high architectural and construction standards, ensuring the visual and structural prestige of new developments. Public and private developments alike will be required to conform to these design benchmarks, enabling the area to regain its status as a formal business district. Additionally, detailed reviews of internal circulation and access routes are proposed, focusing on easing navigation within the area and optimizing spatial connections among government offices, retail spaces, and residences. The

improvement of parking infrastructure is critical here, with a push toward creating underground and multilevel parking facilities to reduce roadside parking and increase street capacity.

Another major component of the plan is the development of the Deba waterbody-centric recreational zone, which serves as a unique asset for the area. Presently underutilized and surrounded by encroachments and informal uses, Deba is envisioned to be converted into a scenic public park and leisure space, equipped with walking trails, green zones, boating facilities, and cultural installations. A portion of existing informal food vending operations will be relocated to this area, where they will be integrated into a more organized, hygienic, and accessible public food court environment. This reallocation not only revitalizes the waterfront but also offers a dignified and economically viable space for small vendors.

To support a broader green and inclusive urban framework, the plan includes the creation of a continuous green network that connects Deba with other major recreational facilities such as Jamboree Park and Karnaphuli Shishu Park. This linkage will be achieved through landscaped pedestrian corridors and bike lanes, encouraging non-motorized transport and community interaction. Such a network serves multiple functions—climate resilience, public health, urban aesthetics, and social cohesion—by facilitating free movement and open access to nature within the dense urban core.

Transportation planning is a cornerstone of the redevelopment agenda. The Agrabad intersection, currently one of the most congested nodes in the city, will undergo a full redesign. This includes reconfiguring lane allocations, signalization upgrades, traffic channelization, and the introduction of smart traffic management systems. Given the anticipated pressure from the upcoming Airport–Lalkhan Bazar Expressway ramps, which will enter the CBD, a specialized traffic and transport strategy will be developed. This strategy will consider current and projected traffic volumes, modal splits, peak hour demands, and intermodal connectivity to ensure long-term traffic decongestion and safety.

Simultaneously, the relocation and integration of the informal market is essential for restoring order to the streetscape. The current informal vendors occupy significant sidewalk and roadside space, contributing to traffic bottlenecks and unsafe pedestrian conditions. Rather than a wholesale eviction, the action plan proposes their integration into the formal commercial environment via designated hawker zones, structured kiosks, and urban arcades. This approach balances the needs of small-scale entrepreneurs with the larger goal of urban tidiness and accessibility.

Institutional coordination plays a vital role in the success of this action plan. The CDA must work in close collaboration with the Ministry of Housing and Public Works, Bangladesh Railway, Chattogram City Corporation, and private sector investors. Especially in the development of Deba, which sits on land owned by the Bangladesh Railway, joint implementation agreements and clear role distribution will be necessary to ensure legal clarity and accountability. Public participation will be fostered through consultations and stakeholder engagement programs to ensure community support and contextual relevance.

Sustainability, both environmental and social, underpins the entire plan. Stormwater management features, renewable energy integration (e.g., solar-powered lighting), and green architecture incentives

are embedded into the building regulations. Social sustainability measures, including resettlement plans for displaced households around Deba and support programs for informal traders, are also being framed. These measures aim to ensure that redevelopment does not lead to exclusion or displacement but rather opens up new avenues of inclusion and upliftment for all stakeholders.

The action plan for Agrabad seeks to usher in a new era of integrated, inclusive, and intelligent urban development in Chattogram. By linking infrastructural investment with community development, ecological preservation, and economic growth, the plan aspires to reclaim Agrabad's potential as a resilient and prosperous CBD for the future. Its successful implementation will not only redefine the urban identity of Chattogram but also serve as a model for transformative city planning across Bangladesh.

4.2.2 PROPOSED ZONING

Each zone in the Agrabad Usage Zoning Plan is carefully curated to respond to different urban demands—from transportation and housing to recreation and commerce. The layout supports transit-oriented development, mixed-use integration, public accessibility, and environmental sustainability. By offering specialized yet interconnected functions across its zones, Agrabad's redevelopment stands to become a national model for coastal urban transformation in Bangladesh.

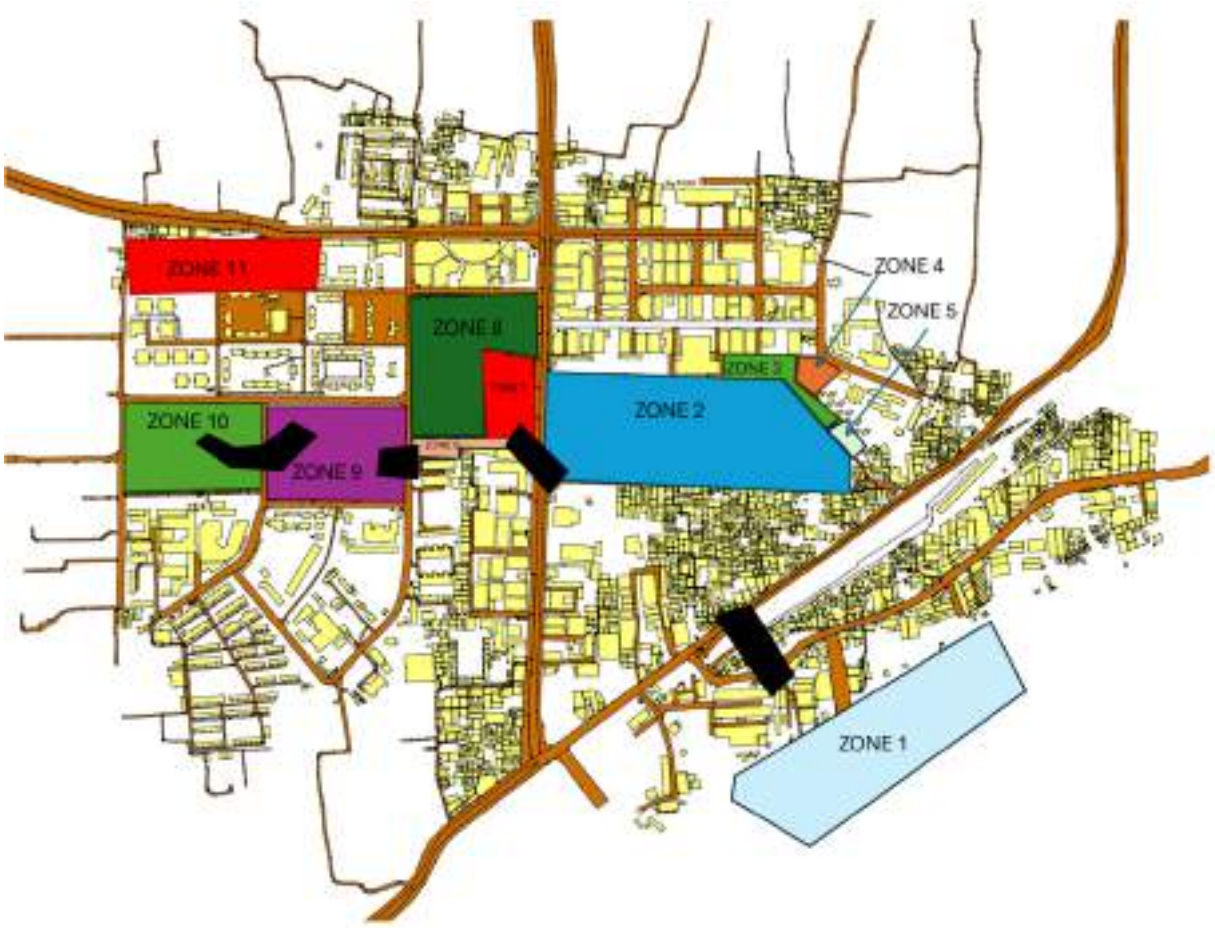

Figure 17: Proposed Zoning Plan for Agrabad CBD and Debarpar Lakefront

Zone 1: Harbourfront Commercial Hub

Zone 1 is envisioned as the gateway to the waterfront, housing critical urban facilities like a harbour, ferry port, convention hall, market, and restaurants. The strategic placement of these uses along the water edge is meant to catalyze waterborne transportation, tourism, and business events. The inclusion of a convention hall makes this a potential magnet for trade shows and conferences, aligning with Agrabad's ambition to become a regional commercial nucleus. This zone serves as a bustling entry and activity node with high visibility and economic potential.

Zone 2: Recreational Promenade and Mixed-Use Plaza

Zone 2 introduces a lively waterfront promenade flanked by restaurants, boating and fishing decks, and a skateboarding park, merging leisure and urban vitality. The zone is uniquely layered—hosting basement and semi-basement markets, basement parking, and designated areas for rickshaw and cycling parking. The upper levels accommodate street vendors and food stalls, ensuring a vibrant, multi-tiered commercial and recreational experience. Zone 2's integration of mobility (cycling paths, rickshaw bays) and activity makes it a central public engagement corridor, similar to Marina Bay's pedestrian design.

Zone 3: Urban Park and Residential Transition

Zone 3 functions as a green buffer between commercial and residential activity. It hosts a park, cycling paths, and picnic facilities, including gazebos and cabanas, alongside kids' playgrounds and vendor stalls. The presence of an apartment complex highlights the zone's transitional role between public leisure space and urban housing. As such, this area encourages community interactions, making it suitable for families and fostering a healthy public realm within walking distance from residences.

Zone 4: Intermodal Transport Hub

Zone 4 is defined by a bus station and city bus interchange, forming the core of the district's public transport system. Efficiently designed to minimize congestion and optimize connectivity, this zone is essential for reducing dependence on private vehicles and enhancing access across zones. As a node for modal transitions (e.g., ferry to bus), this zone ensures seamless commuting options, a backbone for any transit-oriented urban plan.

