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About this Book

Turkiye, in general, and Gaziantep University spesifically have been in support and collaboration with their counterparts in Sryria in their effort to survive, as of very beginning of political turmoil since 2011. Besides university education in different cities of Syria, many lectures and conferences, continuing academic collaboration yielded several books. With editorial supports of professors form Turkiye, twelve different academicians who have Syrian nationality and bear complete academical and ethical responsibility, formed this book, which consists of twelve chapters, a brief summary/introduction of each is provided below.

Abstract of Chapter 1

This study examines the potential role of Artificial Intelligence (AI) in enhancing educational, economic, and cultural awareness within conflict-affected contexts, with a specific focus on the city of Al-Bab in northern Syria. Al-Bab occupies a strategically significant location near the Turkish border and possesses notable human and agricultural resources; however, prolonged conflict has severely weakened its infrastructure, institutional capacity, and local economy. Adopting a descriptive–analytical approach, the study analyzes the concept of artificial intelligence, its key applications, and its practical relevance to fragile environments characterized by limited governance, disrupted services, and restricted access to financial and educational systems.

The research demonstrates that AI-driven tools—such as adaptive learning platforms, intelligent educational assistants, predictive economic analytics, and data-based decision-support systems—can play a critical role in raising awareness, expanding access to knowledge, and supporting informed decision-making among youth, entrepreneurs, and local authorities. Furthermore, the study reviews emerging AI-related practices in Syria, humanitarian settings, and comparable refugee contexts, highlighting their contributions to education, economic resilience, and cultural preservation despite technological and political constraints.

The findings indicate that integrating AI into local development strategies can help bridge knowledge gaps, improve resource allocation, and foster a shift toward data-driven planning in Al-Bab. The study concludes with a set of policy-oriented recommendations emphasizing digital infrastructure

development, human-capacity building, ethical governance frameworks, and international partnerships as essential prerequisites for sustainable AI adoption in post-conflict recovery and long-term regional development.

Abstract of Chapter 2

Health systems in conflict-affected urban settings face complex challenges related to fragmented governance, constrained resources, population displacement, and evolving disease burdens. In northwest Syria, prolonged conflict and sustained internal displacement have placed considerable pressure on local health systems, particularly in rapidly expanding urban centers such as Al-Bab city. This study provides a policy-oriented assessment of health system capacity in Al-Bab city, northern Syria, focusing on service delivery, health infrastructure, human resources for health, epidemiological patterns, and governance-related constraints. A descriptive assessment design was employed using secondary data from the World Health Organization, the Health Cluster, the Health Resources and Services Availability Monitoring System (HeRAMS), and operational reports from humanitarian organizations. Descriptive statistical methods were applied to summarize key indicators of health system performance, with regional benchmarks used where city-level data were unavailable. The findings reveal a highly centralized health infrastructure, sustained high utilization of primary healthcare services, critical shortages in specialized health workforce categories, and a dual burden of communicable and non-communicable diseases. Health service provision in Al-Bab city remains heavily dependent on humanitarian actors for financing and delivery, raising concerns regarding system resilience and long-term sustainability. The study underscores the importance of shifting from fragmented emergency responses toward more integrated governance arrangements, sustainable financing mechanisms, and long-term investments in human resources to strengthen urban health systems in protracted conflict settings.

Abstract of Chapter 3

Since the outbreak of the March Revolution in 2011 in Syria, Syrian cities have faced numerous political and social changes, including shifts in administrative affiliation for some cities and demographic transformations resulting from the large-scale displacement witnessed across most regions. In particular, Al-Bab City endured difficult circumstances due to the succession of multiple actors in ruling and managing the city before its liberation. These conditions led to administrative problems and only partial adoption of digital systems to help address them. After the liberation of Syria, it is noticeable that the new government is striving to adopt digital transformation as a strategic and indispensable option to improve service efficiency and

enhance transparency. This orientation clearly reflects a desire to move from traditional models to smart organizations capable of responding swiftly to citizens' needs. This ambition is embodied in the development of electronic systems for managing records and transactions, and in building an integrated digital infrastructure that connects various government departments, thereby accelerating procedures and reducing reliance on paper. It is also expected that the government will launch electronic portals and modern applications enabling citizens to access services remotely, which strengthens positive interaction between citizens and organizations. Despite awareness of potential challenges such as weak technical infrastructure and a shortage of qualified personnel, the government's strong commitment to digital transformation represents a strategic step toward building more resilient and sustainable organizations. This model of transformation will play a significant role in reinforcing citizens' trust, stimulating investment, and supporting reconstruction and local development efforts in a post-conflict environment.

Abstract of Chapter 4

Al-Bab city is considered one of the most important rural economic centers in northern Syria, enjoying a distinguished strategic location that connects Aleppo, Raqqa, and Al-Hasakah governorates. The city covers an area of 30 square kilometers with an estimated population of approximately 300,889 inhabitants, making it an important urban center in the region. This chapter aims to analyze the current economic reality of Al-Bab city and provide a comprehensive strategic vision for its development, focusing on two main strategic projects: developing and expanding the existing industrial city, and establishing an integrated irrigation project from the Euphrates River to support the agricultural sector. The results indicate that the city faces fundamental challenges including weak infrastructure, lack of investments, and limited water resources. However, promising opportunities are available through leveraging the distinguished geographical location, accumulated local expertise, and significant agricultural and industrial potential. The study includes a comprehensive analysis of three main strategic projects: (1) expanding and developing the existing industrial city to become the largest industrial complex in northern Syria, (2) establishing an integrated irrigation project from the Euphrates River to secure a sustainable water source for 35,000 hectares of agricultural, and (3) developing modern commercial and recreational complexes to serve the residents of Aleppo city (4.6 million inhabitants) located only 30 kilometers away, transforming Al-Bab into a regional commercial and recreational destination.

Abstract of Chapter 5

This study examines the educational capacity of Al-Bab Province in northern Syria within a post-conflict and high-displacement context. Since 2016, rapid population growth driven by internal displacement and return migration has placed severe pressure on the local education system, resulting in overcrowded schools, infrastructure shortages, and limited access to secondary education. Using a descriptive–analytical research design, the study draws on primary administrative data obtained from local education authorities in Al-Bab, complemented by secondary data from international organizations such as UNESCO, UNICEF, and the Education Cluster. Key indicators—including student-to-school ratios, distribution of students across educational stages, gender composition, and school-type structure—are analyzed and compared with international benchmarks for education in fragile and conflict-affected settings. The findings reveal a significant mismatch between educational demand and available infrastructure, particularly at the primary level, where student density far exceeds recommended standards. The analysis also highlights structural bottlenecks in secondary education capacity, administrative fragmentation due to multi-level schools, and persistent challenges related to teacher shortages and socio-economic barriers. Based on these findings, the study proposes a set of short-, medium-, and long-term policy recommendations aimed at expanding educational capacity, improving system efficiency, and enhancing resilience. The paper contributes to the literature on post-conflict education by providing localized, data-driven evidence and policy-relevant insights tailored to northern Syria.

Abstract of Chapter 6

Over the past decade, Syria has experienced profound economic and social upheavals, the primary cause of which has been the policies pursued by the former regime, which directly led to the destruction of the economic structure of cities and the weakening of their labor markets. Prior to the liberation of the city of al-Bab, the city experienced a sharp economic deterioration as a result of these same policies, which were characterized by systematic violence and forced displacement, and which resulted in a widespread collapse of administrative structures and extensive destruction of infrastructure. This was negatively reflected in employment opportunities, income levels, and the stability of local livelihoods. After its liberation from the former regime, the city began to witness gradual transformations in its economic reality, manifested in a relative improvement in stability, the partial return of residents, the resumption of commercial activity, and a growing demand for basic services and construction works. In this context, this chapter examines the

employment situation in the city of al-Bab through an analysis of the main labor-absorbing sectors, particularly agriculture, trade, construction, services, and small enterprises, while highlighting the structural challenges that continue to hinder job creation, such as weak investment, limited infrastructure, and the mismatch between skills and labor market needs. This chapter discusses employment prospects in the city in the context of reconstruction efforts, local economic development, vocational training programs, and the strengthening of institutional frameworks, considering that supporting employment opportunities constitutes a fundamental pillar in consolidating social stability, enhancing economic resilience, and achieving sustainable recovery in the post-conflict phase.

Abstract of Chapter 7

This chapter provides an evaluative analysis of the agricultural sector in the city of Al-Bab and its eastern rural surroundings in Aleppo Governorate, considering agriculture as one of the main pillars of the local economy and a key component of food security and livelihoods in northern Syria. The chapter aims to present a comprehensive analytical overview of the prevailing agricultural patterns in the region, its natural resources, and production systems, while highlighting the structural, climatic, and economic challenges facing the sector.

The analysis demonstrates that agriculture in Al-Bab is predominantly rain-fed, particularly in the production of wheat, barley, and olive trees, which renders agricultural output highly vulnerable to rainfall variability and the increasing frequency of droughts associated with climate change. Water scarcity, the growing reliance on groundwater resources, and the sharp rise in agricultural input costs emerge as major factors contributing to declining productivity and heightened sectoral fragility. These challenges are further compounded by deteriorated irrigation infrastructure, weak marketing systems, small-scale landholdings, and the limited adoption of modern agricultural technologies.

At the same time, the chapter identifies a set of promising opportunities for agricultural development in Al-Bab, including the expansion of modern irrigation systems, the use of solar energy for water pumping, the strengthening of agricultural cooperatives, the development of agricultural value chains, and the promotion of small-scale agro-processing industries. The chapter concludes that the future of agriculture in the region is closely linked to the ability of local actors and supporting institutions to adopt integrated development policies based on sustainable water management, infrastructure rehabilitation, and targeted support for small farmers, thereby transforming agriculture from a

vulnerable sector into a resilient economic and social driver of local stability and community resilience.

Abstract of Chapter 8

This study examines the foundational operations of economic institutions in the city of Al-Bab in northern Syria, with a particular focus on their legal and regulatory dimensions. Al-Bab has emerged as a strategically significant economic center due to its geographic location near the Turkish border, the expansion of trade and services following population displacement, and the transformation of local markets after the Syrian conflict. These dynamics have increased the need for organized economic institutions capable of supporting livelihoods, stimulating local development, and contributing to post-conflict reconstruction.

The research highlights that the establishment of institutions in Al-Bab is not merely an administrative or economic process, but a complex legal endeavor shaped by overlapping legal frameworks. National Syrian laws, local administrative regulations, and indirect influences from Turkish legal practices coexist in an inconsistent and often conflicting manner. This multiplicity of legal references has created uncertainty regarding licensing, commercial registration, taxation, and institutional legitimacy, thereby increasing legal and financial risks for investors and business owners.

The study adopts a descriptive and analytical approach, beginning with a theoretical and historical overview of Al-Bab's economic development and key productive sectors, including trade, agriculture, and small-scale industry. It then clarifies essential legal concepts related to economic institutions, such as the definition of an institution, distinctions between sole proprietorships and commercial companies, and the general legal framework governing institutional establishment. Special attention is given to how these concepts are applied in practice within Al-Bab's exceptional administrative and political context.

The research further analyzes the practical procedures for establishing institutions, including administrative licensing, commercial registration, and tax and fee obligations. It identifies major obstacles facing entrepreneurs, such as unclear legislation, weak regulatory oversight, fragmented institutional authority, and the impact of security and political instability. These challenges contribute to the expansion of the informal economy, undermine fair competition, and limit the growth and sustainability of formally registered institutions.

In examining the legal and regulatory dimension, the study assesses investor protections, institutional obligations toward local authorities, and mechanisms

of legal accountability. It concludes that weak enforcement, inconsistent obligations, and limited legal guarantees reduce investor confidence and discourage long-term planning, while also negatively affecting consumer protection and market stability.

The study concludes that strengthening the institutional and investment environment in Al-Bab requires an integrated approach. Key recommendations include establishing a unified and coherent legal framework, simplifying administrative procedures, enhancing regulatory and judicial oversight, improving tax transparency and equity, and providing legal and advisory support to investors. The research emphasizes that legally regulated and economically organized institutions are essential for sustainable development, job creation, and long-term economic and social stability in the city of Al-Bab.

Abstract of Chapter 9

This study examines the housing sector in the city of al-Bab in eastern rural Aleppo within the context of the rapid demographic, urban, and economic transformations that the city has experienced since 2017. Al-Bab has evolved into a major urban hub attracting large numbers of residents and internally displaced persons (IDPs), driven by its strategic geographic location and its growing commercial and service roles. As a result, the city's population has nearly doubled within a short period, placing unprecedented pressure on the housing sector, infrastructure, and basic services.

The study is grounded in a theoretical framework that views housing not merely as physical shelter, but as a fundamental human right and a core component of social stability, economic development, and quality of life. It draws on key concepts of housing as a social good and an economic service, internationally recognized housing quality standards, the supply-and-demand model in housing markets, and principles of modern urban planning, particularly in conflict-affected and post-conflict urban settings.

The analysis reveals a severe imbalance between rapidly rising housing demand and the city's limited housing supply, driven by accelerated population growth, displacement and return movements, the absence of an updated regulatory master plan, escalating land and construction costs, and the lack of effective housing finance mechanisms. The findings indicate that approximately 45% of urban expansion is occurring outside formal planning frameworks, while 20–25% of buildings require partial or full rehabilitation. Moreover, newly developed neighborhoods suffer from significant deficiencies in basic services such as water, electricity, sanitation, and road networks.

The study also highlights institutional challenges, including weak technical and administrative capacities within local authorities and insufficient engineering oversight, which have negatively affected construction quality and structural safety. The housing deficit in al-Bab is estimated at 12,000–15,000 housing units over the next five years, exacerbated by rising construction costs and the absence of structured housing finance tools.

In response to these challenges, the study proposes an integrated set of policy and planning interventions, including updating the city's regulatory master plan using GIS-based systems, improving the investment climate in the housing sector, supporting affordable housing programs for low-income groups, developing long-term housing finance mechanisms, strengthening technical supervision of construction, rehabilitating residential infrastructure, and enhancing the institutional capacity of the local council.

The study concludes that improving the housing sector in al-Bab requires effective partnerships between local authorities, international organizations, and the private sector, supported by data-driven planning and realistic population projections. Such an approach is essential to achieving a safe, stable, and sustainable urban environment capable of meeting the current and future housing needs of the city's population.

Abstract of Chapter 10

The text emphasizes that local administration is essential for realizing democracy at the grassroots level, as national political participation alone is not sufficient. It highlights the concept of "administrative democracy," where citizens engage directly in decisions affecting their daily lives. Local administration is based on a balance between local autonomy, enabling responsiveness to community needs, and central oversight, ensuring alignment with national policies. This balance transforms local administration into a key tool for political, economic, and social development rather than merely decentralizing authority.

A local unit is defined as a territorial entity with legal personality, a settled population, and administrative and financial independence. Its primary objectives are to deliver public services and implement local development plans. The text argues that local administration enhances democratic legitimacy, improves administrative efficiency through proximity to citizens, and supports social cohesion by distributing power and services across regions. Economically, it promotes local resource mobilization, reduces reliance on central funding, and enables development that reflects local needs.

The text also reviews the Syrian legal framework, particularly Law No. 107 of 2011, which expanded decentralization and strengthened local councils. It outlines the administrative structure from governorates to villages and explains the relationship between central and local authorities. The case of Al-Bab city illustrates the challenges faced by local administration in conflict zones, including insecurity, financial limitations, infrastructure damage, and weak planning. The text concludes that activating local administration in Al-Bab requires strengthening institutional capacity, enhancing community participation, improving financial and technical resources, and ensuring a stable security and legal environment to support sustainable governance and development.

Abstract of Chapter 11

The local economy constitutes a fundamental pillar of reconstruction and sustainable recovery in post-conflict environments, as it provides employment opportunities, revitalizes the productive cycle, and contributes to strengthening social and institutional stability. From this perspective, this study examines the experience of the city of al-Bab in northeastern Aleppo as a model of a Syrian city facing structural and social challenges after years of war, while seeking to build a local economy capable of autonomous recovery. The study focuses on analyzing the post-conflict local economic reality in al-Bab and exploring the most significant structural, institutional, social, and security challenges hindering reconstruction—such as weak infrastructure, market contraction, lack of financing, fragile local governance, and the erosion of social capital. Conversely, the study highlights the available potentials, including human and agricultural resources, the city's strategic geographic location, and the emerging local initiatives and development organizations supporting small and medium-sized enterprises, which together create new opportunities for local growth. The research adopts a descriptive-analytical methodology based on a review of academic literature, an analysis of local field reports, and a comparative examination of cases from countries and regions emerging from conflict. Through this analysis, the study presents an integrated vision for rebuilding the local economy in al-Bab founded on strengthening the institutional capacities of local councils, supporting small and medium-sized enterprises, expanding public–private partnerships, empowering the local community and rebuilding social trust, developing participatory, data-driven local economic policies. The study concludes that the successful reconstruction of the local economy in al-Bab depends on the ability to transform challenges into opportunities by empowering local actors, harmonizing efforts among institutions and organizations, and adopting participatory local planning that balances developmental and social dimensions. Moreover, the study proposes

a model for local development in post-conflict contexts based on a bottom-up approach that reinforces reliance on local resources and rebuilds networks of community trust as a foundation for sustainable economic recovery.

Abstract of Chapter 12

The local economy constitutes a fundamental pillar of reconstruction and sustainable recovery in post-conflict environments, as it provides employment opportunities, revitalizes the productive cycle, and contributes to strengthening social and institutional stability. From this perspective, this study examines the experience of the city of al-Bab in northeastern Aleppo as a model of a Syrian city facing structural and social challenges after years of war, while seeking to build a local economy capable of autonomous recovery. The study focuses on analyzing the post-conflict local economic reality in al-Bab and exploring the most significant structural, institutional, social, and security challenges hindering reconstruction—such as weak infrastructure, market contraction, lack of financing, fragile local governance, and the erosion of social capital. Conversely, the study highlights the available potentials, including human and agricultural resources, the city's strategic geographic location, and the emerging local initiatives and development organizations supporting small and medium-sized enterprises, which together create new opportunities for local growth. The research adopts a descriptive-analytical methodology based on a review of academic literature, an analysis of local field reports, and a comparative examination of cases from countries and regions emerging from conflict. Through this analysis, the study presents an integrated vision for rebuilding the local economy in al-Bab founded on strengthening the institutional capacities of local councils, supporting small and medium-sized enterprises, expanding public–private partnerships, empowering the local community and rebuilding social trust, developing participatory, data-driven local economic policies. The study concludes that the successful reconstruction of the local economy in al-Bab depends on the ability to transform challenges into opportunities by empowering local actors, harmonizing efforts among institutions and organizations, and adopting participatory local planning that balances developmental and social dimensions. Moreover, the study proposes a model for local development in post-conflict contexts based on a bottom-up approach that reinforces reliance on local resources and rebuilds networks of community trust as a foundation for sustainable economic recovery.

Contents

Chapter 1

Artificial Intelligence and Awareness Enhancement in the Syrian City of Al-Bab

Hany Aldaher[1]

1. Introduction: Geographic Setting, Strategic Relevance, and Current Realities of Al-Bab

Al-Bab is situated in the northern countryside of Aleppo Governorate in Syria, approximately 38 kilometers northeast of Aleppo city and about 30 kilometers south of the Turkish border. Its location at the crossroads of major commercial routes connecting Aleppo with Turkey has historically endowed it with considerable economic and strategic significance. The city rises roughly 471 meters above sea level and is surrounded by extensive agricultural plains—particularly to the north and east—positioning it as an administrative and economic hub for the surrounding rural district.

During the years of the Syrian uprising, Al-Bab witnessed a substantial demographic surge. While the city's population was estimated at around 63,000 inhabitants in 2004, the number increased to nearly 100,000 during the conflict due to successive waves of internal displacement. Recent estimates indicate that the broader Al-Bab region—including the city and its neighboring villages—currently hosts more than **192,000 residents**, among them approximately **62,000 internally displaced persons** who sought safety in the area. Historically, the community has been composed primarily of Sunni Arabs, with a smaller Kurdish presence on the outskirts; however, conflict-related displacement has reshaped the city's demographic structure.

Today, Al-Bab's residents face significant socio-economic challenges. Years of conflict have caused extensive damage to the city's infrastructure and essential services. Local livelihoods depend largely on trade, small-scale manufacturing, and agriculture. The region is particularly known for its production of dairy

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products—such as cheese and milk—which are distributed to various Syrian markets, in addition to traditional crafts like metalworking. Nevertheless, the city's economy has sharply deteriorated as a result of conflict-induced disruptions and the severe depreciation of the Syrian pound.

From an economic standpoint, Al-Bab possesses notable potential due to its strategic location and human capital. Its proximity to Turkey and access to wide agricultural zones in eastern Aleppo make it a suitable environment for both industrial and agricultural investment. The area also benefits from fertile farmland and a relatively skilled, low-cost labor force. However, the absence of administrative and legal stability forms a major barrier to economic development. The lack of a unified governing authority has produced a climate of uncertainty and limited transparency in regulating commerce and investment. For example, the mechanisms for exporting goods across the Turkish border remain unclear, restricting trade movement and productive capacity. Additionally, Al-Bab—like Syria as a whole—suffers from the absence of an effective banking system, which discourages potential investors from launching new projects despite the abundance of available human resources.

As a result, the city faces the paradox of **possessing significant latent economic potential amid a deeply weakened local economy.** This circumstance underscores the urgent need for comprehensive development plans focused on rehabilitating infrastructure, supporting livelihoods, and improving the overall investment climate—especially in light of the region's recent inclusion in international frameworks aimed at easing or lifting certain sanctions, which may open new avenues for economic recovery and sustainable growth

2. Artificial Intelligence and Its Applications

Artificial Intelligence (AI) is defined as an advanced field within computer science that seeks to design systems and software capable of simulating human intelligence and performing tasks in a manner that resembles human cognitive abilities. In other words, AI aims to enable machines to learn, understand, infer, and make decisions intelligently. The field encompasses several sub-disciplines such as machine learning, neural networks, natural language processing, and computer vision—domains that allow computers to analyze vast amounts of data and extract meaningful patterns and knowledge (Russell & Norvig, 2020).

Over the past decades, AI has witnessed widespread adoption through its practical applications across various civil, educational, cultural, and economic sectors. In civil and public-service domains, AI plays a growing role in healthcare (such as computer-assisted diagnosis), transportation (autonomous

vehicles), public safety (surveillance data analysis and crime prediction), and governmental administration (service automation and big-data analytics to enhance decision-making processes). Within the economic sector, AI has become a primary driver of growth and a cornerstone of innovation. It is utilized in agriculture through smart irrigation systems and crop-monitoring technologies, in industry through automation and intelligent production lines, and in finance through market analysis and risk management. Experts emphasize that embracing data-driven and knowledge-based technologies will support developing economies in transitioning from a traditional reliance on natural resources and geographic conditions toward a modern, innovation-driven economy characterized by agility and technological adaptation (Russell & Norvig, 2020; UNESCO, n.d.).

In the field of education, AI has emerged as a promising tool for achieving a transformative shift in learning methods. Advanced AI-driven technologies enhance the learning experience through adaptive personalized learning, where intelligent systems analyze student data (progress levels and learning patterns) to deliver customized content tailored to each learner's needs and abilities. For instance, intelligent learning platforms can employ deep learning algorithms and predictive analytics to identify the most effective instructional approaches for each student and recommend additional exercises in areas where difficulties arise. AI applications are also used in managing educational processes, such as facilitating teachers' tasks in grading and lesson planning, and assisting school administrations in analyzing student and teacher performance to support data-informed pedagogical decisions (Russell & Norvig, 2020; Google, n.d.).

In the cultural domain, Artificial Intelligence opens new horizons for preserving and enhancing heritage as well as producing creative content. Through computer vision technologies, archaeological and historical materials can be digitized, analyzed, and virtually reconstructed, enabling the development of interactive visitor experiences that simulate ancient civilizations. Moreover, natural language processing algorithms support the archiving, interpretation, and translation of manuscripts and historical texts, contributing to the preservation and dissemination of linguistic and cultural heritage for future generations. In addition, generative AI applications have gained prominence in the arts—including visual arts, music, and literature—by creating new artistic works or completing missing ones, although such practices continue to provoke debates concerning authenticity and intellectual property. Overall, AI has emerged as a digital bridge linking the present with the past through the use of computational capabilities to protect heritage and enhance cultural creativity (UNESCO, n.d.; Meta AI, n.d.).

3. The Role of Artificial Intelligence in Raising Awareness: Education, Economy, and Culture

Artificial Intelligence has substantial potential to activate societal awareness and promote knowledge across various fields. By enabling data-driven analysis, intelligent decision support, and adaptive learning mechanisms, AI contributes to reshaping how individuals and institutions perceive and respond to social, economic, and cultural challenges (Russell & Norvig, 2020; UNESCO, n.d.).

The following analysis examines how AI contributes to elevating educational, economic, and cultural awareness among youth and decision-makers, with a focus on practical tools and applications relevant to the city of al-Bab and similar contexts affected by fragility and limited institutional capacity (UNICEF, 2024; OCHA, 2024).

3.1. Enhancing Educational Awareness through Artificial Intelligence

AI can bring about a positive transformation in the educational process through intelligent and interactive learning approaches that enhance students' awareness and knowledge. Its primary contributions include:

3.1.1. Adaptive Personalized Learning

accurately identify their strengths and weaknesses; accordingly, based on this analysis, the system constructs a customized learning path that aligns with the learner's cognitive needs (Russell & Norvig, 2020). Students receive additional explanations for concepts they have not yet mastered or more advanced exercises in areas where they demonstrate proficiency. As a result, this level of personalization significantly improves comprehension and achievement rates, as it effectively addresses individual differences rather than applying a standardized approach for all learners (UNESCO, n.d.; Google, n.d.).

3.1.2. Intelligent Educational Tools

effectively. For instance, the Photomath application can solve mathematical problems step-by-step while providing systematic explanations, thereby enhancing students' ability to understand underlying concepts (Photomath, n.d.). Similarly, Google's Socratic application responds to students' questions across various subjects with simplified, media-supported explanations (Google, n.d.). Consequently, these tools function as an always-available educational tutor, particularly beneficial in environments where teachers or adequate learning resources are limited

3.1.3. Translation and Content Simplification

Students in the city of al-Bab—where English may pose a significant barrier—can benefit from intelligent translation tools such as *NLLB Translate*, a multilingual model that provides highly accurate Arabic translations. Such technologies enable learners to access global knowledge resources and overcome language barriers, thereby expanding their intellectual horizons and enriching their scientific and cultural awareness. Additionally, emerging Arabic projects such as *Salma AI* aim to improve students' Arabic writing and enhance their expressive abilities, ultimately strengthening their competence in written communication.

3.1.4. Intelligent Assessment and Examination Systems

AI-enhanced digital examination systems offer immediate feedback on student performance and identify areas requiring further improvement. Some platforms employ automated question-generation techniques tailored to the learner's level, as well as automated answer evaluation accompanied by explanatory comments. This form of continuous assessment increases the learner's awareness of their actual proficiency and motivates consistent self-improvement.

3.1.5. Providing Remote Educational Support

Where teaching staff are insufficient, AI can provide virtual learning solutions through educational chatbots or virtual tutors capable of answering common student questions and guiding them through problem-solving tasks. In this regard, experts note that educational robots can mitigate the consequences of teacher shortages in conflict-affected regions by delivering remote lessons without the need for a permanently present human instructor (UNESCO, n.d.). Accordingly, such solutions are particularly relevant to the city of al-Bab, whose educational institutions have suffered from staff shortages due to displacement and limited resources (UNICEF, 2024).

Through the use of these tools and technologies, the level of educational awareness among segments of Syrian students has increased, even amid severe challenges such as weak infrastructure and frequent electricity and internet outages. For example, despite the restriction of certain global AI services for users in Syria due to technological sanctions, students have managed to bypass these limitations through VPN networks and access platforms such as ChatGPT to translate texts, summarize lessons, and improve their language skills.

This self-motivated engagement reflects a growing awareness of the importance of artificial intelligence as a modern learning tool and as an incentive

for students to continue their education despite difficult circumstances. Consequently, AI can be seen as contributing to widening access to knowledge and providing learners in al-Bab and similar contexts with an opportunity to keep pace with modern education through digital resources that are accessible to all (Russell & Norvig, 2020; UNESCO, n.d.)

3.2. Enhancing Economic Awareness through Artificial Intelligence

In the economic sphere, artificial intelligence plays a pivotal role in raising financial and investment awareness among individuals and decision-makers, as well as supporting local economic development through analytical tools and practical applications. Key aspects of this role include:

3.2.1. Predictive Analytics and Decision-Making:

Machine learning algorithms can process vast datasets of economic information (e.g., market prices, sales rates, production costs) to forecast future trends. In the context of al-Bab, these technologies can assist small and medium-sized business owners in anticipating fluctuations in commodity prices and local market demands, thereby enabling informed decisions regarding production, pricing, and inventory management. For instance, an AI system could analyze agricultural market data in eastern Aleppo countryside and guide farmers on which crops are expected to be in higher demand and more profitable for the upcoming season, increasing their economic awareness and reducing business risks.

3.2.2. Supporting Small Enterprises and Entrepreneurship:

AI offers an opportunity for the youth of al-Bab to engage with the digital economy despite limited resources. In this context, various online AI applications assist in preparing feasibility studies and planning start-up projects by providing prototypes for marketing plans and competitor analysis (Russell & Norvig, 2020). Moreover, global crowdfunding platforms also use AI algorithms to evaluate project ideas and match potential entrepreneurs with suitable investors (UNSCEB, n.d.). Accordingly, access to these tools empowers young people in al-Bab to develop innovative projects tailored to community needs (UNICEF, 2024).

Similarly, comparable initiatives have been implemented in Syrian refugee camps (e.g., Zaatari camp in Jordan), where youth are trained in AI-enhanced business skills to enter the digital labor market and improve their livelihoods (UNICEF, 2024; OCHA, n.d.). As a result, such training programs strengthen

participants' understanding of how to leverage modern technologies to create economic opportunities beyond traditional methods (UNESCO, n.d.).

3.2.3. Local Market Analysis Systems

Administrative bodies in al-Bab can utilize AI platforms to monitor local economic indicators (such as basic commodity prices, product availability, and unemployment rates) in real-time. These systems help decision-makers detect economic crises early—such as abnormal price hikes for essential goods—thereby raising public awareness and enabling prompt interventions (e.g., support campaigns or price regulation). Additionally, these tools assist in medium-term economic planning by providing clear insights into sectors most in need of support or development.

3.2.4. Promoting Financial Inclusion and Banking Awareness

Given the current lack of effective banking services in al-Bab, AI-based solutions such as digital financial advisors (chatbots) can guide residents on best practices for savings, lending, and expense management. In parallel, humanitarian organizations also employ AI to identify the most vulnerable households and target them for cash assistance programs based on objective data, ensuring greater fairness and transparency in resource distribution (OCHA, 2024; UNICEF, 2024). Consequently, such practices raise financial awareness among citizens and empower them to make better economic decisions at both the household and individual levels (UNESCO, n.d.; UNSCEB, n.d.)

3.2.5. Combating Corruption and Enhancing Transparency

By digitizing local governmental processes—such as licensing and cross-border trade—and integrating them with AI systems designed to detect anomalies and unusual patterns, early identification of corrupt practices or market monopolization becomes possible. This, in turn, raises community awareness regarding the importance of financial transparency and strengthens trust in the local investment environment. Although implementing such measures requires support from higher authorities, it remains a worthy objective within the framework of Syria's digital transformation strategy.

Artificial intelligence provides the residents of al-Bab with tools for economic advancement, even under conditions of instability. It delivers the knowledge necessary to navigate uncertainty through predictive analytics, facilitates remote learning opportunities in entrepreneurship, and assists local decision-makers in understanding and managing the local economy based on scientific principles. Collectively, these capabilities contribute to enhancing

both individual and community economic awareness and foster a shift toward a data- and knowledge-driven culture in developmental planning, rather than relying solely on limited traditional expertise.

4. Applications of Artificial Intelligence in Syria and Similar Contexts

Despite significant challenges, the adoption of artificial intelligence has gradually begun to emerge in Syria over recent years, as well as in regional environments affected by conflict or weak infrastructure. The following examples illustrate relevant experiences and models:

4.1. Within Syrian Government-Controlled Areas

Central institutions have recognized the importance of keeping pace with AI to support reconstruction and development plans. In 2025, Damascus hosted the first regional conference on Artificial Intelligence and Entrepreneurship (*AI-Syria 2025*), bringing together researchers and companies from multiple countries. This event reflected a clear governmental interest in adopting AI tools within Syria's digital transformation agenda. Conference officials stated that Syria aims to leverage AI as a bridge toward a more sustainable and efficient economy, focusing on knowledge and data rather than traditional resources. During the same period, cooperation agreements were signed between local academic institutions and Arab organizations to enhance training in areas such as data analytics and cybersecurity.

Although still in its early stages, these initiatives indicate political will to strengthen scientific research and technological development, including the creation of a national AI strategy tailored to the Syrian context. Small government-led AI projects have also begun, such as digitizing paper archives in ministries using Optical Character Recognition (OCR) and content analysis, and citizen service platforms utilizing intelligent chatbots to respond to inquiries—all aimed at improving governmental performance despite limited resources.

4.2. In Al-Bab after Liberation

Despite the absence of official advanced AI systems, practical and technologically advanced applications have begun to emerge, driven by local initiatives and civil society organizations with international support. A significant portion of students and youth have adopted free AI-based digital learning tools to enhance their academic skills and develop self-learning capacities, reflecting a gradual shift toward technology-driven autonomous learning.

4.2.1. In the Humanitarian Sector

Several NGOs operating in the area have started introducing technological tools to manage their projects. For instance, relief teams use mobile-based electronic systems to collect data on local needs from various villages and towns. This data is then analyzed using algorithms that help prioritize interventions and accurately identify the most vulnerable areas. Additionally, monitoring systems have been implemented to track the performance of hospitals and health centers, employing periodic analysis of health data to predict early indicators of potential disease outbreaks.

4.2.2. Principles of AI in Practice

Although these applications are not formally presented under the label "artificial intelligence," they employ fundamental AI principles—particularly data analysis and decision-making based on digital indicators. This has contributed to raising awareness of local health and service realities and directing resources more efficiently during a critical phase of stabilization in al-Bab.

4.2.3. In Refugee Contexts and Neighboring Countries:

Syrian refugee experiences provide an important field for exploring the impact of AI technologies. In refugee camps in Jordan and Lebanon, UN agencies have supported initiatives to teach youth digital skills and programming, including basic AI principles. For example, the "Alf Project" in Zaatari camp offered training in data analytics and machine learning to empower youth to enter the remote tech labor market. Participants learned to build simple AI models, such as product recommendation systems, which they can employ for online freelance work, granting them a degree of economic independence.

Such experiences inspire educational actors in al-Bab to adopt similar programs in local universities and institutes, in collaboration with remote international expertise, connecting local youth with the latest technological developments and expanding their technical knowledge.

5. General Overview and Policy Recommendations

In general, although artificial intelligence applications in Syria remain fragmented and modest compared to stable countries, there is a noticeable momentum among Syrian youth—both within the country and in the diaspora—toward acquiring AI skills and leveraging them to serve their communities. Each successful initiative, whether small or large, contributes

to raising awareness of the importance of these technologies as a foundation for future development. This paves the way for future expansion into more ambitious projects, such as establishing technological innovation centers in Syria, integrating AI into university curricula, or forming partnerships between Syrian universities and their international counterparts to translate cutting-edge research and exchange expertise. Such visions are no longer merely technological luxuries but essential measures to bridge the digital divide and equip Syria's emerging generation with the tools of the modern era.

In light of the above benefits and challenges, it becomes essential to develop a comprehensive strategy for integrating AI into sustainable development plans in al-Bab and across Syria. The following recommendations are directed at local decision-makers and relevant institutions (e.g., local councils, ministries, universities, and institutes operating in the region):

4.1. Integrating AI into Policies and Development Plans

AI technologies should be embedded as a priority in all national and local strategies. This requires a clear vision of how AI can contribute to education, economy, and culture within reconstruction and sustainable development plans. For instance, a higher education development plan in al-Bab should include establishing an Information Technology and AI center at the local university or technical college, tasked with supporting applied research and advising other faculties on how to leverage AI in their respective fields.

4.2. Developing Digital Infrastructure and Ensuring Access

AI cannot flourish without adequate technological infrastructure. Therefore, improving internet and electricity services in the city is a priority, along with establishing technology hubs equipped with computers and servers suitable for AI research, even if initially modest. Equally important is providing access to data and information—building local databases in education, economy, and heritage—and making them available to researchers and decision-makers for AI-driven analysis, while ensuring data privacy and security.

4.3. Training and Human Capacity Building

Technology alone is insufficient without skilled human capital. Higher education institutions should introduce specialized courses in data science and AI for students in technology-related fields. Short-term training programs for local government staff should also be organized to familiarize them with AI fundamentals and governmental applications. Encouraging youth-led initiatives, such as university tech clubs, can nurture emerging talent. Digitally

empowering society and fostering a culture of innovation is the cornerstone for ensuring the sustainability of any AI project.

4.4. Strengthening Partnerships and International Support

Given limited local resources, establishing collaboration with international organizations and donors to support AI projects in al-Bab is essential. Local councils can coordinate with UNICEF to pilot smart educational systems in schools. Similarly, programs for innovation funding or scholarships offered by global tech companies can help send young professionals for training or participation in international competitions.

4.5. Creating a Legislative and Ethical Framework

The introduction of any new technology necessitates regulatory and ethical frameworks to ensure responsible use and protect citizens' rights. Local authorities, in cooperation with legal and technical experts, should develop guidelines for AI use in education (e.g., preventing misuse in exam cheating), media (e.g., combating fake news without infringing on free speech), and public administration (e.g., protecting citizens' personal data when digitizing records). UNESCO and the United Nations emphasize the importance of good AI governance to safeguard privacy and human rights. Adopting such regulations locally will enhance public trust in new technologies and support their positive dissemination.

