

Master Plan Preparation and Implementation Challenges in the Urban Centers of Khyber Pakhtunkhwa, Pakistan

Muhammad Usman

Department of City and Regional Planning, University of Engineering and Technology, Lahore

*Corresponding Author: uskhan5432@gmail.com

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Abstract

Unplanned urbanization is one of the main challenges for urban planners in developing countries. Like many other developing nations, Pakistan has also experienced a rise in urbanization, leading to numerous issues such as traffic congestion, housing shortages, and environmental stress. These challenges demand comprehensive long-term planning to foster balanced and sustainable growth nationwide. Recognizing the need for comprehensive, long-term planning to promote the orderly and balanced development of cities, the Provincial Government of Khyber Pakhtunkhwa (KP) took a monumental step in 2020 by deciding to formulate master plans for all urban centers across the province. This initiative reflects the government's effort to ensure orderly and efficient urban growth. The article examines the necessity and role of master planning in KP's urban development context and critically analyzes the challenges encountered during the preparation and implementation of these plans. Key issues identified include weak interdepartmental coordination, outdated survey techniques, and a shortage of qualified senior urban planners. The analysis is informed by the author's direct involvement in the project as a consultant, contributing to the development of master plans for four urban centers. The study seeks to support ongoing planning efforts by highlighting lessons learned and proposing areas for improvement in subsequent project phases and future research.

Keywords: Unplanned urbanization, urban growth boundaries, urban centers, Master plan

Introduction

A Master Plan is a strategic planning document that guides the future development of a city in an organized and systematic manner. Typically designed to span 15 to 20 years, it outlines a long-term strategy for managing urban growth. The concept of master planning has a long history, dating back to various cultures and civilizations throughout history. However, the idea of master planning became more well-known due to the 19th century's industrialization and urbanization. Urban planners started to create more formalized approaches to city planning as cities expanded and needed to accommodate growing populations. Master plans serve as the blueprint for urban development, ensuring that cities grow in an organized and sustainable way. Cities, when efficiently managed, provide significant prospects for economic and social development. They have always been focal points for economic growth, innovation, and employment [1]. Nevertheless, as cities grow, managing them becomes increasingly complex and requires well effective Development Plan/ Master Plan. Managing urban expansion is typically accomplished by several policy tools such as master plans, peri-urban structural plans, zoning restrictions, land use and building control [2]. A wide range of important issues are closely tied to growth management policies and have been defined in many ways, but essentially, they consist of government actions to guide future development efficiently [3]. Developing countries have been dealing with issues related to managing growth and development for a long time. As a result, cities are expanding organically and accommodating people without a clear understanding of the necessary land uses to support construction and development [4]. While master planning has become an outdated concept, supplanted by structure planning and unitary planning in the UK, it is still in practice in many developing countries, including Pakistan, where its core essence is embedded within its implementation framework [5]. Unfortunately, master plans for big cities in Pakistan could not be fully implemented for multiple reasons and different authors reported differently. For instance, a study conducted in 2011 after a critical review of the legal and institutional framework concluded that an insufficient

number of qualified town planners and architects in the TMA's and Development authorities in Peshawar supported by overlapping powers and functions of the institutions affect the implementation of development plans [6].

Realizing the importance of a master plan, KP administration in 2020 made the audacious decision to announce the creation of district land use plans, as well as master plans for all urban centers. While both master plans and land use plans are long-term strategies to direct future development, it is vital to note that master plans are produced for urban centers and are more thorough, describing each aspect of a city's development. The districts also have land use plans, which are more focused on how the land will be efficiently utilized in the future keeping in view the existing land use. As Land is a scarce resource, the only way to safeguard land for the intended purpose in the future is their proper utilization. Over the last two decades, cities have faced significant pressure on their land resources due to population growth driven by migration for better opportunities. This influx has led to problems like traffic congestion, housing shortages, and environmental strain. In response to these challenges, the government of KP has taken proactive measures to address urban land management and promote sustainable development by directing concerned authorities and departments to prepare master plans and district land use plans.