Zone 5: Para-Transit Mobility Node

Complementing Zone 4, Zone 5 hosts a rickshaw and auto-rickshaw stand, facilitating last-mile connectivity. The zone is essential in supporting non-motorized and intermediate public transport users, especially in densely populated zones. This compact mobility zone contributes to accessibility for all demographics, especially low-income users and the elderly, reinforcing the equity dimension of the redevelopment.

Zone 6: Linear Boulevard and Culinary Strip

Designed as a boulevard, Zone 6 is a linear spine dedicated to food courts and street vendors, offering an affordable and informal culinary experience. The food-focused zoning promotes micro-entrepreneurship and social interaction, acting as an urban "connector" for people across all social classes. This zone's walkable design and informal economy emphasis echo the cultural diversity and street vibrancy typical of South Asian urban cores.

Zone 7: High-Rise Mixed-Use Development

This high-density zone combines commercial and residential towers, featuring offices, markets, malls, studio apartments, departmental stores, and parking facilities. As a vertical city model, Zone 7 emphasizes compact land use, suitable for accommodating population growth without horizontal sprawl. Its mixed-use character ensures a 24/7 vibrancy—residents live, work, and shop within the same vertical ecosystem. It is pivotal for accommodating the upward economic mobility and housing demand projected for central Agrabad.

Zone 8: Integrated Commercial and Open Space Zone

Zone 8 mirrors Zone 7 in terms of commercial intensity but with a stronger emphasis on public amenities. The zone includes parks, cycling bays, playgrounds, and significant market and mall infrastructure. It provides a necessary blend of consumption and recreation, targeting both families and daily commuters. The planning aligns with sustainable urbanism principles by encouraging physical activity and reducing the need for vehicle usage.

Zone 9: Active Greenway and Retail Path

Zone 9 functions as a recreational green corridor featuring parks, walkways, cycling paths, and street vendors. This active linear zone fosters a healthy lifestyle and provides social infrastructure that complements adjacent zones. It also serves as a soft mobility spine that links residential and commercial hubs with nature, offering shade, resting areas, and spontaneous retail opportunities.

Figure 18: Functional Zone Distribution in Redevelopment Framework

Zone 10: Family Recreation and Health Services

This zone emphasizes child and family engagement with facilities like children's playgrounds, boating docks, walkways, food vendors, and medicine shops. It is a family-oriented wellness and recreation hub,

ensuring inclusive space for all age groups. The availability of healthcare products reinforces safety and convenience for park users and tourists alike.

Zone 11: Residential Living and Mobility Integration

Zone 11 hosts high-rise apartments, playgrounds, walkways, and cycling paths, prioritizing livability and active transportation. It exemplifies modern residential zoning that encourages physical activity, social cohesion, and minimal car dependence. The vertical housing development helps mitigate land scarcity while providing high-quality, accessible housing.

4.2.3 ECONOMIC GROWTH AND COMMERCIAL VITALITY

Agrabad CBD: The primary goal for Agrabad CBD is to enhance its role as Chittagong's economic engine by promoting high-quality, mixed-use developments. This includes the construction of office buildings, retail spaces, and residential complexes that cater to both local and international businesses. By improving the area's commercial infrastructure and fostering an attractive business environment, the development will position Agrabad CBD as a key player in the global business landscape.

Figure 19: Commercial Vibrancy and Mixed-Use Potential in Agrabad CBD

Debarpar: By integrating commercial spaces such as cafes, restaurants, and cultural venues, the development of Debarpar Lakefront will encourage economic activities that complement the commercial intensity of Agrabad. The waterfront will become a destination for both residents and tourists, boosting the local economy through increased foot traffic and business opportunities.

4.2.4 IMPROVEMENT OF URBAN INFRASTRUCTURE

Traffic Management and Accessibility: One of the most critical goals is to address the severe traffic congestion that affects both Agrabad CBD and its surrounding areas. The plan will include the development of efficient road networks, pedestrian walkways, and public transport systems that facilitate easy movement within and around the CBD. The introduction of one-way traffic systems, dedicated bus lanes, and the creation of underground parking facilities will help ease traffic flow and reduce congestion.

Figure 20: Public and Green Spaces Framework for Enhanced Livability

Public and Green Spaces: A key aspect of the redevelopment will be the creation of public spaces that encourage social interaction, leisure, and cultural activities. These spaces will include parks, plazas, and green corridors, offering residents and visitors much-needed relief from the urban heat island effect. Agrabad CBD will see the introduction of vertical gardens, green rooftops, and tree-lined streets, while Debarpar will be redesigned with expansive green areas, walking trails, and recreational spaces around the lake.

Figure 21: Green Infrastructure Strategy and Urban Cooling Measures

4.2.5 SUSTAINABILITY AND ENVIRONMENTAL INTEGRATION

Environmental Preservation: Environmental sustainability will be a cornerstone of the development, with a focus on preserving and enhancing the natural environment. The lakefront will be preserved as an ecological asset, with efforts to improve water quality, create wetland areas, and protect biodiversity. Stormwater management systems and green infrastructure will be integrated into both areas to reduce environmental impact and ensure sustainable water usage.

Figure 22: Ecological Preservation Plan for Debarpar Lake

Sustainable Architecture: Buildings in both Agrabad CBD and Debarpar Lakefront will incorporate eco-friendly materials, energy-efficient systems, and green technologies such as solar panels, rainwater harvesting, and waste recycling systems. The urban design will focus on reducing carbon emissions and minimizing environmental footprints while improving the overall livability of the spaces.

Figure 23: Sustainable Architectural Features for New Developments

4.2.6 SOCIAL INCLUSION AND COMMUNITY ENGAGEMENT

Accessible Spaces for All: The development will ensure that both Agrabad CBD and Debarpar Lakefront are accessible to all segments of society, including marginalized and low-income groups. Public spaces will be designed to be inclusive, providing areas for recreation, relaxation, and cultural exchange. Affordable housing options in mixed-use developments will be prioritized to create diverse communities.

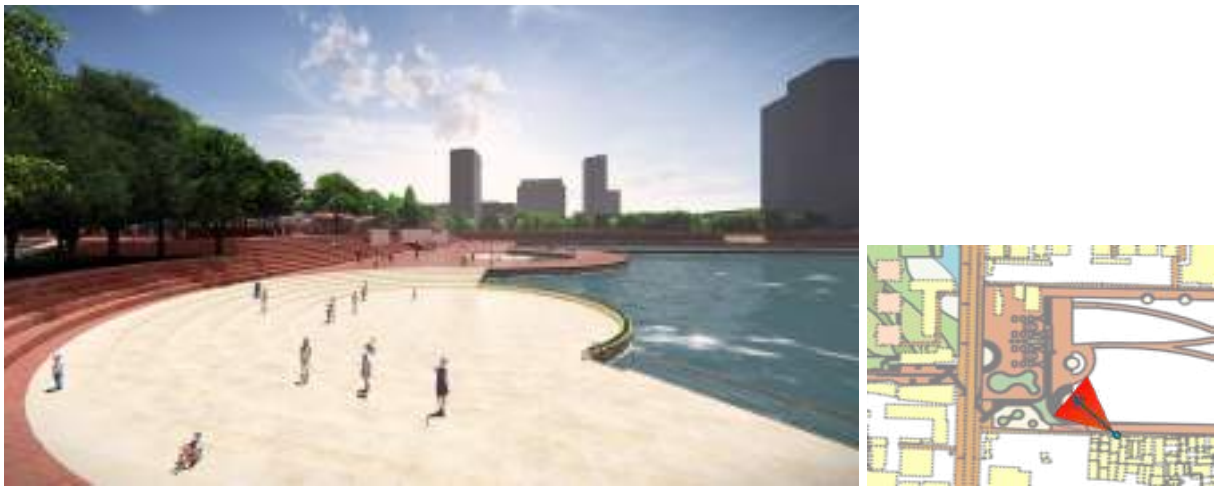

Figure 24: Social Inclusion through Affordable Housing and Public Space

Community-Driven Design: The design process will involve active community participation, ensuring that the needs and aspirations of local residents are reflected in the development plan. Public consultations, surveys, and workshops will be held to gather feedback from the community, allowing them to play an active role in shaping the spaces they inhabit.

Figure 25: Community Participation in Planning and Design Processes

4.2.7 CULTURAL AND RECREATIONAL AMENITIES

Debarpar: The waterfront development will focus on creating a cultural hub that celebrates the local heritage and fosters social cohesion. This will include the construction of an amphitheater for cultural performances, museums, art galleries, and performance spaces. The waterfront area will also feature cafes, restaurants, and recreational activities such as boating and walking trails.

Figure 26: Cultural Facilities and Recreational Venues along Debarpar Lakefront

Agrabad CBD: The CBD will include spaces for cultural and leisure activities, such as open-air theaters, public plazas, and art installations, which will contribute to the area's vibrancy and attract visitors from both within and outside the city.

Figure 27: Artistic and Social Engagement Nodes in Agrabad CBD

The vision and goals for the redevelopment of Agrabad CBD and Debarpar are aligned with the broader objectives of Chittagong's Metropolitan Master Plan (CMMP). Through strategic planning, thoughtful urban design, and sustainable development practices, these areas will be transformed into thriving, vibrant spaces that cater to the needs of Chittagong's growing population. This redevelopment will not only boost the city's economy but also improve the social fabric and environmental sustainability of one of Bangladesh's most important urban centers.