4.6. Launching Pilot Projects

Initiating small-scale, demonstrative projects can showcase AI's potential and build momentum. For example, a smart classroom project may involve equipping a classroom in a school or university in al-Bab with AI-enabled educational tools (interactive screens, student computers with AI-based learning software) and evaluating their impact on student performance compared to traditional classrooms (Russell & Norvig, 2020; UNESCO, n.d.). Another example is a citizen information platform, which entails developing a simple local application that answers residents' questions in Arabic and the local dialect about available services and procedural steps, supported by an AI-driven knowledge base—thereby facilitating access to information and easing staff workloads (OCHA, n.d.; UNESCO, n.d.). Consequently, the success of these pilot projects will encourage other institutions to adopt similar ideas and practically demonstrate the value of digital transformation (UNICEF, 2024).

4.7. Engaging the Local Community in Digital Transformation

Sustainable development requires involving target groups in the design and implementation of AI initiatives. Awareness-raising should occur not only top-down but also through citizen participation. Open workshops can be organized for youth to introduce AI opportunities in daily life and how to leverage them in small projects (e.g., a workshop for young women on using AI applications for marketing handmade products, or for young men on exploiting free learning platforms to develop technical skills). Establishing local digital communities on social media platforms where tech enthusiasts and experts exchange advice and experiences in Arabic fosters continuous collaborative learning and facilitates smoother adoption of AI technologies.

Conclusion

Integrating AI into development plans in al-Bab is not an academic luxury but a strategic investment in the region's future and its people. Syrian youth have demonstrated enthusiasm and adaptability toward digital tools despite numerous obstacles, providing decision-makers with a solid foundation. With institutional support and a clear vision, AI can become a core driver of economic and social development in al-Bab and its surrounding areas, contributing to the reconstruction of both human capital and society on the principles of knowledge and awareness, alongside rebuilding physical infrastructure. This endeavor requires bold planning and courageous execution but promises positive outcomes that can place the region on a path toward a brighter and more prosperous future.

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Chapter 2

Assessing Health System Capacity in a Conflict-Affected Urban Setting: A Policy-Oriented Case Study of Al-Bab City, Syria

Salih Muvakit[1]

1. Introduction

Health systems play a central role in protecting population health, promoting equity in access to healthcare services, and strengthening social resilience. In fragile and conflict-affected settings, however, health systems are often characterized by weakened governance structures, damaged infrastructure, large-scale population displacement, and severe constraints on financial and human resources. These challenges collectively undermine the capacity of health systems to respond effectively to both acute and chronic health needs.

Northwest Syria represents one of the most complex and protracted humanitarian health contexts globally. Prolonged armed conflict, repeated displacement waves, and fragmented institutional arrangements have resulted in a health system that relies heavily on humanitarian actors for service delivery, financing, and coordination. While international and local organizations play a critical role in sustaining healthcare provision, this dependence has raised persistent concerns regarding system resilience, sustainability, and long-term governance.

Al-Bab city, located in northern Aleppo governorate, has emerged over the past decade as a major urban hub hosting both resident populations and large numbers of internally displaced persons (IDPs). According to official census data, the city's population was 63,069 in 2004; however, recent humanitarian estimates indicate that the population has increased to approximately 130,000 by 2024, largely as a result of internal displacement (HeRAMS, 2024). This rapid and unplanned demographic expansion has exerted significant pressure on

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the local health system, particularly on primary healthcare services, emergency care, and hospital capacity.

Despite the availability of regional-level assessments of health service provision in northwest Syria, policy-oriented analyses at the city level remain limited. Urban health systems in conflict-affected settings exhibit distinct dynamics compared to rural or camp-based contexts, including higher population density, more diverse service providers, and complex patterns of service utilization. The absence of localized, city-level health system assessments constrains evidence-based decision-making and limits the development of targeted policy interventions.

This study seeks to address this gap by providing a systematic assessment of health system capacity in Al-Bab city. Drawing on secondary data from international health surveillance systems and humanitarian coordination mechanisms, the study evaluates key dimensions of the health system, including service delivery, health infrastructure, human resources for health, and governance-related challenges. By adopting a health systems and policy perspective, the study aims to generate evidence that can inform decision-makers and contribute to strengthening urban health systems in conflict-affected environments.

2. Methodology

2.1. Study Design

This study adopts a descriptive, policy-oriented health system assessment design based on the analysis of secondary data. The assessment is structured around key components of the health system, with particular emphasis on service delivery, human resources for health, health infrastructure capacity, and governance-related challenges. Such descriptive and systems-based approaches are widely applied in health systems research, particularly in fragile and conflict-affected settings where access to primary data collection is constrained by security, ethical, and logistical considerations (World Health Organization, 2010; Blanchet et al., 2017).

By employing a health systems and policy perspective, the study aims to generate policy-relevant evidence on urban health system capacity, contributing to ongoing efforts to strengthen health systems in conflict-affected environments (World Health Organization, 2023).

2.2. Data Sources

Data were compiled from multiple institutional and humanitarian sources to enhance data triangulation and improve the robustness of the analysis. These sources included periodic reports and bulletins issued by the World Health Organization (WHO) and the Health Cluster in Syria, which provide standardized information on service delivery, coordination mechanisms, and health system performance indicators in humanitarian contexts (World Health Organization & Health Cluster Syria, 2024).

Additional facility-level data were obtained from the Health Resources and Services Availability Monitoring System (HeRAMS) for northwest Syria, which offers systematic information on health infrastructure, service availability, and functionality across health facilities in conflict-affected settings (HeRAMS, 2024). Operational reports produced by international and local humanitarian organizations involved in healthcare provision in Al-Bab city—including Médecins Sans Frontières (MSF), the Union of Medical Care and Relief Organizations (UOSSM), the Syrian American Medical Society (SAMS), and Al-Ameen Organization—were also utilized to capture service utilization patterns and operational capacities (MSF, 2024; UOSSM, 2024; SAMS, 2024; Al-Ameen Organization, 2024). Population estimates were derived from official census data and humanitarian demographic assessments to contextualize service coverage and demand (Central Bureau of Statistics, 2004; OCHA, 2024).

2.3. Data Analysis

Descriptive statistical methods were employed to summarize key indicators related to health infrastructure capacity, availability of human resources for health, and patterns of health service utilization. In cases where city-level data specific to Al-Bab were unavailable or incomplete, regional indicators for northwest Syria were used as proxy reference values. This approach is consistent with established methodological practices in health systems research conducted in humanitarian and conflict-affected contexts, where data gaps are common and regional benchmarks are frequently applied to support localized assessments (Kruk et al., 2017; World Health Organization, 2017).

The analysis focused on identifying structural and policy-relevant gaps within the health system rather than establishing causal relationships, in line with the objectives of policy-oriented health system assessments (Blanchet et al., 2017).

3. Results

3.1. Population Dynamics and Demand for Health Services

Al-Bab city has experienced sustained population growth primarily driven by internal displacement. This rapid demographic expansion has resulted in a substantial increase in demand for health services, particularly primary healthcare and emergency care. Facility-level activity data indicate that some primary healthcare centers provide several thousand medical consultations per month, reflecting significant pressure on frontline health services and limited system capacity to absorb increased service demand (HeRAMS, 2024; WHO & Health Cluster Syria, 2024).

3.2. Health Infrastructure

3.2.1. Hospital Services

Hospital care in Al-Bab city is provided through a single main referral hospital, Al-Bab Hospital, which operates with Turkish support and delivers a broad range of services, including emergency care, intensive care, cardiology, pediatrics, oncology, endocrinology, obstetrics, and surgical services. The hospital has an estimated inpatient capacity of approximately 200 beds. In addition, four secondary hospitals—Al-Majed, Al-Fateh, Al-Salam, and Al-Farabi—operate within the city, each with an estimated capacity of 20 to 30 beds, providing general medical and surgical services with limited specialty care (WHO & Health Cluster Syria, 2024).

Despite the presence of multiple hospital facilities, overall inpatient capacity remains insufficient relative to the city's population size. More than half of available hospital beds are concentrated in a single referral facility, resulting in a highly centralized inpatient care structure. This concentration increases system vulnerability and contributes to persistent congestion in emergency departments and surgical wards, particularly during periods of heightened demand (HeRAMS, 2024).

Table-1: Hospital inpatient capacity in Al-Bab city

Type of facility	Number of facilities	Estimated bed capacity
Main referral hospital	1	~200
Secondary hospitals	4	20–30 per hospital

Table-1 summarizes the distribution of hospital inpatient capacity in Al-Bab city, highlighting the high degree of centralization in hospital service provision.

3.2.2. Primary Healthcare Centers

Several primary healthcare centers operate in Al-Bab city, including Al-Bab Medical Center managed by Al-Ameen Organization, in addition to facilities supported by other humanitarian actors such as the Syrian Arab Red Crescent. According to facility activity reports from 2024, Al-Bab Medical Center served 4,227 beneficiaries and delivered 9,394 medical consultations within a single month. These figures underscore the central role of primary healthcare services in meeting population health needs and illustrate the substantial utilization pressure placed on primary care facilities in the city (Al-Ameen Organization, 2024).

Table-2: Primary healthcare service utilization indicators (selected facility, 2024)

Indicator	Monthly value
Number of beneficiaries	4227
Number of consultations	9394

Table-2 presents key utilization indicators for a selected primary healthcare center, demonstrating high service demand relative to facility capacity.

3.2.3. Mental Health Services

Mental health and psychosocial support services are provided through the Mental Health Center in Al-Bab, operated by the Union of Medical Care and Relief Organizations (UOSSM). The center delivers both outpatient and inpatient services, with an estimated inpatient capacity of 20 beds. In a context marked by prolonged conflict and displacement, this facility represents a critical component of the local health system response to increasing mental health needs (UOSSM, 2024).

3.2.4. Private Health Sector

The private health sector in Al-Bab city comprises approximately 85 private clinics, two medical complexes, around 80 pharmacies, and several diagnostic laboratories. While the private sector contributes to increased service availability and diversity, access to private healthcare remains constrained by household financial capacity and the absence of robust regulatory frameworks. As a result, private sector services remain unevenly accessible across the population (WHO & Health Cluster Syria, 2024).

3.3. Human Resources for Health

The health system in Al-Bab city faces a pronounced shortage of human resources for health, both in terms of absolute numbers and skill mix. Available estimates indicate the presence of approximately 80 physicians, alongside limited numbers of nurses and midwives. This corresponds to a physician density of approximately 0.6 physicians per 1,000 population, which is substantially below international benchmarks (World Health Organization, 2010; HeRAMS, 2024).

Critical gaps are particularly evident in intensive care, anesthesia, and high-risk obstetric care. To mitigate these shortages, many health facilities rely on task-shifting arrangements and short-term humanitarian contracts. Although training programs coordinated by the World Health Organization and the Health Cluster have contributed to skills development among remaining staff, these interventions have not been sufficient to offset ongoing workforce attrition (WHO & Health Cluster Syria, 2024).

Table-3: Availability of human resources for health in Al-Bab city

Category	Estimated number	Key gaps
Physicians	~80	Intensive care, anesthesia, obstetrics
Nurses	Limited	Critical care skills
Midwives	Limited	Emergency obstetric care

Table-3 illustrates the distribution of health workforce categories in Al-Bab city and highlights key skill shortages affecting service quality and continuity.

3.4. Epidemiological Profile

Health surveillance data indicate the continued prevalence of communicable diseases, including leishmaniasis, acute respiratory infections, and diarrheal diseases. At the same time, the burden of non-communicable diseases—such as diabetes, hypertension, and asthma—is increasing. This dual burden of disease places additional strain on a health system already constrained by limited infrastructure and workforce capacity, further complicating service delivery and resource allocation (WHO, 2024; OCHA, 2024).

4. Discussion

4.1. Interpretation of Graphical Evidence

Figure-1 demonstrates a highly centralized pattern of inpatient bed distribution within Al-Bab city's health system. The predominance of a single referral hospital as the primary provider of inpatient care reflects limited redundancy within the system and exposes structural fragility in the event of service disruption. From a health system resilience perspective, such concentration reduces absorptive and adaptive capacity, as the system lacks alternative pathways to accommodate sudden increases in demand or temporary facility closures. Comparable dynamics have been documented in other conflict-affected urban environments, where centralized service provision constrains surge capacity and heightens systemic vulnerability (Blanchet et al., 2017; Kruk et al., 2017).

Figure-1: Distribution of inpatient bed capacity by type of health facility in Al-Bab city

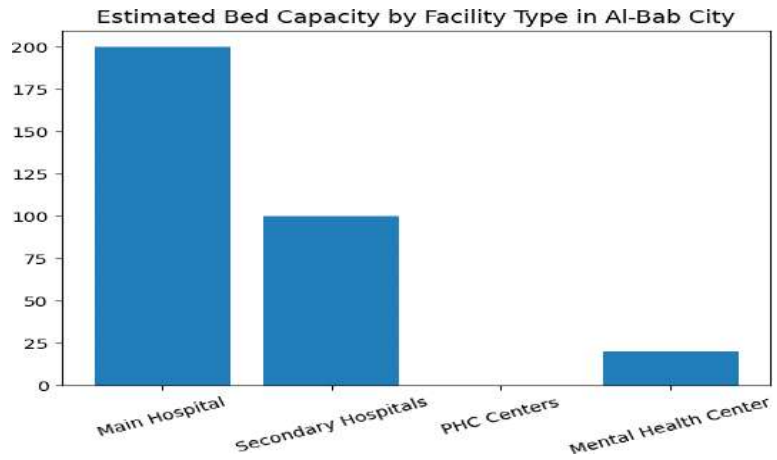


Figure-2 illustrates notable imbalances in the composition of the health workforce. Although nursing staff constitute a relatively larger proportion of available personnel, the scarcity of physicians and specialized cadres—particularly in intensive care and anesthesia—signals a critical mismatch between service demand and workforce capacity. Such skill-mix imbalances are characteristic of protracted conflict settings, where insecurity, professional migration, and limited training pipelines disproportionately affect highly specialized health professionals. These deficits constrain the delivery of advanced clinical services and undermine continuity of care, thereby weakening overall system performance (World Health Organization, 2017; HeRAMS, 2024).

Figure-2: Estimated distribution of health workforce categories in Al-Bab city

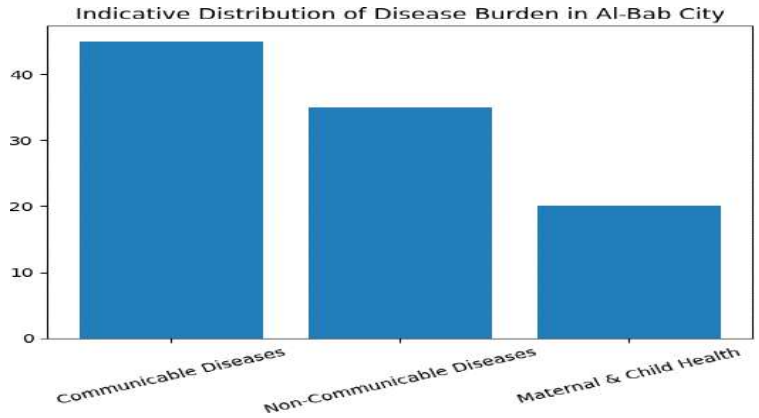
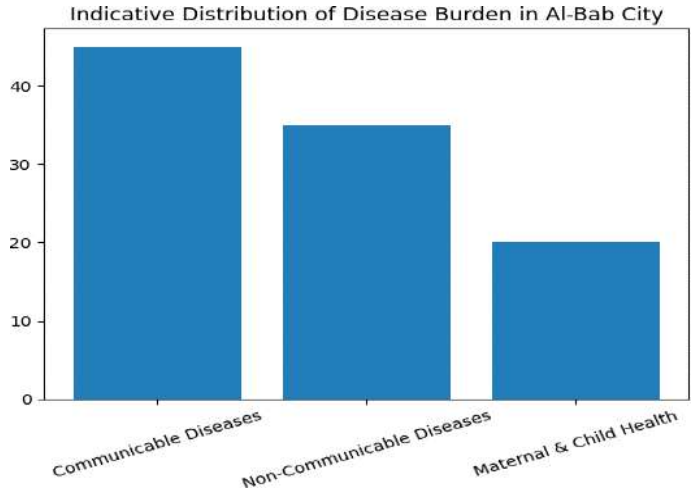


Figure 3 reflects a complex epidemiological landscape characterized by the coexistence of communicable diseases and an increasing burden of non-communicable conditions, alongside sustained maternal and child health needs. This dual disease burden typifies health transitions in conflict-affected urban settings, where emergency-driven service models persist despite evolving population health profiles. The resulting misalignment between prevailing disease patterns and service organization places additional strain on health systems that remain largely oriented toward short-term, acute care responses (World Health Organization, 2023).

Figure-3: Indicative distribution of major disease burden categories



4.2. Statistical Interpretation and System-Level Implications

Descriptive indicators suggest that Al-Bab city, with an estimated population of approximately 130,000, is served by one referral hospital and four secondary hospitals, yielding an overall inpatient bed density of roughly 2.5 beds per 1,000 population. While this aggregate figure may appear adequate in isolation, its interpretive value is limited by the highly uneven distribution of capacity across facilities. The concentration of more than half of inpatient beds within a single hospital substantially diminishes functional resilience, as system performance becomes contingent upon the uninterrupted operation of a single node (Kruk et al., 2017; World Health Organization, 2023).

Human resources constraints further exacerbate these structural limitations. The estimated physician-to-population ratio of 0.6 per 1,000 population remains well below internationally recognized reference levels and reflects chronic workforce depletion. Persistent shortages in critical specialties—such as intensive care, anesthesia, and high-risk obstetrics—restrict the scope and quality of services that can be delivered locally. Although international partners have implemented targeted training and capacity-building initiatives, these interventions have primarily served to stabilize service provision rather than reverse long-term workforce attrition (World Health Organization & Health Cluster Syria, 2024).

High utilization rates observed within primary healthcare facilities—exceeding 9,000 consultations per month in a single center—highlight sustained pressure on frontline services. This pattern underscores a widening discrepancy between escalating healthcare needs and the absorptive capacity of existing service delivery platforms. Similar utilization dynamics have been observed in rapidly urbanizing humanitarian contexts, where displaced populations increasingly rely on primary healthcare as the principal point of access to the health system (OCHA, 2024).

A defining structural characteristic of the health system in Al-Bab city is its pronounced dependence on humanitarian actors for financing, service delivery, and coordination. While humanitarian engagement remains indispensable for maintaining service continuity, such reliance introduces systemic constraints related to sustainability, accountability, and institutional integration. In the absence of stable public financing mechanisms and formalized governance arrangements, the transition from emergency response modalities toward sustainable health system strengthening remains limited, reinforcing cycles of fragility and short-termism (Blanchet et al., 2017; World Health Organization, 2023).

5. Policy Implications

The findings of this study carry significant implications for health policymakers, coordination bodies, and international partners operating in conflict-affected urban settings. The assessment highlights the urgent need to move beyond fragmented humanitarian service delivery toward the development of semi-formal governance arrangements that integrate humanitarian health provision within a more coherent and coordinated health system framework. Such arrangements are critical to improving accountability, alignment of service priorities, and system-level oversight in contexts where formal public health institutions remain constrained (Blanchet et al., 2017).

Strengthening policies aimed at retaining health workers—particularly specialized cadres such as intensive care physicians, anesthetists, and obstetric specialists—emerges as a strategic priority. Evidence from fragile and conflict-affected settings suggests that workforce retention requires a combination of financial incentives, professional development opportunities, and improved working conditions, rather than short-term training interventions alone (World Health Organization, 2017). Without sustained investments in human resources for health, efforts to expand service coverage and improve quality are likely to remain limited in scope and impact.

Furthermore, the findings underscore the necessity of transitioning from predominantly short-term humanitarian financing toward more stable and diversified funding mechanisms. While humanitarian funding has played a critical role in sustaining essential health services, its project-based and time-limited nature constrains long-term planning and system strengthening. The establishment of more predictable financing arrangements—potentially combining humanitarian, development, and local revenue streams—is essential for enhancing health system resilience and supporting a gradual shift from emergency response to sustainable service delivery models (World Health Organization, 2023).

6. Study Limitations

This study is subject to several limitations that should be considered when interpreting its findings. First, the analysis relies primarily on secondary data sources, which may vary in terms of accuracy, completeness, and reporting standards across institutions. Second, the availability of consistent, city-level data for Al-Bab was limited for certain indicators, necessitating the use of regional estimates for northwest Syria as proxy reference values. While this approach aligns with common methodological practices in humanitarian health systems research, it may mask intra-urban variations and localized service disparities (Kruk et al., 2017).

Finally, the descriptive nature of the analysis limits the ability to establish causal relationships between health system inputs, service delivery processes, and observed outcomes. As a result, the findings should be interpreted as indicative of structural and policy-relevant patterns rather than definitive causal effects. Future research incorporating primary data collection and mixed-methods approaches could further strengthen the evidence base and deepen understanding of urban health system dynamics in conflict-affected contexts.

7. Conclusion

This study has provided a policy-oriented assessment of health system capacity in Al-Bab city, offering empirical insights into the functioning of an urban health system operating under conditions of protracted conflict and sustained population displacement. By examining key dimensions of service delivery, health infrastructure, human resources for health, and governance arrangements, the analysis highlights the structural constraints and systemic vulnerabilities that shape health service provision in this context.

The findings underscore that aggregate capacity indicators alone are insufficient to capture health system performance in conflict-affected urban settings. Rather, the distribution of resources, the availability of specialized human capital, and the degree of institutional integration play a decisive role in determining system resilience and service continuity. The case of Al-Bab city illustrates how centralized infrastructure, persistent workforce shortages, and reliance on short-term humanitarian financing can collectively limit the ability of health systems to adapt to evolving health needs.

Beyond its empirical contribution, this study adds to the growing body of health systems and policy research by demonstrating the value of city-level analyses in humanitarian contexts. Urban settings affected by conflict exhibit distinct dynamics that are often obscured in regional or national assessments, yet these dynamics have direct implications for policy design and resource allocation. Localized evidence is therefore essential to inform context-sensitive strategies aimed at strengthening health systems in fragile environments.

Ultimately, enhancing the performance and sustainability of health systems in conflict-affected urban areas requires a deliberate shift from fragmented emergency responses toward more integrated and resilient system-building approaches. The experience of Al-Bab city highlights the importance of aligning humanitarian support with longer-term governance, financing, and workforce strategies to support a gradual transition from crisis response to sustainable health system strengthening.

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Chapter 3

Digital Transformation of Public Sector Organizations in Al-Bab City

Saleh Almachi[1]

1. Introduction

Al-Bab City, located in northern Syria, has witnessed profound transformations in its political and administrative structures following years of armed conflict that led to a partial collapse of state organizations and a significant decline in the level of public services. With the onset of recovery and reconstruction, an urgent need has emerged to rebuild government organizations on modern foundations that respond to citizens' aspirations and keep pace with global technological changes.

In this context, digital transformation has become an indispensable strategic choice. It enables improved efficiency of government performance, facilitates access to services, strengthens transparency and accountability, and helps bridge the gap between citizens and organizations while opening new horizons for sustainable local development. Digital transformation is not merely a technical upgrade; rather, it represents a strategic option for rebuilding the social contract between citizens and the state, redefining their relationship on the basis of transparency, efficiency, and active participation.

This section aims to examine the reality of Al-Bab City in relation to the transition from traditional organizations to smart organizations, by reviewing the stages of transformation, identifying the main challenges faced by government entities, and assessing the impact of this transformation on institutional performance and the quality of services provided to citizens.

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2. Traditional Organizations vs. Smart Organizations

2.1. Traditional Organizations

These are organizations that rely on hierarchical administrative structures, paper-based procedures, and centralized decision-making. Such organizations are characterized by slow responsiveness to change, weak interaction with citizens, and lack of integration among their units. Their processes are often manual, which leads to high error rates and increased operational costs, while limiting transparency and accountability. (Al-Khouri, 2012: 211–215)

2.2. Smart Organizations

These represent a modern model of management that relies on digital technologies, big data, and artificial intelligence in service delivery and decision-making. Smart organizations are distinguished by flexibility, rapid responsiveness, and system integration, with a focus on improving the citizen experience and enhancing transparency. They also employ predictive analytics and machine learning to improve performance and provide customized, efficient services (Al-Khudrawi, 2025).

Table 1: Comparison Between Smart and Traditional Organizations

Aspect	Traditional Organizations	Smart Organizations
Administrative Structure	Hierarchical and centralized	Flexible and distributed, based on multifunctional teams
Leadership	Traditional with manual control	Collaborative and cross-functional leadership
Organizational Environment	Closed to internal expertise	Open to external expertise
Employee Interaction	Passive, requires physical presence	Active, requires mental engagement and effectivenes
Methods	Traditional, paper-based	Electronic, based on artificial intelligence
Outcomes	Slow and inaccurate	Fast and precise

Source: Marzouq et al., 2024, pp. 149–178

Table-1 reflects a fundamental transformation in the nature of contemporary organizations, as smart organizations move toward adopting flexible, digital, and participatory models, in contrast to traditional organizations that rely on hierarchical structures and manual methods.

- Administrative Structure: Smart organizations are characterized by flexibility and functional distribution, which enhances decision-making speed and encourages innovation, whereas traditional organizations remain constrained by hierarchical chains that slow responsiveness and limit individual initiative.
- Work Style: Digital work methods in smart organizations enable greater integration among teams and boost productivity through collaborative tools, while traditional paper-based approaches lack efficiency and speed.
- Decision-Making: Data-driven decision-making represents a qualitative shift in smart organizations, where intelligent analytics guide policies and operations. In contrast, traditional organizations rely on personal experience and impressions, increasing the likelihood of bias or error.
- Employee Interaction: In smart organizations, interaction occurs through modern platforms and applications, creating a more dynamic and inclusive work environment. Traditional organizations, however, limit interaction to physical presence.
- Transparency and Accountability: These rise significantly in smart organizations thanks to tracking and analytical tools, which strengthen trust and facilitate performance evaluation. Traditional organizations suffer from weaknesses in this area due to the absence of effective measurement tools.
- Adaptability: One of the most prominent advantages of smart organizations is their ability to respond quickly to changes, while traditional organizations struggle to keep pace with the rapid transformations of the business environment.

3. Models of Digital Transformation in Public Administration

3.1. Gartner Model for Digital Transformation

The Gartner model is one of the most widely used frameworks in strategic planning for digital transformation. It is based on five main stages:

- Awareness: Recognizing the importance of digital transformation and beginning to consider its application.
- Preparation: Assessing the current situation and identifying digital gaps.

- Experimentation: Implementing small-scale digital projects to test solutions.
- Transformation: Integrating technology into the core processes of the institution.
- Optimization: Reviewing performance and continuously improving systems.

This model emphasizes gradual transformation and encourages building a digital culture within the institution before full-scale adoption. (Kutub, 2025)

3.2. OECD Model for Government Digital Transformation:

The Organisation for Economic Co-operation and Development (OECD) provides a comprehensive framework for digital transformation in the public sector, built upon the following principles:

- Citizen-Centric Approach: Designing digital services around the needs of users.
- Openness and Transparency: Enhancing access to government data and involving citizens in decision-making.
- Organizational Flexibility: Adjusting policies and administrative structures to keep pace with technological developments.
- Sustainable Innovation: Encouraging experimentation and learning from digital initiatives.
- Institutional Integration: Building interconnected systems to deliver unified and efficient services.

This model is used to assess governments' readiness for digital transformation and serves as an important reference in digital public policy. (OECD, 2020)

4. Stages of Transformation Toward Smart Organizations

4.1. The Transformation Toward Smart Organizations:

The transformation toward smart organizations proceeds through interconnected stages that begin with diagnosis and analysis and culminate in innovation and continuous improvement. These stages include: diagnosis, vision formulation, building digital infrastructure, redesigning processes, developing human capital, governance and data management, and finally continuous innovation (Bakkah Education, 2023; London Training Centre, 2023; Myosus, 2023).

- Diagnosis and Analysis Stage: This involves assessing the institution's current situation (infrastructure, processes, organizational culture), identifying gaps between the present and the desired future, and analyzing the internal and external environment using tools such as SWOT or PESTEL.
- Vision and Strategy Stage: Formulating a clear vision for smart transformation (e.g., a data-driven and innovation-oriented institution), setting measurable strategic objectives linked to efficiency, innovation, and flexibility, and defining transformation priorities (customer services, internal processes, digital governance).
- Digital Infrastructure Stage: Updating technological systems (cloud computing, Internet of Things, artificial intelligence), building centralized and secure databases, and ensuring integration among different systems to facilitate information flow.
- Process Redesign Stage: Automating routine processes using artificial intelligence and robotic process automation (RPA), adopting agile methodologies for project management and innovation, and enhancing operational flexibility to reduce costs and increase productivity.
- Human Capital Development Stage: Training employees in digital and analytical skills, promoting a culture of innovation and continuous learning, and building multidisciplinary teams capable of adapting to change.
- Governance and Data Stage: Establishing policies for data management and protection, adopting smart performance indicators (KPIs) to monitor progress, and strengthening transparency and accountability through digital systems.
- Innovation and Continuous Improvement Stage: Investing in research and development, using predictive analytics for proactive decision-making, and periodically reviewing strategies to ensure alignment with market and technological changes.

It should be noted that digital transformation is not linear but circular, meaning that each stage feeds into the others and returns the institution to diagnosis and continuous improvement. Smart organizations focus not only on technology but also on organizational culture and adaptability. In post-conflict contexts such as Syria, emphasis should be placed on building human capacity and digital governance rather than direct investment in advanced technologies, in order to ensure sustainability and local relevance.

5. The Importance of Smart Governance in Post-Conflict Contexts

In post-conflict environments, smart governance emerges as a vital tool for rebuilding trust between citizens and public organizations and for strengthening social and economic stability. Smart governance relies on the use of digital technologies and open data to improve the efficiency of public administration, ensure transparency and accountability, and facilitate citizen participation in decision-making. In such contexts, where organizations have been fragmented or weakened, smart governance provides flexible and rapid mechanisms to reorganize services, distribute resources fairly, and continuously monitor performance. It also enables local governments to overcome traditional obstacles and deliver more responsive and effective services, thereby accelerating recovery and building organizations that are better able to adapt to future challenges. (Al-Husseini, 2025)

Comparative studies indicate that digital transformation in post-conflict environments is not limited to improving services but also serves as a tool for rebuilding the social contract between citizens and the state. For example, in Rwanda after 1994, the government relied on digital platforms to simplify administrative procedures and enhance transparency, which contributed to restoring trust in public organizations and accelerating economic development. (UNDP, 2021)

6. The Institutional Reality in Al-Bab City

6.1. Description of the Administrative Structure

Before 2012, government organizations in Al-Bab City, like other public organizations in Syria, relied on a traditional administrative model characterized by slowness. Procedures were carried out in paper-based form, which caused increased workload, accumulation of files, difficulty in accessing information, and higher risks of errors and damage. These organizations also lacked effective coordination among their different units, sometimes resulting in data duplication and contradictions, thereby hindering the provision of integrated services to citizens. In addition, public services were limited in both type and quality, often requiring repeated physical presence, which placed a burden on citizens, especially given the weak infrastructure and human resources. This traditional reality posed a major challenge to the aspirations of the population and prompted consideration of more efficient and responsive models.

With the onset of the revolution and the city's liberation from the regime, no clear administrative system was adopted due to the succession of different actors

managing the city for short periods, until it was liberated again from the Syrian Democratic Forces (SDF) in 2017. From then until 2025, the city remained under the unified administration of the local council. During this period, some modern technologies were introduced to regulate administrative affairs and facilitate procedures. These systems were applied in managing civil affairs (civil registry), administrative affairs, the Directorate of Education, health administration, chambers of industry and commerce, and other departments. They significantly contributed to simplifying procedures, organizing work, and reducing errors.

After Syria was liberated from Bashar al-Assad's regime, the administrative division of the liberated areas was restructured in 2017 to return to the pre-2011 arrangements, reinstating Al-Bab's administrative affiliation to Aleppo Governorate and abolishing the local council system that had been in place between 2017 and 2025. Since then, the administrative methods and systems adopted by the Syrian government have been applied.

As Syria is currently undergoing a transitional phase in which a new system is being established, the administrative system in Al-Bab is considered temporary and suffers from certain administrative and technical problems. These stem from reliance on old mechanisms previously used under the government system before liberation. However, there is a strong governmental orientation toward encouraging institutional automation and adopting modern systems that help simplify procedures and save citizens' time and effort.

6.2. Challenges and Obstacles to Digital Transformation

The impact of smart transformation is not limited to improving administrative performance; it also extends to enhancing community participation. A recent study showed that the use of electronic portals and smart applications in municipalities increases citizen participation in decision-making by up to 30% compared to traditional methods (OECD, 2023). This highlights the importance of integrating technology into local governance in Al-Bab City, where digital platforms can contribute to strengthening transparency and expanding public participation in shaping public policies.

Despite notable progress in the path toward smart organizations in Al-Bab, government entities face a set of challenges and obstacles that affect the speed and effectiveness of implementation. The most prominent of these challenges is weak technical infrastructure, as many organizations lack adequate digital equipment and stable communication networks, which hinders the efficient operation of electronic systems. The shortage of qualified personnel also poses a major challenge, since most employees do not have sufficient expertise in

dealing with modern technologies, necessitating additional efforts in training and capacity-building.

In addition, organizational obstacles emerge, such as the absence of supportive legislation for digital transformation—particularly regarding data management and privacy protection—and limited funding required to update and maintain systems. Some organizations also face internal resistance to change, stemming from fears of losing control or uncertainty about new roles. These challenges require systematic solutions to ensure the sustainability of transformation and the achievement of its developmental goals. (Meili, 2025)

6.3. Proposed Stages for Digital Transformation in Al-Bab City

For government organizations in Al-Bab City to transition toward the smart model, the process must begin with the digitization stage, in which electronic systems are introduced to manage transactions and records. This reduces reliance on paper-based procedures and improves the efficiency of administrative processes.

The next stage is network integration, particularly through the activation of the postal department in the area, which plays a major role in linking the city's organizations with databases of different entities. This enables smoother and faster information exchange and strengthens coordination among government bodies.

In the framework of enhancing human resource readiness, capacity-building programs should be launched, focusing on training employees to use modern technologies and developing their skills in handling digital systems.

Equally important is citizen engagement, achieved by developing electronic portals and smart applications that allow citizens to submit requests, track transactions, and access public services remotely. This strengthens interaction between citizens and organizations, while raising levels of trust and overall satisfaction.

Conclusion

The shift toward smart organizations has a direct impact on the investment environment, as the presence of transparent digital systems reduces transaction costs and strengthens investor confidence. According to a World Bank report, countries that adopted digital reforms in public administration experienced an increase in foreign direct investment (FDI) ranging between 15–20% within five years (World Bank, 2022). In the case of Al-Bab City, such transformation could serve as a catalyst for attracting capital and supporting small and

medium-sized enterprises, thereby contributing to economic reconstruction. Beyond the economic impact, smart transformation also enhances community participation. Citizens become more capable of tracking their transactions and submitting feedback through digital platforms, which reinforces their sense of belonging and trust in organizations (OECD, 2023). In addition, it improves service quality, accelerates delivery, and strengthens transparency and accountability.

Ensuring the sustainability of smart transformation requires the permanent integration of technology into public policies, the allocation of sufficient financial and human resources, and the establishment of partnerships with the private sector and international organizations to support digital innovation (Kutub, 2025).

Finally, for effective digital transformation, it is recommended to leverage the expertise and experiences of professionals and practitioners in this field—particularly Syrian experts who can provide applicable models of digital transformation for public organizations. Training programs should also be conducted to raise the capacity of public sector employees in handling modern technological systems, alongside allocating dedicated budgets for automating public organizations and providing the necessary equipment and requirements for digital transformation.

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Chapter 4

Economic Reality and Future Development Prospects in Al-Bab City

Abdo Hamada[1]

1. Introduction

Al-Bab city is located in the eastern part of Aleppo governorate, approximately 30 kilometers from Aleppo city, and is considered one of the most important cities in eastern rural Aleppo (Al Jazeera Net, 2017)[1]. Historically, the city has played an important role as a commercial and agricultural hub, benefiting from the fertility of its lands and its location on traditional trade routes.

The city witnessed notable economic development over the past decades, especially in agricultural sectors and food industries. However, the events that Syria has witnessed since 2011 significantly affected the city's economic situation (Hatahet, 2021)[2], requiring the development of new developmental strategies to revive and develop its economy.

2. Current Economic Situation

2.1. Main Economic Sectors

2.1.1. Agricultural Sector

The agricultural sector is considered the backbone of Al-Bab city's economy, employing about 45% of the workforce in the city (Syria TV, 2022)[3]. The region is famous for producing several main crops:

- Olives: About 12,000 tons annually of olives and olive oil.
- Wheat and Barley: Grain crops with a total area estimated at 25,000 hectares.

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- Pomegranates: Al-Bab is considered one of the most important pomegranate production areas in Syria, with annual production estimated at 8,000 tons.
- Aleppo Pistachios: Limited but high-quality production.

2.1.2. Industrial Sector

Industrial activity in Al-Bab city is concentrated around food and processing industries, especially:

- Olive Presses: About 15 modern and advanced presses.
- Grain Milling: 8 mills with a total production capacity of 200 tons daily.
- Halawa and Tahini Industry: The city includes more than 25 factories.

Al-Bab Industrial City - Current Status:

- Total Area: 500 hectares.
- Number of Operating Factories: 45 factories (Industrial City, 2025)[4].
- Direct Job Opportunities: 2,800 jobs.
- Main Sectors: Food, Chemical, Textile, Metals, Plastics Industries (Sot Souri, 2024)[5].
- Total Investment: 85 million dollars.
- Participation in Damascus International Fair: 62nd Session (2025) with wide attendance (Syrian Arab News Agency, 2025)[6].

Challenges and Constraints

Weak Infrastructure

Al-Bab city faces major infrastructure challenges including:

- Water Network: Heavy dependence on groundwater and weakness in distribution network.
- Roads and Transportation: Urgent need for development and maintenance of main roads.