The responsibility for the preparation of master plans for all urban centers was assigned to the Urban Policy Unit (UPU), which operates under the Planning and Development Department, KP. After assuming this responsibility, the UPU initiated the work in 2020, outlining a two-stage development process for the master plans. In the first phase, plans for twenty urban centers were to be prepared, followed by the second phase for the remaining twelve urban centers once the initial plans were completed and finalized. Although work on the first phase began in early 2021 and was expected to be completed by the end of 2023, the preparation of these master plans faced several challenges and could not be fully finalized. As of June 2025, four urban centers from Phase I are still in progress

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Status of Master Planning of Cities in Khyber Pakhtunkhwa

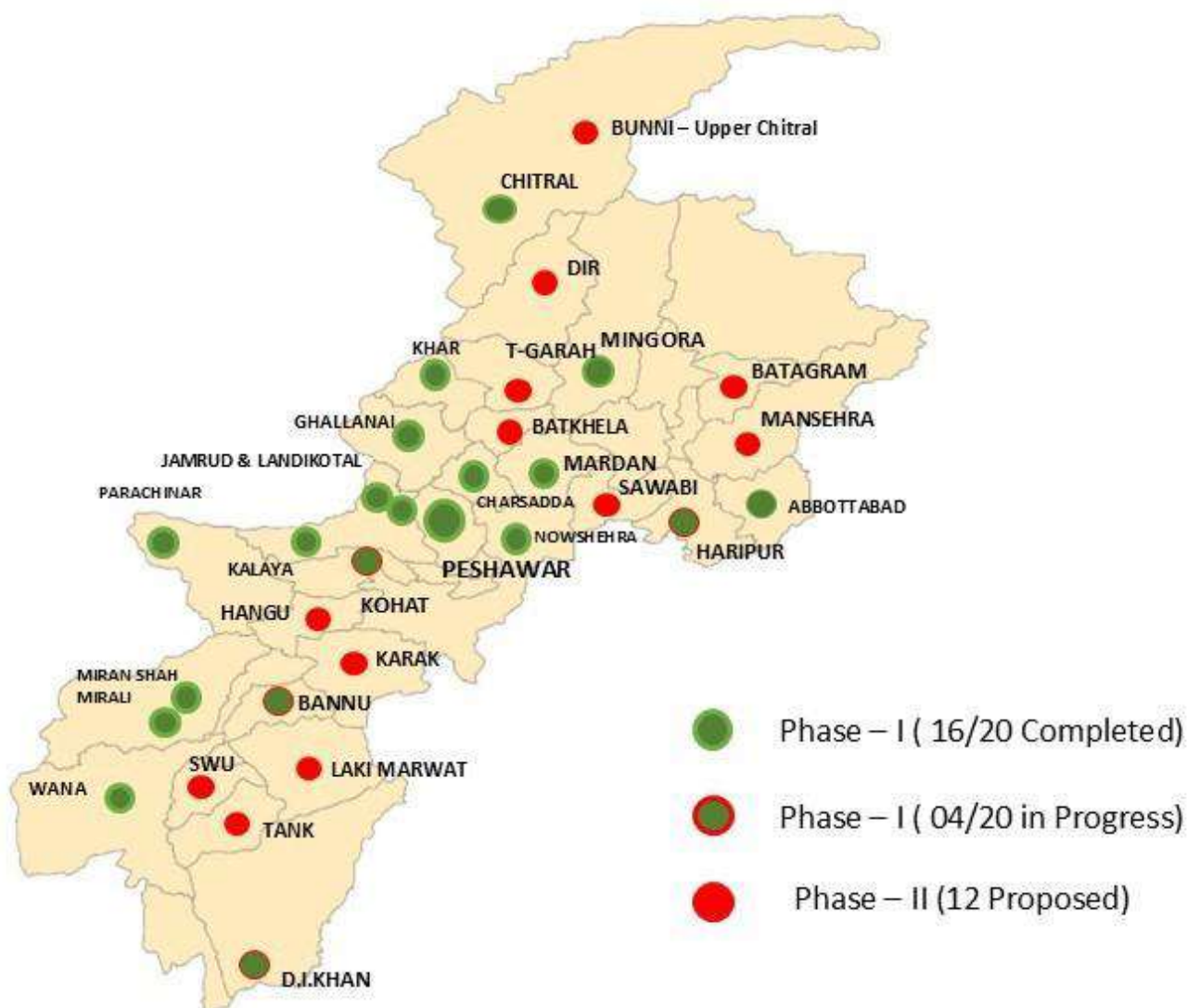


Figure 1. Status of Master plans in KP (Source: UPU)

