

Najaf 2050

A Future Vision

Edited by
Prof. Dr. Hasan L. al-Zubaidi
Prof. Dr. Miqdam A. al-Fayyad

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Prof. Dr. Miqdam A. al-Fayyad

First English-language edition, Beirut/Najaf, 2025.

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This is a translation of the book (النجف الأشرف 2050: رؤية مستقبلية) published originally in Arabic by RCD in 2023.

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ISBN: 978-9922-772-00-4

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RCD's Forward

Prof. Dr. As'ad Kāzim Shabīb

CEO, Al-Rafidain Center for Dialogue RCD

al-Najaf al-Ashraf is a city that occupies an exceptional position on the religious, intellectual, and social map of the Islamic world. It is not merely an Iraqi city deep-rooted in history, but a unique symbolic and spiritual space, its name linked to the shrine of Imām 'Alī ibn Abī Ṭālib, and to the Wādī al-Salām cemetery, which is considered one of the largest cemeteries in the world, in addition to the shrines of prophets, saints, and righteous figures. This heritage has given Najaf a universal status in the religious imagination of millions of Muslims, especially the followers of the school of Ahl al-Bayt, and has at the same time made it a multi-dimensional civilizational hub.

Although Najaf possesses its own unique specificity, analytical approach requires placing it in a comparative framework with other religious-historical cities such as Makkah al-Mukarramah, al-Madīnah al-Munawwarah, al-Quds (Jerusalem), Qum, and the Vatican. Just as these cities have formed spiritual and political spaces of a global character, the city of al-Najaf al-Ashraf has also established, through its religious seminary (al-Ḥawzah al-Ilmīyah) and its symbolic status, a cognitive and spiritual space that transcends its geographical borders to influence multiple societies and nations. This similarity and difference with other religious cities opens the way for a comparative-analytical reading that highlights the specificity of Najaf on one hand, and on the other, reveals the common challenges facing religious cities globally, especially in light of globalization and political, economic, and social transformations.

Najaf has undergone profound historical transformations; from being the seat of the Islamic Caliphate in one era, to becoming an active religious and social center during the Ottoman period, then to its participation in the formation of the modern Iraqi state in 1921, and finally to its prominent presence in shaping the political and social landscape in Iraq after 2003 in the context of major political changes in the country. These transformations were not isolated but were linked to conflicts of identity, the dialectic of authority and religion, and the interactions between the local, regional, and international, which has always kept the city of Najaf at the heart of events, a reference point for political and social action, and a starting point for intellectual and religious movements.

However, this unique status has faced complex challenges. On one hand, the growing religious and touristic importance of Najaf has led to unprecedented urban, service-related, and infrastructural pressures. On the other hand, demo-

graphic and social transformations have imposed pressures on the city's traditional structure. Its symbolic position has also made it an arena of soft conflict between regional and international powers seeking to leverage its spiritual weight to serve their political agendas. Here, the contradiction appears between the global symbolic status of Najaf and the local developmental and administrative deficiencies in managing it as a modern city, which represents one of the central challenges this book seeks to analyze.

The importance of this approach lies in that it does not merely describe Najaf as a religious city, but rather approaches it as a complex, global-urban entity, where symbolic power is exercised, religious knowledge is produced, and identity is reshaped in the face of the challenges of globalization, development, and political transformations. Through this reading, the book seeks to open new horizons for understanding this city, not only as a spiritual symbol but as a global human metropolis with strategic dimensions in its past, present, and future.

From this standpoint, al-Rafidain Center for Dialogue RCD initiated the authoring of a book titled (Najaf 2050: A Future Vision), in which a distinguished group of researchers and writers participated. It was edited by the senior staff of our center, namely Prof. Dr. Ḥasan al-Zubaydī, the CEO at the time, and Prof. Dr. Miqdām al-Fayyād, the Director of the Research and Development Department at the time. The contributing researchers have attempted to address multiple problematic issues that stem from the following question: How can Najaf preserve its spiritual and historical status as a global religious center, while simultaneously confronting present and future challenges related to urban development, demographic shifts, and economic, social, and political pressures? In light of these problematic issues, a number of objectives were outlined, the most important of which are:

1. To analyze the reality of Najaf in light of historical, political, and social approaches.
2. To forecast the future of Najaf through multiple scenarios that take into account local, regional, and international transformations.
3. To provide knowledge-based, practical recommendations that assist in formulating sustainable development policies which balance the spiritual dimension with the civil-urban dimension of the city.