Lack of Investments

The local economy suffers from a lack of new investments due to (Hatahet, 2021)[2]:

- Relative security instability.

- Difficulty in obtaining banking financing.
- Absence of adequate investment incentives.

Limited Water Resources

Limited water availability is considered one of the biggest challenges facing economic development (Syria TV, 2022)[3], where:

- Continuous decline in groundwater levels.
- The Syrian regime's cutting off of Ain al-Baida water that used to supply the city.
- Current absence of stable surface water sources.
- High cost of pumping water from deep wells (120 dollars per barrel of diesel).
- Impact of water scarcity on agricultural production and decline in cultivation of water-intensive crops like cotton.

Strengths and Weaknesses

Strengths	Weaknesses
Distinguished strategic geographic location	Weak infrastructure
Accumulated local expertise in agriculture and industry	Limited water resources
Availability of fertile agricultural land	Lack of new investments
Existing and expandable industrial city	Weak marketing and export networks
Diversity in agricultural and industrial production	Shortage of specialized personnel
Proximity to regional markets	Limited banking services

Proposed projects for developing the local economy in the city of Al-Bab

2.1.3. Current Status and Capabilities

Al-Bab Industrial City is considered the first integrated industrial city in northern Syria, having begun its actual operations in 2021 (Sot Souri, 2024)[5]. The city is located on an area of 500 hectares and currently includes 45 operating factories in various sectors. In 2025, the industrial city participated with a distinguished pavilion in the 62nd Damascus International Fair, reflecting the growing confidence in its economic future (Syrian Arab News Agency, 2025)7.

The industrial city is characterized by several competitive advantages:

- Relatively advanced infrastructure.
- Integrated logistics services.
- Proximity to agricultural raw materials.
- Availability of skilled and trained labor.
- Simplified administrative procedures.

Proposed Expansion Plan: The expansion plan aims to double the size of the industrial city and diversify its activities:

Targeted Industrial Sectors:

Food and Beverage Industries:

- Fruit and vegetable canning and drying factories.
- Natural juice and beverage factories.
- Dairy and dairy product factories.
- Automated bakeries and confectionery factories.

Textile Industries:

- Cotton and wool spinning mills.
- Textile and knitting factories.
- Ready-made clothing factories.

Building Materials Industry:

- Stone and block factories.
- Tile and ceramic factories.
- White cement factories.
- Small iron and steel factories.

Light Chemical Industries:

- Detergent and soap factories.
- Paint and varnish factories.
- Organic fertilizer manufacturing.
- Plastic and rubber factories.

Financing and Investment: The industrial city expansion project requires a total investment of 450 million dollars distributed as follows:

Component	Cost (Million Dollars)	Percentage
Infrastructure	120	26.7%
Factory Construction	200	44.4%
Equipment and Machinery	80	17.8%
Working Capital	30	6.7%
Marketing and Promotion	20	4.4%
Total	**450**	**100%**

Irrigation Project from Euphrates River - Economic and Technical Feasibility

Project importance

The irrigation project from the Euphrates River comes as a strategic solution to the water scarcity problem in Al-Bab city and surrounding areas (Ministry of Agriculture - Syrian Interim Government, 2024)[7]. The river, located approximately 35 kilometers northeast of the city, provides a sustainable water source that can be relied upon to irrigate thousands of hectares of agricultural land. It should be noted that similar projects have been recently implemented in rural Aleppo, where water was pumped from the Euphrates River to Al-Safira city in a project described as the largest in rural Aleppo (Syria TV, 2025)[8].

Main justifications for the project:

- Securing a sustainable water source for agriculture.
- Increasing cultivated areas for strategic crops.
- Improving agricultural productivity.
- Creating new job opportunities in the agricultural sector.
- Enhancing local food security.

Feasibility

The project can achieve significant economic, social, and environmental benefits, including

- Improving farmers' living standards.
- Reducing migration from rural to urban areas.
- Preserving groundwater.
- Increasing vegetation cover.

- **Commercial and Recreational Activities Projects to Serve Aleppo City**

Given the strategic location of Al-Bab city only 30 kilometers from Aleppo city, which is Syria's economic capital with more than 4.6 million inhabitants (Omran Center for Strategic Studies, 2025)[9], developing the commercial and recreational activities sector in Al-Bab represents a very promising investment opportunity. Al-Bab city can transform into an integrated commercial and recreational destination serving Aleppo residents and the entire northern region. Among the most important of these commercial and service projects are shopping centers, permanent and seasonal exhibitions, tourist resorts, entertainment and amusement projects, restaurants, and cafes.

- **Economic and Social Impact**

3.1.1. Impact on Aleppo City

Aleppo city will benefit significantly from these projects through:

- Nearby Recreational Destination: Local alternative to distant destinations.
- Relieving Pressure on Shopping Centers: In congested Aleppo.
- Job Opportunities for Aleppo Residents: 30% of jobs allocated for Aleppo residents.
- Strengthening Economic Connectivity: Between Aleppo and Al-Bab.
- Improving Quality of Life: Diverse recreational and commercial options.
- **Impact on Al-Bab City**
- Diversifying Local Economy: Reducing dependence on agriculture and industry only.
- Increasing Local Revenue: From taxes and fees.
- Improving Infrastructure: Roads, transportation, and services.
- Raising Land Values: In areas surrounding projects.
- Attracting Other Investments: In complementary sectors.
- **Future Development Prospects/Strategic Objectives**

The strategic Objectives for Al-Bab aims to transform it to "a developed and sustainable economic center, combining excellence in agricultural and industrial production, technological innovation, and environmental sustainability."

- Balanced Economic Development: Achieving sustainable economic growth of 8-10% annually.
- Industrial Development: Establishing a diversified and competitive industrial base.
- Agricultural Modernization: Implementing the latest sustainable agricultural technologies.
- Human Development: Building human resource capacities and developing skills.
- Environmental Sustainability: Protecting the environment and natural resourcesFuture Scenarios.
- **Strategic Development Plan**
- **First Axis: Infrastructure Development**

Infrastructure development is considered the foundation for any sustainable economic development. Priorities include:

Electricity Network:

- Establishing a 50-megawatt power generation station.
- Developing distribution network and increasing reliability.
- Encouraging use of renewable energy.

Water and Sewage Network:

- Expanding drinking water network to cover 100% of the city.
- Establishing sewage treatment plant.
- Developing modern irrigation network.

Transportation Network:

- Developing Aleppo-Al-Bab main road.
- Establishing highway to Turkish border.
- Developing local airport.

Communications Network:

- Expanding high-speed internet coverage.
- Developing mobile communications network Establishing specialized technical centers.
- **Second Axis: Advanced Industrial Development**

Based on the success of the current industrial city, the plan focuses on:

- Horizontal Expansion: Increasing industrial city area to 1,500 hectares.
- Qualitative Development: Attracting high-tech and value-added industries.
- Industrial Integration: Establishing integrated industrial clusters.
- Innovation and Research: Establishing research and development centers.
- **Third Axis: Sustainable Agricultural Development**

Modernizing the agricultural sector through:

- Smart Agriculture: Applying modern irrigation techniques and precision farming.
- Agricultural Diversification: Introducing new high-value crops.
- Value Addition: Developing agricultural processing industries.
- Advanced Marketing: Establishing modern collection and marketing centers.
- **Fourth Axis: Human Resource Development**

Investing in human capital through:

- Technical Education: Establishing specialized technical institutes.
- Vocational Training: Advanced training programs.
- Scientific Research: Supporting applied research.
- Entrepreneurship: Encouraging startup projects.

4. Recommendations and Conclusions

Strategic Recommendations

Short-term Recommendations

- Prioritize the irrigation project from Euphrates River as the project with the most impact on the local economy.
- Develop a graduated financing plan starting with quick-return projects to finance other projects.
- Establish a development authority specific to Al-Bab city to coordinate efforts and manage projects.

- Create attractive investment incentives for local and regional investors.
- Develop partnerships with universities and research centers to support innovation and development.

Medium-term Recommendations

- Expand vocational training programs to meet new industry needs.
- Develop regional and international marketing network for local products.
- Establish a local development fund to support small and medium enterprises.
- Apply quality and environmental sustainability standards in all projects.
- Develop economic and agricultural tourism as a supporting sector.

Long-term Recommendations

- Transition towards knowledge economy and high-tech industries.
- Develop local innovation ecosystem and technical entrepreneurship.
- Develop e-commerce and digital services
- Enhance environmental sustainability and renewable energy

Critical Success Factors

The success of the strategic plan depends on the availability of several critical factors:

- Security and Political Stability: Essential for attracting investments and ensuring project continuity.
- Adequate Financing: Providing diverse and sustainable financing sources.
- Effective Management: Having qualified management committed to plan implementation.
- Community Participation: Involving local community in development process.
- Government Support: Providing necessary legal and administrative support.

Risks and Challenges

- **Internal Risks**

- Financing Shortage: Difficulty in providing required investments.
- Lack of Qualified Personnel: Shortage of technical and administrative expertise.
- Resistance to Change: Resistance from some groups to development.
- Environmental Problems: Impact of projects on local environment.
- **External Risks**
- Security Instability: Impact of regional security situations.
- Climate Changes: Impact of climate changes on water resources.
- Regional Competition: Competition from other regions.
- Global Economic Fluctuations: Impact of global economic crises.

The study indicates that Al-Bab city has great potential to achieve a comprehensive economic renaissance over the next fifteen years. The distinguished strategic location, accumulated local expertise, and existing industrial and agricultural base are all factors that favor achieving the outlined development goals.

Implementing the three major strategic projects - the expanded industrial city, irrigation project from Euphrates River, and commercial and recreational complexes - alongside infrastructure development, is capable of transforming Al-Bab city into an integrated economic center with multiple activities. These projects are strategically interconnected and complementary: the irrigation project provides agricultural raw materials for food industries, the industrial city provides jobs and products, while commercial and recreational complexes attract visitors from Aleppo and enhance commercial and tourism activity in the city.

The most important strategic dimension in this plan is linking Al-Bab city with Aleppo city, Syria's economic capital with more than 4.6 million inhabitants.

Success in achieving the outlined goals requires concerted efforts from all parties - government, private sector, civil society, local and regional investors, and international donors. It also requires following a scientific methodology in implementation, flexibility in dealing with challenges, and benefiting from global best practices in integrated economic development fields.

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Chapter 5

Educational Capacity Analysis in the City of Al-Bab: Challenges and Strategic Policy Solutions

Suad Muvakit[1]

1.Introduction

Education plays a central role in rebuilding societies affected by conflict, acting as both a foundation for human development and a driver of long-term economic resilience. In post-conflict environments, the restoration and expansion of educational capacity is considered one of the most urgent policy priorities, as disruptions to schooling often result in long-lasting losses in human capital, weakened labor market participation, and reduced social stability (UNESCO, 2021). The province of Al-Bab, located in northern Syria, represents a crucial case where demographic pressure, displacement, and the deterioration of infrastructure have created significant challenges for local education systems.

Since 2016, Al-Bab has experienced rapid population growth linked to internal displacement flows and return migration, which has substantially increased the demand for basic and secondary education. At the same time, many school buildings suffered structural damage, teacher shortages intensified, and the capacity of local educational institutions became insufficient relative to the number of enrolled students. These dynamics have resulted in overcrowded classrooms, limited access to secondary education, and inequalities between males and females across grade levels—issues commonly observed in fragile and conflict-affected regions (UNICEF, 2022).

Assessing the educational capacity of Al-Bab is therefore essential for understanding the scale of the current gaps and for guiding targeted interventions in school construction, teacher training, and resource allocation. This study aims to provide a comprehensive evaluation of the educational

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system in Al-Bab by analyzing school availability, student distribution, and structural constraints, using both local administrative data and international benchmarks. The objective is to identify critical shortages and propose evidence-based solutions that align with global standards for education in emergency and recovery settings (World Bank, 2020).

Ultimately, this paper contributes to the broader literature on education in post-conflict reconstruction by offering localized, data-driven insights and policy recommendations tailored to the needs of northern Syria. Strengthening the educational capacity of Al-Bab is not only a developmental priority but also a necessary step toward restoring social cohesion and enabling future economic growth.

- **Literature Review**

2.1. Education in Post-Conflict and Fragile Settings

Education systems in conflict-affected and fragile regions often face severe deterioration due to the destruction of infrastructure, loss of teachers, displacement of populations, and disruptions to the governance of schooling. According to UNESCO, more than 222 million children living in conflict zones globally experience unstable or interrupted schooling, resulting in long-term human capital losses (UNESCO, 2022). Conflict typically reduces enrollment, increases dropout rates, and creates structural inequalities between regions and genders. Studies on Iraq, Afghanistan, and South Sudan show that rebuilding educational infrastructure requires multi-year investments and coordinated interventions from both local authorities and international agencies (Burde et al., 2017).

In Syria specifically, reports by UNICEF and the Education Cluster highlight that more than one-third of school facilities were damaged or made unusable after 2011, causing overcrowding in surviving schools and severe shortages in teaching staff. The combination of displacement, poverty, and insecurity has also contributed to rising dropout rates, especially among secondary school students and girls (Education Cluster Syria, 2023). These patterns provide a foundation for understanding the educational challenges currently observed in Al-Bab.

2.2. Educational Capacity: Concept and Analytical Framework

The concept of educational capacity refers to the ability of an educational system to accommodate, teach, and graduate students at different levels of schooling. It includes infrastructure availability (school buildings, classrooms), human resources (qualified teachers), administrative competence, learning

materials, and accessibility for all demographic groups (OECD, 2019). Capacity is not only a question of physical space but also the system's ability to deliver quality education efficiently.

International frameworks, such as the INEE Minimum Standards for Education in Emergencies, emphasize that adequate educational capacity requires alignment between student demand and available school resources. Indicators used globally include student-to-school ratio, student-to-teacher ratio, distribution of schools across regions, access to early childhood education, transition rates between stages (primary to preparatory to secondary) (INEE, 2018).

2.3. Comparative Evidence from Other Post-Conflict Contexts

Comparative experiences from other post-conflict environments provide valuable lessons. For example, Lebanon's educational system faced significant strain due to the influx of refugees after 2012, forcing schools into double-shift operation to expand capacity without new construction (Shuayb, 2020). In Iraq, reconstruction efforts prioritized rebuilding schools and retraining teachers to address years of conflict-related disruptions (World Bank, 2018). Similar findings appear in studies from Afghanistan, where the scarcity of secondary schools dramatically limited access for students in rural areas (Johnson & Mohammed, 2021).

Northern Syria's educational landscape shares these characteristics. According to recent reports, regions such as Al-Bab, Azaz, and Afrin face rapid population growth and insufficient school infrastructure, leading to overcrowded classrooms and limited access to secondary education (Syria Education Cluster, 2023). These comparative insights illustrate that rebuilding education in Al-Bab requires both physical expansion and improvements in governance and teacher training.

- **Methodology**

This study employs a descriptive–analytical research design to assess the educational capacity of Al-Bab Province. This approach is appropriate for examining educational systems in regions where quantitative data may be limited but structural challenges can be analyzed through available demographic and institutional indicators (Creswell, 2014). The methodology integrates primary administrative data obtained from local authorities in Al-Bab with secondary international sources to develop a comprehensive picture of the province's educational landscape.

3.1. Research Design

A descriptive–analytical design allows for mapping the current conditions of schools, student distribution, infrastructure, and system capacity, while also interpreting gaps relative to international standards. This type of design has been widely used in studies of education in post-conflict environments, where data availability is often fragmented and qualitative insights are essential for contextual interpretation (UNESCO, 2021).

3.2. Data Sources

3.2.1. Local Administrative Data (Primary Data)

The study relies on official records from the local education directorate in Al-Bab, including number of students by gender and educational stage (primary, preparatory, secondary); number of schools by type (KG, primary, preparatory, secondary, mixed-level schools); distribution of school levels within the district.

These data provide the empirical basis for calculating student-to-school ratios, identifying structural imbalances between levels, and highlighting capacity shortages.

3.2.2. International and Regional Reports (Secondary Data)

Secondary data were obtained from credible organizations, including UNESCO Global Monitoring Reports (school capacity benchmarks); UNICEF Syria Education Reports; Education Cluster Needs Assessments for northern Syria; World Bank publications on educational reconstruction in conflict-affected regions.

These sources enable comparison between Al-Bab's educational situation and global standards, particularly in areas such as student–teacher ratios, minimum infrastructure requirements, and access to secondary education.

3.3. Analytical Framework

The analysis follows an educational capacity assessment framework used in global post-conflict studies (INEE, 2018; OECD, 2019). Four key indicators are adopted:

- Student-to-School Ratio: Quantifies overcrowding and reveals whether physical infrastructure is sufficient for current enrollment levels.

- Distribution of Students Across Educational Stages: Identifies potential bottlenecks—especially in secondary education—in comparison to primary-level student volume.
- Gender Distribution: Examines disparities in access between males and females across stages.
- Infrastructure and School-Type Composition: Assesses the degree of fragmentation across school types (single-level vs. multi-level schools), which affects management efficiency and educational continuity.

3.4. Data Analysis Procedure

- Tabulation of Raw Data: The local administrative data are organized into analytical tables (students, schools, levels).
- Computation of Ratios: Student-to-school ratios and other capacity indicators are calculated and visualized using charts.
- Benchmark Comparison: Results are compared with UNESCO and INEE recommended standards (e.g., maximum class size, minimum number of secondary schools per population).
- Interpretation and Synthesis: Quantitative findings are interpreted in light of international literature on post-conflict education challenges.

3.5. Ethical Considerations

All data used in this study are aggregated administrative statistics, ensuring no personal information is disclosed. The analysis conforms to ethical research practices for studies in fragile and conflict-affected regions (UNICEF, 2022).

3.6. Limitations

The study acknowledges limitations related to restricted availability of detailed teacher-level data; potential underreporting of out-of-school children due to displacement; incomplete infrastructure damage assessments for school buildings.

Despite these limitations, the methodology provides a robust foundation for evaluating educational capacity in Al-Bab.

- **Overview of Al-Bab Province**

Al-Bab Province, located in the northern Aleppo countryside of Syria, has become one of the most dynamic and densely populated urban centers in the region following the conflict. Prior to 2011, Al-Bab was a medium-sized city with a primarily agricultural and commercial economy; however,

population displacement, shifts in territorial control, and reconstruction dynamics have profoundly reshaped its demographic and socio-economic structure (Syria Central Bureau of Statistics, 2010). Since 2016, the city has witnessed significant population inflows due to internal displacement from surrounding areas, contributing to a rapid rise in demand for essential public services, especially education (UN OCHA, 2022).

4.1. Demographic Characteristics and Population Growth

Al-Bab is estimated to host several hundred thousand residents, including internally displaced persons (IDPs), returnees, and long-term inhabitants. These demographic changes have created a youthful population structure, characterized by a high proportion of school-age children compared to adults. Similar trends are observed across northern Syria, where population density has surged in urban centers that serve as hubs for displaced families (Education Cluster Syria, 2023). This demographic pressure intensifies the demand for schooling, resulting in overcrowding in available school buildings and increased strain on educational infrastructure.

4.2. Economic and Social Context

The local economy of Al-Bab is anchored in small-scale commerce, agriculture, construction, and services. While economic activity has partially recovered due to relative stability in recent years, the impacts of conflict—such as unemployment, poverty, and infrastructure degradation—continue to affect household capacity to support children's education. International assessments indicate that families in northern Syria often face economic barriers that contribute to dropout rates, early marriage for girls, and child labor for boys (UNICEF, 2022). These factors shape the broader environment in which the education system operates.

4.3. Public Service Provision and Institutional Capacity

Local governance institutions in Al-Bab have made efforts to improve service delivery across health, education, and municipal sectors. Nevertheless, limited funding, fragmented governance structures, and dependence on humanitarian organizations pose challenges to sustainable development. In the education sector specifically, several school buildings were damaged during the conflict, requiring extensive rehabilitation. Although some schools have been restored, many still operate with insufficient classrooms, inadequate furniture, and shortages in qualified teachers (Humanitarian Needs Overview, 2023).

4.4. Educational Demand in Al-Bab

The demand for education in Al-Bab is exceptionally high due to three primary factors:

- High fertility and population growth, resulting in large cohorts of early school-age children.
- Internal displacement, which has increased student enrollment beyond the planned capacity of existing schools.
- Limited access to nearby alternative education centers, making local schools the only feasible option for most families.

These factors collectively explain why assessing the educational capacity of Al-Bab is crucial for designing effective policy interventions in subsequent sections of this study.

- **Analysis of Educational Capacity in Al-Bab**

This section provides a detailed assessment of the educational capacity of Al-Bab Province using student enrollment data, school distribution, and structural indicators. The analysis compares local conditions to global benchmarks recommended by UNESCO and INEE, particularly regarding school density, student–school ratios, and stage-level distribution of learners. These indicators help identify infrastructure gaps, overcrowding, and disparities within the educational system.

5.1. Student Population by Educational Level and Gender

The city of Al-Bab has a notably young population, which is reflected in the high number of students enrolled at the primary stage. Table 1 summarizes the distribution of students by gender and educational level.

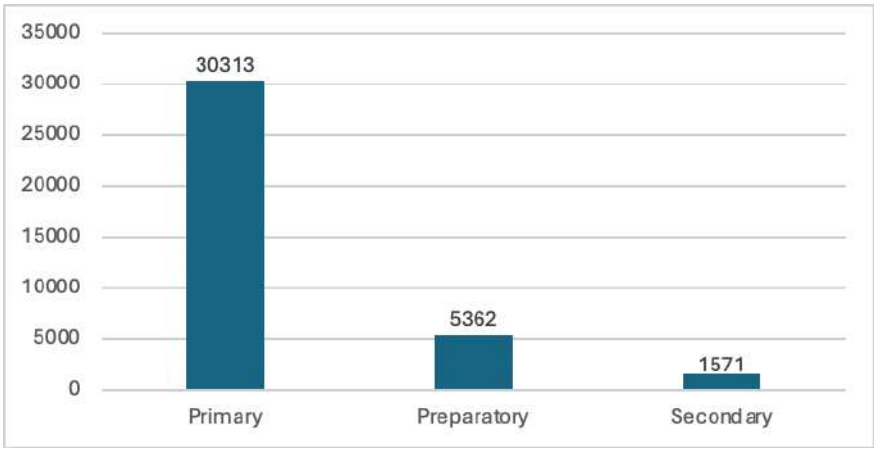
The data show that primary-level enrollment accounts for nearly 80% of all students, creating an exceptionally large base that later feeds into the preparatory and secondary levels. The steep decline in the number of students from primary to secondary reflects structural constraints, including insufficient secondary school capacity and socio-economic pressures that contribute to dropout (UNICEF, 2022).

Table 1: Student Distribution in Al-Bab by Level and Gender (2024)

Educational Level	Male Students	Female Students	Total
Primary	14546	15767	30313
Preparatory	2137	3225	5362
Secondary	522	1049	1571

Source : Education Cluster Syria. (2023).

Figure-1: Student Distribution by Level and Gender



Source: Education Cluster Syria. (2023).

This pattern aligns with trends in conflict-affected regions, where early grades attract high enrollment but secondary education experiences significant attrition due to limited school availability, economic hardship, and safety concerns (UNESCO, 2021).

5.2. School Infrastructure and Type Composition

The educational system in Al-Bab consists of a diverse mix of school types. Table 2 outlines the distribution.

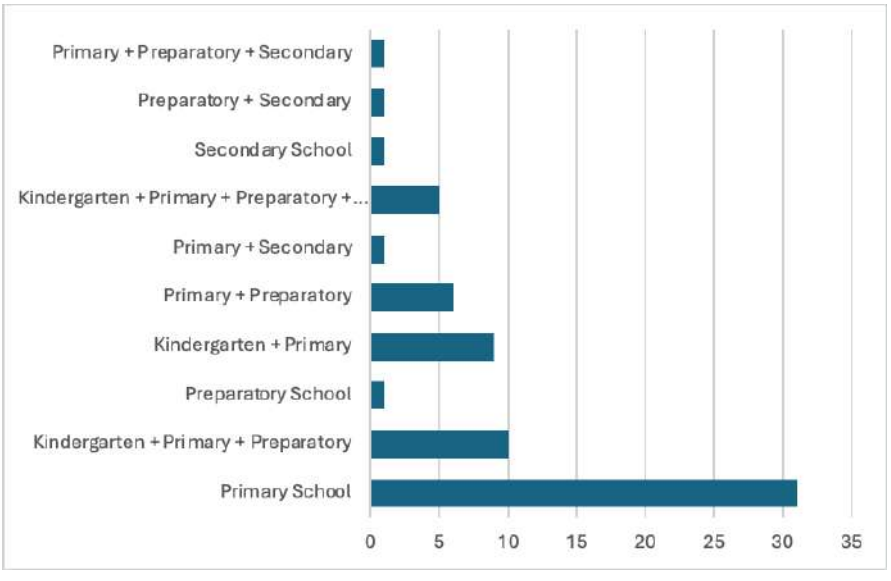
Table-2: Number of Schools in Al-Bab by Type (2024)

School Type	Number of Schools
Primary School	31
Kindergarten + Primary + Preparatory	10
Preparatory School	1
Kindergarten + Primary	9
Primary + Preparatory	6
Primary + Secondary	1
Kindergarten + Primary + Preparatory + Secondary	5
Secondary School	1
Preparatory + Secondary	1
Primary + Preparatory + Secondary	1

Source: Education Cluster Syria. (2023).

The fragmentation across school types complicates management, contributes to inefficiencies, and creates uneven distribution of capacity across stages. For example, only six secondary schools serve a population of more than 1,500 secondary-aged students, indicating severe undersupply.

Figure-2: Distribution of Schools by Type in Al-Bab



Source: Education Cluster Syria. (2023).

This imbalance is consistent with research showing that post-conflict areas often prioritize primary-level reconstruction, leaving secondary education underdeveloped (Burde et al., 2017).

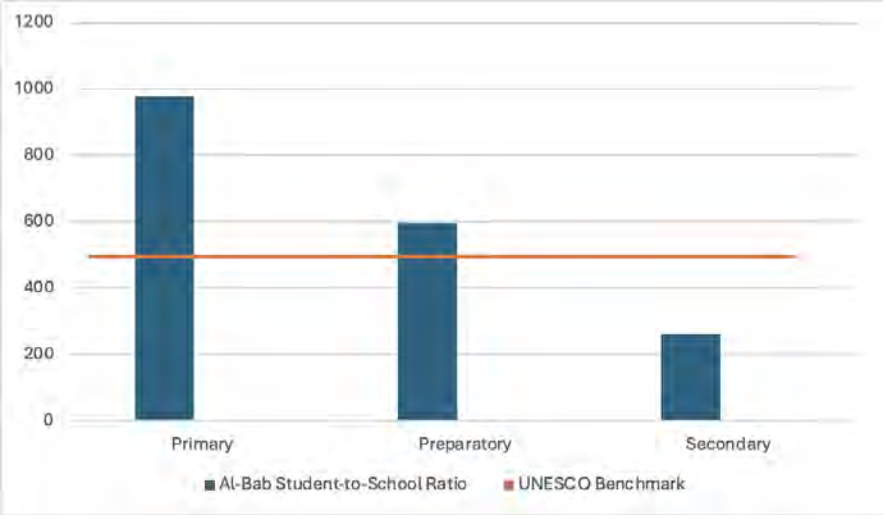
5.3. Student-to-School Ratios (Capacity Indicator)

One of the most critical indicators of educational capacity is the student-to-school ratio. Based on the available data:

- Primary Level: 30,313 primary-stage students divided by 31 primary schools ≈ 978 students per primary school
- Preparatory Level: 5,362 students divided by 9 preparatory schools ≈ 596 students per preparatory school
- Secondary Level: 1,571 students divided by 6 secondary schools ≈ 262 students per secondary school

According to UNESCO standards, the recommended number of students per school ranges between 300–500 in low-resource settings (UNESCO, 2022). Al-Bab's primary schools exceed this threshold dramatically.

Figure-3: Student-to-School Ratios Compared to UNESCO Benchmarks



Source: Education Cluster Syria. (2023).

This confirms that primary schools in Al-Bab are operating at more than double their intended capacity, leading to overcrowded classrooms and reduced learning quality.

5.4. Gender Patterns and Educational Access

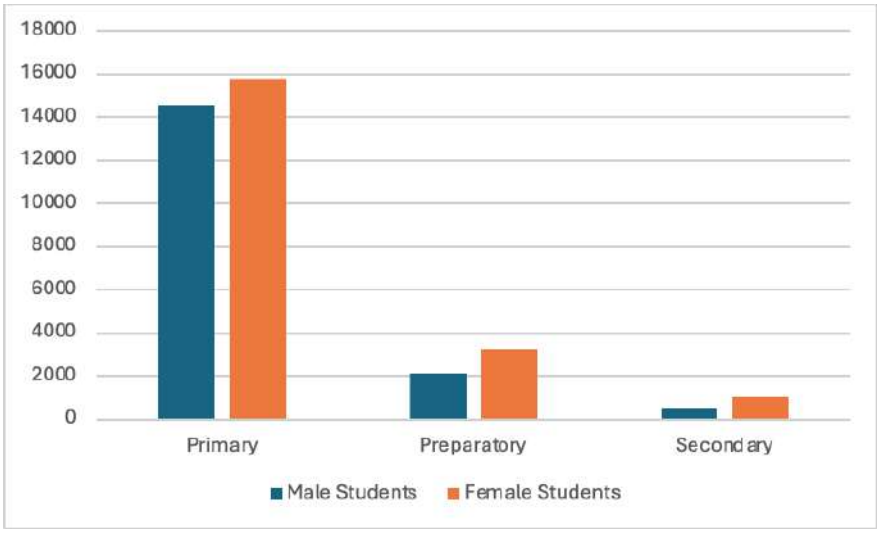
Gender distribution reveals two noteworthy patterns:

i. Female enrollment is slightly higher than male enrollment at all levels.

ii. The gender gap widens at the secondary level, where female enrollment nearly doubles male enrollment (1,049 vs. 522).

This contrasts with some conflict-affected regions where girls face greater barriers. In the case of Al-Bab, higher female retention may reflect cultural factors, relative safety within urban centers, or limited labor-market incentives for boys who may leave school for work (World Bank, 2020).

Figure-4: Gender Distribution Across Educational Levels



Source: Education Cluster Syria, 2023.

- **Challenges Facing the Educational System in Al-Bab**

The educational system in Al-Bab faces multiple structural, socio-economic, and institutional challenges that significantly affect its capacity to deliver equitable and high-quality education. These challenges are consistent with patterns observed in other post-conflict environments; however, the rapid demographic growth and fragmented educational structure in Al-Bab create unique pressures on the local system.

6.1. Overcrowded Classrooms and Insufficient Infrastructure

The most critical challenge is the severe overcrowding at the primary level, where 31 primary schools serve more than 30,000 students, resulting in an average of 978 students per school. This figure far exceeds the typical UNESCO benchmark of 300–500 students per school in low-resource contexts (UNESCO, 2022). Overcrowding reduces instructional time, strains classroom space, and negatively affects learning outcomes. Additionally, many school buildings require rehabilitation, as conflict-related damage has limited the number of usable classrooms, furniture availability, and sanitation facilities. Studies show that inadequate educational infrastructure is directly associated with lower attendance and weaker academic performance in crisis-affected regions (World Bank, 2020).

6.2. Limited Secondary Education Capacity

While the secondary-level student population reaches 1,571 students, only nine schools in Al-Bab offer secondary-level education, including a mix of single-stage and multi-stage institutions. Even with these nine schools, secondary-level capacity remains insufficient, as several buildings serve multiple stages and cannot allocate adequate space exclusively for upper-grade classes. This capacity gap restricts students' transition from preparatory to secondary education and contributes to dropout, particularly among male students who may join the labor market due to economic pressures (UNICEF, 2022). This challenge mirrors trends in other post-conflict settings, where secondary education is often underdeveloped compared to primary schooling (Burde et al., 2017).

6.3. Teacher Shortages and Limited Professional Development

Consistent with regional assessments, Al-Bab experiences a shortage of qualified teachers, particularly in mathematics, sciences, and upper-secondary subjects. Many teachers work under temporary contracts with limited access to professional training opportunities. The absence of structured professional development programs diminishes instructional quality and limits the education system's ability to respond to increasing student numbers. Evidence from global post-conflict environments emphasizes that teacher quality is one of the strongest determinants of improved learning outcomes (Burde et al., 2017).

6.4. Fragmented School Structure and Administrative Challenges

The educational landscape in Al-Bab is characterized by a large number of multi-stage schools—such as KG + Primary + Preparatory, Primary

+ Preparatory + Secondary, and even KG + Primary + Preparatory + Secondary institutions. While these schools expand access, they also create administrative complexity, uneven resource allocation, and inconsistencies in grade-level management. Managing multiple stages within the same facility often leads to overcrowding in some grades and underutilization in others. Similar structural challenges have been documented in Lebanon and Iraq, where fragmented governance and unbalanced school configurations created inefficiencies (Shuayb, 2020).

6.5. Socio-Economic Barriers: Poverty, Child Labor, and Early Marriage

High levels of poverty remain a major obstacle to sustained enrollment. Many boys leave school early to work, while girls in some households face social pressures that may lead to early marriage, especially at the secondary level. These socio-economic factors are well-documented drivers of dropout in conflict-affected areas and are linked to reduced long-term human capital development (UNICEF, 2022). Additional challenges include the cost of transportation, limited access to learning materials, and household responsibilities that constrain regular attendance.

6.6. Psychological and Social Impacts of Conflict

Children in Al-Bab have endured prolonged exposure to conflict, displacement, and instability, resulting in widespread psychosocial distress. Despite this, most schools lack trained counselors or mental health and psychosocial support (MHPSS) programs. The absence of these services undermines learning, as trauma significantly affects concentration, behavior, and long-term academic engagement. International standards emphasize the need for integrated psychosocial support in crisis-affected education systems (INEE, 2018).

6.7. Transportation, Safety, and Accessibility Constraints

Access to education is also hindered by the absence of reliable transportation for students living in remote or peri-urban areas. Safety concerns—such as traffic risks and occasional security incidents—further discourage regular attendance, particularly for younger children and girls. Evidence from other post-conflict environments shows that safe transport and proximity to schools significantly increase enrollment and retention (World Bank, 2020).

- **Proposed Solutions and Policy Recommendations**

Addressing the educational challenges in Al-Bab requires a multi-dimensional strategy that combines immediate interventions with medium- and long-term policies. These solutions aim to reduce overcrowding, expand secondary education capacity, enhance teacher quality, and strengthen governance structures. The recommendations presented below draw on global best practices in post-conflict reconstruction and are tailored to the specific needs identified in previous sections.

7.1. Short-Term Solutions (0–2 Years)

7.1.1. Rapid Expansion of Classroom Capacity

Given the extreme overcrowding in primary schools, short-term interventions should prioritize the construction of temporary learning spaces, prefabricated classrooms, and annex buildings. These facilities can be deployed quickly and have been widely used in Lebanon and Jordan to address sudden increases in student numbers due to displacement (UNICEF, 2022).

7.1.2. Recruitment and Training of Additional Teachers

Teacher shortages can be partially alleviated through emergency recruitment of contract teachers, combined with accelerated training programs focused on pedagogy, classroom management, and psychosocial support. INEE standards emphasize the importance of rapid teacher preparation during crises to maintain continuity of learning (INEE, 2018).

7.1.3. Optimizing School Utilization and Reallocation of Students

Some multi-level schools in Al-Bab operate inefficiently due to uneven grade distribution. A short-term measure is to reorganize school boundaries and redistribute students more evenly across nearby schools. This administrative adjustment can reduce overcrowding without requiring new construction.

7.1.4. Strengthening Psychosocial Support Services

Schools should integrate MHPSS programs, provide basic counseling support, and train teachers to recognize signs of trauma in students. Evidence from post-conflict countries demonstrates that psychosocial interventions increase attendance and learning engagement (Burde et al., 2017).

7.2. Medium-Term Solutions (2–5 Years)

7.2.1. Construction of New Secondary Schools

With only nine schools offering secondary-level education to more than 1,500 students, Al-Bab urgently needs several new secondary schools. Increasing secondary capacity will reduce dropout rates, ensure smoother transitions from preparatory school, and expand access for both genders.

7.2.2. Rehabilitation and Expansion of Existing Schools

Many schools require structural repairs, sanitation improvements, and additional classrooms. Medium-term investment in infrastructure rehabilitation can create a safer and more conducive learning environment. World Bank reconstruction models show that rehabilitated schools improve student outcomes and retention (World Bank, 2020).

7.2.3. Development of a Local Teacher Training Center

Establishing a teacher training institute or partnership with nearby universities could provide sustainable professional development, especially for STEM and secondary-level teachers. This intervention would directly address teacher shortages and enhance instructional quality.

7.2.4. Implementation of Digital Learning Tools

Introducing low-cost digital tools (e.g., tablets, offline learning systems) can strengthen instruction, especially when teacher shortages limit course offerings. UNESCO recommends blended learning approaches in fragile contexts to increase access and improve resilience (UNESCO, 2022).

7.2.5. Expanding Early Childhood Education

The presence of multiple KG + Primary schools indicates high demand for kindergarten services. Expanding early childhood programs will reduce pressure on primary schools and improve long-term learning outcomes.

7.3. Long-Term Solutions (5–10 Years)

7.3.1. Development of a Comprehensive Educational Master Plan

A long-term strategic plan should be created to guide infrastructure development, teacher workforce expansion, and resource allocation. This plan should include demographic projections and spatial mapping to ensure equitable distribution of schools across the province.

7.3.2. Establishment of a Sustainable Funding Model

Education in Al-Bab currently relies heavily on NGOs and humanitarian support. A sustainable model combining local revenues, donor partnerships, and regional administrative support is essential for long-term stability.

7.3.3. Integration of Vocational and Technical Education

Introducing vocational training at the secondary level will provide pathways for students who are unable or unwilling to pursue academic tracks. Global evidence shows that vocational programs in post-conflict areas reduce youth unemployment and improve economic recovery (UNESCO, 2021).