Plan preparation methodology

The provincial government aimed to prepare a master plan for the settled and merged areas formerly known as Federally Administered Tribal Areas (FATA), which have now been merged into KP Province in Pakistan. To accomplish this goal, the client organization, known as the 'UPU', adopted a meticulous strategy. They initiated an open bidding process to procure consultancy services, where renowned consulting firms and experts from the country participated. Consultants were selected based on their track record, professional reputation, and their ability to meet technical and financial criteria. The project was divided into distinct packages, each assigned to a specific consultant with the relevant expertise. Before finalizing the agreements, detailed Terms of Reference (TOR) were

provided to the chosen consultants, outlining their specific tasks and responsibilities. Importantly, there is an emphasis on completing the master plans within stipulated timeframes, underscoring the project's commitment to timely execution. This procedure demonstrates the client's dedication to a transparent and merit-based master planning process for urban centers across the province. Additionally, it was envisaged that the conventional notion of the planning process, 'survey before plan' by Patrick Geddes [7] would be adopted for the plan preparation."

To ensure the successful completion of the assignment, the project was structured into five key deliverables. Consultants were required to submit each deliverable within the timelines

specified in the Terms of Reference (TOR) in order to receive payment. These deliverables encompassed both primary and secondary data, including public consultations, desk studies, and official interviews. Data collection was conducted through a range of social and physical surveys, such as household surveys, transportation surveys, Environmental surveys, and land use surveys.

Table 1
Project Deliverables

Deliverable # 1	Inception report
Deliverable # 2	Public consultation and Vision development
Deliverable # 3	Background studies
Deliverable # 4	Draft Master Plan and Situation Analysis
Deliverable # 5	Final Master Plan

Source: Urban Policy Unit, KP

Brief overview of Development plans in KP

KP is the third-largest province of the country in terms of population. It is situated in the northwestern part of the country and shares the international border with Afghanistan to the west and north. Administratively, the province is divided into seven divisions which are further split into 36 districts. The Federally Administered Tribal Areas were amalgamated into KP on 31 May 2018 after the Twenty-fifth Amendment to the Constitution of Pakistan and each of the seven agencies in the Federally Administered Tribal Areas (Bajaur, Kurram, Khyber, Mohmand, North Waziristan, Orakzai, and South Waziristan) was made into its own district and added into an adjacent division.

In the province, policies, planning, and development activities at the local level are primarily overseen by Development Authorities and Town/Tehsil Municipal Administrations (TMAs). However, Master planning has been lacking across urban centers in KP. Although the provincial capital, Peshawar, had Master Plans and Strategic Plans developed, they were never effectively implemented. Furthermore, the urban investment plans prepared for 26 secondary cities before 2005 have become outdated and are no longer aligned with present-day urban development requirements [8]. This has resulted in disorganized growth and increased pollution, along with unplanned urban sprawl, inadequate housing, inefficient transportation systems, and the rapid expansion of slum areas. Recognizing the vital importance of urban governance and spatial planning, the Provincial Government of Khyber Pakhtunkhwa established the Urban Policy and Planning Unit (UPPU) under the Planning and Development Department in May 2012. The Unit is mandated to support the government in the development of comprehensive spatial planning and policy frameworks, as well as in the formulation of bylaws and regulatory guidelines. Key challenges in the formulation of Master Plans in KP. Master plan preparation involves developing a comprehensive, long-term vision for the

development of a city or region. This complex process presents various challenges that affect not only the preparation of the plan but also the time and resources required. This comprehensive study, based on the author's critical analysis and direct involvement in the master plan preparation process, delineates the key challenges encountered in Khyber Pakhtunkhwa (KP) and offers strategic recommendations for addressing these issues in the second phase and future initiatives.