5. URBAN DESIGN AND PLANNING CONSIDERATIONS

The transformation of Agrabad Central Business District (CBD) and Debarpar requires a thoughtful and integrated approach to urban design and planning. The primary aim is to create spaces that enhance the functionality, livability, and aesthetic appeal of these areas while addressing their current challenges. The design considerations must strike a balance between the needs of commerce, community, and the environment, creating a vibrant and sustainable urban landscape. Below are the key urban design and planning considerations for both Agrabad CBD and Debarpar Lakefront.

5.1 AGRABAD CENTRAL BUSINESS DISTRICT (CBD)

5.1.1 PEDESTRIAN-FRIENDLY ENVIRONMENT

A major challenge in Agrabad CBD is its current lack of pedestrian-friendly infrastructure. To address this, the redevelopment plan will focus on creating well-connected pedestrian pathways, wider sidewalks, and public plazas that encourage foot traffic. Pedestrian accessibility will be prioritized with the integration of safe pedestrian crossings, traffic calming measures, and green corridors to ensure a comfortable walking experience. The design will also include dedicated pedestrian zones, free from vehicular traffic, to foster social interaction and community engagement.

Figure 28: Pedestrian-Friendly Urban Design Plan for Agrabad CBD

5.1.2 MIXED-USE DEVELOPMENT

Agrabad CBD will benefit from mixed-use developments that blend residential, commercial, and recreational spaces. The integration of residential units within commercial areas will create a 24/7 urban environment, promoting vibrancy at all times of the day and night. High-rise office buildings, retail spaces, and residential complexes will be designed to coexist within a single development, maximizing land use while offering a diverse range of activities in one area. This will encourage a seamless flow of people, reduce dependency on transportation, and promote local businesses.

5.1.3 CONNECTING PUBLIC SPACES AND GREEN INFRASTRUCTURE

The inclusion of public spaces and green infrastructure is crucial for improving the quality of life in Agrabad CBD. Public plazas, parks, and green rooftops will be incorporated into the urban landscape to provide relaxation areas, promote biodiversity, and reduce the urban heat island effect. Vertical gardens and green facades will be integrated into new developments, improving air quality and providing residents and workers with access to nature. The green spaces will not only improve the aesthetic appeal of the area but also contribute to a sustainable urban environment.

5.1.4 TRAFFIC MANAGEMENT AND CONNECTIVITY

Agrabad CBD currently suffers from severe traffic congestion, which hampers the flow of both vehicles and pedestrians. The redevelopment plan will introduce several traffic management strategies, such as one-way traffic systems, the construction of dedicated bus lanes, and the creation of underground parking facilities to alleviate congestion. Improved road networks, better intersection designs, and pedestrian bridges will ensure smoother traffic flow, reduce travel times, and enhance connectivity between key areas of the district.

Figure 29: Traffic Management and Connectivity Plan

5.1.5 SUSTAINABLE ARCHITECTURE AND ECO-FRIENDLY DESIGN

Sustainability will be a central theme in the design of Agrabad CBD. New developments will incorporate eco-friendly technologies, such as solar panels, rainwater harvesting systems, and energy-efficient building materials. Green roofs, energy-efficient lighting, and waste management systems will be integrated into buildings to reduce their environmental impact. This approach not only addresses the growing demand for sustainable urban spaces but also aligns with global trends towards energy-efficient, low-carbon urban environments.

Figure 30: Eco-Friendly Architectural Integration in Redevelopment

5.2 DEBARPAR

5.2.1 RECREATIONAL AND CULTURAL HUB

Debarpar has the potential to become a major recreational and cultural destination within Chittagong. The redevelopment plan will transform the area into a cultural hub by incorporating open-air theaters, amphitheaters, and cultural performance spaces. These amenities will provide opportunities for both locals and visitors to engage in cultural activities, such as concerts, exhibitions, and community events. The inclusion of cafes, restaurants, and small shops will further enhance the lakefront as a leisure destination, encouraging people to spend time by the water and enjoy the surrounding scenery.

Figure 31: Open-Air Theaters and Cultural Event Spaces at Debarpar

5.2.2 WATERFRONT CONNECTIVITY

To ensure that Debarpar becomes a key public space, the planning will focus on improving connectivity between the lake and surrounding urban areas. Pedestrian walkways, cycling paths, and public transport access will be designed to seamlessly integrate the lakefront with the rest of the city. The creation of access points, bridges, and viewing platforms along the water's edge will encourage people to engage with the lake, whether for leisure, cultural activities, or simply enjoying the natural beauty of the area.

Figure 32: Pedestrian and Transport Linkages to Waterfront

5.2.3 ENVIRONMENTAL PRESERVATION AND GREEN SPACES

The ecological integrity of the lakefront must be preserved as part of the redevelopment process. The planning will include measures to protect the lake's water quality, reduce pollution, and maintain the surrounding biodiversity. The introduction of natural filtration systems, such as wetlands and water

gardens, will help maintain the water's health while creating a visually appealing and ecologically rich environment. Green spaces, gardens, and tree-lined promenades will be designed to provide shade and promote relaxation while supporting local wildlife.

Figure 33: Environmental Preservation Strategies and Green Zone Design

5.2.4 PUBLIC AMENITIES AND COMMUNITY SPACES

Debarpar will include a variety of public amenities to support community engagement. These spaces will be designed to cater to all age groups, from children's playgrounds to quiet, contemplative areas for adults. Sitting arrangements, open-air cafes, and shaded gardens will be provided to encourage social interactions and relaxation. The area will be equipped with essential facilities, such as restrooms, water fountains, and seating areas, to ensure a comfortable and accessible experience for all visitors.

Figure 34: Community Amenities in Redeveloped Debarpar

5.2.5 BOATING AND WATERFRONT ACTIVITIES

To capitalize on the lake's natural resource, the development plan will include facilities for recreational water activities such as boating, kayaking, and pedal boating. Boat houses, docking stations, and activity centers will be strategically placed along the lakefront to provide visitors with easy access to these activities. These water-based leisure options will not only enhance the attractiveness of the lakefront but also offer additional recreational opportunities for residents and tourists alike.

The urban design and planning considerations for Agrabad CBD and Debarpar are geared towards creating a harmonious and sustainable environment that supports commerce, leisure, and community interaction. The key principles include pedestrian-friendly infrastructure, mixed-use development, environmental sustainability, and the creation of vibrant public spaces. By addressing the current challenges and harnessing the unique opportunities of both areas, the redevelopment will contribute to the long-term success of Chittagong as a modern, integrated city that balances economic growth with social well-being.

6. LAND USE PLANNING

Land use planning is a critical aspect of the redevelopment of Agrabad Central Business District (CBD) and Debarpar. The strategic allocation of land for various functions is essential for optimizing space utilization, enhancing the functionality of the areas, and ensuring that the development meets both economic and social needs. The goal is to create a balanced, sustainable urban environment that supports a diverse range of activities, from commercial and residential to recreational and cultural.

6.1 AGRABAD CENTRAL BUSINESS DISTRICT (CBD)

6.1.1 COMMERCIAL ZONES

Agrabad CBD is the economic heart of Chittagong, and commercial land use will remain the dominant feature of this area. The planning will prioritize the development of office buildings, corporate headquarters, retail spaces, and commercial complexes that can accommodate the growing demand for business activities. The focus will be on high-density developments that maximize vertical space while maintaining a balance with public amenities and green areas. The introduction of mixed-use developments, where commercial, residential, and leisure spaces coexist, will help alleviate overcrowding and create a 24/7 active environment.

Figure 35: Strategic Commercial Zoning for Economic Growth

Office buildings will be strategically located along major roads to ensure high visibility and easy access. The area around key commercial nodes, such as the Badamtoli and Barek Building intersections, will feature office towers and business complexes. Retail spaces, including shopping malls, department stores, and showrooms, will be situated in prime locations, ensuring that businesses attract foot traffic from both workers and residents.

6.1.2 RESIDENTIAL ZONES

To create a balanced, self-sustaining urban environment, Agrabad CBD will incorporate residential zones within the commercial fabric. High-rise apartment buildings and mixed-use towers will provide housing for the growing population in the district. These developments will be designed with modern amenities and efficient space utilization to cater to both individuals and families. The integration of residential spaces within the CBD will promote the idea of “live-work-play,” where residents can enjoy proximity to their workplaces, reducing commuting times and enhancing overall liveability.

Affordable housing options will be prioritized to ensure that residents from diverse socio-economic backgrounds can access housing within the district. The residential zones will be strategically placed to

minimize disruption from the commercial areas, with adequate buffers such as green spaces and pedestrian walkways.

6.1.3 MIXED-USE DEVELOPMENTS

One of the key goals for Agrabad CBD is to integrate mixed-use developments that combine commercial, residential, and recreational spaces. This type of development not only maximizes land use but also fosters a vibrant, interactive community. These developments will feature office spaces, retail outlets, restaurants, cafes, and residential apartments, all within the same complex or building. The integration of such spaces will create a more dynamic and efficient urban environment, allowing people to live, work, and socialize in the same vicinity.

Figure 36: Mixed-Use Development Model Combining Work and Living Spaces

The ground floors of mixed-use buildings will primarily host retail spaces and commercial outlets, while upper floors will feature offices and residential apartments. These developments will be designed to ensure pedestrian access to all levels, with easy transitions between different functions, such as walking from work to a café or retail shop.

6.1.4 PUBLIC SPACES AND GREEN ZONES

Given the high density of commercial and residential developments in Agrabad CBD, the creation of public spaces and green areas is essential. Parks, plazas, and recreational spaces will be strategically placed throughout the district, offering residents, workers, and visitors opportunities for relaxation and socialization. These public spaces will serve as gathering points, fostering a sense of community and improving the overall quality of life.