7.3.4. Strengthening School Governance and Community Participation

Enhancing school leadership, establishing parent–teacher associations, and improving monitoring systems will create stronger accountability mechanisms. Community participation has been shown to improve school functioning, especially in decentralized or fragile environments (Shuayb, 2020).

7.3.5. Gender-Sensitive Policy Reforms

Policies should aim to protect girls from early marriage, ensure safe transportation, and encourage boys to stay in school rather than enter the labor market. Gender-sensitive interventions are critical for addressing disparities observed in preparatory and secondary education.

- **Conclusion**

The assessment of the educational capacity of Al-Bab Province reveals a system under considerable pressure as it strives to meet the needs of a rapidly growing and youthful population in a post-conflict context. The analysis demonstrates that primary schools are experiencing severe overcrowding, while secondary education capacity remains insufficient despite the presence of nine institutions offering upper-level instruction. The structural fragmentation of schools—many of which serve multiple educational stages—further complicates administration and resource allocation. These challenges are compounded by teacher shortages, socio-economic difficulties, and the long-term psychological effects of conflict on students.

The findings underscore the need for a comprehensive and multi-layered strategy to strengthen educational provision in Al-Bab. Short-term interventions should focus on reducing overcrowding through temporary learning spaces, emergency teacher recruitment, and improved psychosocial support services.

Medium-term policies—such as constructing new secondary schools, rehabilitating existing facilities, and expanding early childhood education—are essential for increasing capacity and improving learning environments. Over the long term, the development of a strategic educational master plan, sustainable financing mechanisms, and expanded vocational pathways will be critical to ensuring the resilience and sustainability of the education sector.

Ultimately, education in Al-Bab represents not only a developmental priority but also a cornerstone for social and economic recovery. Investing in educational capacity will contribute to restoring stability, improving human capital, and creating opportunities for future generations. As global evidence shows, rebuilding education in post-conflict environments is fundamental to achieving peace, social cohesion, and long-term prosperity. The recommendations presented in this study provide a roadmap for policymakers, local authorities, and international partners seeking to support the revitalization of the education system in Al-Bab and secure a more resilient future for its children.

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Chapter 6

Employment Potential in the City of Al-Bab – Current Situation and Future Prospects

Zekeriya Gül[1]

1. Introduction

The city of Al-Bab is located in northern Syria (Al-Bab area, administratively affiliated with Aleppo Governorate) and has, in recent years, become one of the vital regions seeking to consolidate stability and stimulate economic activity. Al-Bab is dubbed "the eastern gateway of Aleppo" due to its geographical position linking Aleppo with the cities of Raqqa and Al-Hasakah to the east of the Euphrates River. The region has witnessed a relative improvement in security and infrastructure, as well as a notable increase in population during the Syrian revolution (UN OCHA, 2022).

In 2019, the population of central Al-Bab city was estimated at about 147,000 inhabitants (82,752 original residents and 64,859 internally displaced persons due to the war), while the population of the broader area – including towns and villages such as Al-Ra'i (Çobanbey/Al-Ra'i), Tadef, Qabasin, and Bza'a – reached approximately 300,000 inhabitants. This demographic weight, in addition to the fertility of the agricultural lands, the high proportion of youth, and the prevalence of entrepreneurial spirit, makes the Al-Bab area a notable model in terms of potential for job creation (ILO, 2022).

However, Al-Bab's economy continues to suffer severely from the destruction left by the defunct Syrian regime for more than a decade. Constraints in infrastructure, shortages of water and energy, and the unpreparedness of official commercial routes are all factors that hinder economic recovery. Despite these challenges, the agriculture, industry, and services sectors show signs of recovery, supported by projects funded by Türkiye and international organizations within the "early recovery" track (UNSC, 2023).

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This chapter provides a comprehensive analysis of the current structure of employment potential in Al-Bab and its future prospects. The investigation will separate the agriculture sector from the industry and services sectors to study their production systems and commercial operations and regional employment patterns and market expansion prospects and funding possibilities.
The Agricultural Sector

2. The Agricultural Sector

2.1. Current Situation

Historically, the Al-Bab area has been one of the most important agricultural basins in northern Syria; it was even known as "Aleppo's grain storehouse" and "the food basket of northern Syria." The city along with its rural areas depends heavily on agricultural activities and animal farming to generate their main source of livelihood. The surrounding plains contain rain-fed agriculture over large areas where farmers grow wheat and barley and legumes across 4,517 hectares. The region practices irrigated farming methods on approximately 473 hectares of land which produces pomegranates and pistachios and olives and various vegetables (FAO, 2021).

The stable periods of the past saw local markets in Aleppo and Syrian governorates receive olives and olive oil and pomegranates and pistachios and other products which sometimes reached foreign markets through export. The region supports extensive livestock and poultry breeding operations which generate milk products including cheese and yogurt for local consumption. The agricultural heritage of this area exists in strong numbers but it has experienced a sharp decline during the last few years. Water scarcity is one of the most prominent causes of this decline; water has repeatedly been used as a pressure tool, and the "Ayn al-Bayda" pumping station that supplies drinking and irrigation water to Al-Bab has remained under the control of the defunct regime, which led to cutting off water from the area for long periods. This forced farmers to rely on groundwater wells and to dig a large number of them, which raised costs due to their dependence on fuel-powered pumps and increased pressure on groundwater reserves (OECD, 2022; IFPRI, 2022).

The water crisis together with increasing diesel prices has made irrigation and land plowing operations more expensive. The crisis emerged during the same time when chemical fertilizer prices skyrocketed and supply became restricted which led to decreased crop yields. Farmers have experienced financial losses instead of earnings because they needed to shrink their agricultural land area (World Bank, 2022).

The Al-Bab city lost its position as a major cotton-growing area because the crop needed excessive water which led to its decline. The high expenses of orchard maintenance along with decreasing market prospects outside the region have caused people to lose their interest in cultivating olives and producing olive oil.

The livestock sector continues to experience major challenges because worldwide feed costs rose after the Russian-Ukrainian conflict created interruptions in grain trade operations. The rising expenses of animal feed and medical supplies have forced numerous breeders to cut down their animal population or exit the breeding industry completely. The combination of these elements has led to a decline in agricultural and livestock workers while rural family income has dropped which forces certain households to depend on basic service employment and charitable assistance (OECD, 2022; IFPRI, 2022).

2.2. Growth Potential and Investment Opportunities in Agriculture

The agricultural sector in Al-Bab shows promising growth possibilities which good investment plans could unlock. The climate together with soil conditions supports the cultivation of various crops which include both main grains (wheat and barley) and valuable crops like pomegranates and olives and pistachios and grapes and cotton. It is possible to develop a "brand" associated with Al-Bab that distinguishes its agricultural products in the markets (FAO, 2021).

The main focus should be on developing irrigation systems because depending on wells proves to be an expensive and unsustainable approach. The solution needs collective irrigation projects together with water collection systems and storage facilities which include groundwater management and rainwater harvesting and small dam and storage pond construction (FAO, 2024; Atik et al., 2024). Mitigating the water crisis would allow the gradual and environmentally sustainable reintroduction of water-intensive crops such as cotton. In parallel, supportive interventions aimed at reducing input costs can significantly improve agricultural viability and productivity (IMMAP, 2023).

Supportive interventions to reduce input costs can also make a significant difference. The projects already exist to assist farmers through seed and fertilizer and fuel provision which promotes irrigated wheat farming on small plots with voucher systems that offer monetary and material support. The expansion of these programs together with ongoing assistance for seeds and fertilizers and equipment including drip irrigation systems will create incentives for farmers to keep their agricultural production going. Encouraging the establishment of

agricultural cooperatives ensures collective input purchasing and strengthens farmers' bargaining power in sales markets (IMMAP, 2023).

Another important opportunity lies in developing agro-processing industries. Instead of merely marketing raw crops, small and medium-sized plants can be established to transform them into higher value-added products, thereby creating new jobs and making farmers' incomes more stable. Pomegranates, for example, can be used as a raw material for producing concentrated juices, molasses, and jams. Olives can be processed into high-quality oil and also used in soap manufacturing. As for milk, dairy and cheese plants can be expanded to produce with better health and industrial standards and supply wider markets (UNIDO, 2013; FAO, 2012)

Expanding marketing channels and external trade is also a key condition for sustainable agricultural recovery. Active border crossings with Türkiye – such as the Al-Ra'i and Jarablus crossings – can become important gateways for exporting agricultural products. This requires local or bilateral trade agreements that allow a wider range of products to enter the Turkish market and possibly other markets through Türkiye. Farmers and producers must also be trained on quality standards and required certifications (such as health conformity certificates) to facilitate the entry of products into regional and international markets (Tokmajyan & Khaddour, 2022; EUAA, 2025).

Local authorities together with civil society organizations need to establish central markets for agricultural products through local commodity exchanges and central wholesale markets to help producers get fair market prices.

The agricultural sector in Al-Bab requires enhanced water management systems together with financial backing for production inputs and stronger connections between farming operations and industrial facilities and wider market access to achieve recovery. The preservation of agricultural practices will safeguard the economic stability of thousands of families while maintaining the operational needs of all industrial and service businesses that rely on farming activities.

3. The Industrial Sector

3.1. Current Situation

Before the blessed Syrian revolution, the Al-Bab area was part of the industrial system affiliated with Aleppo Governorate, with widespread small and medium-sized workshops and factories. It was common among local residents to work in metalworking and machinery manufacturing, in addition to a particular reputation in producing tahini and halva, as dozens of sesame

processing workshops produced tahini and halva and marketed them across various Syrian governorates, and sometimes exported them abroad. The area also contained olive presses that received olives from surrounding villages and produced oil (FAO, 2012).

However, the policy of the defunct regime, along with electricity cuts, rising fuel prices, and market contraction, dealt a severe blow to these traditional industries. Production costs rose to levels that undermined competitiveness, forcing some workshops to stop operating or work at very low capacity (UNIDO, 2013).

After 2017, and with a relative improvement in security, an important project to reorganize industrial activity in the area began: the establishment of a "regulated industrial zone" (the industrial city or industrial zone in Al-Bab). With Turkish support, work on establishing this zone started in 2018 on an area estimated at about 600 dunums (around 600,000 square meters), at a strategic location on the northern road leading to the Al-Ra'i border crossing with Türkiye (EUAA, 2025).

The infrastructure of the industrial zone developed rapidly; internal roads were constructed and electricity and water networks were extended, encouraging investors to reserve industrial plots. By 2025, 328 industrial plots had been allocated to investors, 96 of which had entered actual production, while 86 facilities were under construction. This development reflects Al-Bab's transformation from a city almost devoid of factories into a center with hundreds of workshops and factories (EUAA, 2025).

Industrial activities in this zone span several sectors: textiles, food industries, chemicals, metals, and construction materials. Among the operating facilities are: a cement plant, a pharmaceutical factory, units for producing canned foods and jams, workshops for producing leather and footwear products, plastic and nylon factories, plants for manufacturing agricultural machinery, facilities for producing mineral oils (motor oils), factories for tires and batteries, plants for paints and insulation materials, as well as workshops producing heaters and heating devices (FAO, 2021a). Companies specializing in transport and logistics have also entered the industrial zone, providing cargo transport – some in refrigerated trucks – to other countries. Facilities under construction include factories for solar panels, cardboard and packaging, and marble processing plants (EUAA, 2025).

With the expansion of this industrial zone, products manufactured in Al-Bab have begun entering external markets; data indicate that by 2022 its exports reached about 20 countries in Africa, Asia, Europe, and the Gulf. Al-Bab's

location along the border with Türkiye has contributed to this by facilitating the import of raw materials on one hand and the export of finished products via border crossings on the other (Enab Baladi, 2021).

The number of investors in the industrial zone has exceeded 300, from Syria, Türkiye, and possibly other countries, directly and indirectly providing thousands of job opportunities. Local estimates indicate that the industrial zone and its surroundings had created around 6,000 jobs by 2022, with a target of reaching 15,000–20,000 jobs once all facilities operate at full capacity in the future (Youth Syrian Dialogue Forum, 2023).

Nonetheless, the industrial sector faces a set of challenges. High energy costs top the list; electricity tariffs for industrial subscribers are relatively high, given the zone's reliance on lines coming from Türkiye and managed by the private sector. The reliance on private generators in workshops inside and outside the zone also increases fuel consumption and burdens producers. The second challenge is the ambiguity in the legal and regulatory framework; there are still gaps in laws and regulations related to trade, taxation, licensing, and investment incentives. The lack of clear, written rules regarding export quotas, customs duties, and incentives limits investors' ability to plan for the long term (World Bank, 2005).

3.2. Growth Potential and Industrial Investment Opportunities

Despite the challenges, the industrial sector in Al-Bab has the greatest potential to drive the local economy in the medium term. Among the most important strengths (Tokmajyan & Khaddour, (2022):

- The border location and ease of overland connection with Türkiye.
- The abundance of young labor at relatively low cost.
- The accumulated industrial experience of some Aleppine and Syrian businessmen returning from Türkiye.
- The proximity of the area to sources of agricultural raw materials and construction materials.

The policy of the defunct and criminal Syrian regime led many industrialists to migrate to Türkiye, but some have started to consider relocating part of their activities back inside Syria, and indeed some Syrian investors have returned from Türkiye to invest in the industrial zone after the fall of the defunct regime and the liberation of Syria (EUAA, 2025).

To reinforce this trajectory, the investment climate should be improved by (World Bank, 2020,2021; UNIDO, 2019)

- Simplifying administrative procedures in the industrial zone, from land allocation to building permits and factory operation licenses.
- Adopting incentive packages that include partial tax exemptions, low infrastructure fees, and support for electricity and water services.
- Investing in renewable energy – especially solar power – to establish plants that cover part of the industrial zone's energy needs and reduce energy bills for investors.
- Setting clear regulations for trade with Türkiye and other countries, helping investors understand export and import conditions in advance.

In terms of sectoral focus, industries linked to agriculture appear to be a natural and promising choice, including (FAO, 2024):

- Food factories (juices, jams, canned foods, dairy products, flour mills, olive presses).
- Textile industries based on cotton – if its cultivation is reactivated – including spinning, weaving, and ready-made garments.
- Cosmetics, soap, and scented oil industries relying on olive oil and aromatic plants.

It is also possible to expand the production of building materials (cement, concrete blocks, reinforcing steel, artificial stone, etc.) to meet reconstruction needs in the area and sell the surplus to neighboring regions.

Conversely, there are gaps in certain service and support industries, such as cardboard and plastic packaging production, corrugated paper used in packaging, wooden furniture industries, and workshops producing spare parts and simple machinery used in agriculture and industry. Al-Bab can host a large number of small and medium enterprises (family workshops and factories) in these fields thanks to the flexibility of this business model and the possibility of establishing it with limited capital (UNIDO, 2019).

The industrial takeoff needs essential support from both export channels and financing systems to succeed. Integrating industrial zone products into Turkish value chains through cooperation with Türkiye would enable these goods to reach expanded market opportunities. The initiatives should work to draw Syrian businesspeople who have left the country through diaspora investment programs and international institutions that offer financial support for early recovery and development (UNIDO, 2019).

In short, the industrial sector in Al-Bab has the components needed to become a primary engine of the local economy, provided a safe and encouraging

regulatory environment is established and connections with the agricultural sector and regional markets are effectively utilized.

4. The Services Sector

4.1. Current Situation

Al-Bab's economy has tried to compensate for part of the decline in agriculture and industry through a gradual expansion in the services sector. In recent years, the shares of trade, transport, education, health, and local administration have increased in the structure of the local economy. With declining returns from agriculture and livestock, many segments of the population have turned toward small trade, freelance professions, and transport services, which has injected relative dynamism into the services sector (EUAA, 2025).

The city of Al-Bab serves as a commercial center for its surrounding countryside; its weekly markets and shops in the city center receive residents from neighboring villages and towns, such as Al-Ra'i, Akhtarin, and Bza'a, who come for wholesale and retail purchases. The markets and main roads still contain hundreds of shops selling foodstuffs, clothing, household appliances, and building materials, in addition to car repair workshops, carpentry and electrical services, bakeries, restaurants, and barbershops. Many of these activities were rehabilitated with support from Turkish entities and humanitarian organizations or reopened after the victory of the Syrian revolution (Tokmajyan & Khaddour, 2021).

One of the pillars of the services sector in Al-Bab is transport and logistics services. The region's location on routes connecting northern Aleppo with the Turkish border and on lines heading east toward Manbij and Raqqa gives it the potential to become a regional transport hub. Indeed, trucks and commercial vehicles carrying goods between Türkiye and the Syrian interior, especially via the Al-Ra'i crossing and other crossings in the area, pass through Al-Bab. This has generated growing activity for transport companies, fuel stations, storage warehouses, and various support logistics services. With the development of the industrial zone, the presence of shipping, customs clearance, and refrigerated transport companies has increased (Tokmajyan & Khaddour, 2021; EUAA, 2025).

In terms of social services, considerable efforts have been made to reactivate schools and health facilities after the Euphrates Shield Operation. The city of Al-Bab hosts numerous educational institutions that start from primary school and extend to secondary education. The Faculty of Economics and

Administrative Sciences at Gaziantep University maintains a single faculty in Al-Bab. These educational institutions' staff members and faculty personnel make up a significant portion of public and quasi-public sector employees while teaching staff at these institutions includes a large number of women (EUAA, 2025).

The health sector received new life after hospitals and health centers along with ambulance services gained rehabilitation and many doctors and nurses and midwives and technicians started working in the field.

Local administration and security forces likewise play a major role in job provision; local councils (municipalities) and their service institutions employ hundreds of workers in sanitation, water, market regulation, and social services. Local police forces and internal security have also absorbed many young men and women in various security and administrative positions.

Additionally, civil society organizations and local and international humanitarian organizations are strongly present in Al-Bab and its surroundings, creating jobs in relief, camp management, psychosocial support, vocational training, and community projects. These organizations often target youth and women in particular, aiming to raise their employability and improve their incomes.

4.2. Growth Potential and Investment Opportunities in Services

The services sector in Al-Bab is expected to continue growing as the population increases and economic activities diversify. Among the most prominent future opportunities:

4.2.1. Trade and retail:

Developing traditional markets into organized and modern markets, such as establishing a wholesale market for vegetables, fruits, and agricultural products that directly connects farmers with traders (FAO, 2018; FAO, 2022; Shepherd, 2007). The possibility of creating a shopping center or large covered market in the medium term, as income levels and security conditions improve (UN-Habitat, 2015; Cities Alliance, 2018. The possibility of creating a shopping center or large covered market in the medium term, as income levels and security conditions improve

4.2.2. Transport and logistics:

Al-Bab can become a transit hub between northern areas and Aleppo and possibly other regions (World Bank, 2020; ESCWA, 2021). Expanding this role requires investments in warehouses, container stations, sorting and

packaging centers, and customs clearance companies (FAO, 2017; OECD, 2019).

4.2.3. Education:

Demand for education at all levels is high and continuous due to the large youth population (UNICEF, 2020; UNESCO, 2021). Private schools, language institutes, and specialized vocational training centers could be established (ILO, 2018; UNDP, 2021). Turkish and foreign institutions that have begun programs in language teaching, computer skills, and other fields can expand their scope or partner with local actors to create permanent training centers (OECD, 2020)

4.2.4. Health:

With population growth and rising health awareness, there is a need for more private clinics, pharmacies, medical analysis labs, and radiology centers (WHO, 2019; World Bank, 2021). There are particular gaps in certain specialties (dentistry, sub-specialties, rehabilitation), which can represent promising investment areas (WHO, 2020; UNDP, 2021).

4.2.5. Domestic and transit tourism:

Although tourism is not a priority at present, Al-Bab has some future potential in transit tourism or cultural tourism, given its proximity to Aleppo and the Turkish border, and the presence of some historical and cultural sites in its surroundings (UNESCO, 2017). In the longer term, markets for traditional and handicraft products could be developed to attract visitors coming from Aleppo or Türkiye (UN-Habitat, 2019).

The services sector in Al-Bab has grown because of advancements in both agricultural and industrial sectors (FAO, 2017). The growth of agricultural and industrial production creates new requirements for transportation and marketing operations as well as storage facilities and financial services and educational and healthcare systems which leads to ongoing employment growth within the service sector (UNDP, 2021).

5. Women's Employment

5.1. Women's Position in the Labor Market – Current Situation

The general Syrian society maintained low levels of women's participation in the workforce while men maintained their dominant position and rural areas restricted women to domestic duties and unpaid work on family farms and with livestock (ILO, 2025; UNDP, 2006).

Around two thousand women have joined teaching positions in various schools, playing a key role in educating girls and addressing learning losses. At the same time, large numbers of women are employed as nurses, midwives, doctors, and technicians in hospitals and health centers, improving women's and girls' access to reproductive and general health services—particularly in contexts where shortages of female health workers are documented as a barrier to women's access to care (WHO, 2021).

In addition to public and quasi-public employment, women have established small businesses such as tailoring shops, beauty salons, women's and children's clothing stores, and home-based food production (including baked goods, cheeses, pickles, and ready-made meals) for local markets. Women also continue to carry out traditional agricultural work—livestock management, crop cultivation, planting, harvesting, and animal care—much of which remains unpaid and socially invisible (COSA, 2017).

5.2. Challenges Facing Women's Employment

Despite clear progress, working women in Al-Bab still face a number of challenges:

5.2.1. Cultural and social barriers:

The persistence of some conservative attitudes that view women's work outside the home – especially in mixed environments – with reservation or disapproval. The impact of these attitudes on families' decisions regarding allowing their daughters to work or pursue university education (CARE, 2016).

5.2.2. Lack of education and training:

Many girls dropped out of school during the years of the Syrian revolution due to displacement or school closures caused by the defunct regime's brutal practices, preventing them from obtaining secondary or university degrees. The scarcity of training programs targeting women of different ages to equip them with practical vocational skills (UNICEF, 2025).

5.3. Support Mechanisms and Proposed Steps to Enhance Women's Participation

To address these challenges and maximize women's contribution to economic and social development, a set of policies and programs can be adopted, including:

- Expanding education and vocational training programs aimed at women, not limiting them to traditional fields (tailoring, embroidery), but also introducing technical and administrative tracks such as computing, accounting, e-commerce, and graphic design.
- Supporting microfinance initiatives that assist women who want to begin small businesses like beauty salons and tailoring shops and home kitchens and online stores through affordable loan options with minimal interest rates or no interest charges and through financial grants and production equipment provisions (CALP, 2025).
- Encouraging the creation of women's cooperatives in agricultural or handicraft production, enabling home-based or rural women workers to enter an organized market and collectively market their products (Horan Foundation, 2022).
- The development of childcare services requires public or semi-public nurseries that municipalities and civil society organizations should operate at low costs. The private sector needs encouragement through incentives to build nurseries which should be located at workplaces (WIEGO, 2020).
- Adopting flexible work policies in some sectors that allow part-time work or working from home in roles that can be performed remotely.

The labor market needs to boost female worker participation because it generates higher family earnings and poverty reduction and simultaneously strengthens social stability. The working woman actively participates in community development by creating conditions which support various situations.

6. Youth Employment

6.1. Youth Demographics and Unemployment

It is estimated that more than half of Al-Bab's population consists of young people (under 25 years of age), due to high birth rates in Syrian society in general and the influx of many displaced families with younger age structures. This represents a large human potential that can serve as a development driver, but it also carries the risk of high youth unemployment.

In the absence of an effective statistical apparatus, it is difficult to determine an exact youth unemployment rate, but field observations point to widespread unemployment and underemployment (working in marginal, low-paying jobs) among those aged 18–30. Many of these young people were forced during

the Syrian revolution to leave their schools or universities or to migrate to Türkiye and Europe (NRC, 2020; Horan Foundation, 2022).

6.2. Current Fields of Youth Employment

The job opportunities currently available to youth are concentrated in physically demanding occupations or in security-related fields, such as (Omran Center for Strategic Studies, 2024; Horan Foundation, 2022):

- Construction and reconstruction work (porters, laborers, cement workers, carpenters, construction blacksmiths, etc.).
- Seasonal agricultural work, especially during harvesting and picking seasons.
- Employment in factories and workshops in the industrial zone, particularly in tasks such as packing, loading, sorting, sewing, and other jobs that do not require high technical expertise.
- Service sector jobs (sales representatives in stores, waiters in restaurants, motorcycle delivery drivers, assistants in workshops and shops).
- Joining local police and public security forces, which provide a segment of youth with regular salaries.

6.3. Challenges Hindering Youth Employment

6.3.1. Lack of skills and education: Large numbers of youth have not had the opportunity to complete secondary or university education and have not received organized vocational training, which reduces their competitiveness in the labor market (NRC, 2020).

6.3.2. Limited local market: The local economy's absorptive capacity is still limited; the number of new job opportunities does not grow at the same pace as the number of new entrants to the labor market each year.

6.3.4. Poor working conditions: Work without contracts, social security, or health insurance and with low wages is widespread, making it difficult for young people to build stable lives.

7. Mechanisms to Support Youth Employment

To harness youth energy and transform it into productive power, the following key areas can be emphasized (World Bank, 2019; NRC, 2020; UNICEF, 2025):

7.1. Vocational and technical education

Expanding vocational training programs for youth in fields demanded by the market – such as machinery maintenance, industrial electricity, mechanics, welding, construction, and information technology. Directly linking these programs to factories and workshops through training and employment agreements, where part of the program consists of on-the-job training inside enterprises.

7.2. Supporting youth entrepreneurship

Creating business incubators and small enterprise support centers which will deliver guidance and training and seed funding to help youth develop their ideas in light industry and services and software and digital businesses; host entrepreneurial project competitions through which winners receive grants and soft loans to start their new businesses

7.3. Cash-for-work programs

Implementing infrastructure and service projects that employ youth for limited periods in exchange for wages, such as street cleaning, planting public spaces, maintaining schools and health centers, and debris removal projects during emergencies.

7.4. Incentives for employers

Providing tax reductions or wage-cost support to enterprises that employ a certain proportion of youth, especially in the industrial zone.

Encouraging "paid apprenticeship" schemes in which young people receive practical training in exchange for a modest wage, with the possibility of being hired after successfully completing the training period.

7.5. Psychosocial support

Establishing youth centers that provide cultural, sports, and arts activities, as well as counseling and career guidance sessions that help young people regain self-confidence and plan their future. Such programs can transform youth from a potential burden on society into a positive force contributing to reconstruction and injecting new energy into the local economy.

8. Vocational Education and Skills Development

8.1. Current Situation

Vocational education is a key pillar for raising employment levels, especially among women and youth. Before the blessed Syrian revolution, there were some vocational schools and craft institutes in the Al-Bab area, but they suffered severe damage as a result of the defunct regime's shelling, and many programs were suspended (Anadolu Agency, 2017).

Efforts have been made to rehabilitate the educational infrastructure, including vocational and technical education. "Al-Bab Vocational and Technical High School" was reopened, and work began to equip training workshops within it, such as metalworking, carpentry/furniture, and automotive engines. Modern workshops for teaching metal forming and welding techniques were also established and equipped with Turkish support, with the aim of training and qualifying youth to work in the industrial sector (TİKA, 2023).

In addition to vocational schools, the region has seen the opening of vocational training centers and continuing education programs, most notably centers affiliated with Turkish cultural and educational institutions, which organize courses in basic and advanced computer skills. household and industrial electricity. languages (Turkish and English) for educational and employment purposes. accounting and office work (Presidency of the Republic of Türkiye, 2021).

These courses are offered free or at nominal cost, with certificates awarded to participants, helping some of them to find jobs in the industrial zone or in local offices and companies or to start their own businesses. Non-governmental organizations operate short-term vocational training programs which teach practical skills through courses including hairdressing and confectionery and mobile phone repair and other trades (Syrian Forum, 2019).

The establishment of a new faculty from Gaziantep University in Al-Bab represents a major change because it allows students from the area to study at university without needing to leave their hometown. The faculty contains three main areas of study which consist of business administration and economics and administrative sciences but it may add new disciplines later on. The northern Syrian cities of Jarablus and Azaz contain higher education facilities which provide Al-Bab youth with local educational choices that prevent them from leaving their home region or facing the necessity to move away (Enab Baladi, 2020).

8.2. Gaps and Needs

Despite the progress, there remain significant gaps in vocational education (People in Need, 2024):

- Limited capacity of vocational schools and training centers compared to the number of youths seeking new skills.
- Shortage of qualified staff to teach modern technical specializations such as programming, electronic device maintenance, and renewable energy systems.
- The restriction of women's training programs largely to traditional skills, without sufficient expansion into technical and administrative fields that could open wider job opportunities for them.

8.3. Proposals for Developing the Vocational Education System

The stages that could be implemented to develop the vocational education system: (ILO, 2025)

- **Expanding vocational education infrastructure:**
  - Increasing the number of workshops and disciplines in Al-Bab Vocational High School and other schools.
  - Introducing new specializations with high market demand, such as information technology, solar energy systems, electronics, and graphic design.
- **Aligning specializations with market needs:**
  - Conducting periodic labor market studies in the region, in cooperation with the industrial zone, local councils, and international organizations, to identify the most in-demand occupations.
  - Updating vocational curricula in line with these needs and ensuring that graduates possess skills that can be directly applied in factories, workshops, and markets.
- **Strengthening practical training:**
  - Making practical training periods mandatory for vocational school students within factories and workshops.
  - Establishing liaison offices between schools and industrial enterprises to coordinate training and employment processes.
- **Developing trainers' capacities:**

- Organizing training courses for teachers and trainers in cooperation with Turkish or international educational institutions to update their knowledge of modern technologies and practical teaching methods.
- Drawing on the experience of local industrialists and skilled craftsmen as assistant trainers in workshops.

Through these steps, the quality of human capital in Al-Bab can be improved, labor productivity increased, and the local economy's capacity to absorb large numbers of new entrants to the labor market each year enhanced.

9. Recommendations

Based on the foregoing analysis, the key recommendations for decision-makers, investors, and supporting entities can be summarized as follows:

- ***Strengthening infrastructure and supporting production inputs:***
  - Addressing the water problem through collective irrigation projects, improved groundwater management, rainwater harvesting, and exploring the possibility of linking to larger water sources.
  - Investing in energy, particularly renewables (solar and wind power), to reduce electricity costs for industries and workshops.
  - Providing regular support for farmers in seeds, fertilizers, and fuel, and for livestock breeders in feed and vaccines, which will incentivize increased production and enhance food security.
- ***Expanding marketing channels and trade:***
  - Organizing and boosting trade with Türkiye through local and regional agreements that allow for the export of more agricultural and industrial goods.
  - Encouraging regulated trade by simplifying procedures, reducing fees, and improving oversight.
- ***Improving the investment climate:***
  - Establishing a clear legal framework that protects investors, reduces disputes over ownership and contracts, and ensures fair dispute resolution.
  - Simplifying licensing procedures inside and outside the industrial zone and creating a "one-stop shop" for investor services that streamlines administrative steps.

  - Launching incentive packages (tax exemptions, discounts on land and service prices, support for energy costs) to attract new investments.

- ***Integrating agriculture and industry into coherent value chains:***
  - Encouraging investments in food and textile industries based on local agricultural products, creating stable markets for farmers and adding higher value to outputs.
  - Developing clear supply chains between farmers and factories (contract farming, agreed pricing, guarantees to purchase part of the crop in advance, etc.).
- ***Supporting small and medium enterprises and entrepreneurship:***
  - Providing accessible small and medium-sized financing programs for youth and women's projects, combined with training in management and marketing.
  - Establishing a local or regional development finance fund to guarantee loans for small and medium enterprises and share risk with lenders.
  - Creating an environment that encourages innovation in service and technology sectors, not only in traditional industry.
- ***Special measures to boost women's employment:***
  - Expanding childcare services (nurseries, kindergartens, and schools) at prices affordable to working families.
  - Broadening training opportunities for women in technical and administrative fields, not just traditional crafts.
  - Supporting cooperatives and group projects led by women and promoting flexible work and home-based work models in certain sectors.
- ***Investing in youth through comprehensive policies:***
  - Expanding vocational education and directly linking it to the needs of the industrial and service sectors.
  - Launching subsidized training and employment programs that prioritize long-term unemployed youth.
  - Supporting youth entrepreneurship through business incubators, competitions, seed funding, and mentorship.

  - Strengthening youth sports, cultural, and arts programs and community centers that offer psychosocial support services.

- ***Strengthening regional and international partnerships:***
  - Mobilizing support from Turkish and international institutions to channel a larger share of their programs toward development projects that create sustainable jobs in Al-Bab.
  - Developing joint programs with international organizations (such as UN agencies, the European Union, and international financial institutions) focused on economic recovery, private sector development, and infrastructure improvement.
  - Engaging Syrian businessmen in the diaspora in building partnerships with local investors through joint ventures, direct investment, or technical and managerial support.
- ***Strategic planning and follow-up:***
  - Preparing a regional development plan for Al-Bab and its surroundings, including clear sectoral objectives, timelines, and progress indicators.
  - Ensuring transparency in project implementation and involving the local community – including women and youth – in discussing priorities.
  - Establishing mechanisms to monitor economic and social indicators (unemployment, prices, income levels, production volumes) to allow policy adjustments when needed.

Conclusion

The Al-Bab area today stands at the heart of a complex experiment to rebuild a society and economy devastated by many years of destruction caused by the policies of the defunct regime. The region possesses key ingredients for rebirth: fertile agricultural lands, a strategic geographic location, and a population characterized by youthfulness, dynamism, and entrepreneurial spirit. At the same time, it faces serious challenges in the form of weak infrastructure, difficulties accessing markets, lack of financing, and high unemployment – especially among youth.

Despite these challenges, developments in recent years show that a path to recovery is possible if there is sufficient political will and support: hundreds of projects in agriculture, infrastructure, and services; the launch and expansion of the industrial zone; the growing employment opportunities

it has created; the strong return of women to the labor market in education, health, administration, and policing; and the spread of vocational and technical education programs – all are indicators that the wheel of life is turning again.

Al-Bab serves as a practical demonstration of how local government structures work together with regional authorities and international organizations to create early recovery efforts which lead to full development restoration. Well-structured policies will enable Al-Bab to become a leading production and investment hub in northern Syria which will also promote regional peace and support the complete resettlement of displaced families and refugees to their original homes.

The achievement of Al-Bab in utilizing its job market potential will rely on the level of funding dedicated to human resource development through child education and youth training and women empowerment and agricultural support for farmers and craftsmen and small business owners and workplace safety measures. People who discover valid employment opportunities together with acceptable living standards in their urban and rural areas can achieve normalcy which also promotes longer-lasting peace.

In this context, Al-Bab can be viewed as a "living laboratory" for studying economic recovery policies in post-conflict settings and testing different models of local development based on partnership between the community, the state, and international actors. If this opportunity is managed wisely, Al-Bab's story may become an inspiring example of local communities' ability to rise from the rubble when given the right tools and resources.

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Chapter 7

Evaluating the Agricultural Sector in the Al-Bab Region – Aleppo City

Hicham Mohamad Abdulvahab[1]

1. Introduction

The Al-Bab region is considered one of the most important agricultural areas in the eastern countryside of Aleppo—not only because of its expansive fertile plains, but also due to its long-standing historical connection to agriculture, which for decades constituted the primary source of food and income for its residents (Tayyar Al-Mustaqbal Al-Suri, 2024).

Despite the fact that the city of Al-Bab today appears as a bustling commercial center crowded with residents and displaced people, its surrounding agricultural hinterland continues to play a pivotal role in both the economic and social spheres, providing thousands of farmers with their main source of livelihood.

Over the past years, the region has witnessed profound transformations that have directly affected the agricultural sector. These include climate change and declining rainfall, disruptions in traditional water sources, the depletion of groundwater levels, and a significant rise in agricultural production costs, along with the marketing challenges associated with them (SyrianBusinessGateway, 2025). Despite these accumulating challenges, farmers in Al-Bab remain deeply attached to their land—cultivating rainfed wheat across its plains and tending to olive trees that have become a symbol of agricultural resilience in northern Syria.

This narrative study seeks to present a comprehensive and realistic portrayal of the agricultural sector in the city of Al-Bab, examining its current conditions, primary resources, challenges, and future opportunities. It also aims to provide university students with an in-depth understanding of the relationship between people and land in this region, thereby contributing to the development of an

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initial research perspective on pathways to support agricultural development in the rural areas of Aleppo.

2. Location, Environment, and the Importance of Agriculture and Its Resources in Al-Bab City

2.1. Geographic Location and Environmental Features

Al-Bab is located in the northern part of the Syrian Arab Republic, within the eastern countryside of Aleppo Governorate. It lies approximately 40 kilometers northeast of Aleppo City and about 30 kilometers south of the Turkish border. The city serves as an important administrative center for a wide rural region encompassing dozens of villages and towns, which grants it a pivotal role in connecting the surrounding agricultural areas. While the urban area of the city covers around 3.5 square kilometers, the geographical zone with which it is economically and agriculturally integrated is far more extensive due to its hybrid rural–urban character (City-Facts, 2024).

In terms of demographic distribution, the city has undergone major transformations compared to the period prior to 2011. Previously, the population ranged between 28,000 and 30,000 inhabitants. However, recent human rights and political reports indicate that the current population exceeds 250,000–300,000 people as a result of large-scale displacement waves during the years of conflict (Enab Baladi, 2024). This demographic shift places direct pressure on natural and food resources and further underscores the importance of agriculture as a fundamental pillar for meeting the community's needs for food, water, and employment opportunities—thereby strengthening the economic and social resilience of the local population (Tayyar Al-Mustaqbal Al-Suri, 2024).

Climatically, Al-Bab falls within the hot semi-arid climate zone according to the Köppen–Geiger classification. Summers are predominantly hot and dry, with average maximum temperatures in July reaching 36–38°C, while winter daytime temperatures drop to around 9–12°C, accompanied by cold nights that may approach freezing during January and February (Weather2Visit, 2025; WeatherSpark, 2025). Historical climate data show that the city receives an annual average rainfall of 300–400 mm, concentrated mainly in January, February, and March, with rainfall nearly absent during the summer months extending from June to September (Weather Atlas, 2025; Nomad Season, 2025).