Weak interdepartmental coordination for data provision

A central aspect of the master plan involves the collection of both primary and secondary data. Since the plan typically spans a period of two decades, the availability of accurate and up-to-date data is essential for making meaningful projections. Unfortunately, it was observed that the departments responsible for providing data were unaware of the master plan and its significance. As a result, they did not cooperate with the consultants in supplying the necessary data and information. Although the client supported the consultants by sending official letters to the relevant departments for the data provision, this level of assistance proved insufficient in achieving the desired outcomes. Instead, the client should have exerted greater pressure on the departments to provide the necessary data, given the broader public interest involved. This lack of cooperation contributed to delays in the completion of the plan and reduced its overall effectiveness. These departments are responsible for providing data related to education, health, environment, housing, transportation, the economy, and other critical sectors.

Outdated survey techniques in primary data collection

Surveyors encountered key challenges during primary data collection, which undermined both the accuracy and reliability of the research. One of the primary issues observed was the reliance on outdated surveying techniques. These obsolete methodologies led to inefficiencies and inaccuracies in data collection, ultimately affecting the overall quality and validity of the research findings. Additionally, the use of lengthy and complex questionnaires proved to be a significant obstacle. These instruments often caused respondent fatigue, resulting in incomplete or inaccurate responses, thereby undermining the integrity of the data collected.

These limitations extended beyond the data collection phase and posed considerable difficulties during data analysis. Inaccurate or incomplete primary data skewed analytical outcomes, impeding researchers' ability to produce valid forecasts or develop comprehensive planning models, such as those required for master planning.

Another challenge encountered involved respondents' willingness to provide accurate information. Concerns regarding privacy, mistrust toward surveyors, or a general reluctance to share personal data negatively affected the quality and reliability of responses. Furthermore, technical constraints—particularly unstable internet connectivity—

emerged as a substantial barrier during the study. This issue was especially pronounced in geographically remote or underserved regions, such as the merged districts, where weak or non-existent internet access hindered effective data transmission and real-time communication.

Addressing these challenges is essential to improving the quality of the primary data collected and ensuring the reliability of the research outcomes. The practical experience of navigating methodological, technological, and social barriers highlighted the importance of refining future data collection strategies to support evidence-based decision-making in urban and regional planning context.

Deficiency of Experienced Town Planners

Khyber Pakhtunkhwa (KP) faces significant challenges in urban planning, primarily due to a shortage of qualified and experienced town planners. The University of Peshawar is the only institution in the province offering a degree in Urban and Regional Planning. Since the establishment of this department in 2010, it has produced no more than two hundred graduates registered with the Pakistan Council of Architects and Town Planners (PCATP)—a number insufficient to meet the province's growing planning needs. Moreover, many authorities and departments responsible for planning lack seasoned senior town planners. This scarcity of local expertise impedes the planning process and adversely affects overall development activities across the province. Regarding the Master Planning Project, only two Assistant Town Planners and one Senior Town Planner from the client organization—the Urban Policy Unit (UPU)—are responsible for reviewing master plans prepared by various consulting firms for all cities in the province. Additionally, a shortage of experienced town planners within these consulting firms not only hampers the preparation of plans but also compromises their quality and effectiveness.

Unexpected transition of government

The initiative to prepare a master plan for each urban center in KP was launched by the Pakistan Tehreek-e-Insaf (PTI) government during their second tenure. They had directed the relevant department to execute the project, which began at the end of 2020. However, a sudden shift to an interim government in 2022 obstructed the project in various ways. The impact of this abrupt change in government on ongoing projects was significant and multifaceted. One immediate consequence was the alteration of budget allocations and funding priorities. Projects that were previously considered important lost their significance, while new projects aligned with the new government's agenda took precedence. Although the funds had already been allocated for this project, the shift in priorities led to a reshuffling of the entire administration and resources, which caused considerable delays in plan preparation.