Figure 37: Parks and Green Zones Supporting Public Well-being

Green infrastructure, such as vertical gardens, green roofs, and tree-lined streets, will be incorporated into new developments. These green spaces will not only enhance the district's aesthetic appeal but also contribute to environmental sustainability by improving air quality and reducing heat island effects.

6.2 DEBARPAR

6.2.1 RECREATIONAL AND CULTURAL ZONES

Debarpar will be primarily dedicated to recreational, cultural, and leisure activities. The waterfront's natural beauty presents a unique opportunity to create an engaging public space that attracts both locals and tourists. The primary land use around the lake will be recreational, with walking paths, seating areas, gardens, and outdoor activity zones. Cultural venues such as art galleries, museums, and performance spaces will be integrated along the waterfront to create a cultural hub that complements the commercial activity of Agrabad CBD.

Figure 38: Cultural and Recreational Zone Planning at Debarpar Lakefront

The creation of public parks and gardens surrounding the lake will provide areas for relaxation, family gatherings, and outdoor events. These spaces will be designed to encourage social interaction, offering both active and passive recreation options. The lake will also feature dedicated zones for water-based activities, including boat houses and spaces for kayaking and pedal boating. These zones will be designed to ensure safety while promoting eco-tourism and outdoor leisure activities.

6.2.2 COMMERCIAL AND MIXED-USE DEVELOPMENTS

While the primary focus of the Debarpar area will be on recreation and culture, there will also be commercial land use to support the area's vibrancy and economic sustainability. Small-scale retail spaces, cafes, restaurants, and entertainment facilities will be located along the lakefront, offering visitors a chance to dine, shop, and enjoy the views. These commercial developments will be designed to blend seamlessly with the surrounding green spaces and public areas, ensuring that the lakefront remains a pedestrian-oriented destination.

Mixed-use developments will also be introduced along the edges of the lakefront, particularly near key access points. These developments will include residential units, hotels, and commercial spaces, creating a diverse and lively environment that attracts both residents and tourists. The integration of residential units within the lakefront area will help activate the space throughout the day and night, creating a 24/7 vibrant environment.

6.2.3 ENVIRONMENTAL PROTECTION AND SUSTAINABLE DESIGN

The preservation of the lake's ecological integrity is crucial in the redevelopment process. The design will include measures to protect water quality, prevent pollution, and support the sustainable management of the lake. The surrounding natural habitat will be integrated into the design, with areas designated for environmental education, wildlife observation, and eco-tourism. Sustainable design practices, including energy-efficient lighting, water conservation systems, and green infrastructure, will be incorporated to reduce the environmental footprint of the development.

Land use planning for Agrabad CBD and Debarpar will be guided by the principle of creating a balanced, multifunctional urban environment that addresses both current needs and future growth. By combining commercial, residential, recreational, and cultural land uses, these areas will become vibrant, sustainable, and efficient urban spaces that contribute to the overall growth and development of Chittagong. The integration of green spaces, mixed-use developments, and environmentally sustainable practices will ensure that these areas remain dynamic and livable for generations to come.

7. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

The redevelopment of Agrabad Central Business District (CBD) and Debarpar presents a significant opportunity to enhance the urban landscape of Chittagong while addressing key environmental and social challenges. This Environmental and Social Impact Assessment (ESIA) aims to identify, evaluate, and propose mitigation strategies for potential environmental and social impacts associated with the development. The goal is to ensure that the redevelopment enhances both the natural environment and the well-being of local communities while fostering sustainable growth.

7.1 ENVIRONMENTAL IMPACT ASSESSMENT

The environmental impacts of the redevelopment project must be carefully considered to promote sustainability and minimize harm to the local ecosystem. Both Agrabad CBD and Debarpar are situated in areas that are currently facing various environmental challenges, such as air pollution, water contamination, and limited green spaces. A comprehensive approach will be taken to mitigate adverse impacts, improve environmental conditions, and promote green, eco-friendly infrastructure.

7.1.1 AIR AND NOISE POLLUTION

Agrabad CBD, being the primary commercial hub of Chittagong, already experiences high levels of air and noise pollution due to heavy traffic congestion and industrial activities. The redevelopment plan will introduce measures to mitigate these impacts, including:

- **Improved Traffic Flow:** By redesigning road networks, implementing one-way systems, and enhancing pedestrian walkways, traffic congestion will be reduced, which will, in turn, lower vehicle emissions and noise levels.
- **Green Infrastructure:** The incorporation of green spaces, including parks, green rooftops, and tree-lined streets, will help absorb pollutants, improve air quality, and provide natural sound barriers. The use of sustainable materials and low-emission technologies in construction will also contribute to reducing air pollution.
- **Noise Abatement:** Soundproofing measures in building designs, the use of noise barriers along key roads, and zoning for residential areas away from high-traffic zones will minimize noise pollution in the area.

7.1.2 WATER MANAGEMENT AND QUALITY

The health of Debarpar is crucial to the development's environmental sustainability. The water quality of the lake and its surrounding areas must be preserved to support biodiversity and recreational activities.

- **Stormwater Identification of Areas in Agrabad Requiring Detailed Drainage Study for Stormwater Management:** To implement effective Stormwater Management within the Agrabad redevelopment initiative, it is imperative to identify specific zones that are prone to waterlogging, inefficient runoff, and sewer overflow. A detailed drainage study is urgently required in the low-lying zones adjacent to Debarpar Lake, the vicinity of Agrabad Access Road, and the dense commercial pockets around Badamtoli Intersection and Sheikh Mujib Road. The Debarpar Lakefront area, despite its ecological potential, is bordered by fragmented infrastructure and informal settlements that lack proper stormwater outlets. The surrounding low-income residential zones, particularly near the government housing colonies, often experience seasonal waterlogging due to inadequate drainage gradients and clogged local systems. A site-specific study will allow for the

design of Sustainable Urban Drainage Systems (SUDS) that integrate natural filtration mechanisms such as bioswales, rain gardens, and retention ponds. In Agrabad CBD, the high-density commercial zones, especially around Barek Building intersection and the older business districts, suffer from impervious surfaces and outdated drainage networks. These conditions hinder rainwater percolation, overwhelming both surface and underground sewer systems during monsoons. A targeted drainage assessment here will help identify bottlenecks and allow for green infrastructure retrofitting, including permeable pavements, stormwater detention tanks, and green roofs to ease the load on existing infrastructure. Moreover, Sheikh Mujib Road, which acts as a major arterial corridor between Debarpar and the CBD, also requires a comprehensive drainage plan due to high vehicular load and continuous urban runoff. Incorporating linear drains with sediment traps, along with regular maintenance planning, will be critical here. Thus, a detailed hydrological and topographic study focusing on these priority areas will inform the placement and dimensioning of SUDS elements, enabling the transformation of Agrabad into a flood-resilient and environmentally responsible urban zone.The redevelopment will include sustainable urban drainage systems (SUDS) to manage rainwater runoff and prevent flooding. These systems will be designed to filter and manage stormwater naturally, reducing the burden on existing sewer systems and preventing water pollution.

- **Water Quality Monitoring:** Regular monitoring of the lake's water quality will be implemented to ensure that the water remains free of pollutants, particularly from construction runoff, wastewater, and nearby industrial activities. Green infrastructure, such as bio-swales and wetlands, will help treat stormwater before it enters the lake.
- **Wastewater Management:** The development will include dedicated wastewater treatment systems to ensure that sewage and industrial effluents are treated before being released into water bodies, preventing contamination of the lake and surrounding ecosystem.

7.1.3 BIODIVERSITY AND HABITAT PRESERVATION

Both Agrabad CBD and Debarpar will prioritize the preservation of local biodiversity and natural habitats.

- **Habitat Protection:** In the lakefront area, efforts will be made to protect aquatic species and native vegetation around the lake. Development plans will ensure that no critical natural habitats are destroyed, and any new landscaping will include native plants to support local wildlife.
- **Green Spaces:** Extensive green spaces will be integrated into both areas, providing habitat for birds, insects, and other local species. The restoration of ecological zones, such as wetlands and native gardens, will improve biodiversity and offer valuable ecosystem services.

7.2 SOCIAL IMPACT ASSESSMENT

The redevelopment of Agrabad CBD and Debarpar will have significant social implications for local communities. It is essential that the project fosters social inclusion, improves quality of life, and engages the community throughout the planning and development stages. The social impacts, both positive and negative, will be assessed to ensure that the benefits of the development are equitably distributed.

7.2.1 COMMUNITY ENGAGEMENT AND PARTICIPATION

A key aspect of the social impact assessment is the active involvement of the local community in the redevelopment process. Public consultations, surveys, and workshops will be organized to gather input

from local residents, businesses, and stakeholders. This participatory approach will ensure that the needs and aspirations of the community are considered, particularly with regard to housing, amenities, and public spaces.

- **Affordable Housing:** The development will include a mix of housing options, including affordable units, to ensure that people from diverse socio-economic backgrounds can benefit from the redevelopment. A portion of the residential units will be designated for low-income families, with rent controls and subsidized housing options to ensure affordability.
- **Community Amenities:** The creation of public spaces, such as parks, cultural centers, and recreational facilities, will enhance community well-being. These amenities will provide spaces for social interaction, leisure, and cultural activities, strengthening community ties and promoting social cohesion.

7.2.2 EMPLOYMENT OPPORTUNITIES

The redevelopment will create numerous employment opportunities, both during construction and once the development is complete. Local labor will be prioritized for construction jobs, with training programs and apprenticeships offered to equip workers with the necessary skills. Once the area is developed, permanent employment opportunities in retail, hospitality, and service industries will be created. Local businesses will also benefit from increased foot traffic and a more vibrant economic environment.