This climatic pattern—characterized by limited and irregular rainfall—makes rainfed agriculture in rural Al-Bab highly dependent on the "success" of

the rainy season in terms of precipitation amount and temporal distribution. As a result, agricultural output is subject to considerable fluctuations from year to year, especially amid increasing drought episodes and climate change impacts in Syria, as highlighted by recent Arab reports (SyrianBusinessGateway, 2025; NoonPost, 2023).

Al-Bab is situated in a relatively flat plains region composed of sedimentary formations conducive to agriculture, with slight variations in elevation that support plowing operations and the use of agricultural machinery. Soil types range from medium- to high-fertility clay–loam soils suitable for cultivating cereals and fruit trees, to sandy–loam soils in some areas, which are favorable for growing vegetables and field crops with lower water requirements in the region (Tayyar Al-Mustaqbal Al-Suri, 2024).

2.2 The Importance of Agriculture in the Local Economy of Al-Bab City

Agriculture constitutes a fundamental pillar of local community stability and is among the most significant economic activities in Al-Bab and its rural surroundings. A large segment of the population relies on it as either a primary or supplementary source of income. Contemporary Arab studies indicate that the agricultural sector in northern Syria possesses a strong capacity for recovery despite the existing challenges, owing to its diverse crop structure and the prevalence of strategic crops such as wheat, barley, and olives, as highlighted by recent reports (Tayyar Al-Mustaqbal Al-Suri, 2024).

Moreover, recent economic analyses emphasize that developing agricultural value chains—particularly those of wheat, olives, and vegetables—represents an important opportunity to strengthen the role of agriculture in the local economy, especially in regions endowed with natural agricultural assets such as Al-Bab (Raseef22, 2023).

2.2.1 Key Aspects of the Importance of Agriculture in Al-Bab

2.2.1.1 A Primary Source of Income

Field reports indicate that a significant portion of the rural population depends on agriculture and livestock production, particularly in the villages of Qabasin, Bizaah, and Tadif. Some sources estimate that nearly 80% of farmers rely on rainfed agriculture, which directly links their income to climatic fluctuations (Enab Baladi, 2024).

2.2.1.2 Employment Generation

The importance of agriculture extends beyond crop production; it serves as a major employment system for young laborers across various stages of the agricultural cycle, including plowing, sowing, harvesting, olive picking, transportation, and marketing. This role becomes especially critical given the limited employment opportunities in non-agricultural sectors.

2.2.1.3 Strengthening Food Security

Agriculture plays a central role in producing essential food items such as grains, seasonal vegetables, and olive oil, thus reducing dependence on imports or food supplies from distant regions. In an economically and politically fragile context like Syria, securing local food production stands as one of the most important pillars of economic resilience (SyrianBusinessGateway, 2025).

2.2.1.4 Revitalizing Supporting Sectors

Every lira earned by a farmer revitalizes the local economic cycle through increased commercial activity, repair workshops, transportation services, and other activities connected to the agricultural sector. At the national level, Arab and international reports indicate that the contribution of agriculture to Syria's GDP has declined to roughly 15%, while the proportion of workers employed in the sector has fallen to around 12% due to the impacts of war and the deterioration of agricultural infrastructure. This situation renders productive agricultural regions—such as Al-Bab—vital "defense lines" for maintaining local food security (Daraj, 2024).

3. The Nature of Agriculture in Al-Bab City

Agriculture in Al-Bab is characterized by a set of distinctive features that differentiate it from other regions in Syria. These features can be summarized in the following dimensions.

3.1 Predominance of Rainfed Agriculture

As previously noted, the majority of farmers in Al-Bab rely on rainfall for cultivating cereals and fruit trees. It is estimated that around 80% of farmers in the city and its countryside depend entirely or partially on rainfed agriculture. This means that any disruption in the rainy season—such as delays, interruptions, or significant reductions in rainfall—directly translates into substantial economic losses. Such disruptions may even force some farmers to reduce cultivated areas or leave their land fallow in the following season (Enab Baladi, 2024).

3.2 A Traditional Crop Structure Dominated by Wheat and Barley

Wheat: As the region's primary strategic crop, wheat is cultivated extensively across the surrounding plains and forms a central pillar of local food security. Its productivity depends on soil quality, the number of rainy days, and the level of inputs used, including fertilizers and plant protection measures.

Barley: Less sensitive to drought than wheat, barley is commonly adopted by farmers in areas more distant from water sources or in zones with lower rainfall, making it a preferred option in harsher climatic conditions.

3.3 Olive Trees as a Deeply Rooted and Enduring Asset

Olive trees constitute both an economic and social asset in the region. Local reports indicate that olive yields have declined during drought seasons due to delayed rainfall, prompting some local councils to call for *salat al-istisqa'* (prayers for rain) (Enab Baladi, 2024). According to data from the Syrian Ministry of Agriculture and Agrarian Reform, olives remain one of the most important agricultural resources at the national level (MOAAR, 2024).

3.4 Vegetable Production, Small Holdings, and Greenhouses

In the outskirts of the city and in several nearby villages—particularly those located near wells or irrigation canals—vegetable cultivation is widespread, including tomatoes, cucumbers, peppers, and potatoes. These crops are grown both in open fields and in plastic greenhouses. This type of agriculture is labor-intensive and generates relatively faster income compared to cereal production; however, it is more sensitive to the cost of inputs (such as hybrid seeds, plastic coverings, fertilizers, and pesticides) as well as to the stable availability of irrigation water.

3.5 Small and Medium-Sized Agricultural Holdings

Agriculture in Al-Bab is largely characterized by small to medium-sized landholdings, typically managed by families themselves with limited reliance on fully mechanized farming. This pattern constrains farmers' ability to invest in modern agricultural technologies—such as solar-powered systems, drip irrigation, or soil moisture monitoring devices—unless cooperative structures or institutional support mechanisms are available.

4. The Current State of Water and Water Resources in Al-Bab City

Al-Bab is experiencing an escalating water crisis driven by climate change, declining rainfall levels, and the damage inflicted on water infrastructure over the years of conflict. Recent reports indicate that drought has become more

severe and frequent in recent years, directly affecting cultivated land areas (SyrianBusinessGateway, 2025).

4.1 Water Supply System Based on the Euphrates River and Pumping Stations

Historically, water was pumped to Al-Bab from the Babiri Station through the Khafsa Station and then to Ain al-Bayda, before being distributed to residential neighborhoods and agricultural fields from the Sheikh Aqeel reservoirs. However, after 2016, these networks faced repeated disruptions due to shifting control and physical damage, forcing residents to rely increasingly on wells and water trucks (Daraj, 2024).

4.2 Groundwater Wells and the Growing Dependence on Them

A scientific study indicates that 67% of irrigation in northern Syria depends on groundwater. With the absence of regulated drilling and water-use practices, groundwater levels have dropped significantly, while operating costs—particularly fuel expenses—have risen sharply (Al Dahrawi et al., 2023).

4.3 The Drinking Water Crisis and Its Impact on Agriculture

Human rights reports show that around 300,000 people in Al-Bab suffer from a drinking water crisis, while approximately 4,500 hectares of agricultural land are at risk of desertification. This makes water one of the most critical issues in the region (STJ, 2023).

4.4 The Impact of Drought and Climate Change

Arab and international climate reports point to increasing frequency of drought waves in Syria, along with a decline in annual precipitation levels compared to past decades. Al-Bab represents a clear example of this downward trend (Climate Knowledge Portal, 2024).

4.5 Implications for Irrigation Patterns and Agricultural Practices

The water crisis has pushed many well owners to prioritize selling water for household consumption due to the rising demand for drinking water, at the expense of agricultural use. Consequently, irrigated land areas have decreased, and crop diversity has declined. Amid rising fuel prices and frequent electricity outages, some farmers have begun adopting solar energy for water pumping; however, these initiatives remain limited and require institutional support to expand (NoonPost, 2020).

5. The State of Agriculture and Its Challenges in Al-Bab City

The agricultural sector in Al-Bab and its surrounding countryside constitutes one of the core components of the region's economic and social fabric. It serves as a primary source of income and a key pillar for the stability of the local community. Although the area continues to possess significant natural agricultural potential—reflected in fertile soils, extensive cultivable lands, and diverse crops—the past years have brought profound transformations that have directly affected agricultural production and the ability of farmers to achieve sustainable economic returns.

These transformations have stemmed from a set of intertwined factors, most notably climate change, declining water resources, rising agricultural production costs, and the broader economic and political conditions affecting the country (SyrianBusinessGateway, 2025; Tayyar Al-Mustaqbal Al-Suri, 2024).

This section presents the current state of agriculture in Al-Bab and its countryside, drawing on the most recent national and regional statistics, while analyzing the impacts of climatic, environmental, water-related, and economic challenges that collectively shape the agricultural landscape in the region.

5.1 General Overview of the Agricultural Sector in Al-Bab

The agricultural sector in Syria has experienced widespread decline over the past decade, a trend that has directly affected agricultural regions in northern Syria, including Al-Bab. The sector's productive capacity has diminished due to several overlapping factors, including climate variability, rising costs of production inputs, deterioration of agricultural infrastructure, and the enduring impacts of the conflict (SyriaSite, 2023; SyrianBusinessGateway, 2025).

At the national level, 2025 data indicates that agriculture contributes only about 12% to the national GDP, while the proportion of those employed in the sector has decreased to nearly 15% of the labor force—significantly lower than pre-2011 levels (World Bank, 2024; ILO, 2024). This structural decline shows that historically agricultural regions—among them Al-Bab—face the dual pressure of shrinking resources and rising production costs.

Agricultural production in Al-Bab relies heavily on rainfed systems, making output largely contingent on the success of the rainy season. Field data suggests that about 80% of farmers in Al-Bab and its countryside depend entirely or partially on rainfed agriculture, particularly for cereal crops such as wheat and barley, as well as olives, exposing them to significant risks during drought years (Enab Baladi, 2024; Tayyar Al-Mustaqbal Al-Suri, 2024).

With declining rainfall in recent years, agricultural production in the region has been directly affected, with some seasons showing notable declines in cereal yields. Nationally, cereal productivity has dropped by 40% over ten years (Carnegie Middle East Center, 2024), and local wheat production now meets only about 19% of national demand—a clear indicator of weakened food security and the burdens placed on regions heavily reliant on wheat production, such as Al-Bab.

In addition, agriculture in Al-Bab faces a series of challenges linked to the consequences of war, including the destruction of irrigation networks, declining access to production inputs due to rising prices and fuel shortages, and the loss of agricultural labor. Arab studies highlight that the most pressing challenges include rising production costs, weakened agricultural extension services, labor migration, and deteriorating irrigation systems (SyriaSite, 2023).

Research reports on agriculture in northern Syria confirm that these challenges have led to a noticeable decline in productivity, with farmers increasingly resorting to traditional practices rather than adopting modern agricultural technologies due to high associated costs (Tayyar Al-Mustaqbal Al-Suri, 2024).

Taken together, these factors illustrate how agricultural conditions in Al-Bab reflect a complex interplay between climatic, economic, and structural constraints—highlighting the sector's urgent need for comprehensive development interventions aimed at rebuilding and ensuring the sustainability of agricultural production systems.

5.2 Crop Composition and Production Areas

The crop composition in Al-Bab and its countryside reflects the characteristics of the region's semi-arid climate, the availability of water resources, and soil fertility. Farmers largely depend on cereal crops (wheat and barley) as core staples, supplemented by fruit trees—especially olives—which constitute a deeply rooted element of the agricultural landscape. In recent years, vegetable cultivation and greenhouse agriculture have gradually gained importance, particularly in areas close to reliable water sources.

Three main categories dominate the crop composition:

5.2.1 Cereal Crops (Wheat and Barley)

Wheat is the primary strategic crop in Al-Bab due to its central role in local food security. However, declining rainfall in recent seasons, coupled with rising production costs—particularly fertilizers and fuel—has contributed to reduced

wheat yields, especially among small-scale farmers. International reports indicate that cereal production costs in Syria increased by 300% between 2019 and 2024, significantly narrowing farmers' profit margins (FAO, 2024).

Moreover, fluctuating rainfall patterns and increasing fuel prices have made wheat and barley cultivation more vulnerable in rainfed areas such as Al-Bab (SyrianBusinessGateway, 2025).

5.2.2 Fruit Trees (Especially Olives)

Olives represent the backbone of perennial agriculture in Al-Bab and form a long-term economic resource for rural households. Northern Syria—including Al-Bab's countryside—has witnessed a marked decline in olive production in recent years, with reports noting a 30–50% drop in some seasons due to delayed rainfall (Enab Baladi, 2024).

In Al-Bab specifically, delayed rainfall during the 2023–2024 season pushed the olive harvest back by 3–4 weeks and resulted in significant reductions in oil yields, according to local media (NoonPost, 2023). Data from the Syrian Ministry of Agriculture confirms that olives remain one of the most critical perennial crops supporting rural livelihoods (MOAAR, 2024).

5.2.3 Vegetable Production and Greenhouses

Vegetable cultivation is expanding steadily in Al-Bab, especially in areas with access to wells or partial irrigation networks. This sector often relies on plastic greenhouses, which facilitate early production of tomatoes, cucumbers, and peppers. Although vegetable farming is more profitable than cereals, it is also more sensitive to fluctuations in energy prices, fertilizer and input costs, and water availability—factors that place significant pressure on this sector amid the region's ongoing water crisis (STJ, 2023).

5.3 Agricultural Landholdings

Agricultural landholdings in Al-Bab are generally small—a trend common across northern and eastern Syria. FAO data indicates that 60% of agricultural holdings in northern Syria are less than 5 hectares in size (FAO NES, 2023). Such small-scale holdings limit farmers' ability to invest in modern technologies such as drip irrigation systems, solar-powered pumping, high-yield hybrid seeds, advanced agricultural machinery.

These technologies have become essential for enhancing productivity and adapting to climate change, yet remain inaccessible for most smallholders without organizational or institutional support (Tayyar Al-Mustaqbal Al-Suri, 2024).

5.4 Agricultural Productivity and Related Challenges

Agricultural productivity in Al-Bab is influenced by multiple interrelated factors, including climatic conditions, economic pressures, and the status of agricultural infrastructure. This interaction renders agricultural production highly sensitive to even minor changes in rainfall availability, input prices, or irrigation and transport infrastructure.

5.4.1 Climatic Challenges

Agricultural output in Al-Bab depends heavily on rainfall, which averages 300–400 mm annually and is concentrated primarily in the winter months. Climate databases report the following approximate monthly averages:

- December: 50–55 mm
- January: 55–60 mm
- February: 40–50 mm
- March: 30–40 mm

Rainfall is nearly absent during the summer months (June–September) (Weather2Visit, 2025; WeatherSpark, 2025). Any disruption in this rainfall cycle—such as the delay observed during the 2023–2024 season—results in significant declines in yields, particularly for wheat, which depends on consistent moisture during critical growth stages (SyrianBusinessGateway, 2025).

5.4.2 Rising Production Costs

Agricultural input prices in Syria have risen sharply in recent years. Nitrogen fertilizer prices increased by 300% between 2020 and 2024, and the cost of operating a 5-horsepower irrigation pump rose by 400% within four years (FAO, 2025). These figures help explain why many farmers have reduced cultivated areas or shifted to lower-cost crops, especially smallholders who cannot absorb fluctuations in input prices (SyriaSite, 2023).

5.4.3 Weak Agricultural Infrastructure

Years of conflict have severely damaged agricultural infrastructure in Al-Bab:

- irrigation networks have been damaged, with many segments still unrestored;
- modern sorting and packing centers are lacking;
- no organized plans exist to support agricultural mechanization;

- landholdings are fragmented and small, complicating the adoption of modern technologies.

This situation weakens farmers' competitiveness, affects product quality, and increases post-harvest losses (Tayyar Al-Mustaqbal Al-Suri, 2024).

5.4.4 Impact on Overall Production

Together, these factors—drought, rising input costs, and weak infrastructure—have led to a decline in wheat productivity per hectare compared to pre-2011 levels. Field data indicates that the region now experiences, on average, two poor seasons out of every three in terms of yield, deepening local food insecurity (NoonPost, 2023).

5.5 Agricultural Infrastructure and Irrigation Facilities

Water remains the most influential factor shaping the future of agriculture in Al-Bab. Agricultural activities—both rainfed and irrigated—depend fundamentally on the availability and quality of water. Recent data shows increasing pressure on water resources due to overextraction, lack of effective management, and the growing impacts of climate change (SyrianBusinessGateway, 2025).

5.6 Near-Total Dependence on Groundwater Wells

Studies indicate that 67% of irrigation water in northern Syria— including the rural areas of Al-Bab—comes from groundwater, despite declining water tables due to excessive extraction (Al Dahrawi et al., 2023).

Three main factors limit the sustainability of groundwater use are **Overpumping** driven by the absence of stable alternative water sources; **High operating costs** due to fuel, electricity, and maintenance expenses; **Lack of formal regulation**, resulting in widespread unlicensed drilling and uncontrolled water withdrawal.

This reality renders groundwater dependence an unsustainable option, threatening the long-term balance between water demand and availability in the region (SyriaSite, 2023).

5.7 The Water Crisis in Al-Bab

Recent human rights and media reports confirm that Al-Bab is facing one of the most severe water crises in northern Syria. According to these reports Over **300,000 residents** struggle to secure drinking water, and approximately **4,500 hectares** of agricultural land around the city are threatened by drought

due to declining water pumping from the Ain al-Bayda station (STJ, 2023; Daraj, 2024).

This situation has driven many well owners to prioritize selling water for household use—given its higher economic return—at the expense of agricultural irrigation. As a result, irrigated areas have contracted, and crops requiring continuous irrigation have been particularly affected (NoonPost, 2023).

5.8 The Impact of Climate Change

In recent years, the region has seen a noticeable increase in drought frequency, rising temperatures, and declining annual rainfall—all trends supported by regional and international climate reports (Climate Knowledge Portal, 2024). These patterns have manifested in several ways in Al-Bab's agricultural sector: declining crop yields due to reduced soil moisture; increased reliance on costly irrigation instead of rainfed agriculture; expansion of desertification around some agricultural villages due to vegetation loss.

These climatic shifts present an additional layer of vulnerability for the agricultural sector (SyrianBusinessGateway, 2025).

5.9. Marketing and Logistical Challenges

Beyond production challenges, farmers in Al-Bab face a series of marketing and logistical obstacles that significantly diminish their financial returns relative to the high production costs.

Key marketing challenges include limited access to organized facilities for storage, sorting, and packaging, leading to post-harvest losses or sales at low prices; seasonal price fluctuations that sometimes force farmers to sell their crops below production cost; competition from more stable or better-irrigated regions, which affects local market share; inadequate logistical services—including transportation, financing, and agricultural insurance—exposing farmers to risks such as spoilage, delayed marketing, or total crop loss.

Economic reports emphasize that these marketing constraints form an integral part of the broader challenges facing agriculture in Al-Bab, affecting not only production capacity but also the economic viability of farming as a livelihood (Tayyar Al-Mustaqbal Al-Suri, 2024).

6. Future Opportunities for the Agricultural Sector in Al-Bab and Prospects for Its Development

The agricultural sector in Al-Bab is currently undergoing a critical transitional phase, characterized on the one hand by declining agricultural productivity, and on the other by an increasing need to strengthen local food security. Farmers today face a set of intertwined challenges, including water scarcity, rising production costs, and marketing difficulties, alongside genuine opportunities that could transform the future of agriculture in the region if effectively and strategically leveraged (SyrianBusinessGateway, 2025; Tayyar Al-Mustaqbal Al-Suri, 2024).

This chapter aims to provide a clear forward-looking vision for the agricultural sector in Al-Bab by analyzing available opportunities, reviewing ongoing agricultural initiatives, and assessing possible scenarios, ultimately leading to a set of recommendations that can support the development and expansion of the sector.

In recent years, several local and international initiatives have been implemented in northern Aleppo Governorate to support agricultural production and enhance its capacity to adapt to environmental and economic challenges. These initiatives have included the distribution of high-yield improved seeds, the introduction of drip irrigation systems, the provision of solar-powered pumping systems for wells, and the improvement of vegetable production practices in open fields and plastic greenhouses.

According to reports by the Syria Recovery Trust Fund (SRTF), vegetable support programs in the northern part of the governorate contributed to a productivity increase of approximately 15–25% over two consecutive seasons, as a result of adopting modern irrigation techniques and providing farmers with appropriate inputs (SRTF, 2024). These outcomes confirm that the introduction of modern agricultural technologies can directly improve water-use efficiency and increase crop returns.

Arab media reports also emphasize that improving water resource management—particularly through rehabilitating irrigation networks, regulating groundwater extraction, and encouraging a shift to solar energy—could significantly enhance agricultural production in Al-Bab in the coming years. Other reports highlight the importance of strengthening protected agriculture and expanding the use of plastic greenhouses, given their role in mitigating climate variability and relying on regular irrigation, thereby creating greater opportunities for farmers to increase productivity and achieve economic stability (NoonPost, 2023; Raseef22, 2023).

The availability of extensive areas in Al-Bab's countryside that can be rehabilitated for agriculture, coupled with local farmers' willingness to expand cultivation whenever suitable conditions are provided, constitutes a strong foundation upon which a more sustainable agricultural future can be built. Hence, the importance of comprehensive agricultural planning emerges—planning that integrates natural resource management, infrastructure development, modern technologies, and market support to ensure the desired agricultural development in the region.

6.1. Ongoing Projects and Initiatives for Agricultural Development

6.1.1. Initiatives Supporting Agricultural Inputs

Since 2020, the Al-Bab region has witnessed a series of interventions implemented by international and local organizations, primarily focused on supporting agricultural inputs with the aim of easing the economic burden on farmers. These interventions have included distribution of improved seeds for wheat and barley; provision of quantities of fertilizers and pesticides; limited support for vegetable cultivation in some villages; rehabilitation of portions of land degraded by drought or soil deterioration.

These initiatives have helped reduce part of the production costs and improve the quality of seeds used, although their overall impact remains limited compared to the magnitude of needs in the agricultural sector.

FAO reports indicate that agricultural support programs in northern Syria have contributed to increasing wheat yields by 10–15% in areas that benefited from the distribution of improved seeds (FAO, 2024). Arab reports further emphasize that improving seeds and fertilizers has been an important entry point for restoring part of the lost productivity (Tayyar Al-Mustaqbal Al-Suri, 2024).

6.1.2. Rehabilitation of Irrigation Networks

Despite the deepening water crisis in Al-Bab, some agricultural projects have focused on rehabilitating irrigation infrastructure through cleaning traditional irrigation canals; providing water pumps; repairing parts of the Ain al-Bayda irrigation project, which supplies portions of Al-Bab's countryside; installing drip irrigation systems on small and medium-sized holdings.

Published studies indicate that the introduction of drip irrigation systems on small holdings in northern Syria has increased water-use efficiency by 30–40%, directly reducing costs and enhancing water sustainability (Al

Dahrawi et al., 2023). These measures represent fundamental steps toward strengthening water security for farmers, particularly as reliance on traditional surface irrigation networks continues to decline.

6.1.3. Support for Agricultural Value Chains

International agricultural organizations and a number of local actors have increasingly focused on developing agricultural value chains as a key approach to improving product quality and raising farmers' incomes. Support programs have targeted several main value chains, most notably the olive and olive oil value chain (harvesting, pressing, storage, marketing); the wheat–flour–bread value chain; vegetable value chains such as tomatoes, cucumbers, and peppers.

Focusing on value chains contributes to reducing post-harvest losses; improving the quality of final products; facilitating access of products to markets; increasing the added value captured by farmers; strengthening the competitiveness of local products.

Recent Arab reports highlight value chain development as one of the most important tools for boosting the agricultural economy in northern Syria, particularly given farmers' limited resources (Raseef22, 2023; NoonPost, 2023).

6.2. Future Opportunities Available to the Agricultural Sector

The agricultural sector in Al-Bab has a wide range of future opportunities that could bring about a qualitative transformation in production systems if harnessed within a clear development vision. These opportunities emerge alongside the urgent need to bolster food security and reduce dependence on traditional rainfed agriculture under changing climatic and economic conditions (SyrianBusinessGateway, 2025; Tayyar Al-Mustaqbal Al-Suri, 2024).

6.2.1. Potential for Expanding Irrigated Agriculture

Despite water scarcity, the region offers real opportunities to expand irrigated areas through using solar energy to power wells and reduce operating costs; improving pumping efficiency by modernizing pumps; rehabilitating the main irrigation project, particularly the Ain al-Bayda scheme; reducing water losses in irrigation canals; transitioning to modern irrigation systems such as drip irrigation.

Data indicates that using solar energy to operate irrigation pumps can reduce pumping costs by 60–70% compared to diesel-based systems, encouraging farmers to increase irrigated areas and reduce high energy-related costs (FAO,

2025). Arab reports also confirm that solar energy has become a key entry point for improving irrigation sustainability in northern Syria (NoonPost, 2023).

6.2.2. Strengthening the Role of Farmers' Associations and Cooperatives

Agricultural cooperatives are among the most effective tools for achieving sustainable transformation in the agricultural sector, especially in an area characterized by small landholdings and high input costs. Cooperatives can provide a range of essential services, including lowering production costs through collective purchasing of seeds and fertilizers; providing agricultural extension services; organizing marketing activities; managing storage and cooling facilities; collective negotiation for water and fuel procurement at lower prices.

Field studies on cooperatives in northern Syria show that organized cooperative work has increased farmers' incomes by approximately 20% in some beneficiary areas (iMMAP, 2023; FAO NES, 2023). These experiences provide strong evidence that cooperatives could succeed in Al-Bab if they receive the necessary institutional support.

6.2.3. Introducing Modern Agricultural Technologies

Agricultural technologies offer an important opportunity to reduce production risks and improve farming efficiency. These technologies include soil moisture sensors for monitoring irrigation needs; drip and low-pressure sprinkler irrigation systems; improved and more advanced plastic greenhouses; high-yield improved varieties; crop monitoring systems via smartphones and digital applications.

International reports indicate that adopting localized irrigation systems can increase vegetable yields by about 25% and reduce water consumption by nearly 40% (MDPI Water, 2023; FAO, 2024). Arab reports confirm that introducing such technologies provides effective solutions to combat drought and enhance productivity in northern Syria (Raseef22, 2023).

6.2.4. Developing Small-Scale Agro-Industries

Al-Bab has considerable potential to transform primary agricultural products into higher value-added goods, thereby strengthening the local economy and creating new jobs. Promising agro-industries include olive oil pressing facilities; pickle production; tomato drying; packaging of medicinal herbs; dairy processing and value-added milk products.

These industries can generate hundreds of job opportunities, foster social stability, and enable farmers to earn higher returns compared to selling raw products. Arab reports emphasize that agro-processing industries are among the main drivers of local economic revitalization in northern Syria (NoonPost, 2023).

6.3. Future Scenarios for Agriculture in Al-Bab City

Agriculture in Al-Bab is highly sensitive to climatic, water-related, and economic factors, making its future dependent on a set of political, administrative, and technological variables. Based on current conditions and ongoing initiatives, three main scenarios can be outlined for the future of the agricultural sector in the region (SyrianBusinessGateway, 2025; SRTF, 2024).

6.3.1. Scenario One: Improvement Scenario

This is the most optimistic scenario and would materialize if a set of core interventions succeeds in improving agricultural structures and productivity, including rehabilitation of the Ain al-Bayda irrigation project; support for using solar energy to operate wells; provision of improved seeds to farmers; establishment of modern marketing centers to ensure products reach markets.

If these elements are realized, agricultural estimates suggest that productivity could increase by 20–30% within five years, particularly for wheat, vegetables, and olives, as a result of better water management and lower operating costs (FAO, 2024; NoonPost, 2023).

6.3.2. Scenario Two: Intermediate "Realistic" Scenario

This scenario represents the most likely outcome if current conditions persist without major breakthroughs, accompanied by partial improvements in agricultural infrastructure, such as limited support for solar energy or minor enhancements in irrigation networks. The expected results would include modest improvements in olive production due to its relative drought tolerance; cereal production stabilizing at current levels without significant increases; continued reliance on wells, coupled with a gradual rise in operating costs.

This scenario reflects a state of "fragile stability," in which no dramatic regression occurs, yet no substantial productivity surge is achieved either (Tayyar Al-Mustaqbal Al-Suri, 2024).

6.3.3. Scenario Three: Deterioration Scenario

This scenario unfolds if the water crisis persists, agricultural input prices continue to rise, and support programs and agricultural initiatives further

decline. Under these conditions, productive capacity could drop sharply, leading to a 15–25% decline in agricultural yields; expansion of desertification in Al-Bab's countryside; contraction of cultivated areas to only 50–60% of the currently cultivated or potentially cultivable land.

This scenario represents a serious warning regarding the future of food security in the region, especially if climate change and pressures on water resources continue without effective interventions (Climate Knowledge Portal, 2024; STJ, 2023).

6.4. Future Recommendations for Developing the Agricultural Sector

Based on the identified challenges and available opportunities, a set of practical recommendations can be proposed to enhance the agricultural sector's capacity for growth and sustainability in Al-Bab:

6.4.1. Prioritizing Water Management

- rehabilitate and restart the main irrigation project, particularly the Ain al-Bayda scheme;
- support solar-energy systems for operating wells to reduce pumping costs;
- monitor and regulate well drilling to curb unlicensed and random extraction;
- promote water conservation techniques such as mulching and drip irrigation.

6.4.2. Supporting Smallholder Farmers

- provide interest-free microloans to secure production inputs;
- distribute improved seeds and fertilizers at subsidized prices;
- deliver training and extension programs on water management and modern agricultural practices.

6.4.3. Developing the Agricultural Marketing System

- establish a modern central market in Al-Bab for aggregating and grading products;
- build warehouses and cold-storage facilities to preserve produce and reduce post-harvest losses;

- launch digital marketing applications to help farmers access markets and better track and negotiate prices.

6.4.4. Strengthening Small-Scale Agro-Industries

Agro-processing industries can play a major role in supporting the local economy. Key sectors include olive oil mills; pickle production units; tomato and herb drying facilities; dairy processing and related products. These industries can generate hundreds of job opportunities and significantly increase the added value of local agricultural products (Raseef22, 2023).

Conclusion

The current evidence shows that the agricultural sector in Al-Bab stands at a genuine crossroads where structural challenges—particularly water scarcity, rising production costs, and weak infrastructure—intersect with promising opportunities that could bring about a qualitative shift in production if effectively utilized. Analysis of ongoing initiatives indicates that agricultural interventions, whether through improved inputs, rehabilitation of irrigation networks, or support for value chains, have already begun to yield tangible improvements in the productivity of certain crops, despite their limited overall impact relative to the scale of needs.

The future scenarios outlined in this chapter clearly demonstrate that the fate of agriculture in the region is not predetermined; rather, it depends directly on the level of effort dedicated to water resource management, strengthening cooperatives, adopting modern agricultural technologies, and developing agro-processing industries. While the optimistic scenario offers the potential for increased productivity and improved farmer incomes, the deterioration scenario stands as a clear warning that maintaining current trajectories without meaningful interventions could lead to shrinking cultivated areas and worsening food insecurity.

Accordingly, the future of agriculture in Al-Bab is fundamentally tied to the ability of local actors and supporting institutions to steer efforts toward sustainable agricultural development through sound resource management, improved infrastructure, and accessible production and financing tools for farmers. Investing in these opportunities has the potential to transform agriculture from a fragile sector into a resilient economic and social engine capable of supporting the region's stability and enhancing its capacity to withstand future challenges.

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Chapter 8

Foundational Operations of Institutions in the Al-Bab Area and Their Legal Dimension

Fadi Alshuaib[1]

1. Introduction

The city of Al-Bab is considered one of the strategically significant cities in northern Syria due to its distinctive geographical location and the growing volume of economic activity within it, especially after the political and military transformations the region has witnessed in recent years. The city has become a vital center for trade and services, and a destination for an increasing number of local investors, which has made the establishment of economic institutions there an urgent necessity to meet the needs of the population and enhance economic activity.

However, this process is not limited to the administrative or economic aspect alone; rather, it intersects with complex legal dimensions related to the legitimacy of institutions, their registration mechanisms, the extent of their compliance with national and international laws, and their alignment with the requirements of a safe investment environment. Here lies the core problem of the study, as the establishment of institutions in the city of Al-Bab faces multiple challenges linked to the ambiguity of the governing legal frameworks, the overlap between local authorities and Syrian laws on one hand, and the influence of Turkish laws due to geographical and administrative connections on the other.

The importance of this topic is reflected in its focus on one of the most prominent issues related to economic development and reconstruction in Syria, namely the legal regulation of emerging economic institutions in Al-Bab. Every new institution contributes to creating job opportunities and stimulating market activity, yet it simultaneously requires a clear legal framework that

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ensures the rights of investors and workers and defines their obligations toward the state and society.

The research aims to analyze the reality of the foundational operations of institutions in Al-Bab, outlining their legal and procedural aspects, in addition to identifying the most significant obstacles hindering the proper legal establishment of institutions. It further seeks to propose practical solutions to simplify procedures and clarify legal references in a way that enhances the investment climate and contributes to the stability of the local economic environment.

This study also strives to connect the economic dimension with the legal aspect, based on the belief that sustainable development cannot be achieved without economically organized institutions that are legally regulated and capable of conducting their activities within a clear and stable environment.

2. Theoretical and Historical Framework

2.1. General Background of the City of Al-Bab and Its Economic Importance

The city of Al-Bab is located in the eastern countryside of Aleppo and is considered one of the most prominent northern Syrian cities in terms of area and population. Its population is estimated at around 200,000 people, including the surrounding villages and towns. It has witnessed large waves of internal displacement after 2012, which has doubled its population density (Al-Khateeb, 2019).

Its location near the Turkish border gives it strategic importance, as it connects the city of Aleppo with the areas of Jarabulus, Azaz, and Afrin. It is also considered a gateway for commercial exchange with Turkey through the Jarabulus–Karkamış crossing (OCHA, 2021).

Historically, the city of Al-Bab has been known as a commercial and agricultural center. It was famous for its traditional markets and its vast farmlands of grains and olives. Since the mid-twentieth century, it has become a hub for trading agricultural products coming from the eastern countryside of Aleppo toward the city of Aleppo and Turkish markets (Al-Youssef, 2021).

This historical role has made it a city with an active economic character, dependent on commercial networks and a social structure built around handicrafts and trade.

Since 2011, the city has experienced profound transformations due to the Syrian conflict. It became an economic attraction point as a result of population

displacement into it, which led to the expansion of commercial activities and an increased demand for essential goods and services (Qassem, 2020).

The withdrawal of large areas of Aleppo's countryside from state control also created an administrative vacuum, prompting residents and merchants to establish local economic initiatives such as chambers of commerce and craft associations to regulate markets and protect economic interests (International Crisis Group, 2019).

Main Economic Sectors in the City of Al-Bab:

- **Trade and services sector:** Considered the backbone of the city's economy, where traditional markets and small- to medium-sized shops are widespread to meet residents' needs.
- **Agricultural sector:** The region is known for olives, grains, and vegetables, and these products have strengthened the city's position as an integrated agricultural-commercial area (Al-Youssef, 2021).
- **Small industrial activities:** In recent years, small projects such as mills, food-processing factories, metalworking shops, and sewing workshops have emerged, adding diversity to economic activity (Al-Khateeb, 2019).

Economic and Organizational Challenges:

Despite the vitality of economic activity, the city faces several major challenges, the most notable of which are:

- The absence of a clear legal framework for registering companies and institutions, exposing many projects to legal risks.
- Weak infrastructure and basic services due to the war.
- Heavy reliance on informal cross-border trade with Turkey.
- The need to regulate relations between merchants and craftsmen through local economic institutions (Qassem, 2020).

With the growth of emerging economic institutions, the need has become urgent to establish a legal framework that regulates the processes of founding and registering companies in a way that protects the rights of owners and workers. Legal regulation enhances sustainability, reduces commercial disputes, and supports local development efforts (OCHA, 2021).

This regulation also forms a basis for integrating the local economy with regional and international markets and offers the city of Al-Bab an opportunity to transform into a successful economic model in northern Syria.

2.2. Key Concepts Related to the Establishment of Institutions

2.2.1. Definition of an Economic Institution

An economic institution is an organizational entity that engages in productive, commercial, or service-related activity in a structured and sustainable manner with the aim of achieving economic benefits—whether direct financial profit or organized social/service-oriented objectives. An institution comprises fixed elements such as an administrative or organizational structure, human and capital resources, a physical location, and operating systems, and it functions according to clear operational and accounting policies. This definition distinguishes an institution from temporary or incidental projects that lack continuity and organization (Al-Khateeb, 2019; OECD, 2005).

Key Elements in the Definition of an Institution

- **Continuity:** Periodic and regular activity, not a one-time undertaking.
- **Organizational structure:** Mechanisms for decision-making (owner/partners/board of directors/manager).
- **Means and resources:** Availability of capital, assets, equipment, and organized labor.
- **Economic/social objective:** Generating profit or providing a structured service that meets a specific need.
- **Potential legal status:** Upon registration, the institution becomes a legal entity with independent rights and obligations.

Precision in defining an institution is not merely theoretical; it has direct implications for registration requirements, necessary documentation, scope of legal liability, taxation and social insurance obligations, and access to local and international support or financing programs. In regions such as Al-Bab, where local practices intersect with national and regional legislation, a unified definition becomes a fundamental factor in organizing rights and obligations and ensuring legal security for owners and workers (Qassem, 2020; OCHA, 2021).

- **Difference Between Sole Proprietorships and Commercial Companies (Comparative Detail)**

- **Brief definition of each:**

• **Sole proprietorship (individual establishment):** An economic activity owned and managed by a single natural person who operates in their own name and is personally liable for the obligations of the activity.

• **Commercial company:** An entity formed by agreement between two or more persons to engage in commercial, industrial, or service activity. It is governed by a contractual system (articles of association/bylaws) that defines the distribution of rights and obligations.

• **Detailed fundamental differences:**

• **Legal nature and corporate personality:** A sole proprietorship generally does not acquire separate legal personality except under specific legislative systems. Companies—depending on their legal form (e.g., limited liability company or joint-stock company)—enjoy independent legal personality, enabling them to contract and own property in their own name.