Delineation of urban growth boundaries

Defining urban growth boundaries is crucial for the effective preparation of master plans in urban areas. This growth management policy designates specific areas where development should be concentrated, aiming to prevent urban sprawl and promote the efficient use of land for various purposes [9]. In Pakistan, urban planning and development

primarily fall under the jurisdiction of provincial governments. Each province has its own urban development and planning department or agency responsible for defining urban boundaries and regulating urban growth. Local government authorities, such as municipal corporations and municipal committees, may also play a role in delineating these boundaries. Unfortunately, urban growth boundaries are often delineated manually by provincial election commissions and the concerned Deputy Commissioners, who typically lack the technical expertise and awareness of prevailing urban planning trends. These delineations are largely influenced by population figures and political considerations. In the context of this project, defining urban boundaries was a key step in preparing master plans. Without properly demarcated boundaries, the planning process could not proceed. It was observed that there was a lack of coordination among the departments responsible for defining these boundaries, resulting in mismatched demarcations.

Non-aligned Terms of Reference

Each city possesses unique characteristics, and planning must be tailored accordingly. In the case of cities in Khyber Pakhtunkhwa (KP), patterns of development vary significantly. Based on these variations, cities can be broadly categorized into three groups: settled or developed cities such as Peshawar, Mardan, and Charsadda; the merged areas of KP; and the underdeveloped or backward areas already identified by the KP government. Surprisingly, the client—the Urban Policy Unit (UPU)—prepared and adopted the same Terms of Reference (TOR) for all cities. However, given the differing nature of development, these cities cannot be treated the same. For instance, the merged areas and the southern region of KP lack basic infrastructure and related facilities, which are not comparable to those in the central region. Therefore, the TOR should have been customized according to these classifications. Cities lacking in specific sectors should have been addressed with a focus on their particular needs.

Shortcomings in Satellite Imagery for Spatial Analysis

Acquiring satellite imagery is one of the key components of master plan preparation. Effective planning and decision-making rely on high-resolution multispectral satellite imagery, which accurately reflects existing land use and supports spatial analysis for forecasting future development. In Pakistan, SUPARCO provides such imagery. However, high-resolution satellite data can be expensive to procure. As observed during the master planning project in Khyber Pakhtunkhwa (KP), consultants often relied on low-cost satellite imagery or even freely available online base maps for data collection and analysis. This compromise in image quality may have affected the accuracy of their assessments. The situation highlights the need for financial support from the client for the procurement of high-quality imagery, as no dedicated budget was allocated for this purpose. Since the cost of imagery is typically calculated per square kilometer and varies with resolution and the area of interest, proper funding is essential to ensure better

data quality for improved planning and informed decision-making.

To conclude, it is important to understand that this is the first time master plans are being prepared for the urban centers of KP—an initiative strongly supported by planning communities across the country. The primary aim of these plans is to promote balanced and sustainable urban growth. Despite numerous challenges, the commitment to achieving this goal through collaborative planning is expected to yield significant long-term benefits. This study highlights the importance of having a master plan and explores the various challenges involved in its preparation. It is intended to support the government's initiative rather than critique it, and to serve as a foundation for similar efforts in the future

Master plan implementation and non-functional Land-use and Building Control Authority

The effectiveness of master plans depends on a well-defined implementation mechanism. Preparing a master plan without ensuring its execution results in a significant waste of time and resources. The KP provincial Land Use and Building Control Act, 2021, provides the legal foundation for such implementation. It assigns the responsibility of enforcing and regulating master plans and land use plans to the District Land Use and Building Control Committee, which is chaired by the respective Deputy Commissioner [10]. This committee functions under the umbrella of the Land Use and Building Control Authority (LUBCA), which was established in 2022. However, nearly four years since its creation, the authority remains non-functional. This lack of operational capacity has severely undermined the implementation of master plans and continues to obstruct progress toward sustainable urban growth. The fig-2 outlines the institutional structure and responsibilities of LUBCA. According to the framework, the Land Use and Building Control Council is responsible for approving all plans, policies, and planning standards developed by the Urban Policy Unit (UPU). LUBCA is tasked with conducting research, overseeing the work of the District Land Use Planning and Management Committees, and providing them with technical support. Each district is required to establish a District Land Use Planning and Management Committee to implement master plans/land use plans. Additionally, every district will have a Local Planning and Enforcement Unit composed of a Chief Planning Control Officer, Planning Control Officers, Inspectors, and other staff as determined by the government in consultation with the Authority. This unit will report directly to the district committee and support its enforcement responsibilities.