- **Job Training and Capacity Building:** To support long-term employment opportunities, job training programs will be established in collaboration with local institutions. These programs will focus on skill development in sectors such as construction, retail management, hospitality, and environmental management.

7.2.3 DISPLACEMENT AND RESETTLEMENT

As part of the Agrabad Central Business District (CBD) and Debarpar redevelopment initiative, a socially inclusive displacement and relocation strategy is essential to protect the rights and livelihoods of vulnerable populations. Urban redevelopment projects often carry the risk of displacing low-income residents and informal businesses, particularly in areas such as the low-income housing clusters surrounding Debarpar Lake, informal government colonies, and the dense commercial pockets around Sheikh Mujib Road, Badamtoli, and Barek Building intersections. To address this, a comprehensive social mapping and land-use survey will be undertaken to identify who will be affected and from where. This will include household enumeration, tenure verification, and vulnerability profiling to ensure context-sensitive planning and equitable treatment for all affected individuals.

For cases where displacement is unavoidable, the project proposes a relocation approach that prioritizes minimal disruption and proximity to existing livelihoods. Multi-story resettlement units will be constructed within a two-kilometer radius of current residences to maintain social cohesion. These residential units will be designed with a minimum of 350–450 square feet per household, including basic amenities such as a kitchen, toilet, and balcony. Community features like shared courtyards, playgrounds, childcare facilities, and open green spaces will be integrated to support healthy communal living. For displaced informal businesses and vendors, designated hawker zones, structured kiosks, and commercial arcades will be established in specific zones within the redevelopment area, particularly Zones 2 and 6, to ensure economic continuity.

To support this transition, a comprehensive relocation assistance program will be implemented. This will include financial compensation, rental support during the interim relocation period, and access to livelihood restoration services such as job placement assistance, vocational training, and preferential employment opportunities within the redevelopment project. Community participation will be a cornerstone of the relocation process, with affected residents engaged through public consultations, focus groups, and a formal grievance redressal mechanism to foster transparency, trust, and responsiveness. Through these efforts, the Agrabad redevelopment project aims to uphold principles of social justice, ensuring that the transformation of the urban landscape contributes to inclusivity, equity, and long-term resilience for all residents.

The environmental and social impacts of the Agrabad CBD and Debarpar redevelopment will be carefully managed to ensure that the project is both sustainable and socially inclusive. Through responsible planning and mitigation measures, the development will contribute to the city's economic growth while improving the quality of life for local residents. The project will not only address existing environmental challenges but also foster a sense of community, inclusivity, and opportunity for all Chittagong's residents.

8. INFRASTRUCTURE AND SERVICES

The success of the redevelopment of Agrabad Central Business District (CBD) and Debarpar hinges on the effective planning and implementation of infrastructure and services. These areas must be equipped with the necessary physical and social infrastructure to support their growth, sustainability, and integration into the urban fabric of Chittagong. The infrastructure plan will focus on improving transportation systems, utilities, waste management, and essential services, ensuring that these areas are well-equipped to handle the increased demand resulting from the redevelopment.

Figure 39: Infrastructure Support and Utilities for Sustainable Urban Growth

8.1 TRANSPORTATION INFRASTRUCTURE

Efficient road networks and traffic management strategies are crucial for reducing congestion and improving mobility within both Agrabad CBD and Debarpar. The existing road infrastructure in Agrabad CBD is often clogged due to high traffic volume, particularly during peak hours. To address this, the redevelopment plan will introduce several measures. Recommendations for improving the traffic and transport system of the Agrabad Action Area Plan area are shown in **Error! Reference source not found.**.

Figure 40: Transport Proposals

8.1.1 ROAD WIDENING PROPOSALS

- The Agrabad Access Road narrows between TNT High School and Agrabad Circle, creating a major bottleneck at one of the city's busiest intersections. This section must be widened to 100 feet to match the rest of the corridor and improve traffic flow into the commercial core.
- The Commerce College Road narrows after crossing a canal, restricting access to the Dhaka Trunk Road. This stretch is affected by illegal encroachments, and CDA is taking steps to restore the full 60-foot width by removing temporary structures.
- The Nala Para Bazar Road, linking the New Government Colony to the Agrabad Access Road, becomes narrow near CDA Road No. 29, mainly due to west-side encroachments. Widening it to 60 feet is essential for future traffic from high-rise apartments and nearby parks.
- Strand Road is a key link between Sadarghat, Shah Amanat Bridge, and the Port, but remains narrow and blocked by truck parking. It should be widened to 100 feet as part of a future Inner City Ring Road, as proposed in both past and current plans.

8.1.2 BUS STOP PROVISION

To improve public transport access and coverage in the Agrabad area, **six bus stops** are proposed. Four stops will be located in two areas (Agrabad Intersection and Barik Building Intersection, each side

of the road) along key **city bus corridors**, to serve both directions of travel. These will enhance daily commuter convenience within the commercial and residential zones. In addition, **one stop will be located near the Ghat**, ensuring **intermodal connectivity** between water transport and city buses, and **another near Deba**, providing access to the upcoming **recreational hub**. Together, these stops aim to support inclusive, efficient, and safe public transport use across the area. Following the recommendations of the Transport Master Plan the stops will be designed as follows.

1. **Ghat Bus Stop – Premium Type (Intermodal Integration Point)**
    - **Function**: Serves as a transfer point between water transport (launches, boats) and the city's public transport system.
    - **Design Type**: Premium
    - **Justification**: Expected to serve a high number of passengers during peak hours due to intermodal connectivity. It should prioritize accessibility and comfort.
    - **Key Features:**
    - **Footpath Width**: >6 feet, continuous and unobstructed
    - **Boarding Area**: 5 ft x 5 ft minimum
    - **Slots**: At least **2 slots for buses** (13m x 3m each) and **1 for** smaller **modes** if applicable
    - **Amenities:**
        - Seating with anti-lie design
        - Shaded waiting area
        - Information panels (route/timing)
        - Waste bin
        - Advert panel (for revenue generation)
    - **Accessibility**:
        - 4 ft pedestrian clearance
        - Tactile guide paths if possible
        - Ramp access for disabled users
    - **Placement**: Minimum 50 meters from nearest intersection for safety and maneuvering
2. **Deba Bus Stop – Premium Type (Access to Recreational Hub)**
    - **Function**: Serves people accessing the redeveloped recreational zone from across the city.
    - **Design Type**: Premium
    - **Justification:** Medium to high footfall expected, especially on weekends and evenings. Prioritizing comfort and aesthetics aligns with the recreational setting.
    - **Key Features:**
    - Similar dimensions and slots as the Ghat stop
    - Potential integration with urban design features (e.g., landscaping, coordinated street furniture)
    - Possibly include public art or green walls to enhance visual appeal
    - **Accessibility and Safety:**
    - Clear signposting and safe pedestrian access routes to nearby parks
    - Separation from vehicular traffic with bollards or curbs
3. **City Bus Stops (4 Nos.) – Standard Type**
    - **Function:** Serve daily commuters within Agrabad's commercial and residential areas.
    - **Design Type:** Standard (unless passenger activity exceeds 1,250/hour)
    - **Key Features:**

- Footpath Width: ≥6 feet
- Boarding Area: Minimum 5 ft x 5 ft
- Slots: 1 or 2 bus slots per stop based on survey data
- **Amenities:**
  - Pole and seating (no shed required, but optional)
  - Information panel and bin
  - Advert panel if space allows
- **Additional Notes:**
  - No shops or vendors within bus stop limits
  - Maintain footpath continuity and minimum 4 ft pedestrian clearance
  - Bus stop to be placed at a safe distance from intersections or major crossings

8.1.3 GHAT IMPROVEMENT

As part of the proposed waterway network under the Chattogram Transport Master Plan, Bangla Bazar Ghat plays a crucial role in facilitating passenger movement across the city's river corridors. To ensure it functions as an efficient, safe, and user-friendly intermodal terminal, the ghat must be upgraded with essential infrastructure and services. The following improvements are recommended:

1. **Basic Infrastructure Development**
   - Construction of shaded waiting areas with durable roofing to protect passengers from sun and rain.
   - Installation of well-constructed seating, including priority seating for elderly and physically challenged individuals.
   - Designated areas for passenger vehicle parking, with proper circulation and management systems.
   - Regular maintenance schedules to ensure cleanliness, structural integrity, and functionality.
2. **Sanitation Facilities**
   - Provision of clean, gender-separated, and accessible toilets for all users.
   - Installation of waste bins at key points with a managed waste collection system to maintain hygiene standards.
   - Inclusion of handwashing stations near waiting and boarding zones.
3. **Safety and Security Enhancements**
   - Non-slippery ramps or steps for safe boarding and alighting, especially during wet conditions.
   - Installation of adequate lighting throughout the terminal to ensure visibility and safety at night.
   - Availability of life jackets, emergency equipment, and barriers to prevent children from accidental falls.
   - On-site presence of security personnel or surveillance to monitor passenger safety.
4. **Passenger Amenities and Experience**
   - A clear and visible information board displaying boat schedules, fares, routes, and safety instructions.
   - Integration of recreational features such as boating services and riverside seating to enhance user experience.
   - Provision for small stationary kiosks (e.g., ticket counters, refreshments) without encroaching on passenger movement areas.