• **Legal and financial liability:**

– Sole proprietorship: unlimited liability; the owner is personally responsible for its debts.

– Companies: liability may be limited (as in LLCs or joint-stock companies) or unlimited/solidary (in some partnerships such as general partnerships), depending on the company type defined in founding legislation.

• **Formation procedures and administrative complexity:** Establishing a sole proprietorship is simpler and less costly (basic registration file, identity verification, and proof of location). Establishing a company requires articles of association/bylaws, accounting registration, publication of data (in some systems), and sometimes meeting minimum capital requirements.

• **Financing and growth capacity:** Sole proprietorships are usually limited due to reliance on the owner's personal resources. Companies allow raising larger capital through partners or issuing shares/ownership stakes, increasing opportunities for expansion.

• **Continuity:** A sole proprietorship may cease with the death or withdrawal of the owner unless otherwise regulated. Companies have continuity independent of their founders' status, depending on governing laws.

• **Accounting and regulatory controls:** Companies are typically subject to stricter disclosure requirements (financial reports, general assemblies, auditors) compared with sole proprietorships.

• **Implications of the choice in Al-Bab:**

In Al-Bab, many traders and craftsmen prefer the sole proprietorship model due to lower costs and simpler procedures within an administratively unstable environment. However, this choice exposes them to broad personal risks, including liability for debts. Encouraging the transition to limited liability company forms is important for projects seeking expansion, as it reduces personal risk and increases opportunities for funding or cross-border partnerships (Al-Youssef, 2021; International Crisis Group, 2019).

- **The General Legal Framework for Establishing Institutions (Theoretical and Applied to Al-Bab)**
- **Fundamental components of any legal framework for establishing an institution:**
- **Core legislative texts:** commercial laws, company laws, commercial registry regulations, and tax and fee laws.
- **Executive regulations and administrative procedures:** licensing requirements, contract templates, occupational health and safety standards, and consumer protection rules.
- **Regulatory and judicial mechanisms:** commercial courts or dispute-resolution mechanisms, and an effective authority overseeing the application of laws.
- **Support and facilitation services:** guidance offices, electronic or printed manuals, registration incentives, and tax facilities for emerging institutions.
- **Application in the context of Al-Bab — Practical complexities:**
- **Overlapping legal references:** In theory, establishment is governed by national commercial law (e.g., Syrian Commercial Law No. 33 of 2007 as a model), but in practice in Al-Bab, legal application faces overlap among national legislation (in text), local council/ administrative decisions (in practice), and procedures influenced by regional models (especially Turkish) due to administrative and economic connections (Qassem, 2020; OCHA, 2021).
- **Absence of a unified central authority:** The lack of a single central authority leads to variations in registration requirements and licensing procedures, causing inconsistency in commercial accreditation documents and limitations in external recognition.
- **Informal economy:** A significant portion of activities operate without official registration due to complexity, cost, or fear of taxation, which

weakens transparency and reduces legal protection for traders and workers.

- **Expected procedural steps (typical):** Preparing a charter/articles of association or internal regulations, providing proof of identity and location, submitting a licensing request to the local council or competent authority, registering in a local/central commercial registry (if available), tax registration, and obtaining special permits for sensitive sectors (health, environmental, educational, industrial).
- **Practical implications of lacking a unified framework:**
- **Legal and commercial risks:** Difficulty proving commercial ownership to external entities; complications in dealing with banks or cross-border service providers.
- **Uneven protection:** Variations in investor protection, labor rights, and consumer rights depending on the institution's location and registration status.
- **Barriers to growth:** Limited access to support or financing programs that require legal registration, hindering the development of small institutions and their transformation into companies capable of competing.

3. Practical Procedures for Establishing Institutions in the City of Al-Bab

3.1. Stages and Procedures of Establishment

The process of establishing economic institutions is a fundamental step to ensuring that economic activity operates within clear legal and regulatory frameworks—especially in areas such as the city of Al-Bab, which is characterized by geographical and political particularities that make commercial regulation more complex. The stages of establishment can be divided into three main elements: administrative licensing, commercial registration, and tax and financial obligations.

First: Administrative Licensing

• Concept and Importance

Administrative licensing is the first and essential step in establishing any economic institution. Its purpose is to grant the project an officially recognized local legal status that enables it to operate legitimately without facing legal accountability or local penalties. Licensing is also a prerequisite for obtaining

other legal privileges such as commercial registration and dealing with banks and official institutions (Al-Khateeb, 2019).

- **Practical Procedures:**

The licensing stage includes:

- Submitting an official application to the local council or the competent authority responsible for the activity.
- Attaching the required documents, such as: ID card, proof of ownership or lease contract for the business premises, and a detailed description of the activity.
- Paying the prescribed administrative fees (if applicable).
- Review of the application and documents by the competent authorities, followed by issuing the license once the activity is confirmed to comply with local laws and health and environmental standards.

- **Practical Challenges:**

Despite its importance, occasional administrative weaknesses lead to:

- Delays in issuing licenses, slowing the launch of new projects.
- Conflicting decisions among different local councils or between local directives and national laws.
- Lack of a unified mechanism for submitting complaints or appeals, creating an unstable investment environment (Qassem, 2020).

- **Economic Impact:**

Administrative licensing protects the project from illegal practices, enhances customer and investor trust, and facilitates access to local or international support programs for emerging institutions.

Second: Commercial Registration

- **Purpose and Function:**

After obtaining administrative licensing comes the commercial registration stage, whose purpose is to register the institution within the local or central commercial registry (if available). Commercial registration grants the institution independent legal personality, enabling it to:

- Conclude contracts in its own name.
- Own and manage assets.
- Bear legal and financial obligations formally (Al-Youssef, 2021).

- **General Procedures:**
- Submitting a registration application to the companies registry or the local chamber of commerce.
- Attaching the administrative license and reviewing legal conditions specific to the type of institution (sole proprietorship or commercial company).
- Publishing basic information in an official registry to ensure transparency and protect stakeholders.
- Obtaining a commercial registration number, which is used in all legal and financial transactions.
- **Practical Importance:**
- Protecting the rights of investors and clients by enabling legal recourse in case of dispute.
- Enhancing transparency in commercial transactions.
- Enabling institutions to comply with formal tax obligations, allowing them to benefit from financial facilities or support from official bodies (International Crisis Group, 2019).
- **Challenges Specific to the City of Al-Bab:**
- Lack of a unified central commercial registry, which may result in duplicated registration among different local councils.
- Influence of Turkish and regional laws on registration procedures due to geographical proximity and economic interactions with Turkey.
- Weak follow-up on annual commercial registry updates, sometimes leading to inaccurate data on active institutions.

Third: Taxes and Fees

- **Concept and Importance:**
- Economic institutions are subject to taxes and fees imposed by local or regional authorities, typically including:
- Income tax on profits.
- Customs duties on certain imported or exported goods.
- Additional licensing fees related to commercial or industrial activity.
- **Challenges in the City of Al-Bab:**

- **Lack of a unified and transparent tax system:** leading to major disparities in obligations among institutions and causing frustration among investors.
- **Informal economy:** Some traders avoid official registration out of fear of taxes, reducing transparency and weakening the ability of authorities to regulate economic activity (Qassem, 2020).
- **Double collection:** At times, local councils impose parallel or inconsistent fees with national laws, increasing burdens on emerging institutions.
- **Economic Impact:**
- Compliance with taxes and fees supports local funding and allows authorities to provide better infrastructure services.
- Lack of transparency reduces investor willingness to establish new legally compliant projects and limits sustainable economic growth.
- **Practical Recommendations:**
- Establishing a unified tax system that clarifies fees and taxes for each type of commercial activity.
- Providing tax incentives for emerging institutions to encourage formal registration.
- Creating a local follow-up unit to facilitate tax collection and reduce bureaucratic pressure on entrepreneurs.

3.2. Obstacles and Challenges in Establishing Economic Institutions in the City of Al-Bab

The city of Al-Bab is considered one of the economically significant cities in northern Syria due to its strategic location on commercial routes connecting inland Syria with the Turkish border. However, emerging economic institutions face numerous obstacles and challenges that affect business stability and continuity. These challenges can be divided into three main pillars: legal and administrative complexities, weak regulatory institutions, and the impact of security and political conditions.

First: Legal and Administrative Complexities

- **Lack of clear and unified legislation:** The city of Al-Bab lacks a unified legislative system regulating the establishment and management of institutions. Many procedures related to administrative licensing and commercial registration rely on the interpretations of local authorities,

creating variations in requirements from one area to another. For example, some local councils may require additional documents not stipulated by law, or impose unjustified delays in issuing licenses. These complexities place investors in a state of legal uncertainty, as they cannot predict the required time for completing procedures or the guarantees available in the event of legal disputes (Al-Shami, 2021).

- **Overlap between local and national laws:** Official Syrian laws sometimes overlap with local decisions and directives, increasing the difficulty of establishing institutions. For example, some local councils may apply registration standards that differ from Commercial Law No. 33 of 2007, creating duplication in legal procedures. This overlap leads to increased establishment costs and delays in launching new projects, placing investors in front of complex legal challenges (Al-Ali, 2022).
- **Impact on the investment environment:**
- Variations in procedures and laws increase the difficulty of strategic planning for projects.
- Some investors are discouraged from formally establishing their institutions and opt to operate in the informal sector, reducing transparency and weakening sustainable economic growth.

Second: Weak Regulatory Institutions

- **Insufficient formal oversight:** Al-Bab suffers from weak regulatory institutions responsible for monitoring compliance with laws regarding licensing, commercial registries, or tax obligations.
- This weakness allows the proliferation of informal institutions operating without adherence to legal or professional standards.
- The absence of oversight also leads to disparities in service and product quality offered to consumers, undermining fair competition (Al-Hashimi, 2020).
- **Weak coordination between regulatory entities:** The absence of a central entity to unify regulatory efforts leads to duplication or neglect of some cases.
- In some situations, directives issued by different local councils may conflict, creating legal disorder and increasing the likelihood of

disputes between institutions and consumers or among institutions themselves.

- **Economic and social impact:**
- Weak oversight limits the ability of lawful institutions to compete with informal ones, reducing the value of formal registration.
- It affects consumer trust in the local market and makes the investment environment less attractive to external or expansion-seeking local investors.

Third: The Impact of Security and Political Conditions

- **Security effects on investment:** The process of establishing institutions in Al-Bab is significantly affected by security conditions, where instability leads to:
- Reduced investment inflows due to risks of loss or theft.
- Difficulty securing premises, warehouses, and movement of labor and employees (Al-Shaar, 2021).
- **Political changes and their impact on laws:**
- Ongoing political changes affect applicable laws and regulations, placing investors in a state of legal uncertainty.
- Licensing, commercial registration conditions, or taxes may change suddenly, hindering long-term planning and increasing operational risks.
- **Psychological and economic impact:**
- Political and security instability reduces entrepreneurial motivation and increases the likelihood that investors will move to more stable areas.
- It slows down the growth of the local economic sector and weakens the ability to create sustainable job opportunities for the local population.

Fourth: Compound Challenges (Integrative Analysis) The legal obstacles, weak oversight, and security and political conditions are interconnected elements that collectively increase the difficulty of establishing institutions in Al-Bab:

- Investors struggle to ensure legal compliance without effective oversight.
- The absence of a unified legal environment increases risks associated with political changes.

• Combined administrative and security challenges create uncertainty that reduces investment attractiveness and limits sustainable economic growth (Al-Zubaidi, 2022).

4. Legal and Regulatory Dimension

4.1. The Legal Framework Governing Institutions

The city of Al-Bab is considered one of the most important economic centers in northern Syria, as it plays a pivotal role in both domestic and cross-border trade, particularly due to its proximity to the Turkish border. However, investors and business owners face significant legal and regulatory challenges resulting from the multiplicity and overlap of legal authorities, including official Syrian laws, local regulations, and, in some cases, the Turkish legal system. The legal framework governing economic institutions can be divided into three main components: Syrian laws, local laws, and the impact of proximity to Turkey.

First: Syrian Laws

1. The National Legal Framework

The establishment of economic institutions in the city of Al-Bab is formally subject to Syrian laws regulating companies and commercial entities, including:

- Syrian Commercial Law No. 33 of 2007**: This law regulates the conditions for establishing companies, their types, commercial registration procedures, and the legal and financial obligations of institutions, including the rights and duties of investors and partners (Syrian Arab Republic, 2007).
- Companies Law No. 30 of 2007**: This law defines the types of commercial companies (partnerships and capital companies), methods of establishment, liability conditions, and systems of management and accounting.
- Taxation and Consumer Protection Legislation**: These laws impose obligations on institutions regarding income tax, value-added taxes, commercial activity fees, and standards for product and service quality.

2. Practical Challenges

Despite the existence of these laws, their implementation in the city of Al-Bab faces practical difficulties due to:

- The absence of an effective central authority capable of enforcing laws uniformly.

- Limited access to legal references and difficulties in accurate legal interpretation, which increases discretionary practices by local authorities (Al-Shami, 2021, p. 70).
- Variations in the application of laws among institutions depending on the nature of their activities and geographic location.

3. Impact on Institutions

- Weak enforcement of laws leads to an unstable legal environment.
- Investors and project owners face difficulties in long-term planning due to legal uncertainty.

Second: Local Laws

1. Nature of Local Regulations in the City of Al-Bab

With local councils assuming administrative control over the city, a set of regulatory and administrative decisions has been adopted to manage the establishment of institutions. These local regulations are generally characterized by:

- Procedural Simplicity: Emphasis on facilitating the establishment of institutions and reducing bureaucratic burdens in line with the immediate needs of residents and investors.
- Flexibility in Application: Allowing local authorities to adapt to fluctuating security and political conditions and to meet urgent economic needs.

2. Deficiencies and Imbalances

- These local regulations often lack consistency with the national legal framework, resulting in legal coordination difficulties among different authorities.
- In some cases, local laws may conflict with international standards or Syrian legal obligations, raising questions regarding their long-term legitimacy (Al-Ali, 2022).

3. Practical Impact on Institutions

- While local regulations facilitate the establishment of small and medium-sized enterprises, they may limit institutional growth or expansion beyond the city due to the lack of recognition by national authorities.

- They also create disparities in operating conditions among institutions, potentially leading to unfair competition within the local market.

Third: Turkish Influence

1. Nature of the Influence

Due to geographical proximity and economic and administrative ties with Turkey, certain legal procedures in the city of Al-Bab are influenced by the Turkish legal system. This influence is evident through:

- The adoption of commercial registration forms or contractual templates inspired by Turkish laws.
- Utilization of certain tax or administrative procedures to facilitate cross-border transactions with Turkish companies.

2. Challenges Resulting from the Dual Legal Context

- The coexistence of Syrian, local, and Turkish laws creates a complex legal environment, often involving conflicts among registration, taxation, and licensing requirements.
- Investors face difficulties in determining the appropriate legal framework in the event of commercial or financial disputes (Al-Shaar, 2021).

3. Impact on Institutions and Investors

- This situation increases the risks associated with establishing institutions, particularly those seeking commercial expansion or cooperation with international partners.
- It may lead to delays in launching new projects or encourage investors to operate within the informal sector to avoid legal complexities.

Fourth: Complementary Analysis of the Legal Framework

It can be concluded that the legal framework in the city of Al-Bab is characterized by multiplicity and overlap, generating clear challenges to institutional establishment:

- Multiplicity of Legal Authorities: The coexistence of Syrian laws, local regulations, and the Turkish legal system creates a dual or even tripartite legal environment.
- Lack of Legal Harmonization: The absence of an effective central authority results in varying interpretations and discretionary enforcement by different entities.

- Impact on Local Investment: This situation increases investor risk and limits the ability of institutions to grow and expand beyond the city's boundaries.

4.2. Legal Guarantees and Obligations of Economic Institutions in the City of Al-Bab

Legal guarantees and official obligations are among the fundamental pillars that ensure the stability of economic institutions and the protection of investors, particularly in regions such as the city of Al-Bab, which faces multiple legal and security challenges. This section can be divided into three main axes: investor protection, institutional obligations toward the state, and legal liability in cases of violation.

First: Investor Protection

- **Concept and Importance:** Investor protection refers to providing a safe and lawful environment that safeguards investor rights and reduces the financial or legal risks they may face. This includes:
- Preventing unlawful seizure of property.
- Ensuring that taxes or fees are not imposed arbitrarily or abusively.
- Facilitating investors' access to legal and administrative information related to their activities (Al-Ali, 2022).
- **The Situation in the City of Al-Bab:** Although some local and national regulations aim to protect investors, practical reality shows that these guarantees are weak due to:
- The absence of clear and transparent laws that comprehensively regulate investor rights.
- Variations in the implementation of legal procedures across different local councils.
- The impact of security and political conditions on the stability of investor rights (Al-Shami, 2021).
- **Practical Impact:**
- Weak investor protection reduces incentive to establish new projects.
- Investors may resort to informal economic activity to avoid legal risks, weakening the formal economy and reducing transparency.

Second: Institutional Obligations Toward the State

- **Concept and Importance:** Economic institutions bear a set of legal obligations toward local authorities, including:
- Paying local and national taxes and fees.
- Registering workers and complying with local labor laws.
- Adhering to health and environmental standards associated with economic activity (Al-Hashimi, 2020).
- **Practical Challenges:** Institutional obligations vary due to the absence of strict oversight by official authorities.
- Lack of transparency in the collection of taxes and fees leads to disparities among institutions operating in the same sector.
- The spread of the informal economy due to difficulties in fully complying with legal requirements, reducing tax fairness and weakening the state's ability to manage financial resources.
- **Impact on the Investment Environment:**
- Non-compliance with legal procedures undermines equality among institutions and encourages some investors to circumvent the law.
- This weakens trust between investors and local authorities and limits opportunities for sustainable economic development.

Third: Legal Liability in Cases of Violation

- **Concept:** Legal institutions are responsible for complying with the laws and regulations imposed on them. In cases of violation, they expose themselves to legal accountability. Violations include:
- Operating without legal registration.
- Tax evasion or failure to pay required fees.
- Consumer rights violations or noncompliance with health and environmental standards (Al-Shaar, 2021).
- **The Practical Situation in the City of Al-Bab:**
- Weak judicial and oversight bodies limit the implementation of legal accountability, as local authorities lack effective mechanisms for investigation or prosecution.
- Some institutions exploit this weakness to operate outside legal frameworks, increasing informal activity and harming market competition.

- **Economic and Social Impact:**
- Weak enforcement of economic laws leads to an unstable investment environment.
- Consumer rights are undermined, affecting the quality of goods and services in the local market.
- **Practical Recommendations to Strengthen Legal Accountability:**
- Establish specialized local judicial and oversight mechanisms to address commercial and industrial violations.
- Enhance transparency in tax and fee enforcement to ensure fairness among institutions.
- Offer awareness programs for investors regarding their legal obligations and rights, along with legal consultation to facilitate compliance.

Fourth: Complementary Analysis of Guarantees and Obligations

Weak legal guarantees and inconsistencies in obligations represent a major barrier to the growth of economic institutions in the city of Al-Bab:

- Investors struggle to secure their rights due to unclear and non-transparent regulations.
- Institutions bear unequal obligations, encouraging informal economic activity and reducing tax fairness.
- Weak enforcement of legal accountability makes the market less attractive to formal investment and limits fair competition (Al-Zubaidi, 2022).

Conclusion: The analysis demonstrates that establishing economic institutions in the city of al-Bab is not merely an administrative or commercial step, but rather a complex process influenced by a range of legal, administrative, and social factors. The absence of a unified legal framework and the overlap of legislative references—between national laws, local decisions, and the influence of the Turkish legal system—has created a complicated and unstable legal environment that increases the risks faced by investors and business owners.

The study also shows that weak legal and administrative oversight exacerbates these challenges, as it allows the spread of unregistered institutions or those operating outside the legal framework, which harms fair competition and affects the quality of services and products offered in the local market. In addition, fluctuating security and political conditions make long-term project planning more difficult and place investors in a state of uncertainty,

discouraging some from launching new ventures or pushing them toward operating in the informal sector.

Despite these challenges, economic institutions play a vital role in supporting the livelihood stability of the local population and stimulating commercial activity in al-Bab. They serve as a tool for developing the private sector and strengthening local competitiveness. Organized economic projects contribute to job creation, income improvement, and the expansion of basic services, making practical solutions to facilitate their establishment essential for achieving sustainable development.

Accordingly, the research recommends adopting a set of measures and policies to strengthen the investment environment in al-Bab, including:

- Establishing a unified legal framework for founding economic institutions: This framework should incorporate national laws, local regulations, and cross-border legal influences, thereby standardizing the procedures and requirements for establishing institutions and ensuring the rights and legal protection of investors.

- Simplifying administrative procedures and reducing bureaucracy: Simplification does not mean easing the laws, but rather facilitating investor access to legal and administrative information, eliminating unnecessary steps, and creating a clear system for licensing and registration that ensures rapid project initiation and reduces delays and associated costs.

- Strengthening the role of oversight and judicial bodies: Legal and administrative monitoring mechanisms must be developed to ensure institutional compliance with laws and to address violations swiftly and effectively. This includes establishing specialized units to follow up on licensing, taxation, and environmental and health obligations, in addition to activating specialized judicial bodies to resolve disputes between investors and official entities or between the institutions themselves.

- Drawing on the Turkish experience while considering local specificity: Given the geographic proximity and economic interlinkage, the Turkish experience in regulating economic activity—such as commercial registration models, taxation procedures, and market organization—can be utilized, with necessary adjustments to fit the legal, cultural, and economic context of the city, creating a clearer and more attractive investment environment.

- Enhancing transparency and tax equity: Clear and unified mechanisms for tax and fee collection should be established, along with incentives for small and medium-sized enterprises to join the formal economy, thereby strengthening local economic stability and reducing the impact of the informal sector.

• Providing legal and advisory support for investors: Legal and administrative advisory offices may be established to assist investors and provide them with accurate information about their obligations and rights, facilitating legal compliance and reducing legal and financial risks.

In sum, the study indicates that addressing the challenges associated with establishing institutions in the city of al-Bab requires an integrated approach combining legal framework development, enhanced oversight, and streamlined procedures, while considering local conditions and drawing on successful experiences in neighboring regions. Achieving this will not only ensure investor protection and economic fairness but will also stimulate the local economy, create job opportunities, and support long-term social and political stability in the city.

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Chapter 9

Housing Sector Challenges in the City of al-Bab and the Proposed Solutions

Hussam Hallak[1]

1. Introduction

The city of al-Bab is considered one of the most important urban centers in eastern rural Aleppo. It is an active urban hub distinguished by its strategic geographic location and the availability of commercial markets and essential services, which have made it a primary destination for thousands of residents and internally displaced persons over the past years. The city has witnessed significant population growth as a result of waves of displacement and return, leading to rapid and unregulated urban expansion that has directly impacted the housing sector.

The city of al-Bab in eastern rural Aleppo faces a set of urban, demographic, and economic challenges that have directly affected the housing sector in recent years. The city, which hosted nearly 150,000 inhabitants prior to 2017, has now become home to more than 330,000 people due to internal displacement and return movements. This has created immense pressure on housing, public services, and infrastructure. These rapid transformations have posed unprecedented challenges for the local council and service providers, particularly in the absence of an updated master plan and the lack of compliance of new constructions with required structural standards.

The housing sector is not merely an urban issue; it is a fundamental pillar of social and economic stability and a key determinant of quality of life. Adequate housing provides a safe environment for families, influences health, education, and employment outcomes, and serves as an indicator of urban development levels. Despite the efforts made in recent years, the city still suffers from a noticeable shortage of regulated housing, rising prices,

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the spread of informal settlements, deterioration of certain buildings and infrastructure, in addition to the limited purchasing power of residents and the high cost of construction.

This study seeks to provide a theoretical framework and a comprehensive, evidence-based analysis of the housing sector in the city of al-Bab, drawing on the latest international reports as well as estimates from the local council. The aim is to identify the most pressing challenges and their underlying causes, followed by proposing a set of solutions that could contribute to improving housing conditions and strengthening urban planning capacities within the city. The study aspires to present a systematic vision that supports decision-makers and partner organizations in designing more effective and sustainable housing interventions.

2. Theoretical Framework of the Housing Sector

2.1 The Concept of Housing and Its Dimensions

Housing represents one of the main components of urban, social, and economic systems. It is not viewed merely as a shelter, but rather as a human right linked to social security, public health, and family stability. Arab and Syrian literature indicates that the housing crisis in Syria is fundamentally rooted in the mismatch between population growth and actual housing capacity, in addition to the lack of developmental planning and the limited ability of institutions to provide adequate housing for low-income groups (Arab Center for Research, 2018). Reports by the United Nations also affirm that adequate housing must fulfill the requirements of safety, suitability, affordability, and access to essential services *(UN-Habitat,2020).* Housing, therefore, may be viewed from several perspectives:

a. Housing as a Social Good

The concept of housing goes beyond its traditional role as a dwelling to become a key element in shaping social identity and ensuring family stability. Adequate housing contributes to improved public health, enhances educational opportunities, and reduces social tensions arising from housing insecurity. UN reports emphasize that the concept of "adequate housing" is not limited to four walls; it encompasses safety, essential services, and affordability without imposing excessive economic pressure on households. *(United Nations Human Settlements Programme, 2020).*

b. Housing as an Economic Service

The housing sector is a significant economic driver, as it is closely connected to labor markets, construction materials, and real estate investment. Syrian studies on "the economic engineering of the housing system" indicate that the rise in rental prices and construction costs has created a severe gap between household purchasing power and available housing options, leading to the spread of unsafe or incomplete housing patterns (Al-Wadi University, 2021). This aligns with international analyses of the real estate sector, which highlight the role of housing in stimulating economic growth and job creation *(Miles et al., 2015).*

c. Housing Quality Standards

The assessment of housing quality is not limited to structural considerations; it also encompasses cultural and social dimensions that reflect the identity and social fabric of communities, as demonstrated by studies on "Syrian residential space" and the role of architectural heritage in shaping contemporary housing environments (Al-Dimuqratiyya Journal, 2021). This dimension is particularly important when analyzing housing transformations in the city of al-Bab, especially in the wake of displacement-induced changes in housing patterns.

Housing quality is determined by several interrelated elements, including:

- Functional adequacy: the extent to which the dwelling's size and number of rooms match the household's needs.
- Structural safety: the building's ability to withstand natural and structural forces according to approved engineering standards.
- Basic services: availability of water, electricity, sanitation, and paved roads.
- Healthy environment: provision of ventilation and natural lighting, prevention of overcrowding, and reduction of environmental pollution.
- Cost and accessibility: the affordability of purchasing or renting housing relative to local income levels.

The World Bank has incorporated these components within its indicators of "adequate housing" used to assess housing gaps in developing countries *(World Bank, 2018).*

2.2 Theories and Concepts Related to the Housing Sector

2.2.1. The Supply and Demand Model in the Housing Market

The dynamics of the housing sector rely on the interaction between supply and demand, an economic theory that clearly explains the sharp rise in housing prices in cities experiencing rapid population growth. When demand increases due to population growth, displacement, or limited land available for construction, while supply remains weak or slow because of regulatory constraints or low production capacity, prices rise to levels beyond the population's ability to afford. This theory is essential for understanding housing market changes in conflict and post-conflict settings *(Quigley & Rosenthal, 2005).*

This applies clearly to the city of al-Bab, where the influx of large numbers of residents has produced unprecedented demand for housing, while the city's ability to meet this demand remains limited due to insufficient urban planning and soaring construction costs.

- **Principles of Modern Urban Planning**

Modern urban planning focuses on managing urban expansion by regulating land use and balancing population growth with the capacity of infrastructure. This includes:

- Identifying areas designated for future expansion.
- Connecting new neighborhoods to road networks and public services.
- Ensuring equitable distribution of public facilities.
- Reducing informal settlements through flexible regulatory plans.

Lewis Mumford's studies on contemporary cities emphasize that planning failures lead to long-term problems, including urban congestion, declining service quality, and uncontrolled urban sprawl *(Mumford, 1961).* International experiences further show that adopting planning methodologies based on GIS systems and urban growth management reduces the spread of informal settlements and enhances land-use efficiency *(Batty, 2013).*

3. Analysis of the Current Situation of the Housing Sector in the City of al-Bab

3.1 Demographic Reality

In recent years, the city of al-Bab has experienced unprecedented population growth, becoming one of the most attractive destinations for internally

displaced persons (IDPs) in northern Syria. Estimates by REACH (2023) indicate that the city's population ranges between 320,000 and 350,000 inhabitants, compared to fewer than 150,000 before 2017—meaning that the population has nearly doubled in less than seven years. Local council estimates for 2024 place the population at approximately 330,000 people, including around 90,000 IDPs distributed across various neighborhoods.

- **Population Growth**

Population density in the city has increased at rates exceeding the capacity of local planning authorities to respond, leading to rapid and unregulated urban expansion. Studies on migration and displacement in conflict zones show that relatively stable cities become major population magnets, even if their infrastructure is not equipped to absorb such growth *(Internal Displacement Monitoring Centre, 2021).* The literature emphasizes that rapid population growth, when not accompanied by well-planned expansion of housing and services, leads to increased rents and the growth of informal settlements as a natural response by households seeking alternative housing solutions *(UN-Habitat, 2020).* According to the study "Co-residence in Syria: Between Problem and Solution," this phenomenon has become more widespread after 2017 in northern cities, including al-Bab *(Sour Magazine, 2022).*

The UN-Habitat (2020) report notes that northern Syria has witnessed annual population growth rates between 8–12%, significantly higher than the global average of 1.1%. This pattern applies to al-Bab, which recorded the highest population increase in the region relative to its limited urban area.

- **Displacement and Return Movements**

Al-Bab is one of the largest host areas for internally displaced persons. According to UNOCHA (2022–2023), the city received between 70,000 and 100,000 IDPs in recent years. Local estimates suggest that 20% of these individuals reside in rented housing, while 15% live in unfinished or structurally unsafe units.

The city has also witnessed partial return movements of original residents, estimated at 10–15% during 2019–2023, contributing further to increased housing demand. The World Bank underscores that "population pressure resulting from displacement represents one of the greatest challenges for urban planning in post-conflict cities" *(World Bank, 2020).*

This reality has pushed housing demand far beyond existing supply, contributing to a notable rise in construction costs and property prices.

3.2 Urban Reality

The urban fabric of al-Bab has been affected by war-related destruction, regulatory disorder, and limited professional and engineering capacities in the post-conflict period, resulting in visible urban distortions.

a. Spread of Informal Settlements

Informal neighborhoods have expanded on the city's outskirts in the absence of updated regulatory master plans, a recurring pattern in conflict-affected cities where the recommended intervention begins with revising and updating zoning plans *(Syria Today, 2021).* According to a UN report on housing in post-conflict areas, weak regulatory oversight and the shortage of technical staff lead to informal construction comprising up to 60% of buildings in some war-affected cities *(UN-Habitat, 2019).*

Data indicate that 40–60% of urban expansion in northern Syria is classified as informal, lacking planning or engineering supervision. Local council estimates (2023) suggest that approximately 45% of new neighborhoods inside and around al-Bab are informal areas lacking proper planning and regulation.

b. Damage to Buildings Due to Conflict

A substantial number of buildings have been partially or completely destroyed, making safe housing an additional challenge. Studies show that war-damaged Syrian cities require rehabilitation of 30–50% of their buildings to achieve safe structural standards *(Syrian Center for Policy Research, 2017).*

c. Absence of Modern Urban Planning

The city's regulatory master plan has not been updated for years, resulting in:

- Unregulated horizontal urban expansion
- A 70% deficit in green spaces and public facilities compared to international standards
- Weak connectivity between new neighborhoods and primary road networks *(Batty, 2013).*

According to UNDP (2022), the city suffers from a significant "planning gap" due to the lack of updated GIS maps covering recent urban expansion.

3.3 Economic Reality

The economic situation directly affects residents' ability to access adequate housing and limits the private sector's capacity to invest in housing projects.

a. Rising Land Prices

Population growth and the city's commercial location have contributed to rising land prices that significantly exceed local income levels. Local real estate market data for 2023–2024 show large price disparities within al-Bab:

- City center: **USD 180–250 per m²**
- Planned outskirts: **USD 100–150 per m²**
- Informal areas: **USD 60–90 per m²**

This aligns with the theory of "demographic pressure on land use," often observed in areas undergoing post-conflict stabilization *(Miles et al., 2015).*

b. Rising Construction Costs

Al-Bab has seen continuous increases in construction material prices due to transportation costs, limited supply, and regional market fluctuations. Post-conflict reconstruction studies indicate that construction costs in such areas are 20–40% higher than in stable environments. Estimated construction costs in al-Bab include:

- **USD 110–170 per m²** (depending on quality)
- A 25–40% increase in iron and cement prices during 2022–2024
- A 30% rise in labor wages compared to 2020 (World Bank, 2018).

c. Weak Housing Finance

The city lacks effective housing finance tools such as long-term housing loans or housing support funds. Research shows that the absence of mortgage finance is a major reason for stagnation in organized residential development in low-income cities (Kenny, 2020).

3.4. Service Reality and Infrastructure

Al-Bab faces significant infrastructure challenges, as service networks have not kept pace with rapid urban expansion.

a. Electricity, Water, and Sanitation

Many neighborhoods experience shortages in electricity and water supplies, alongside inadequate sanitation networks. A UN report on basic services

in conflict-affected cities notes that population pressure often leads to the "collapse of infrastructure capacity unless urgently expanded and upgraded" (UNDP, 2020).

b. Weak Roads and Services in New Neighborhoods

Many newly developed neighborhoods lack paved roads and public spaces, reducing quality of life and increasing service delivery costs. Urban planning studies show that poorly designed road networks during expansion phases create long-term mobility issues. In these new areas, **50%** of roads are unpaved, **80%** lack public spaces, **60%** suffer from insufficient street lighting.

Studies indicate that poor road quality increases transportation and service delivery costs by 15–20% in underserved areas.

4. Challenges Facing the Housing Sector in the City of al-Bab

The housing sector in al-Bab is experiencing a set of intertwined challenges arising from rapid population growth, widespread displacement, the absence of effective urban planning, and the direct impacts of war on buildings and infrastructure. This section highlights the key issues based on international data and local estimates.

4.1. Rising Housing Demand Versus Limited Supply

Housing demand has increased at an unprecedented rate, with the population nearly doubling since 2017. REACH (2023) estimates over 330,000 inhabitants, including nearly 90,000 IDPs. This rapid growth has created a wide gap between supply and demand.

Indicators of the problem:

- Rental prices increased by **30–50%** between 2021 and 2024
- Limited availability of organized housing projects
- 20% of households live in unfinished housing units *(REACH, 2023)*

The study "Housing Crisis in Syria" (Arab Center, 2018) notes that the structural cause of the crisis is the mismatch between rising demand and limited supply. International economic models confirm that such gaps lead to rising prices and the expansion of informal construction (Quigley & Rosenthal, 2005).

4.2. Spread of Informal Settlements and Unplanned Expansion

Informal settlements are among the city's most prominent challenges. UN-Habitat (2019) data indicate that 40–60% of urban expansion in northern Syria—including al-Bab—has occurred outside formal zoning plans.

Causes:

- Lack of a regulatory Master Plan reflecting post-2017 expansion
- Weak regulatory oversight
- Household reliance on self-built housing due to limited affordable alternatives

Quantitative Indicators:

- About **45%** of new construction in al-Bab lies within unregulated areas *(Local Council of Al-Bab, 2023)*
- Lack of service networks in **50%** of newly expanded neighborhoods

Global studies show that informal settlements proliferate in cities receiving IDPs at rates exceeding urban planning capacities (UN-Habitat, 2020).

4.3 Low Purchasing Power of Residents

Low income relative to real estate costs is one of the main barriers to accessing housing. According to local estimates (2023), average monthly income ranges between **USD 70–120**, while rent for a basic dwelling exceeds **USD 60–120**.

Economic Gap Indicators:

- Residential land prices range between **USD 100–250 per m²** *(REACH, 2023)*
- Construction of a small apartment (80 m²) may cost **USD 10,000–14,000**
- A large share of households cannot afford homeownership or construction

The World Bank notes that the absence of "affordable housing" in conflict zones leads to expanded informal settlements and declining housing quality (World Bank, 2018).

4.4. Rising Construction Costs

Construction materials have witnessed major price increases due to transport difficulties and limited supply. Iron prices increased by **25–35%** in 2021–2023 (UNDP, 2023); Cement prices rose by **30%** during the same period. Construction costs in al-Bab range between **USD 110–170 per m²** (local estimates, 2024). These increases restrict organized residential construction to higher-income segments, exacerbating the housing crisis.

4.5. Weak Institutional and Regulatory Capacity

Local authorities face major challenges in managing urban expansion due to limited human and financial resources.

Indicators:

- Shortage of engineering and technical staff
- Failure to update the Master Plan for many years
- Difficulty enforcing building regulations in informal areas
- Weak oversight of construction quality

UNDP (2022) indicates that municipalities in post-conflict settings require at least a 40% increase in institutional capacity to effectively manage urban growth.

4.6. Deterioration of Infrastructure and Limited Service Capacity

Basic service networks face substantial pressure due to rapid urban expansion.

Documented Indicators:

- **60%** of residents experience prolonged electricity outages *(UNDP, 2023)*
- **40%** of neighborhoods rely on water trucks
- **25–30%** of sanitation networks require rehabilitation *(UN-Habitat, 2020)*
- **50%** of roads in newly expanded neighborhoods are unpaved *(Local Council, 2023)*

Such structural weaknesses contribute to deteriorating housing quality and reduced stability in new neighborhoods.

4.7. Poor Construction Quality and Structural Safety

Due to the absence of engineering oversight and the rush to meet soaring demand, many structures fail to meet safety standards. **30%** of new buildings do not meet basic structural standards (local engineering estimates, 2023) and **8%** of damaged buildings are uninhabitable *(iMMAP, 2021)*

UN-Habitat warns that unsafe construction in conflict-affected areas significantly increases risks in the event of natural disasters or structural collapse.