Discussion Section

The preparation and implementation of master plans in Khyber Pakhtunkhwa (KP) represent a significant step toward managing unplanned urban growth; however, the process has revealed several persistent institutional, technical, and governance challenges, as observed through the author's direct engagement in the planning process. These issues reflect

broader systemic barriers common in developing countries, where inadequate institutional capacity and limited planning expertise—such as in Nigeria and Bangladesh—impede effective execution of plans [11]. The preparation of master plans does not lead to meaningful outcomes unless it is followed by effective implementation. In the case of KP, the non-functional status of the newly established Land Use and Building Control Authority (LUBCA) weakens enforcement, mirroring similar shortcomings in cities such as Nairobi and Lahore, where plans remain largely unimplemented due to institutional gaps [5-12].

To address the challenges highlighted in this study, the following policy actions are recommended:

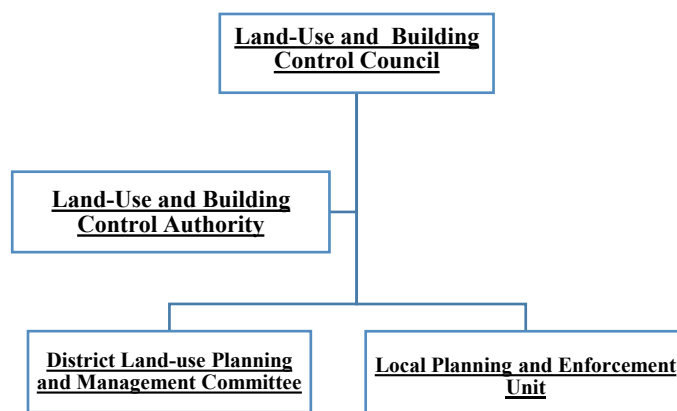


Figure 2. Institutional Arrangement for Land Use Planning and Enforcement

Institutionalize Urban Planning Cadres

Establish dedicated planning units within TMAs and district development authorities with adequately trained and certified planners to ensure sustained planning and implementation capacity.

Adopt Context-Specific TORs

Formulate TORs that reflect the specific spatial, economic, and infrastructural characteristics of each urban typology, rather than applying generalized TORs uniformly across all urban centers.

Invest in Data Infrastructure

Allocate a dedicated budget for procuring high-resolution satellite imagery, real-time GIS systems, and digital survey tools to improve the technical accuracy of master plans.

Operationalize LUBCA

Immediately operationalize and adequately staff the Land Use and Building Control Authority (LUBCA) with trained planners and enforcement personnel. Legislative amendments should be introduced to clarify the chain of command and eliminate bureaucratic overlaps.

Strengthen Interdepartmental Coordination

Effective urban planning requires secondary data from key departments such as Housing, Education, Health, Environment, and Transport. The provision of such data to consultants appointed by the Khyber Pakhtunkhwa Urban Policy Unit (UPU) should be ensured through proper interdepartmental coordination.

Ensuring Technical Input in Urban Boundary Setting

The current practice of involving non-technical officials in boundary delineation undermines planning outcomes; this role should be exclusively handled by qualified urban planners.

Conclusion

The study concludes that master plans serve as essential instruments for promoting balanced and sustainable urban growth; however, their success depends not only on sound formulation but also on effective implementation. In Khyber Pakhtunkhwa (KP), the preparation of master plans for urban centers is being undertaken for the first time, marking a significant milestone in the province's planning history. Despite this progress, the process has encountered considerable challenges, including inadequate interdepartmental coordination, reliance on outdated survey methodologies, poorly aligned Terms of Reference (TORs), and a notable shortage of professionally trained urban planners within the Tehsil Municipal Administrations (TMAs), Development Authorities, the Provincial Housing Department, and the Land Use and Building Control Authority. Moreover, a critical review of the Khyber Pakhtunkhwa Land Use and Building Control Act, 2021, reveals that although the legislation offers a comprehensive framework for implementing urban master plans, its operationalization has been hindered by the non-functional status of the Building Control Authority, which was established in 2022 but has yet to become operational. Addressing these institutional and technical shortcomings is imperative to ensure that the master planning efforts in KP achieve their intended long-term outcomes.

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