8.1.4 PARKING MANAGEMENT

The Agrabad Action Area experiences significant parking demand, as it includes high-density employment zones, government offices, shopping centers, and public parks, and the demand is expected to further increase with the transformation of Deba into a recreational hub. A dedicated parking area has already been included in the detailed development plan for the Deba, ensuring visitor access is well-managed from the outset. Beyond this, a multi-pronged strategy combining structured parking development, flexible on-street management, and enforcement guidelines is essential to manage existing demand and plan for future needs.

1. Multi-storeyed Parking Buildings

Two multi-storeyed parking buildings are proposed to address high off-street parking needs:

- Old Government Shipping Office Redevelopment Site when it goes through redevelopment
- Within Agrabad CBD

Design guidelines for these buildings must ensure:

- Multi-vehicle accommodation, including cars, motorcycles, and rickshaws/CNGs. The ground floor of the Shipping Office parking should be allocated for rickshaw and CNG parking due to high demand in the nearby shopping zone.
- Efficient circulation design, with separate entry/exit points, ramp systems, and vehicle height clearance.
- Digital display boards showing available spaces at entry points.
- Designated parking areas for electric vehicles (EVs) with charging points.
- Minimum 2.2m ceiling height, slip-resistant flooring, lighting, fire safety, and ventilation systems.
- Pedestrian-friendly zones, with well-marked crossings, lifts, and signage for disabled access.

2. Flexible Parking in Agrabad CBD

- Until a permanent structure is established in the CBD, on-street parking will be allowed under a flexible scheme based on daily demand cycles. Surveys show morning congestion peaks, which ease after 11:00 AM. A time-sensitive parking model is proposed:
- During morning peak hours, parking will be allowed on one side only, while the opposite side is designated no-parking.
- This arrangement will reverse in the evening to match changing traffic flow.
- A pay parking system will be introduced to regulate usage, discourage long-term parking, and generate revenue.

8.1.5 INTERSECTION IMPROVEMENT

The Agrabad Action Area contains several major intersections that serve as critical nodes within the local and city-wide road network. These intersections experience heavy vehicular and pedestrian flows and must be redesigned to improve safety, efficiency, and multimodal integration. The locations of these intersections are illustrated in **Error! Reference source not found.**.

To ensure their functionality and long-term resilience, the following design guidelines must be adopted:

- **No stopping zones** should be enforced within 50 meters of the intersection footprint to prevent bottlenecks and ensure clear visibility for all road users.
- All major intersections must include **proper road signage**, lane markings, and turn indicators to guide driver behavior and maintain traffic discipline.
- **Turning channelization** should be incorporated to streamline traffic movements, minimize conflict points, and reduce vehicle delay.

- **Traffic signals** must be installed, properly timed, and synchronized in high priority basis along the Sheikh Mujib Road. In the second phase intersections along Agrabad Access Road needs to be signalized.
- **Safe pedestrian crossings, continuous footpaths, and refuge islands** must be provided to support safe and accessible pedestrian movement.
- The intersection footprint should be **geometrically optimized** to reduce unnecessary pavement area and limit the number of conflict zones.
- All improvement proposals should be supported by **traffic simulation studies, intersection capacity analysis, and safety audits.**
- Obstructions or non-essential structures within the intersection area must be removed or redesigned to ensure clear sightlines, enhanced safety, and improved maneuverability.Utilities and Services

8.1.6 WATER SUPPLY AND SEWERAGE SYSTEMS

A reliable water supply and efficient sewage system are fundamental to the success of the redevelopment. With the expected increase in population and business activities, these services must be upgraded:

- **Water Distribution:** The existing water supply system will be enhanced to meet the growing demand. New pipelines, water treatment plants, and reservoirs will be built to ensure adequate water distribution throughout the redeveloped areas.
- **Wastewater Treatment:** A state-of-the-art sewage treatment system will be introduced to manage the increased waste generated by the new developments. Wastewater will be treated and recycled to reduce environmental impact and ensure that water quality in the lakefront and surrounding areas is maintained.

8.1.7 ELECTRICITY AND POWER SUPPLY

The redevelopment will require a stable and sustainable power supply to support residential, commercial, and public facilities. To meet this demand:

- **Upgraded Power Grid:** The existing power grid will be upgraded to handle the increased load of new developments. This will include the installation of new transformers, power distribution lines, and backup power sources to ensure reliability.
- **Renewable Energy:** The development will incorporate renewable energy sources, such as solar panels and wind turbines, into building designs and public spaces. This will reduce the carbon footprint of the area and contribute to energy efficiency.
- **Smart Grid Systems:** The installation of smart grid technology will enable more efficient energy distribution, reduce power outages, and allow for better monitoring of electricity usage.

8.1.8 TELECOMMUNICATIONS AND DIGITAL INFRASTRUCTURE

With the increasing reliance on digital technologies, the redevelopment of Agrabad CBD and Debarpar will require robust telecommunications and internet infrastructure:

- **Broadband Access:** High-speed internet and 5G connectivity will be prioritized, ensuring that businesses, residents, and visitors can access reliable digital services.
- **Smart City Technologies:** The development will incorporate smart city solutions, such as sensor-based monitoring systems, to enhance urban management. These systems will

track everything from traffic flow to waste levels, optimizing the functioning of the city and improving the overall living experience.

8.2 WASTE MANAGEMENT AND SUSTAINABILITY

8.2.1 SOLID WASTE COLLECTION AND DISPOSAL

Efficient waste management systems are essential for maintaining cleanliness and sustainability in the redeveloped areas. A comprehensive waste management plan will include:

- **Waste Segregation:** The introduction of waste segregation systems will encourage residents and businesses to separate recyclables, organic waste, and non-recyclable materials. Public bins for different types of waste will be placed at strategic locations.
- **Recycling and Composting:** Recycling facilities and composting centers will be established to reduce the amount of waste sent to landfills. These initiatives will promote sustainability and contribute to reducing the area's environmental footprint.
- **Waste-to-Energy:** In line with sustainability goals, a waste-to-energy plant may be incorporated into the area's infrastructure to convert non-recyclable waste into energy, further reducing landfill dependency.

8.2.2 STORMWATER MANAGEMENT

With the anticipated increase in impervious surfaces from new buildings and infrastructure, stormwater management will be a priority:

- **Sustainable Urban Drainage Systems (SUDS):** SUDS will be implemented to manage rainfall runoff, reduce flooding, and improve water quality. Features such as permeable pavements, rain gardens, and detention ponds will be incorporated into the landscape design to naturally filter and manage stormwater.
- **Flood Prevention:** The development will include flood-prevention measures, particularly in areas adjacent to Debarpar, to prevent waterlogging and manage potential flood risks.

8.3 SOCIAL INFRASTRUCTURE AND SERVICES

8.3.1 HEALTH AND EDUCATION

As the redevelopment of Agrabad Central Business District (CBD) and Debarpar progresses, the expansion of social infrastructure—particularly healthcare and education—will be crucial to accommodate the growing residential and working population. To ensure adequate service delivery and promote inclusive urban growth, the master plan includes the strategic placement of health and educational facilities across various zones of the project area.

- **Healthcare Facilities:** Healthcare facilities will be primarily concentrated in Zone 10 (Family Recreation and Health Services) and Zone 8 (Integrated Commercial and Open Space Zone). Zone 10 will host a medium-sized general hospital with a building footprint of approximately 2,000–3,000 square meters, designed to serve a catchment population of 50,000–80,000 people from both Agrabad and surrounding neighborhoods. This hospital will include emergency services, outpatient departments, maternity care, diagnostic labs, and inpatient wards. In addition, smaller community clinics and primary healthcare centers—each around 300–500 square meters—will be integrated into Zones 6 and 11, serving localized needs within a walkable distance for residents. These facilities

will be equipped with modern medical equipment and digital health systems, and will be staffed by licensed physicians, nurses, and paramedics.

- **Schools and Educational Institutions:** Educational institutions will be developed primarily in Zone 11 (Residential Living and Mobility Integration) and Zone 3 (Urban Park and Residential Transition) to ensure easy access for families living in high-rise residential units. Zone 11 will accommodate at least two schools, each with a capacity of approximately 600–800 students, covering pre-primary to secondary education. These schools will occupy plots of about 2,000 square meters and include playfields, ICT-equipped classrooms, and multi-purpose halls. In addition to formal education, vocational training centers will be situated in Zone 8 and Zone 4 (Intermodal Transport Hub), targeting youth and job seekers from both Agrabad and neighboring districts. These centers—around 1,200 square meters in size—will provide training in trades such as retail management, digital literacy, tourism services, and technical skills aligned with the evolving urban economy.

Together, these health and education facilities are designed not only to meet the internal demand of the redeveloped zones but also to function as community anchors for wider urban Chattogram. Their services will extend beyond the immediate redevelopment area, offering accessible, high-quality care and learning opportunities to residents from nearby neighborhoods and underserved areas of the city. By embedding these facilities within a mixed-use urban fabric, the Agrabad redevelopment ensures sustainable, inclusive, and equitable urban growth.

8.3.2 SECURITY AND EMERGENCY SERVICES

The redevelopment will include measures to ensure the safety and security of the areas:

- **Police and Fire Stations:** New police facilities will be established within the Agrabad redevelopment area to enhance security and ensure rapid response to emergencies. However, the development does not require a new fire station, as adequate fire service coverage is already provided by the existing Choumohoni Fire Station, which is in close proximity. Similarly, no additional police station is needed within the Double Mooring area, as the existing infrastructure sufficiently serves the surrounding zones. Instead, the focus will be on upgrading community policing units, installing advanced surveillance systems, and ensuring that public areas are well-lit and monitored. Emergency response teams will be supported with modern communication tools and mobility equipment to ensure timely intervention and comprehensive public safety across Agrabad CBD and Debarpar.
- **Disaster Preparedness:** While large-scale natural disasters are uncommon in the Agrabad area, the redevelopment plan will include measures to address localized waterlogging, which is the primary flood-related concern. The focus will be on improving drainage infrastructure, implementing stormwater management systems, and identifying temporary water detention zones to prevent surface flooding. In addition, early warning mechanisms and community awareness programs will be introduced to enhance preparedness and ensure quick responses during periods of heavy rainfall.A disaster management plan will be implemented, including evacuation routes, shelters, and disaster relief centers in case of emergencies like floods or other natural disasters.