5. Proposed Solutions to Improve the Housing Sector in the City of al-Bab

Addressing the challenges facing the housing sector in al-Bab requires a set of integrated measures that encompass urban planning, infrastructure development, regulation of the real estate market, and strengthening the role of local authorities. The following are the key proposed solutions based on international assessments and local expertise.

5.1. Developing a New and Updated Regulatory Master Plan for the City

Updating the regulatory master plan is a fundamental step to controlling urban expansion and organizing land use. According to a UN-Habitat report (2020), revising and updating master plans in conflict-affected cities contributes to:

- Reducing the proportion of informal settlements by up to 30% within five years
- Improving the distribution of services and alleviating pressure on overcrowded neighborhoods
- Increasing the capacity of infrastructure to accommodate population growth

Syrian planning studies (such as the "Cities First" report, 2021) and international research (Batty, 2013; UNDP, 2023) emphasize that updating the master plan is the first step toward addressing informal settlements and ensuring balanced urban growth. These studies indicate that updated planning can reduce informality by up to 30% over several years.

Components of the solution

- Developing a regulatory master plan based on GIS systems to monitor urban expansion

- Identifying future expansion zones in line with projected population growth (al-Bab estimates: +6–8% annually)
- Regulating the issuance of building permits according to the new plan in order to prevent informal expansion

Rationale for implementation

Reconstruction experiences show that the regulatory master plan is the cornerstone of any successful development intervention (Batty, 2013).

5.2. Encouraging Investment in the Housing Sector

The housing sector in al-Bab needs private investment to bridge the supply gap, which the local council estimates at around 12,000–15,000 housing units over the next five years.

Proposed measures

- Offering tax exemptions for organized housing projects
- Simplifying licensing procedures for real estate developers
- Establishing fully serviced urban development zones to attract investment

Rationale

The World Bank indicates that stimulating private investment can increase the production of housing units by 20–40% in cities suffering from severe supply shortages *(World Bank, 2018).*

5.3. Developing Affordable Housing Programs

Al-Bab needs low-cost housing solutions to meet the needs of low-income groups, who constitute more than 60% of the population (REACH, 2023).

Practical proposals are building partnerships between the local council, international organizations, the private sector in constructing affordable housing units using low-cost building materials such as insulated concrete blocks, and lightweight steel structures, and launching residential complex projects with unit sizes ranging between 60–80 m^2.

International experiences (such as Jordan and Turkey) demonstrate that affordable housing programs can reduce demand for informal settlements by 15–25% over a short period (UN-Habitat, 2019).

5.4. Improving Housing Finance Mechanisms

The absence of housing finance is a key barrier to improving housing conditions. World Bank reports (2020) suggest that structured housing finance can Increase home ownership rates among low-income groups by 20–35%,, and stimulate the construction of new housing units by supporting developers.

Practical proposals are establishing a local housing fund supported by donors and organizations, providing long-term, subsidized loans (3–7 years), and designing "pay-as-you-stay" schemes for low-income households.

A recent Arab study titled "Real Estate Finance in Syria" notes that the absence of affordable finance mechanisms is one of the most significant obstacles to home ownership in Syrian cities, and that introducing small- or medium-scale loan programs could substantially ease the housing burden *(Al-Hurriya Net, 2025).* This is consistent with international housing finance studies in low-income countries (Kenny, 2020).

5.5. Regulating Construction Quality and Strengthening Technical Oversight

Local estimates indicate that 30% of newly constructed buildings do not comply with structural safety standards, a situation directly linked to weak oversight and the absence of engineering supervision.

Proposed steps are forming specialized engineering committees to monitor new constructions, developing a simplified engineering guideline that ensures minimum safety standards, and linking building permits to the presence of an accredited supervising engineer.

UN-Habitat studies show that strengthening technical oversight can reduce the risk of structural failures by 40–60% in developing cities *(UN-Habitat, 2019).*

5.6. Rehabilitating Infrastructure in Residential Areas

The current infrastructure in al-Bab is operating at 30–35% above its designed capacity *(UNDP, 2023)*, which calls for structural interventions to improve services.

Practical proposals are gradual upgrading of water and electricity networks, rehabilitating sanitation systems in high-density neighborhoods, paving main and secondary roads in areas of urban expansion, and Increasing the number of water stations and power transformers.

UN data indicate that improving infrastructure raises housing quality by approximately 25% and stimulates local investment (UNDP, 2022).

5.7 Strengthening Local Governance and Building the Capacity of the Local Council

Local authorities suffer from limited human resources, particularly in engineering and planning fields. UNDP (2022) recommends that municipal capacities be increased by at least 40% to enable effective management of urban expansion.

Proposed measures are capacity-building for engineering and urban planning teams, implementing GIS-based information management systems to support decision-making, developing a dedicated unit for housing project management, enhancing coordination between local councils and organizations operating in the city.

The literature shows that strong governance is a prerequisite for the success of any efforts to improve the housing sector (Mumford, 1961).

6. General Conclusion of the Study

The study demonstrates that the housing sector in the city of al-Bab is going through a critical phase in which demographic, urban, economic, and service-related factors intersect, resulting in major challenges that demand an integrated response. The city's population has more than doubled since 2017, generating direct pressure on housing and basic services. Consequently, clear problems have emerged, such as the spread of informal settlements, rising land and rental prices, limited purchasing power, and the deterioration of parts of the infrastructure.

The analysis of the current situation confirms that 45% of urban expansion is occurring outside the regulatory master plan, and that 20–25% of buildings require varying levels of rehabilitation, while most newly developed areas suffer from insufficient basic services. The study also points to a housing gap estimated at 12,000–15,000 housing units over the next five years, in light of rising construction costs and the absence of structured housing finance tools.

The main problems have been summarized in seven key issues:

- Increased demand and limited supply
- The spread of informal settlements
- Low purchasing power
- Rising construction costs

- Weak regulatory and administrative roles
- Deteriorating infrastructure
- Poor construction quality

In light of these challenges, the study proposes an integrated set of solutions, including updating the city's regulatory master plan, improving the investment climate in the housing sector, supporting affordable housing programs, developing long-term financing mechanisms, strengthening technical oversight of construction, upgrading infrastructure, and building the capacity of the local council. International experiences indicate that gradual and systematic implementation of such measures can reduce informal settlements, improve the residential environment and service quality, and enhance the city's ability to manage population growth.

In conclusion, the study affirms that developing the housing sector in al-Bab requires effective partnership between the local council, international organizations, and the private sector, alongside data-driven planning and realistic projections, in order to achieve a safe and stable urban environment that meets the current and future needs of the population.

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Chapter 10

Local Administration in Al-Bab City: Concepts, Challenges, and Activation Prospects

Mahmoud Aarid[1]

1. Introduction

In a world aspiring towards democracy as an ideal model of governance, the concept of political participation at the national level is no longer sufficient on its own. Just as citizens need representatives to manage major state affairs, they also need entities to manage their local affairs in their cities and villages. Hence, the idea and philosophy of local administration emerge as a living embodiment of democracy at the grassroots level, or what can be termed "administrative democracy."

The philosophy of local administration is not limited to merely distributing tasks between the central government and local bodies to alleviate the burden on the capital. It is a deeper step towards achieving genuine citizen participation in decision-making that affects their daily lives. It is the school where citizens are trained to assume responsibility, entrench values of freedom, and deepen their sense of belonging.

Therefore, the local administration system is based on a delicate balance between two fundamental pillars: the first is the autonomy of local bodies to ensure flexibility in responding to community needs, and the second is the supervision by the central authority to ensure these bodies' compliance with the state's general policies and supreme interest. This balance is what makes local administration an effective tool for political, economic, and social development, rather than merely a decentralized administrative structure.

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2. The Essence of Local Administration

Local units form the fundamental building blocks in the state's administrative structure, highlighting their importance in the modern era through their essential roles in activating sustainable development and contributing to the decision-making process at the local level. A local unit is defined as a territorial entity with legal personality, based on a settled population grouping within a specific geographical area, be it a village, a city, or a combination thereof. This entity enjoys administrative and financial independence, enabling it to manage its local affairs to provide public services to citizens. This is done through a local body whose nature varies according to political systems—it may be fully elected, fully appointed, or a hybrid of both. This body operates under the supervision and oversight of the central authority, within the framework of national laws and legislation regulating its work and affiliation.

This vision of the local unit's essence is based on an academic consensus around a set of fundamental elements that constitute its identity. The first of these elements is the existence of a defined geographical scope within which the unit exercises its competencies, representing the spatial framework for its activities. This entity also relies on a settled human community forming the social foundation for which services are provided. Legal personality stands as one of the most important foundations of local work, as the unit is granted legal capacity to acquire rights, assume obligations, and undertake legal actions that serve its interests. Financial and administrative independence is no less important than the previous elements; it is the guarantor enabling the unit to manage its affairs autonomously, albeit within the framework of central oversight that preserves the unity of the state and the sovereignty of its general policy.

The primary objective of local units centers on their service-oriented and developmental character, as they bear the responsibility of providing public services and local facilities, and contributing to the design and implementation of economic and social development plans that directly address citizen needs. These goals are inseparable from the legal framework under which these units are established, which grants them legitimacy, guarantees their rights, and defines their duties. This makes them a vital communication channel between the central government and the citizen, and a channel for embodying the principles of participatory democracy and administrative decentralization. Consequently, the local unit is not merely a marginal territorial division but a practical embodiment of the local administration philosophy that seeks to achieve local interests in complete harmony with the state's general strategies and policies.

3. Justifications for Adopting a Local Administration System

Political justifications constitute the cornerstone in advocating for the adoption of a local administration system. This system is viewed as a living embodiment of democratic principles on the ground. It is not merely an administrative tool but an effective channel for involving citizens in affairs that directly affect their daily lives, thereby lending greater legitimacy to the entire political process. Through this participation, fruitful cooperation emerges between organized governmental effort and spontaneous popular energy, creating a bridge of trust linking the seats of power in the capital with the ordinary citizen in their locality. This system also offers an elegant solution to challenges faced by multi-ethnic or multi-cultural states, allowing specific regions a degree of autonomy to manage their own affairs. This fulfills local aspirations within the framework of the state's broader national unity, thus acting as a barrier against secessionist conflicts. In an era marked by notable concentration of powers, local administration emerges as a mechanism to diffuse this concentration and distribute power more balance, preventing autocracy and enhancing principles of good governance.

Regarding **administrative justifications**, the local administration system offers numerous advantages making it a strategic choice for achieving efficiency and effectiveness. The proximity of the decision-making center to the field of implementation grants it flexibility and speed in responding to daily challenges and delivering services to citizens with maximum effectiveness. This proximity allows the administration to comprehend local particularities and exceptional circumstances of each region, ensuring the provision of services that meet real needs rather than abstract conceptions in distant central offices. Furthermore, local units become living laboratories for experimenting with new policies and programs; if proven successful at the local level, they can be generalized to the state level, reducing the risks of failure and conserving resources.

Social justifications are no less important. Local administration places people at the heart of the development process. It enables them to satisfy their daily needs and manage their direct local interests, reinforcing their sense of belonging and responsibility. The system also contributes to strengthening the state's overall social fabric by distributing social and cultural power centers across various regions instead of confining them to the capital, thereby promoting social justice. It opens the door to discovering talents and creative energies latent within members of the local community, encouraging artistic, literary, and intellectual creativity, which enriches the nation's cultural life.

Finally, **economic justifications** emerge as a strong driver for adopting this system, as local governance stimulates innovation in seeking local funding

sources that alleviate the burden on the central treasury. It encourages the decentralization of industrial and economic activity, opening prospects for development in regions long suffering from marginalization. The system ensures a fairer distribution of tax burdens commensurate with the economic capacity of each region. Given their precise knowledge of their community's needs and problems, local units are better positioned to formulate realistic and effective development plans that achieve optimal resource utilization and meet population aspirations.

3. Pillars of Local Administration

The fundamental structure of local administration is formed through a set of essential supports known as the "pillars of local administration." Together, these pillars represent the necessary conditions for the existence and effectiveness of the decentralized system, defining the nature of the relationship between the center and the locality, and ensuring a balance between development requirements and the necessities of preserving state unity and stability.

3.1. The Existence of Distinct Local Interests: The fundamental justification for the existence of local administration stems from recognizing the existence of needs and interests specific to each local community, differing in nature from national public interests. These distinct interests arise from the geographical, social, and economic particularities characterizing each region, necessitating an administrative approach that considers these specificities. Based on this, functions are distributed between the central administration and local bodies, with national and sovereign matters left to the central apparatus, while local bodies are granted authority to manage facilities and services of a direct local character, ensuring a more efficient response to citizens' daily needs.

3.2. Administrative Independence and Legal Personality: This pillar is embodied in the local body's enjoyment of an independent legal personality, granting it the legal capacity to acquire rights, assume responsibilities, and manage its affairs independently of the direct hierarchical chain of the central authority. The essence of this independence is manifested in the method of forming local bodies, where the direct election of their members by the residents of the local unit is considered the supreme guarantee for achieving democratic legitimacy and the genuine expression of the local community's will. Thus, the local body transforms from a mere executive office subordinate to the center into a vital entity representing the community and defending its interests.

3.3. Financial Independence: Financial independence constitutes the cornerstone in building the real autonomy of local bodies. It is the practical

aspect that translates theoretical administrative independence into tangible reality. It means that the local body possesses self-owned financial resources and an independent budget, enabling it to finance its development programs and projects without complete dependence on central funding. Without this pillar, the local body turns into a hollow structure reliant for its existence on central financial aid, losing its freedom of initiative and becoming entirely subject to the will of the central authority through the power of the "purse strings," undermining the essence of decentralization.

3.4. Administrative Guardianship (Tutelle): Granting independence to local bodies does not mean their complete separation from the state; rather, it is coupled with their subjection to oversight by the central authority known as administrative guardianship. This oversight aims to achieve a balance between local autonomy and state unity by ensuring that the decisions and actions of local bodies comply with applicable laws and regulations and do not conflict with the supreme public interest of the state. The greatest challenge remains ensuring that this guardianship is a supportive and guiding oversight, not a restrictive dominance that deprives the decentralized system of its raison d'être and purpose.

4. The Legislative Framework for Local Administration in Syria

4.1. Genesis and Evolution of Legislation Regulating Local Administration: Syria has witnessed, since independence, a number of laws attempting to regulate local administration, most notably the Local Administration Law of 1971, which established the initial foundations for organizing units within a clear central framework. This continued until the issuance of Law No. 107 of 2011, which is considered the most comprehensive and modern legal framework in the history of Syrian local administration, introducing a new vision focused on expanding decentralization and empowering local units to effectively exercise their roles.

4.1.1. Law No. 107 of 2011 - General Principles: Law 107 was based on a set of principles forming the philosophical foundation for organizing local administration, the most prominent of which are:

- Expanding the principle of administrative decentralization by transferring a portion of administrative and service powers from the central government to local units.
- Enhancing popular participation through the election of some members serving on local councils, granting residents a direct role in local affairs.

- The territorial unit (Mouhafazah/Governorate) as the basic unit of administration, whereby the governorate is organized as a legal entity with corporate personality and a special budget.
- Considering local councils as collective authorities exercising multiple tasks including planning, development, supervision of services, and management of local resources.
- Complementarity between decentralization and central authority, whereby the state remains responsible for overall strategic planning, while local units undertake direct implementation within their scope.

4.1.2. Bodies Regulated by Law No. 107: The law addresses a number of administrative units and defines for each its formations and powers, including, Governorate Council, City Council, Municipality Council, Town Council, Council of the Rural Administrative Unit (Baladiyah or Nahiyah)

The law clarifies the mechanism for electing or appointing members of these councils, the powers of the executive office in each unit, in addition to the role of the Governor as the representative of the central authority.

4.1.3. Powers of Local Councils: Law No. 107 granted local councils broad powers in the fields of development and services, the most prominent of which are:

- Preparing local plans for economic and social development within the framework of the state's general plan.
- Supervising public services: water; electricity; roads; sanitation; parks.
- Regulating construction and granting licenses.
- Managing public properties within the scope of the administrative unit.
- Monitoring the work of service institutions with a local character.

4.1.4. Executive Authorities within the Framework of Local Administration: The executive office in each local unit forms the executive authority responsible for implementing decisions issued by the local council. It usually consists of a president, deputies, and specialists whose tasks vary to include supervising daily operations, implementing projects, and managing financial resources. The Governor also enjoys broad powers as the representative of the central executive authority in the governorate, with his key tasks including coordination between sub-administrations, supervising the implementation of general policies, and ensuring the compliance of local units with laws and regulations.

4.2. Administrative Organization of Local Administration Units

4.2.1. Governorates as Supreme Units of Local Administration: Governorates constitute the highest level in the Syrian local administration structure. They are administrative units with corporate personality, composed of several districts and sub-districts (Nawahi), and possess a special budget approved by the Ministry of Local Administration. The Governorate Council is responsible for setting strategic plans for the governorate's development and also exercises oversight over the work of ministry-affiliated directorates within the governorate. The Governor is the supreme executive authority and cooperates with the governorate's executive office.

4.2.2. The City as an Urban Administrative Unit: The city is an administrative unit comprising a large population cluster, with a city council partially elected. The city specializes in managing regulatory and service affairs for urban areas, including Urban planning, Market regulation. Licensing of shops and establishments. Maintenance of roads, streets, and parks. Supervision of basic infrastructure.

4.2.3. The Municipality and Town as Minor Local Units: The municipality or town represents the smallest units in the administrative organization, closest to the residents of rural areas and small towns. They specialize in implementing basic services for the population, such as Sanitation, Street lighting, Managing water and sewage networks within certain limits, Constructing and maintaining local roads, Following up on service projects, Municipalities and towns are also considered the administrative level that embodies the actual daily practice of local administration.

4.2.4. Districts (Mantikah) and Sub-districts (Nahiyah): The district (Mantikah) is at an administrative level between the governorate and the sub-district (Nahiyah) and includes a number of sub-districts. The sub-district (Nahiyah) is the administrative unit that supervises a group of villages or rural population clusters. District and sub-district directors are appointed by the Ministry of Interior, with police units, civil registry, and some service institutions following their directives.

4.3. Administrative Divisions in Syria: Syria is administratively divided into levels starting from the governorate down to the village. This division allows for effective management of different areas considering geographical and demographic diversity.

4.3.1. Governorates: Syria consists of 14 governorates, each considered a main administrative unit: Damascus; Rif Dimashq; Aleppo; Homs; Hama; Latakia; Tartus; Daraa; Al-Quneitra; Idlib; Ar-Raqqah; Deir ez-Zor; Al-

Hasakah; As-Suwayda. Each governorate enjoys administrative structures including the Governorate Council, the Executive Office, and service directorates.

4.3.2. Districts (Mantikah): Each governorate is divided into a number of districts, which are mid-level administrative units managed by a district chief. The district is an important unit for coordination between lower units and the governorate.

4.3.3. Sub-districts (Nawahi): Districts are in turn divided into sub-districts (Nawahi), which are small administrative units managing the daily affairs of population clusters within their scope and dealing with basic local services.

4.3.4. Villages: At the base of the administrative pyramid are villages and rural clusters subject to the authority of municipalities or local units, forming the vital basic domain for local policies related to rural services.

4.4. The Relationship between Central Authority and Local Administration Units: The Syrian legislator balances decentralization and centralization by granting local units broad powers in service and developmental affairs, while the central government retains powers of strategic planning, general financial policy, and general supervision. The existence of the governorate serves as a liaison between ministries and local councils. This dual structure aims to ensure state unity on one hand and expand the autonomy of administrative units on the other.

5. The Reality of Local Administration in Al-Bab City

5.1. Overview of Al-Bab City: Al-Bab city is located in the northeastern part of Aleppo Governorate, approximately 40 kilometers northeast of Aleppo city and about 30 kilometers south of the Turkish border, at an approximate elevation of 471 meters above sea level. The city serves as an administrative center for the sub-district and district of Al-Bab, situated within a semi-arid plain rural environment connected by local road networks leading to industrial and agricultural centers in the Aleppo countryside. These geographical characteristics have endowed Al-Bab with a distinct commercial and agricultural role.

The general census before the revolution showed the city's population reaching about 64 thousand people (2004 census), with an urban extension estimated at tens of square kilometers within the sub-district's scope. During the years following the revolution, significant population fluctuations occurred due to displacement, the return of some residents, and the arrival of others

from neighboring geographical areas. Therefore, previous official figures represent an important reference base but do not necessarily reflect the current population distribution or the demographic dynamics related to security and the economy.

The city's economy relies regionally on a mix of agriculture, trade, and small industries, with scattered activities in the metal, textile, and artisan workshop sectors serving local and regional markets. During the revolution, production and employment patterns changed, as the industrial and commercial sectors suffered from infrastructure destruction and supply chain disruptions. Conversely, partial reconstruction activities and small investments directed at services, construction, and trade emerged, while challenges of energy, financing, and governance remain limiting factors for economic recovery potential.

The city contains primary health facilities including primary healthcare centers, hospitals, and specialized centers (among them mental health centers and medical laboratories working with local and regional non-governmental organizations). Some centers provide basic medical services, medicines, and laboratory tests, but service coverage and resilience have been affected by funding fluctuations, pressure on medical staff, and instances of power outages and shortages of basic supplies. The need for continuous support to the health sector to rehabilitate facilities, train staff, and provide effective medicine supply chains has also emerged.

The city has an educational infrastructure including primary and secondary schools. With the beginnings of recovery, initiatives to expand educational and training opportunities have appeared, including language centers and vocational training from local and regional forces. However, educational services have been affected by the loss of infrastructure in some areas, displacement of teachers, and the need for supported curricula and materials to compensate for educational loss. Educational institutions linked to external entities seeking to offer language and vocational programs have also appeared.

5.2. Administrative Structure and Governance in Al-Bab City: Al-Bab city represents one of the important urban centers in the countryside of Aleppo Governorate and has historically played a pivotal administrative role within the Syrian administrative divisions system. With the outbreak of the revolution in 2011 and subsequent political and field changes, the city witnessed fundamental shifts in the patterns and mechanisms of managing local affairs. This created a hybrid administrative structure where previous official institutions, local councils, non-governmental actors, and supporting entities overlap.

5.2.1. The Traditional Administrative Framework before 2011: According to the Local Administration Law No. 15 of 1971 and its successive amendments, Al-Bab city was classified as the center of Al-Bab District, subordinate to Aleppo Governorate, containing within it a number of sub-districts and villages. The traditional structure relied on: (1) A formally elected city council within the framework of the centralized local administration system. (2) Executive units subordinate to the Governor of Aleppo through service directorates (Health; Education; Agriculture; Technical Services... etc.). (3) A central executive authority controlling financial and developmental decisions through the Governor and central ministries. This structure was characterized by a high degree of centralization and weak financial independence for councils, limiting their ability to provide effective services or undertake sustainable development planning.

5.2.2. Formation of Local Councils after 2011: With the expansion of the administrative vacuum resulting from the revolution and the retreat of state institutions' presence, emerging local councils in Al-Bab city took on responsibilities such as: managing civil registry, organizing infrastructure, operating necessary facilities, and managing educational and health services in coordination with supporting organizations. Reports such as those by *The Day After* organization and the *OMRAN Center for Strategic Studies* indicated that local councils in northern Syria came to represent a new model of grassroots governance based on Broader community participation, Coordination among multiple actors, Flexibility in decision-making compared to the previous centralized system.

5.2.3. Administrative Restructuring after 2017 and the Emergence of Hybrid Governance Patterns: After changes in political and field control in the region, Al-Bab city witnessed the emergence of a complex governance system where the following overlap:

- The Local Council of Al-Bab city as the main body responsible for services.
- Supporting entities, international and local organizations providing technical and service support.
- Regional administrative bodies that have a coordinative relationship with the council in areas of security, financing, and project organization.
- This situation is reflected in: multiple funding sources, multiple legal frameworks governing work, and varying levels of accountability and oversight between different sectors.

5.2.4. Organizational Structure of the Local Council: Typically, the Local Council in Al-Bab city consists of:

- President of the Council and Vice-Presidents.
- Specialized service offices such as: Engineering Office; Planning Office; Technical Services; Education Office; Health Office; Public Relations Office; Financial Office; Statistics Office; Legal Office.
- Executive departments managing services for water; electricity; sanitation; building permits; market monitoring.
- The working pattern of these councils indicates reliance on a model close to consociational governance, where various offices cooperate to provide services with mechanisms for periodic internal oversight and advisory committees.

6. Problems and Challenges Facing Local Administration in Al-Bab

Despite the adoption of Law No. 107 of 2011, which attempted to establish principles of administrative decentralization, the political, security, and economic context Syria entered since 2011 increased the severity of problems and created compounded challenges, especially in previously liberated areas such as Al-Bab city. Among these challenges are:

Fragile Security Environment and Multiplicity of Actors: The unstable environment is one of the most prominent factors limiting the development of local administration, as various entities overlap in managing security and service files, creating coordination difficulties and limiting the ability to implement long-term development plans.

Limited Financial Resources: Al-Bab city relies heavily on support from humanitarian organizations and external funding, while local revenues remain weak and unable to cover basic service needs. Reconstruction also requires huge amounts incompatible with available financial capacities.

Damaged Infrastructure: Electricity, water, road networks, and public buildings suffered widespread destruction during the years of the revolution, imposing enormous challenges on the local administration to rehabilitate what can be rehabilitated within limited capabilities. The population pressure resulting from internal displacement also significantly increased demand for services.

Shortage of Qualified Personnel: Local administration in Al-Bab city faces a noticeable shortage of specialized personnel in fields such as urban

planning, financial management, project management, and infrastructure engineering. This is attributed to external migration, lack of continuous training, and weak salaries compared to the private sector and organizations.

Weak Urban Planning and Local Development Systems: Al-Bab city lacks modern urban planning systems or integrated databases for population and economic activities. This deficiency leads to difficulty in preparing an effective development strategy, making administrative work closer to emergency response rather than systematic planning.

Social and Demographic Challenges: Al-Bab city is characterized by a diverse demographic composition in addition to widespread displacement movements that led to changes in achieving justice in service distribution, managing social relations, and integrating multiple categories within a single administrative framework.

7. Prospects for Activating Local Administration in Al-Bab City

Local administration is considered one of the fundamental pillars in the architecture of governance and sustainable development, given its role in enhancing community participation, distributing powers, and improving the efficiency of public service delivery. In Al-Bab city, the need to activate local administration emerges as an entry point for rebuilding institutions, mending the social contract, and driving economic and social development. Activation prospects are based on a set of institutional, economic, and social requirements addressed by contemporary literature in the fields of decentralization and local governance, through the following:

7.1. Strengthening Institutional Structure and Governance: Building agile and capable local institutions represents a central condition for activating the role of local administration in Al-Bab city. Governance literature (such as the UNDP report on decentralization 2016) indicates that institutional effectiveness requires clarity of competencies, stability in organizational structures, and adoption of contemporary administrative tools based on strategic planning and performance management. In this context, the need arises for:

Restructuring administrative units in line with population size and city expansion, with clear definition of the responsibilities of the Local Council and executive bodies.

Adopting a Management Information System (MIS) that supports monitoring and evaluation processes and enhances transparency in resource management.

Developing the system of local legislation to ensure its suitability for the needs of the local context in Al-Bab and its alignment with principles of good governance emphasizing participation, accountability, and efficiency.

Academic studies on managing (previously) liberated areas, such as those by the Omran Center for Strategic Studies, indicate that the most important challenge is the absence of a unified legal framework; therefore, creating local regulatory bylaws or a procedures manual may contribute to regulating administrative processes and achieving a degree of institutional harmony.

7.2. Activating Community Participation and Local Partnerships: Literature in the field of Public Administration emphasizes that citizen participation in decision-making represents the cornerstone for the success of any local administration model. The importance of participation is magnified especially in Al-Bab city given the diversity of its social structure and the presence of multiple local actors. To achieve this, it is suggested to:

Create participatory platforms such as neighborhood councils or community service committees enabling residents to submit proposals and follow up on project implementation.

Enhance transparency by publishing annual budgets, periodic performance reports, and infrastructure projects, raising the level of mutual trust between the community and local authority.**Activate partnerships with civil society organizations** operating in Al-Bab for their role in supporting service development projects and providing expertise in areas of gender, governance, and project management.

A World Bank study (2018) indicates that cities that adopted advanced partnership models between local administration and the community witnessed higher levels of public satisfaction and improvement in service quality.

7.3. Enhancing the Financial and Economic Capacities of Local Administration: The financial aspect represents one of the most important activation axes in Al-Bab city, where local administration suffers from limited self-resources and heavy reliance on international organizations or external support. Financial literature on local administration indicates that financial sustainability requires:

Expanding the revenue base by improving fee collection and reorganizing local taxes within a clear legal framework.

Adopting performance and program-based budgeting allowing the direction of resources towards actual development priorities.

Investing in economic infrastructure through projects such as central markets, small industrial zones, and road rehabilitation, which enhances local economic activity and increases non-tax revenues.

Revitalizing the economic sector in Al-Bab city, especially trade, services, and agriculture, can also constitute a tributary increasing the local administration's ability to fund its services.

7.4. Building Human and Technical Capacities: Recent studies in Public Administration indicate that human competencies are the decisive factor for the success of local institutions. In Al-Bab city, activation prospects require the following:

Qualifying administrative and technical staff through continuous training programs in planning, public finance, project management, and community communication.

Strengthening institutional culture based on teamwork, respect for rules and procedures, and entrenching values of integrity.

Digital transformation through the use of modern technologies in document archiving, providing electronic services, and managing population data.

Global literature (World Bank, 2022) recommends that digital transformation in municipalities contributes to improving service efficiency by over 30%.

7.5. Strengthening the Supportive Security and Legal Environment: A stable environment is a fundamental prerequisite for activating local administration. Literature on managing cities in conflict areas indicates that improving the stability of the security environment in Al-Bab contributes to:

Increasing the administration's ability to implement its projects without interruption.

Encouraging investors and donors to fund economic and service projects.

Achieving community confidence by ensuring the protection of public facilities and reducing challenges.

Regulating the relationship between security apparatuses and the Local Council according to clear coordination mechanisms is also a main factor for achieving role integration and preventing conflict of powers.

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Chapter 11

The Role of Non-Governmental Organizations in Economic Development in Al-Bab City

Oqba Alissa[1]

1. Introduction

Al-Bab city, located in the northern countryside of Aleppo Governorate, represents a paradigmatic case of an urban center severely affected by armed conflict. The violent hostilities have profoundly reshaped its economic and social realities, as well as overall development levels, necessitating intensive intervention by humanitarian organizations. Al-Bab is currently experiencing a partial post-conflict phase, characterized by attempts to restore a semblance of normal life through limited commercial activity and externally funded structural repairs. Nevertheless, major challenges persist, particularly in terms of creating sustainable employment opportunities, rebuilding infrastructure, and restoring social and economic security for the population.

During the years of the Syrian revolution, Al-Bab (rural Aleppo) underwent profound transformations that impacted its economic, social, and developmental dimensions, making it a key target for extensive intervention by humanitarian and relief organizations. Economically, years of fighting and destruction led to a significant decline in local agricultural and industrial production, accompanied by widespread damage to infrastructure. Trade and small-scale services were among the least affected sectors, as they operate within a limited local market and rely heavily on reconstruction activities, external spending, and local support. At the same time, declining purchasing power, weak wages, and limited employment opportunities pushed a large segment of the population toward informal labor or dependence on aid. Meanwhile, the continued shortage of basic services—such as electricity, water, and sanitation—has adversely affected economic stability and development prospects (unicef.org).

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From a social perspective, the city's demographic structure changed substantially due to waves of displacement and forced migration carried out by the regime against residents of Homs, Deir ez-Zor, and Rural Damascus. This influx led to increased congestion in specific neighborhoods, generating significant psychological and social consequences linked to violence, loss of housing, and unemployment. Families face mounting pressure due to rising living costs and the absence of full security, which periodically manifests in explosions or sporadic attacks accompanied by civilian casualties. These conditions have weakened social cohesion and heightened the need for material and psychosocial support among vulnerable groups, including children, women, and female-headed households.

Economic development levels in Al-Bab have declined sharply compared to the pre-revolution period. The city endured intense battles that severely damaged essential infrastructure, creating an urgent need for substantial investments to restore water, electricity, sanitation, and transportation networks. Reconstruction efforts have remained limited and inconsistent—compounded by ongoing security challenges and regional political dynamics—thereby hindering the recovery of small and medium-sized enterprises to their pre-conflict levels. Moreover, heavy reliance on humanitarian assistance constrains the prospects for sustainable economic development, which requires comprehensive and integrated development planning.

Humanitarian organizations have played a prominent and multifaceted role in Al-Bab, including the provision of food and medical assistance, support for water facilities, rehabilitation of water supply stations, child and women protection programs, and the delivery of emergency services during periods of escalation. Numerous international and local actors have implemented projects in water, health, and shelter sectors. However, funding interruptions and access restrictions have affected program continuity, resulting in interventions that are often focused on emergency relief rather than long-term development. Examples include UN-managed rehabilitation projects of water stations serving Al-Bab city and its surrounding areas to supply thousands of residents with water (reliefweb.int). Humanitarian intervention remains indispensable, yet its sustainability is closely tied to international funding, security conditions, and policies that facilitate the transition from emergency relief to development-oriented programs capable of revitalizing the city's economic and social life (unocha.org).

2. The Reality of Al-Bab City

Economically, traditional productive activities have declined significantly due to extensive infrastructure destruction and security constraints. Conversely, local trade and small-scale services have remained the most active sectors, albeit within a limited market heavily dependent on reconstruction efforts and humanitarian assistance. Purchasing power has deteriorated markedly, accompanied by increased reliance on informal labor and aid, particularly in the context of scarce employment opportunities and unstable wages.

Core infrastructure—including water, electricity, and sanitation networks—has suffered extensive damage. For example, the Ein Al-Bayda water station was rehabilitated through UNICEF efforts to provide safe water to approximately 260,000 people in Al-Bab city, according to UNICEF. Nevertheless, the efficiency of WASH (Water, Sanitation, and Hygiene) infrastructure remains low. UNICEF assessments indicate that operational efficiency is below 50%, while operational sustainability—including qualified staff—is estimated at around 25% (UNICEF, 2025). These damages and challenges constrain sustainable development prospects, as reconstruction efforts are predominantly funded through emergency financing, making the transition toward a strong and independent local economy particularly difficult.

Socially, Al-Bab's demographic composition has been shaped by repeated cycles of displacement and partial return. Continuous displacement and limited return have placed population pressure on neighborhoods, leading to severe overcrowding in certain areas. The loss of housing, income, and educational hours has had a profound impact on households, especially vulnerable groups such as children, women, and female-headed families. Significant psychological effects are also evident due to exposure to violence or fear of attacks, increasing the demand for psychosocial support services. Furthermore, ensuring access to basic services remains an ongoing challenge, as some health and educational facilities continue to operate partially or irregularly, exacerbating social vulnerability and weakening social cohesion.

3. Definition of Non-Governmental Organizations

Non-governmental organizations (NGOs) constitute a vital and active component in the architecture of contemporary societies, operating within the space between the state on one side and the private sector on the other. NGOs are defined as independent, non-profit entities established through individual or collective initiatives, primarily aimed at serving public causes or targeted groups without direct governmental control (Martens, 2002). Over recent decades, NGOs have experienced remarkable quantitative and

qualitative expansion, becoming key actors in human development, disaster relief, human rights advocacy, and environmental protection.

As institutions independent of government and the private sector, NGOs do not seek financial profit for their founders. Instead, they aim to deliver social, humanitarian, developmental, or environmental services and rely on external funding, donations, or international grants. Scholarly literature has highlighted that the non-profit sector has become an integral part of governance systems that encompass the state, the private sector, and civil society organizations. International NGOs, particularly in partnership with the United Nations, have also assumed a central role in reconstruction processes.

In Al-Bab city in northern Syria—where extensive destruction, large-scale displacement, and severe service shortages have occurred—NGOs have played a pivotal role in rehabilitating infrastructure, supporting social stability, and stimulating economic activity.

NGOs employ diverse operational mechanisms encompassing a wide range of activities. At the direct service level, many organizations provide essential services such as healthcare, education, and clean water in deprived or conflict-affected areas, thereby filling gaps that local governments are often unable to address (Lewis, 2010). For instance, organizations such as Médecins Sans Frontières have played a critical role in epidemic response. At another level, some NGOs adopt empowerment and policy advocacy approaches, focusing on building community capacities, enhancing civic participation, and advocating for legislative or procedural changes in favor of marginalized groups. This function—known as advocacy—is exemplified by organizations such as Human Rights Watch.

NGOs derive their legitimacy and effectiveness from multiple sources. Their funding primarily depends on private donations, grants from governments and international institutions (such as the United Nations and the European Union), as well as returns from their own investments (Salamon, 2010). Reliance on volunteer and professional staff provides flexibility and cost efficiency. More importantly, NGOs gain credibility through their commitment to transparency, accountability, and mission-driven work, thereby fostering trust with both beneficiary communities and donors.

Nevertheless, NGO operations are not without challenges and fundamental criticisms. One major concern relates to accountability gaps, particularly when donor priorities conflict with the genuine needs of beneficiaries (Ebrahim, 2003). Another critique targets managerialism within NGOs, where professionalization and competition for funding may transform

organizations into bureaucratic entities detached from their original volunteer ethos and aligned with external agendas. NGOs may also—intentionally or unintentionally—serve as instruments for implementing international policies, potentially undermining their proclaimed independence (Schuller, 2009). Furthermore, NGOs' reliance on external funding renders them vulnerable to global political and economic fluctuations. Despite these challenges, NGOs remain indispensable actors in the global humanitarian and development landscape. Their continued success depends on achieving a delicate balance between professional efficiency and community embeddedness, as well as between donor requirements and genuine responsiveness to beneficiary needs. The future thus necessitates strengthening internal governance frameworks, fostering equitable partnerships with local authorities, and pursuing more sustainable and independent funding models to ensure NGOs' enduring role as a bridge between global resources and local community needs.