The infrastructure and services plan for the redevelopment of Agrabad CBD and Debarpar aims to create a well-functioning, sustainable urban environment capable of supporting economic growth, a higher standard of living, and a greater sense of community. By addressing transportation, utilities, waste management, and social infrastructure needs, the development will lay the foundation for a modern, resilient urban area that enhances the quality of life for residents, workers, and visitors alike. The incorporation of sustainable technologies and smart city solutions will ensure that the redevelopment remains efficient, adaptable, and environmentally responsible for the future.

9. IMPLEMENTATION STRATEGY AND PHASING

The successful realization of the Agrabad Central Business District (CBD) and Debarpar redevelopment requires a clear and structured implementation strategy. The redevelopment is a multi-faceted project that will span several years and require coordination across various sectors, including urban planning, infrastructure, environmental management, and community engagement. To ensure that the project proceeds smoothly and efficiently, the implementation will be phased into short-term, medium-term, and long-term stages, each with specific goals and milestones. This phased approach will allow for gradual development while addressing immediate priorities and ensuring that the redevelopment meets the broader vision for the area.

9.1 SHORT-TERM PHASE (1-2 YEARS)

The short-term phase will lay the foundation for the redevelopment and focus on essential infrastructure improvements, planning, and community engagement. The goal during this phase is to address immediate challenges and initiate projects that will set the stage for larger-scale developments.

9.1.1 KEY OBJECTIVES:

9.1.1.1 INFRASTRUCTURE UPGRADES AND TRAFFIC MANAGEMENT

- **Road Networks:** Begin improvements to key roadways in Agrabad CBD, including widening existing roads, introducing one-way traffic systems, and improving intersections to ease congestion. A detailed traffic management plan will be put into place, focusing on reducing congestion and enhancing pedestrian movement.
- **Public Transport:** Implement initial improvements to public transport infrastructure, such as the introduction of dedicated bus lanes and enhanced bus stops along major corridors. This will make public transport more reliable and efficient.

9.1.1.2 COMMUNITY ENGAGEMENT AND STAKEHOLDER CONSULTATIONS

- Engage local communities through public consultations, workshops, and surveys to gather input on the redevelopment process. This phase will ensure that the needs and concerns of local residents, business owners, and other stakeholders are addressed, fostering transparency and inclusivity.

9.1.1.3 ENVIRONMENTAL ASSESSMENT AND MITIGATION MEASURES

- Initiate environmental studies to assess the impact of the redevelopment on local ecosystems, particularly the water quality in Debarpar. Begin the implementation of mitigation measures such as stormwater management systems and strategies for preserving the natural habitats around the lake.
- Begin the construction of temporary waste management facilities and green spaces to reduce pollution and manage construction waste.

9.1.1.4 PRELIMINARY DEVELOPMENT IN DEBARPAR

- Begin landscaping work and the development of public green spaces along the lakefront. Install walking paths, benches, and small parks to provide immediate recreational areas for the public while the larger redevelopment progresses.

9.2 MEDIUM-TERM PHASE (3-5 YEARS)

The medium-term phase will focus on expanding infrastructure, initiating mixed-use developments, and creating functional public spaces. During this period, the foundational work laid in the short term will begin to yield tangible results, and the development will start taking a more visible form.

9.2.1 KEY OBJECTIVES:

9.2.1.1 MIXED-USE AND COMMERCIAL DEVELOPMENTS

- **Agrabad CBD:** Begin the construction of high-rise office buildings and residential complexes in key commercial zones. Focus on the development of mixed-use buildings that combine office spaces, retail, and residential units. These developments will serve as anchors for the district, creating a vibrant urban environment.
- **Debarpar:** Initiate the construction of recreational and cultural facilities along the lakefront, such as open-air theaters, cafes, restaurants, and art galleries. These facilities will contribute to making the lakefront a cultural and social hub for both residents and tourists.

9.2.1.2 UTILITIES AND PUBLIC SERVICES

- **Water and Waste Management:** Begin the installation of new water pipelines, wastewater treatment plants, and stormwater management systems. These projects will ensure that the redevelopment area has a reliable and sustainable supply of water and that sewage and runoff are effectively managed.
- **Energy Infrastructure:** Install energy-efficient lighting, green building technologies, and renewable energy solutions such as solar panels in new developments. This will help reduce the environmental footprint of the area.

9.2.1.3 PUBLIC SPACES AND GREEN INFRASTRUCTURE

- Developing large-scale public parks, plazas, and pedestrian-friendly streets in Zones 3, 8, and 9 of the Agrabad CBD and around the Debarpar Lakefront, as marked in the land use plan, will be a central component of the redevelopment strategy. These designated areas will serve as vibrant hubs for community interaction, offering well-designed spaces for cultural events, leisure activities, and daily recreation. The integration of green corridors and active public realms in these zones will enhance the overall livability and social connectivity of the project area, while reinforcing the commitment to inclusive and sustainable urban development.
- Begin the integration of green roofs, urban gardens, and vertical green spaces into both residential and commercial buildings to enhance the area's environmental sustainability.

9.2.1.4 ENHANCED PUBLIC TRANSPORT AND CONNECTIVITY

- Expand public transport networks by introducing more bus routes, improving bus terminals, and connecting Agrabad CBD with Debarpar Lakefront. Develop bike lanes and pedestrian-friendly pathways to encourage walking and cycling as alternative modes of transport.

9.3 LONG-TERM PHASE (5+ YEARS)

The long-term phase will focus on the completion of large-scale developments, the consolidation of the area's infrastructure, and the fine-tuning of urban services. By the end of this phase, both Agrabad CBD and Debarpar will be fully integrated into the urban fabric of Chittagong, providing a sustainable, vibrant, and well-connected environment for all.

9.3.1 KEY OBJECTIVES:

9.3.1.1 FINALIZATION OF MAJOR DEVELOPMENTS

- **Agrabad CBD:** Complete the construction of high-rise office towers, commercial spaces, residential buildings, and mixed-use complexes. The district will be fully operational, with businesses, residents, and visitors coexisting in a dynamic urban space.
- **Debarpar Lakefront:** Finalize the large-scale recreational and cultural developments around the lakefront. The lakefront will feature walking trails, boat docking stations, amphitheaters, museums, and restaurants, becoming a key public space in Chittagong.

9.3.1.2 SUSTAINABILITY AND SMART CITY FEATURES

- Implement smart city technologies, such as sensor-based traffic management systems, smart waste management, and energy-efficient smart lighting throughout the development areas. These technologies will optimize urban operations, improve the quality of life, and ensure the sustainability of both areas.
- Expand the use of renewable energy sources across the district, including the installation of additional solar panels, wind turbines, and green roofs to reduce the overall carbon footprint.

9.3.1.3 CONSOLIDATION OF SOCIAL INFRASTRUCTURE

- Complete the construction of essential social infrastructure, including schools, healthcare centers, community halls, and emergency services. These facilities will ensure that both residents and workers in the area have access to essential services and contribute to the social fabric of the development.
- Establish ongoing community programs to promote engagement, foster inclusivity, and ensure that the development meets the evolving needs of its diverse population.

9.3.1.4 ECONOMIC INTEGRATION AND REGIONAL CONNECTIVITY

- Strengthen the area's economic ties with other districts of Chittagong by improving transportation links, establishing business partnerships, and attracting international investors. The redevelopment will position Agrabad CBD and Debarpar Lakefront as a key economic driver in the region, enhancing Chittagong's global competitiveness.

The phased implementation strategy for Agrabad CBD and Debarpar redevelopment ensures that the project evolves in a structured, manageable way. By breaking down the development into short-term, medium-term, and long-term phases, the project can adapt to emerging challenges while maintaining focus on the broader vision. The phased approach will also allow for continuous feedback from stakeholders and the community, ensuring that the redevelopment meets the needs of all residents and visitors. Through careful planning, strategic investments, and efficient management, the redevelopment will transform these areas into vibrant, sustainable, and economically prosperous urban spaces.

10. MONITORING AND EVALUATION

Monitoring and evaluation (M&E) are critical components of the redevelopment process for Agrabad Central Business District (CBD) and Debarpar. An effective M&E system will ensure that the development stays on track, meets its goals, and delivers the desired outcomes for the community, economy, and environment. This system will involve continuous data collection, analysis, and feedback mechanisms to assess progress, identify challenges, and make necessary adjustments. The goal is to track the success of the redevelopment and ensure its alignment with the broader vision of sustainability, inclusivity, and economic vitality.

10.1 MONITORING FRAMEWORK

The M&E system will be designed to assess both short-term progress and long-term outcomes. It will involve multiple layers of monitoring, including periodic assessments, real-time data collection, and post-implementation evaluations. This comprehensive framework will focus on tracking key performance indicators (KPIs) related to the project's infrastructure, environmental impact, social well-being, and economic development.

10.1.1 KEY PERFORMANCE INDICATORS (KPIS)

KPIs will be established to measure the success of the redevelopment in meeting its objectives. These indicators will be both quantitative and qualitative, providing a holistic view of the project's impact. Key areas of focus will include:

- **Infrastructure Development:** Metrics such as the completion of road networks, public transport improvements, and utility installations will be tracked. The timeline for the construction of key developments, such as mixed-use buildings and commercial spaces, will also be monitored.
- **Environmental Impact:** Indicators such as air quality, water quality in Debarpar Lake, green space coverage, and the implementation of sustainable practices (e.g., solar power usage, waste management) will be measured.
- **Social Impact:** The M&E system will track the social integration of communities by measuring metrics such as affordable housing availability, public space usage, employment generation, and community satisfaction through surveys.
- **Economic Growth:** Economic indicators, such as the number of businesses operating in Agrabad CBD, retail and commercial activity, and investment levels, will be regularly assessed. Job creation and economic opportunities for local businesses will also be key indicators.

10.1.2 DATA COLLECTION AND REPORTING MECHANISMS

Real-time data collection will be vital for effective monitoring. Various methods will be employed to gather data, including:

- **Surveys and Stakeholder Feedback:** Regular surveys will be conducted with local communities, businesses, and stakeholders to assess their satisfaction with the development process and the use of public amenities.
- **Technological Monitoring:** Smart city technologies will be integrated into the redevelopment to enhance urban management through real-time data collection and analysis. For example, traffic flow will be monitored using AI-enabled traffic cameras and

adaptive signal control systems to reduce congestion. Waste management efficiency will be tracked through smart bins equipped with fill-level sensors, allowing optimized collection schedules. Air and water quality will be assessed using environmental sensors installed in key locations, while smart meters will be used to monitor energy consumption in public facilities. These systems will collectively enable data-driven decision-making and improve overall service delivery in Agrabad CBD and Debarpar.

- **Field Inspections and Site Visits:** Periodic site visits and inspections will be conducted by project managers and relevant authorities to ensure construction and infrastructure work is being carried out according to plans and standards.

10.1.3 ROLES AND RESPONSIBILITIES

To ensure accountability and transparency, specific roles and responsibilities will be designated within the monitoring and evaluation framework:

- **Project Management Team:** The project management team will be responsible for overseeing the entire monitoring and evaluation (M&E) process, ensuring that Key Performance Indicators (KPIs) are aligned with the project's objectives and that robust systems for data collection, analysis, and reporting are in place. The tentative structure of the team will include a Project Director to lead strategic decision-making, supported by a Monitoring and Evaluation Specialist, a Data Analyst, and Field Coordinators responsible for on-site supervision. Additionally, Liaison Officers will facilitate coordination with government bodies, while Technical Advisors from engineering, environmental, and social sectors will provide subject-specific expertise to guide implementation and ensure compliance.
- **Local Authorities and Government Bodies:** A range of local government and regulatory agencies will be actively involved in overseeing the redevelopment process through periodic inspections, regulatory compliance checks, and reporting on social and environmental impacts. Key stakeholders may include the Chattogram Development Authority (CDA), Chattogram City Corporation (CCC), Department of Environment (DoE), Ministry of Housing and Public Works, Bangladesh Water Development Board (BWDB), and Chattogram Metropolitan Police (CMP). These agencies will collaborate to ensure that the project adheres to planning regulations, environmental standards, and public safety guidelines, while also facilitating coordination between different levels of governance.
- **Community Engagement Teams:** The community engagement teams will play a vital role in ensuring that local residents, business owners, and other stakeholders are actively involved in the redevelopment process. They will be responsible for conducting regular consultations, facilitating community meetings, and integrating public feedback into planning and decision-making. A tentative structure of the team will include a Community Engagement Coordinator to lead and oversee activities, supported by Field Officers assigned to different zones for direct outreach. Communications Specialists will manage public notices, digital updates, and informational materials, while Survey and Data Collection Officers will conduct interviews, focus groups, and feedback sessions. Additionally, Grievance Redress Officers will be designated to document and address community concerns in a transparent and timely manner. This structure ensures a consistent, inclusive, and responsive approach to stakeholder engagement throughout the project.

10.2 EVALUATION PROCESS

Evaluation will take place at different stages of the redevelopment, with both interim and final assessments to gauge the long-term success and impacts of the project. Evaluations will focus on both the outcomes achieved and the processes undertaken to reach those outcomes.

10.2.1 INTERIM EVALUATIONS

Interim evaluations will be conducted at key milestones during the project. These evaluations will allow for adjustments to be made in response to unforeseen challenges or delays. For example, if traffic management systems are not achieving the desired reduction in congestion, adjustments can be made to the design or implementation process. Interim evaluations will focus on:

- Assessing the progress of infrastructure developments, such as roads, utilities, and public transport systems.
- Reviewing the implementation of green spaces and environmental management plans.
- Evaluating the success of community engagement efforts and stakeholder involvement.
- Tracking short-term social impacts, such as temporary job creation and housing development.

10.2.2 FINAL EVALUATION

A final evaluation will be conducted once the development is complete. This evaluation will focus on assessing whether the project has met its long-term objectives and whether the redevelopment has delivered sustainable outcomes for the community and the environment. The final evaluation will:

- Analyze the overall impact on economic growth, including the number of businesses attracted to Agrabad CBD and the levels of investment in the area.
- Assess environmental sustainability, including improvements in air and water quality, energy efficiency, and the success of waste management systems.
- Measure the social impact by reviewing community integration, the availability of affordable housing, and the effectiveness of public services such as healthcare and education.
- Review the effectiveness of transportation and infrastructure improvements, including reductions in traffic congestion and improved accessibility for pedestrians.

10.3 FEEDBACK AND ADJUSTMENTS

One of the key components of a successful M&E system is the ability to make timely adjustments based on feedback and evaluation results. A feedback loop will be established, allowing for continuous improvements throughout the project. This will include:

- **Regular Stakeholder Meetings:** These meetings will be held to discuss progress, challenges, and potential solutions. Input from community members, businesses, and government representatives will be gathered and addressed in real-time.
- **Adaptive Management:** The project team will adopt an adaptive management approach, allowing for flexibility and responsiveness in decision-making. As new challenges or opportunities arise, the project can be adjusted to better meet the needs of the community and the environment.

- **Public Transparency:** Regular progress reports and updates will be made available to the public through websites, newsletters, and public meetings. This will ensure that the M&E process is transparent and that residents are kept informed about the development's progress.

A well-structured monitoring and evaluation system is essential to the success of the Agrabad CBD and Debarpar redevelopment. By establishing clear KPIs, data collection mechanisms, and robust evaluation processes, the development can be continually assessed and adjusted to ensure it meets its goals. This approach will foster transparency, accountability, and continuous improvement, ensuring that the redevelopment delivers tangible, sustainable benefits to Chittagong's residents, businesses, and environment.

11. CONCLUSION

The redevelopment of Agrabad Central Business District (CBD) and Debarpar represents a transformative opportunity for Chittagong, aiming to address current urban challenges while creating a sustainable, vibrant, and economically prosperous future for the city. By integrating modern infrastructure, sustainable urban design, and community-focused solutions, this redevelopment plan envisions these two key areas becoming dynamic spaces that not only support business and economic growth but also improve the quality of life for residents, workers, and visitors.

The vision for Agrabad CBD is to create a modern, mixed-use commercial district that fosters economic vitality, while also prioritizing pedestrian access, green spaces, and sustainable practices. The CBD will serve as a global business hub, attracting investment, enhancing connectivity, and providing new opportunities for growth. By incorporating residential units within the CBD, we aim to create a balanced, live-work environment that reduces congestion and enhances overall urban efficiency. Green infrastructure, sustainable architecture, and improved public spaces will elevate the quality of life in the area, providing an environment conducive to both work and leisure.

Simultaneously, Debarpar offers a unique opportunity to create a recreational and cultural hub that complements the bustling commercial activities of Agrabad. With its natural beauty and proximity to the urban core, the lakefront can become a landmark that attracts both locals and tourists. The vision for this area includes the development of public parks, walking trails, cultural venues, and recreational spaces, all designed to offer a peaceful escape from the urban hustle. Preserving the ecological health of the lake, integrating green spaces, and providing diverse amenities will enhance its value as a public asset.

Throughout the redevelopment process, the focus will remain on sustainability, ensuring that both the economic and environmental outcomes are long-lasting and responsible. Incorporating renewable energy solutions, smart infrastructure, and eco-friendly design practices will help reduce the carbon footprint and contribute to a more resilient urban landscape. Environmental sustainability is not just a design consideration; it is central to the future of Chittagong, given the city’s rapid urbanization and the pressing need to protect its natural resources.

Equally important is the social impact of the redevelopment. The inclusion of affordable housing, public spaces, and accessible services will ensure that the benefits of the development are shared equitably across all sectors of society. The creation of jobs, opportunities for local businesses, and improved public services will contribute to economic empowerment and social inclusion. Active community participation will be encouraged throughout the development process, ensuring that the voices of residents and stakeholders are heard and integrated into the planning.

The phased approach to implementation, with clear milestones for short, medium, and long-term objectives, will ensure that the project is delivered efficiently and effectively. Ongoing monitoring and evaluation will allow for continuous adjustments to be made, ensuring that the development remains on track to meet its objectives while adapting to any emerging challenges.

In conclusion, the redevelopment of Agrabad CBD and Debarpar is a key step in Chittagong's journey toward becoming a modern, sustainable, and inclusive city. By focusing on economic growth, environmental sustainability, and social well-being, this project will help shape the city's future for generations to come, offering a balanced urban environment that meets the needs of its diverse population. With careful planning, effective execution, and ongoing community engagement, this redevelopment has the potential to be a model of successful urban transformation.

Figure 41: Conceptual Visualization of Agrabad CBD Redevelopment Vision