4. Humanitarian Organizations' Interventions:

Humanitarian organizations have played a pivotal role in Al-Bab city across multiple sectors, with UNICEF serving as a prominent example through its interventions in primary healthcare assistance, rehabilitation of water stations, child and women protection programs, and cash-based assistance. More than 58,976 individuals, including 44,634 children, have received primary healthcare services during the recent period (UNICEF, 2025). In addition, humanitarian organizations manage WASH projects aimed at providing clean water and improving sanitation services. However, ongoing security challenges and fluctuations in funding have rendered these projects vulnerable in terms of continuity and sustainability.

From a financing perspective, mechanisms such as the Syria Cross-Border Humanitarian Fund represent critical sources of support for projects in northern Syria (press.un.org). Nevertheless, a substantial funding gap persists, as the Syria Humanitarian Response Plan has remained underfunded, forcing many projects to rely on short-term funding rather than long-term financial commitments (press.un.org). Furthermore, several water facilities face recurrent challenges related to energy shortages and localized conflicts, which complicate operations and negatively affect service stability (UNICEF, 2025).

Non-governmental organizations (NGOs) constitute one of the principal actors in environments experiencing political instability or prolonged armed conflict, particularly when state institutions weaken and the private sector's capacity to invest and produce declines. In Al-Bab, the absence of effective governmental institutions and a productive private sector created a vacuum that

facilitated the entry of NGOs—not merely as humanitarian actors delivering food and healthcare, but as significant economic and developmental agents contributing to reconstruction, livelihood support, job creation, infrastructure rehabilitation, and community empowerment to overcome the repercussions of war. Numerous international studies have demonstrated that non-profit organizations operating in fragile contexts can gradually evolve into a parallel economic sector exerting direct influence over development trajectories. This dynamic is illustrated in the study by Al Bonni and Mehchi (2023), which explains how organizations—particularly in Syria and Yemen—have become a complex economic sector assuming many core state functions.

Prior to the Syrian revolution, the activities of these organizations were largely confined to limited relief efforts and basic assistance. However, the outcomes of the conflict produced profound structural changes in Al-Bab city, transforming the role of NGOs from charitable actors into key agents of rescue, recovery, and socio-economic stabilization. These interventions by civil society organizations in Al-Bab can be classified into several main domains, as outlined below.

4.1. Basic Services and Emergency Response:

The Syrian healthcare system experienced near-total collapse, with 57% of hospitals damaged or destroyed by 2015, and approximately 70% of doctors and pharmacists having fled the country (Fathi, 2016). In this context, NGOs became the lifeline of the healthcare system in Al-Bab city. They rehabilitated and operated primary healthcare centers and clinics, supplying them with essential medicines and medical equipment. According to a report by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), NGOs provided more than 80% of medical services in liberated areas, including Al-Bab (OCHA, 2016). These organizations prioritized vaccination services, maternal healthcare, treatment of chronic diseases, and reproductive health services.

NGOs intervened urgently to restore primary healthcare services by managing and equipping a network of health centers that delivered 4.1 million medical consultations across northern Syria in 2016, according to the World Health Organization (WHO, 2017). These centers focused heavily on vaccination campaigns, achieving 68% coverage among children under the age of five in northern Syria (UNICEF, 2016), thereby preventing the resurgence of diseases such as polio. Additionally, NGOs supported mental health and psychosocial support (MHPSS) services by implementing specialized programs to address trauma resulting from conflict. These interventions targeted more

than 150,000 individuals in Aleppo Governorate between 2016 and 2017, through individual and group counseling sessions and community-based activities (International Medical Corps, 2017).

Regarding the water, sanitation, and hygiene (WASH) sector, the extensive damage to water and sewage networks compelled NGOs to ensure minimum access to drinking water amid widespread bombardment and institutional collapse. Interventions included repairing wells, distributing potable water via tanker trucks, supplying disinfection materials such as chlorine, and constructing temporary sanitation facilities in displacement camps. These efforts contributed significantly to preventing outbreaks of waterborne diseases such as cholera. The 2016 Syria Humanitarian Response Plan allocated USD 304 million to the WASH sector nationwide (USAID, 2017).

NGOs also worked to rehabilitate partially damaged schools, supply educational materials, and support teachers who were no longer receiving salaries. Moreover, many organizations established non-formal education centers and temporary classrooms to accommodate children who had dropped out of school, in an effort to prevent the emergence of an uneducated generation. By 2016, the number of out-of-school children in Syria had reached 2.1 million (OCHA, 2016). NGOs responded through multiple pathways:

- **Non-formal education and temporary classrooms:** Classes were established in basements and community centers and supplied with curricula and stationery. According to *Save the Children* (2017), NGO-supported education programs reached approximately **650,000 children** during the **2016–2017** academic year.
- **Self-learning programs:** Educational kits were distributed to children unable to access learning centers.
- **Education support:** Financial incentives and training were provided to volunteer teachers who were no longer salaried, helping to retain educational personnel.

Humanitarian organizations also distributed food and non-food assistance on a regular basis, including food baskets containing staple items such as rice, lentils, and oil. Cash assistance programs served as a buffer against household descent into famine. Additionally, NGOs distributed essential non-food items such as mattresses, blankets, hygiene kits, and winterization materials, particularly for internally displaced persons within the city.

As displacement into Al-Bab intensified, NGOs established emergency camps and provided shelter and basic protection services, including tents, shared sanitation facilities, and mobile primary healthcare units. Humanitarian

actors also participated in rubble removal and emergency shelter repairs following airstrikes and bombardment. Field teams cleared debris, rescued the injured, and distributed materials such as plastic sheeting to repair partially damaged homes, enabling some families to remain in their city.

Despite these efforts, NGOs faced significant challenges, including:

- **Insecurity and access constraints:** Medical facilities and staff were occasionally directly targeted, prompting some organizations to suspend operations.
- **Funding volatility:** Heavy dependence on fluctuating international funding undermined project sustainability.
- **Political and administrative complexity:** NGOs were compelled to engage with de facto authorities, restricting operational freedom and neutrality.
- **Data limitations:** Wartime conditions hindered accurate data collection, affecting intervention planning and evaluation.

Throughout the revolution, humanitarian organizations in Al-Bab played a critical role in preserving the minimum standards of dignified life for civilians. They effectively replaced the state in delivering essential services and responding to recurrent crises. Despite formidable challenges, NGOs made a decisive contribution to alleviating human suffering and preventing the complete collapse of the city's social infrastructure. This experience underscores the vital importance of independent humanitarian action in conflict settings, while highlighting the urgent need for improved international mechanisms to protect civilians and humanitarian workers.

4.2. Support for Small Enterprises and the Agricultural Sector:

Several non-governmental organizations provided cash or in-kind grants, vocational training, and technical guidance to entrepreneurs to establish or revive small-scale businesses. Agriculture represents a primary source of livelihood for the residents of Al-Bab, and accordingly, interventions focused on distributing drought-resistant seeds and agricultural inputs, rehabilitating small-scale irrigation systems, and supporting small agricultural cooperatives. The Food and Agriculture Organization (FAO) has indicated that agricultural support in crisis contexts yields more than threefold returns in terms of nutritional value, with northern Syria being one of its key areas of intervention (FAO, 2016).

The majority of economic activity in Al-Bab shifted toward an informal, cash-based economy dependent on cross-border imports. Within this context, NGOs attempted to create local productive pathways through several mechanisms, including non-repayable cash grants to support working capital for initiating or expanding small enterprises—such as tailoring workshops, internet cafés, grocery stores, and device repair shops—as well as asset and equipment packages, including sewing machines, small ovens, carpentry tools, and metalworking equipment. Technical mentoring and business guidance were also provided by accompanying beneficiaries in developing basic business plans, managing cash flow, and conducting local marketing.

In most cases, these projects succeeded in securing sufficient household income to cover daily expenses rather than generating substantial profits or creating employment opportunities for others. As such, they functioned primarily as survival enterprises rather than engines of economic growth. An evaluative study of livelihoods projects in northern Syria conducted by Mercy Corps in 2017 found that 60% of supported small businesses remained operational one year after receiving assistance; however, 80% of these enterprises neither expanded nor employed workers beyond the owner.

Agriculture has long been a principal source of livelihood and dignity for the residents of the Al-Bab region, located within the fertile rural areas of Aleppo. Consequently, the devastation of this sector constituted a severe blow to the local economy. NGO interventions in agricultural support focused on several key areas:

- **Distribution of production inputs:** Including drought- and disease-resistant seeds, fast-yield fruit trees, fertilizers, and fuel required for irrigation pumps. According to FAO, approximately 380,000 individuals benefited from food security and agricultural programs in Aleppo Governorate alone at the peak of 2016, with a particular focus on rural areas such as Al-Bab (FAO, 2017).
- **Rehabilitation of small-scale agricultural infrastructure:** Repairing solar- or diesel-powered irrigation pumps, supplying drip irrigation systems to conserve water, and constructing small greenhouses.
- **Livestock support:** Distributing poultry and sheep to households along with feed and veterinary care, a rapid-return activity particularly suited to displaced families living in temporary shelters.
- **Cooperative and marketing support:** Attempting to aggregate small-scale production and market it locally or through NGO procurement channels, such as inclusion in food assistance packages.

Despite these efforts, agricultural interventions in Al-Bab faced substantial structural challenges, including:

- Land degradation and contamination resulting from military operations and bombardment.
- Chronic water scarcity due to the destruction of irrigation networks and high fuel costs for pump operation.
- Restricted access to farmland owing to fears of snipers, landmines, or land ownership disputes.
- Market volatility driven by multiple border crossings and smuggling, whereby subsidized Turkish agricultural products often outcompeted local produce in price and quality, undermining farmers' competitiveness.

Overall, economic empowerment programs encountered severe constraints that limited their impact, including:

- **Limited scale and sustainability:** Most projects remained small, short-term, and incapable of generating structural economic transformation amid persistent crisis drivers such as insecurity, siege-like conditions, and national market collapse.
- **Competition with in-kind assistance:** In emergency settings, donors often prioritized visible humanitarian needs (food and medicine) over long-term development investments.
- **Absence of a supportive financial system:** The lack of a formal banking system and organized microfinance mechanisms constrained enterprise growth.
- **Reinforcement of informality:** Many programs inadvertently entrenched a fragile informal economy without rebuilding formal economic institutions.

NGOs in Al-Bab sought to transform residents from passive aid recipients into economic actors amid a severe economic storm. These programs partially succeeded in alleviating poverty, providing temporary income alternatives, and preserving human capital and skills through training. They functioned as a secondary economic safety net, contributing to households' daily resilience. Nevertheless, they failed to achieve sustainable economic empowerment, as such an outcome was unattainable in the absence of security and stability. It must be acknowledged that the role of NGOs remains complementary and

partial, and cannot substitute for political solutions that end the conflict and enable genuine reconstruction led by the state and stable economic institutions.

4.3. Development of Social Capital:

The Syrian conflict caused profound fragmentation of the social fabric, particularly in Al-Bab city. In this context, non-governmental organizations emerged as key actors in strengthening social capital, a concept referring to cultures of trust, cooperation, reciprocal relations, and social networks that enhance a community's capacity for cohesion and recovery.

Social capital is defined as individuals' ability to access resources through membership in social networks grounded in trust and shared norms (Portes, 2000, p. 33). It is also understood as networks of social relations and trust-based institutions that enable communities to work collectively toward shared interests—an especially critical dimension in conflict-affected environments where formal structures collapse (Al-Harmil, 2019).

As conflict intensified and the role of the central state receded in Al-Bab, NGOs provided an essential platform for interaction among residents, volunteers, and civil groups. This engagement strengthened social solidarity, collective action, and trust restoration among local actors. Organizations such as Syria Relief and Action For Humanity created community interaction points within Al-Bab, reinforcing mutual dependence between civil society and humanitarian actors—an essential element in social capital formation. Through coordination networks and platforms, NGOs connected villages and neighborhoods with the city, facilitating cooperation, information exchange, and the development of local support networks. Such dynamics were largely absent prior to the revolution due to state-imposed restrictions on civil society (ICVA, 2025).

Empowering individuals and enhancing community participation through training, capacity building, and the organization of local committees enabled residents to become active contributors to their communities—whether through volunteering, aid distribution, or crisis management committees—thereby strengthening a sense of belonging and shared responsibility. The Syrian Dialogue Center also supported the rights of displaced persons and vulnerable communities in Al-Bab and other displacement-affected areas by organizing dialogue sessions and rights-focused projects, contributing to reduced tensions and improved trust between host communities and displaced populations (Syrian Dialogue Center, 2019).

Across northern Syria, estimates suggest that more than 700 NGOs have been established since 2011, many operating inside Syria and serving as primary

channels for service delivery, despite the lack of city-specific disaggregated data (ICVA, 2021). Despite challenges such as funding shortages, coordination gaps, and security risks, these organizations contributed to the development of mutual support networks and social linkages that were largely absent before the revolution. Humanitarian NGOs thus played an effective role in strengthening social capital in Al-Bab by engaging communities in service provision and fostering cultures of cooperation and trust.

4.4. Strengthening Governance:

Following the takeover of Al-Bab by opposition factions, the city's basic infrastructure and public administration collapsed. According to United Nations reports, public services in Al-Bab deteriorated by approximately 80% compared to pre-revolution levels, with an almost complete cessation of formal municipal services (OCHA, 2017). This institutional vacuum necessitated NGO intervention that combined emergency relief with support for local governance structures.

4.4.1. Support for Local Councils and Local Governance:

NGOs contributed to the establishment and activation of local councils as alternatives to the collapsed centralized governance system. World Vision and Mercy Corps provided institutional support to four local councils in the Al-Bab area, including (World Vision, 2017; Mercy Corps, 2018):

- Training 150 local council members in financial management and transparency between 2014–2017.
- Implementing simplified financial accounting systems benefiting more than 40,000 residents.
- Developing community complaint mechanisms processing over 1,200 complaints annually.

4.4.2. Strengthening the Rule of Law and Local Justice:

In the absence of a formal judicial system, NGOs supported alternative justice mechanisms. According to the Syrian Center for Justice and Accountability (2020):

- Three community dispute resolution centers were established in Al-Bab and its surroundings.
- 35 local judges and lawyers were trained in international humanitarian law principles.

- More than 700 civil disputes were resolved annually through local mediation mechanisms.

4.4.3. Community Empowerment and Civic Participation:

Humanitarian organizations enhanced community empowerment and civic participation in Al-Bab through several initiatives (CARE International, 2018):

- Establishing 8 community committees to coordinate humanitarian efforts with local needs.
- Implementing 30 small community projects involving 800 local volunteers.
- Training 45 community activists in dialogue and mediation skills.

Despite these achievements, NGOs faced significant challenges, including ongoing military threats, shifting territorial control, unstable funding that limited strategic planning, weak coordination between NGOs and local councils, sustainability risks stemming from external dependency, and persistent factional tensions in the region (UNHCR, 2019). Nonetheless, NGOs played a decisive role in implementing a minimum level of governance in Al-Bab during the revolution. Despite the temporary nature of many interventions, they succeeded in laying foundations for local governance that could be built upon in the post-conflict phase by integrating governance dimensions into humanitarian programming from early stages, strengthening partnerships between international and local organizations, investing in sustainable local capacity building, and developing more flexible and stable financing mechanisms.

5. Conclusion

This chapter highlights the pivotal and multidimensional role played by non-governmental organizations in supporting pathways of economic and social development in Al-Bab city in northeastern Syria, within an exceptionally complex context characterized by war, instability, the collapse of state institutions, economic decline, and social fragmentation. Field experience in Al-Bab demonstrates that NGOs did not limit their role to emergency humanitarian response; rather, due to the institutional vacuum, they evolved into key actors in restoring the minimum foundations of economic and social life and in preventing the complete collapse of service delivery systems and local governance structures.

At the economic level, NGOs functioned as a critical safety net that prevented large segments of the population from falling into extreme poverty through livelihoods programs, cash-for-work schemes, support for small enterprises,

vocational training, and agricultural assistance. Although the impact of these interventions remained limited in terms of achieving sustainable economic growth or generating large-scale employment, they succeeded in fulfilling a fundamental objective: strengthening community resilience, preserving human capital, and enabling individuals to secure alternative income sources that ensured minimum livelihood stability and human dignity. These programs can therefore be described as closer to a survival economy than a development economy, a characterization that reflects the prevailing context more than deficiencies in program design.

At the social level, NGOs contributed to the reconstruction of critical components of social capital damaged by the war by promoting community participation, building cooperative networks, and engaging both local residents and displaced populations in the design and implementation of development-oriented activities. These efforts played an important role in reducing social tensions, strengthening mutual trust, and creating spaces for dialogue and collective action—key prerequisites for any future trajectory of economic recovery.

With regard to governance, the experience of Al-Bab demonstrates that NGOs were central actors in supporting emerging local structures through capacity building for local councils, enhancing transparency and accountability, and developing alternative mechanisms for service delivery and dispute resolution. Despite the fragile and temporary nature of these arrangements, they contributed to entrenching practices of good local governance, provided that a more stable political and security environment can be achieved. At the same time, the Al-Bab case illustrates that NGOs were a crucial factor in preventing economic and social collapse and in preserving the foundations of community resilience in one of the most fragile environments.

However, transforming this resilience into sustainable economic development remains contingent upon a broader contextual transition—from relief to development, and from external dependency to the construction of a self-sustaining local economy.

In conclusion, the analysis clearly reveals the limits of the role that non-governmental organizations can play in the Syrian context more broadly. Their heavy reliance on external funding, fluctuations in international support, security and political constraints, and the weakness of the local economy have all constrained the sustainability of their developmental impact. Accordingly, while the role of NGOs is undeniably significant, it remains complementary and cannot substitute for the state or replace comprehensive solutions that open the way toward genuine reconstruction led by stable national institutions.

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Chapter 12

Reconstructing the Local Economy in the City of al-Bab: Challenges and Opportunities

Yasser Rashid Al-Husien[1]

1. INTRODUCTION

Reconstructing the local economy constitutes a fundamental pillar within the broader trajectories of post-conflict reconstruction and stabilization, as the local economy forms the primary foundation for job creation, revitalizing productive cycles, and strengthening social and institutional cohesion. Global experiences indicate that cities emerging from war often face profound challenges in reactivating their local economies due to the destruction and fragility of infrastructure, the erosion and displacement of human capital during conflict, and investors' reluctance, which leads to a contraction in the investment environment. Despite these challenges, the local economy remains a vital entry point for comprehensive recovery when local resources and capacities are effectively mobilized.

In the Syrian context following the liberation on 8 December 2024, the city of al-Bab stands as a concrete example of the multifaceted challenges facing cities in their efforts to rebuild their local economies. Once one of the most important economic centers in northeastern rural Aleppo, al-Bab suffered severe destruction during the war, leading to the shutdown of production, fragmentation of markets, and the absence of institutional stability. Nevertheless, in the years preceding the overall liberation of northern Syria—particularly since the city itself was liberated in 2016—positive signs began to emerge, including the partial restoration of security, the return of a segment of the population, and the involvement of some local and international actors in supporting small-scale developmental projects. These developments opened the door for serious reflection on the city's potential economic future.

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Building on this background, this study aims to analyze the post-conflict local economic reality in al-Bab, explore the main obstacles hindering reconstruction, and identify latent opportunities that may help restart local economic development.

To achieve this, the study adopts a descriptive–analytical methodology based on field-based data exploration, historical and institutional contextual analysis, and comparison between current realities and potential prospects. It also employs qualitative analytical tools such as: a review of relevant academic and developmental literature. And content analysis of reports issued by local actors and international organizations operating in al-Bab. And case examination of emerging economic initiatives within the city. And analysis of official documents, international reports, and specialized articles.

Through this analysis, the chapter is expected to contribute to presenting an integrated vision of opportunities for local economic recovery, and to recommending a set of applicable strategies suitable for a post-conflict environment. The chapter is also expected to clarify: The dialectical relationship between structural and institutional challenges on the one hand, and grassroots initiatives on the other. And the significance of participatory roles among local councils, organizations, and the community. and – the feasibility of reshaping the economic landscape in al-Bab based on an approach grounded in empowerment, local planning, and building social capital.

This study is divided into four sections. The first section addresses the conceptual and theoretical framework of local economic reconstruction. The second section describes the local economy of al-Bab. The third section identifies the challenges facing the local economy in the city. The fourth section discusses opportunities that may support reconstruction efforts, followed by a conclusion presenting the main findings and recommendations.

2. Conceptual and Theoretical Framework

2.1 Concept of the Local Economy

The local economy refers to the system of economic activities carried out within a defined geographical unit—such as a city or a region—with the aim of meeting the needs of the local population, creating job opportunities, generating income, and stimulating endogenous growth. It is composed of a set of locally embedded actors, including households, small enterprises, and local councils, and relies on the resources and infrastructure available in the local environment (Helmsing, 2003).

The local economy differs from the national economy in being more sensitive to demographic and institutional transformations at the grassroots level, and it requires a participatory approach involving local actors and external supporters. Its importance increases in fragile contexts, particularly in post-conflict settings, as it constitutes the primary foundation for recovery efforts and sustainable development (World Bank, 2017; International Labour Organization [ILO], 2004).

Moreover, the local economy exhibits high sensitivity to changes in the social and institutional structure. Because productive activities and small and medium enterprises are concentrated within the local domain, any shifts in these structures directly influence the dynamics of the local market (ILO, 2010).

This type of economy requires a participatory approach that brings together local actors—local authorities, civil society organizations, and the private sector—as well as external supporters, ensuring that efforts are aligned and that assistance is directed toward local priorities (ILO, 2010).

The significance of the local economy increases in fragile environments, especially during the post-conflict phase, as it forms the first building block for economic recovery and sustainable development. Strengthening local capacities and resources is a fundamental pillar in the transition from relief to development (ILO, 2010).

2.2 Post-Conflict Local Economic Reconstruction

Development literature indicates that rebuilding the local economy after a conflict goes beyond restoring physical infrastructure; it also involves revitalizing production networks, reactivating markets, and enabling communities to lead economic activity. It is a complex process that requires addressing substantial structural and social challenges, such as loss of trust, weak institutions, and fragmentation of social capital (United Nations Development Programme [UNDP], 2020).

Local empowerment, financial access, capacity-building for local governance, and skills development represent essential pillars for reconstructing a resilient local economy capable of adapting to challenges and achieving gradual economic recovery (Barca & Zambelli, 2021).

2.3 Functions of the Local Economy in Achieving Stability

The local economy plays a central role in ensuring economic security by providing job opportunities, enhancing income levels, reducing dependency on external aid, and mitigating social tensions by lowering unemployment

and poverty rates. It also serves as a tool for building community peace in post-conflict settings by fostering cooperation among different social groups (World Bank, 2021).

2.4 Determinants of Successful Local Economic Reconstruction

In conflict-affected areas, it is recommended that efforts focus on strengthening grassroots economic activities (bottom-up approaches), such as supporting small enterprises, organizing markets, and reinforcing community-based initiatives, as these tend to be more resilient compared to large centralized projects, which often face financial and administrative complexities (UNDP, 2020).

Comparative studies highlight several factors that affect the success of local economic reconstruction in cities emerging from conflict, most notably: Security stability And fundamental prerequisite for attracting investment and revitalizing commercial activity. And local institutional capacity: Effective local councils and technical staff contribute to resource management and transpar ency. And social capital: Including trust among residents, social networks, and participatory initiatives. And role of development organizations: External support becomes more effective when coordinated with clearly defined local priorities (GIZ, 2021).

2.5 Comparative International Experiences

Several post-conflict cities offer relevant examples of relatively successful local economic reconstruction, including:

Mosul (Iraq): Its markets were gradually revived through international support and strengthened local participation (UN-Habitat, 2021).

Sarajevo (Bosnia): Relied on a participatory approach between government and community to reactivate small and medium enterprises.

Grozny (Chechnya): Combined urban redevelopment with community-oriented economic

3. Profiling the Local Economy in the City of al-Bab

3.1 Conflict Impact on Economic and Social Structures

General Impact of the Conflict on Economic Activities and Social Structures The city of al-Bab is located northeast of Aleppo and was known before the war for its significant commercial and agricultural role within the eastern countryside of the governorate. After years of conflict, the city witnessed major

changes in its economic and demographic structures; these transformations shaped the trajectory of local recovery following liberation and opened new pathways for rebuilding the local economy. Throughout the years of conflict, essential infrastructure—such as roads, markets, electricity, and water networks—suffered extensive damage. The agricultural sector also declined due to irrigation problems, rising input costs, and the migration of farmers, which led to reduced local production. Displacement and the depletion of skilled labor created substantial gaps in the local labor market and weakened the agricultural and commercial value chains that once connected al-Bab with surrounding areas and the city of Aleppo (Omran Center for Strategic Studies, 2024).

3.2 Structural Transformation: From Traditional Agriculture to Light Industries and Trade Following liberation, al-Bab experienced an expansion of industrial activity, notably through the establishment of an industrial zone north of the city. This zone includes a number of small and medium factories and workshops producing iron, textiles, food products, and furniture. These enterprises benefit from low labour costs and the availability of some raw materials resulting from the effects of war, yet they continue to face logistical, electrical, and legal challenges that limit their growth (Ashawi, 2022).

3.3 The Labor Market and Social: Resilience The labor market in al-Bab is characterized by a high share of informal employment and heavy reliance on temporary activities such as construction, daily trade, and logistical services. An increase has also been observed in women's participation in home-based economic activities—such as tailoring, small-scale food production, and education—which reflects a degree of social resilience in coping with economic gaps.

3.4 The Role of External and Regional Actors: Türkiye has contributed to rehabilitating certain public facilities such as schools, hospitals, and local transport networks, and has created trade linkages with the Turkish market through the use of the Turkish lira in financial transactions. While this has supported economic activity, it has also increased monetary and commercial dependence (Ashawi, 2022; Omran Centre for Strategic Studies, 2024). Small-scale support and micro-finance programs have also facilitated a transition from relief to early economic recovery, though they have not yet reached the level of financing large industrial projects.

3.5 Infrastructure and Local Development Projects: Data indicate an expansion of infrastructure projects in the city in 2023, particularly in the transport and road sectors, which helped reduce transportation costs and improve the flow of goods between regions (Omran Center for Strategic

Studies, 2024). Nevertheless, electricity shortages and rising energy costs continue to hinder the expansion of the industrial production base.

3.6 Trade Chains and Cross-Border Integration: The movement of goods through border crossings near Türkiye contributed to revitalizing local trade; however, activity remains limited due to the shift of a significant portion of trade toward informal channels, increased transit fees, and exchange-rate volatility.

3.7 Analytical Summary of the Local Economic: Profile The main characteristics of the local economy in al-Bab can be summarized as follows:

A transforming economy: Partial shift from agricultural dependence to light industries and services (Omran Center for Strategic Studies, 2024).

Local industrial momentum: Existence of small industrial clusters providing a base for employment and local production (Ashawi, 2022).

Weak regulatory and financial frameworks: Persistent challenges related to energy and structural financing constraints (Omran Center for Strategic Studies, 2024).

Partial regional and external dependence: The role of Türkiye and organizations in supporting the economic structure (Ashawi, 2022; Omran Center for Strategic Studies, 2024).

Community resilience: Emergence of women- and youth-led local initiatives aimed at enhancing income and production.

4. Intersecting Challenges of Reconstruction and Local Development in al-Bab City (Aleppo Countryside): A Diagnostic Analysis and Sustainable Policy Recommendations

4.1 Context

Since 2011, most areas of Syria have experienced destruction of infrastructure and economic activity, and the city of al-Bab in the Aleppo countryside has been no exception. With the onset of early-recovery efforts, some facilities have been rehabilitated; however, structural challenges remain significant and require an integrated approach combining physical reconstruction, restoration of productive capacity, and institutional and fiscal reforms. A report indicates that al-Bab has been among the cities receiving the largest number of housing and construction projects in northwest Syria.

This study aims to provide a detailed diagnostic of the stated challenges and to expand them with field-based evidence, followed by proposing

practical policy packages according to temporal priority. The analysis draws on documentary review, secondary analysis of field reports, assessments of housing/land/property (HLP) rights, as well as theoretical insights from the literature on post-conflict economic and social recovery (Omran Centre for Strategic Studies, 2024).

Over the past decade of war, al-Bab has witnessed multiple shifts in control, extensive damage to infrastructure, and demographic volatility (displacement and partial return). The paralysis of the local economy stems from four interrelated clusters of challenges:

Economic and financial challenges, including deteriorated infrastructure, absence of financing mechanisms, and shrinking purchasing power;

Institutional and administrative challenges, such as weak local governance, multiplicity of actors and lack of coordination, and insufficient legal frameworks;

Social and demographic challenges, including pressures caused by displacement, youth unemployment and skills shortages, and erosion of social capital; and

Security and political challenges, including fragile security conditions, multiple authorities, and a lack of overall political stability.

This analysis is based on field data and reports by research and humanitarian institutions covering early-recovery projects in northwest Syria, household economic assessments, and studies on HLP rights. The study concludes with a set of short-, medium-, and long-term policy recommendations aimed at achieving sustainable local economic recovery, strengthening governance, protecting social capital, and ensuring a stable security and political climate that enables investment and social cohesion.

4.2 Effects of the War on the Local Economy: In summary: infrastructure destruction increases transaction costs and reduces productivity; displacement disrupts labour-market linkages and social capital; and weak governance undermines resource allocation and deters investment. These mechanisms are consistent with wide-ranging studies such as the World Bank's report on the economic impact of the shock in Syria (World Bank, 2023).

4.3 Economic and Financial Challenges

4.3.1 Weak Economic Infrastructure

Reality: Infrastructure (roads, electricity, water, sanitation, marketplaces) in wide areas of al-Bab has been damaged or structurally degraded. Even early-stage repairs often fail to address distribution networks or long-term service

systems. This affects transportation and production costs, lengthens business cycles, and reduces the capacity to deliver goods and services to markets.

Evidence: The Omran report notes the implementation of more than 5,000 projects in northwest Syria in 2023, yet coverage remains below pre-crisis levels.

Technical Recommendations: Adopt structured infrastructure projects in two phases: Emergency works to restore economic connectivity (main roads, transformer stations) And medium- to long-term projects to build more resilient systems (sustainable water supply, distributed electricity/solar energy). And b. Invest in "labour-intensive solidarity works" to create local employment while rebuilding essential infrastructure.

4.3.2 Lack of Financing and Investment

Reality: The local private sector faces difficulties accessing bank financing due to the absence of a formal banking structure, weak collateral systems, and heightened political and security risks.

Evidence: The Omran report indicates that many small and medium enterprises lack adequate working capital, and international funding is largely directed toward relief rather than investment (Omran Centre for Strategic Studies, 2024).

Proposed Solutions: Support multi-tiered micro-finance mechanisms (community-guaranteed micro-loans, partnerships with local/regional banks, local reconstruction funds involving municipalities and international organizations). And Provide incentives for small firms (temporary tax exemptions, operational grants, cost-support packages). And launch "economic-lever projects" in sectors that generate strong forward and backward linkages (e.g., rehabilitating local food-processing industries or organizing a formal retail market).

4.3.3 Contraction of the Local Market

Reality: Reduced purchasing power driven by income loss, unemployment, and persistent inflation directly constrains consumer demand, making the retail market small and less attractive to investors.

Evidence: The report highlights that inflation, rising input costs, and limited job opportunities have led to a decline in local demand (Omran Centre for Strategic Studies, 2024).

Mitigation Strategies: Temporary income-support programs (cash-for-work, local voucher schemes) linked to training and employment. And support

for food-security and artisanal resilience projects to strengthen household income. And encourage demand aggregation (local trade associations) to lower costs and improve supplier conditions.

4 Institutional and Administrative Challenges

4. 1 Weak Local Economic Governance

Reality: Local councils often lack the technical capacity for financial planning, budgeting, integrated development planning, and contract/procurement management—hindering effective implementation of recovery projects.

Evidence: The Omran report highlights that weak legal documentation and absence of official data constitute major obstacles.

Proposed Interventions: Capacity-building programs for local councils in project management, financial planning, and transparent governance. And establish digital platforms for managing local projects (project databases, priority maps, monitoring and tracking tools). support mechanisms for community participation in budget planning to enhance local legitimacy.

4.2 Multiplicity of Actors and Weak Coordination

Reality: The presence of multiple implementing entities (local NGOs, international NGOs, security actors, parallel councils) without a central coordination mechanism leads to duplication of activities and neglect of essential needs, resulting in resource waste and reduced impact.

Evidence: The Omran report notes that large-scale projects exceeded 5,000 in northwest Syria, yet no clear mapping or comprehensive evaluation exists (Omran Centre for Strategic Studies, 2024).

Response Mechanisms: Establish a reliable local coordination mechanism bringing together representatives of councils, NGOs, and the private sector with a clear roadmap and defined responsibilities. Adopt technical coordination tools (project lists and GIS-based maps of ongoing interventions) to avoid overlap and enhance effectiveness.

4.3 Weak Legal Environment

Reality: The lack of a legal framework that protects investor contracts, clarifies property rights, and offers flexible dispute-resolution mechanisms increases investor risk.

Evidence: The Day After report Impact of Early Recovery and Reconstruction Projects on HLP Rights in Syria shows that HLP issues constitute a major barrier to reconstruction (The Day After, 2024).

Legal/Policy Recommendations: Initiate local and technically assisted efforts to establish "temporary rules of engagement" that protect economic transactions and small investments. And create rapid mechanisms for resolving property disputes in collaboration with legal bodies and human-rights organizations to restore trust.

4.5 Social and Demographic Challenges

4.5.1 Displacement and Demographic Change

Reality: Displacement and return patterns have reshaped the population structure and placed pressure on housing, education, and health services, resulting in fragmented market networks and difficulties in reintegrating labor and skills.

Evidence: The Omran report notes that al-Bab saw a large number of housing projects in 2023 (74 projects in al-Bab alone).

Proposed Measures: Comprehensive reintegration programs (housing, services, employment) tied to local urban planning. And policies prioritizing essential services (education, health, water) to reduce social frictions and enable institutionalized return.

4.5.2 Youth Unemployment and Skills Shortages

Reality: High youth unemployment, prevalence of low-wage jobs, and migration of skilled workers (engineers, technicians) have created gaps in the local labour market, limiting the city's ability to implement technically oriented or moderately complex projects.

Evidence: UN Country Results reporting highlights support for skills and entrepreneurship as part of economic recovery (United Nations Syria, 2024).

Operational Measures: Vocational-training programs aligned with al-Bab's market needs (construction, plumbing, electricity, micro-technology). And linking youth training to local employment schemes (training-to-work contracts with reconstruction projects).

4.5.3 Decline of Social Capital

Reality: Conflict erodes trust networks and community relations, undermining collective initiatives and entrepreneurship.

Evidence: Studies on social capital in displacement contexts emphasize the centrality of trust-building for successful development interventions (The Day After, 2024).

Community Responses: Trust-building projects across community groups (joint workshops, shared recovery projects, local dispute-resolution committees). And support for cooperatives and social enterprises as mechanisms for converting social capital into economic activity.

4.6 Security and Political Challenges

4.6.1 Security Fragility

Reality: Continued intermittent security threats deter long-term investment, increase security costs for artisans and traders, and disrupt supply chains.

Evidence: The World Bank notes that the 2023 earthquake exacerbated infrastructure fragility and raised transaction costs (World Bank, 2023).

Risk-Management Options: Design infrastructure projects with embedded security-risk components (secure shipments, flexible contract clauses). And support small, locally rooted projects that are less exposed to high-sensitivity risks by diversifying sectoral exposure.

4.6.2 Multiplicity of Authorities and Lack of Clear Reference Structures: Reality: The existence of parallel military/security authorities and civil bodies creates ambiguity in licensing and fee systems, confusing investors and raising transaction costs, resulting in an unfavourable business environment.

Evidence: The Omran report highlights that weak legal documentation and data gaps hinder investment (Omran Centre for Strategic Studies, 2024).

Proposed Measures: Establish mutually agreed-upon local "rules of engagement" through an administrative truce among actors (temporary mechanisms for business licensing, emergency administrative solutions). support clear delineation of roles between security and civil authorities to ensure a predictable operating environment.

4.6.3 Absence of Overall Political Stability Reality: The lack of a clear political outlook for the post-conflict period reduces long-term investment, leading investors to prefer lower-risk or hybrid/regional options. This constrains the potential for comprehensive development.

Evidence: The 2023 World Bank report indicates that economic contraction in Syria is closely linked to political and security risks (World Bank, 2023).

5. Scenarios and Intervention Options (A Time-Sequenced Action Plan): I divide the interventions into three chronological phases: Emergency (0–12 months), Medium-term (1–3 years), Long-term (3+ years).

5.1 Emergency Priorities (0–12 months):

a. Repair critical water and sewage networks and rehabilitate major access roads (Omran Center for Strategic Studies, 2024). Implement temporary employment programs for the most affected households (solidarity-based public works). launch a local micro-liquidity fund to support small projects with working capital.

5. 2 Medium-Term Phase (1–3 years)

Build the capacities of local councils and establish coordination frameworks among key actors. And implement vocational training programs linked to the labour market, including reintegration of returnees. Develop distributed clean-energy projects (solar power for neighbourhoods and small activities).

5.3 Long-Term Phase (3+ years)

Introduce regulatory and legal reforms to ensure contract protection and property rights (The Day After, 2024). Attract larger investments through guarantee mechanisms and public–private partnership projects with regional actors.

6. Impact Measurement and Proposed Indicators

Immediate Indicators: number of jobs created monthly, number of small projects financed, percentage of electricity coverage in neighbourhoods.

Medium Indicators: youth unemployment rate, average household income, number of locally issued economic licenses.

Long-Term Indicators: growth of the city/region's local GDP, rate of stable returnees, investor confidence indicators.

7. Conclusion and Policy Implications

The challenges facing the city of al-Bab are multifaceted and interlinked: repairing a road or building a market is not enough to achieve sustainable recovery. Infrastructure rehabilitation must be combined with financial reforms, improved governance, social policies for reintegrating returnees and youth, and security and political measures that reduce risk. An integrated approach connecting short-term interventions (alleviating humanitarian pressure and creating temporary jobs) with the development of strong local institutions represents the most realistic pathway to leveraging the opportunities of recovery.

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Al-Bab's Economy

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