RCD has a practice of building the titles of its studies and publications on academic and practical foundations. Therefore, this book has adopted a comparative-analytical approach based on:

- **Historical Analysis:** to understand the development of Najaf across ages and link it to the transformations of the state and society.
- **Structural-Institutional Analysis:** to study the religious seminary, the social structure, and the cultural, economic, and service institutions.
- **Foresight Analysis:** through future thinking and drawing potential scenarios for development and challenges.

In light of the foregoing, this book came to address the weakness of future studies in the Arab and Islamic world in general, and in Iraq in particular, especially in studying the future prospects of a city that represents a vital artery for hundreds of millions inside and outside Iraq. The book also presents a number of recommendations that contribute to informing readers as well as decision-making institutions. In this regard, the Arabic version of this book has received great attention from many institutions, including the Iraqi Council of Representatives, the al-Najaf al-Ashraf Provincial Council and its local administration, in addition to the state's executive institutions, due to the highly important studies it contains in light of its forward-looking dimensions. We hope that the version translated into English will receive the satisfaction and acceptance of readers and relevant parties.

1.

Introductory Chapter

Prof. Dr. Ḥasan Laṭīf al-Zubaydī

Prof. Dr. Miqdām ‘Abd-al-Ḥasan al-Fayyāḍ

al-Rafidain Center for Dialogue RCD

The world, in this millennium, is witnessing a new and distinctive era in the evolution of humanity across all dimensions. It is an era that stirs a mixture of emotions—hope and anxiety, anticipation and fear—about what the future holds, particularly as it involves fundamental transformations unprecedented in human history. This reality demands that humanity—individuals and collectives alike—pause for contemplation to grasp the true nature of these forthcoming structural shifts and the challenges they entail, and to seriously reflect on how best to understand, absorb, and respond to them.

The transformations the future holds for the world, including Iraq, compel us to strive to anticipate its most salient features and search for suitable frameworks to confront these sweeping patterns of change and challenge. To this end, and with the aim of attaining accurate and objective understanding, al-Rafidain Center for Dialogue RCD has sought to contribute meaningfully to enriching public discourse by illuminating the obscured contours and looming challenges of the future—particularly with regard to al-Najaf al-Ashraf Governorate, one of Iraq’s most significant governorates across multiple dimensions.

Urban and Rural Areas

This book begins with a dedicated chapter titled “Urban and Rural Areas,” reflecting the vital importance of portraying an accurate picture of the governorate’s realities—both urban and rural. This chapter includes several key themes, beginning with the distribution and current conditions of the ten cities in the governorate, which vary in population size, geographical area, and economic significance. The foremost among them is the city of al-Najaf, followed by the cities of al-Kūfah, al-Ḥaydarīyah, al-‘Abbāsīyah, al-Ḥurrīyah, al-Manāḍhirah, al-Mishkhāb, al-Ḥīrah, al-Qādisīyah, and al-Shabakah.

This chapter examines the future of these cities—both old and newly developed—by reviewing population numbers for the years 2020, 2030, and 2040, leading up to the target year of 2050. It discusses the anticipated population increases and highlights potential expansion zones to accommodate this growth.

The researcher notes that urban populations will likely witness a significant and sustained rise, potentially reaching 2,666,094 people by 2050.

The third theme focuses on “Najaf’s Countryside: Debates on Contraction,” noting that rural areas in the governorate suffer from shrinking agricultural land and continued degradation. Over time, this could lead to desertification and diminished productivity, posing a real threat to food security in the governorate and Iraq as a whole. This is a grave injustice to future generations. Cultivated agricultural land in rural al-Najaf declined from 205,522 dunams in 2007 to 33,241 in 2018.

The fourth theme addresses the challenges facing both urban and rural areas of Najaf. Urban areas suffer from population pressures, air and river pollution, noise, visual, and light pollution, housing crises, the proliferation of informal housing, violations of city master plans, and deprivation of basic infrastructure services. Rural areas, on the other hand, face agricultural decline due to weak government support, leading to youth migration to nearby cities. They also suffer from inadequate educational, health, and recreational services, as well as poor infrastructure (electricity, water, sewage), unpaved roads, widespread rural unemployment, declining incomes, and the phenomenon of urban sprawl into adjacent fertile lands, which reduces agricultural area and converts it into residential zones.

This chapter also studies future trends in urban growth through three scenarios extending to 2050, based on varying rates of population growth. It outlines possible urban expansion alternatives while considering natural and human constraints to identify optimal paths for future development.

The chapter concludes by identifying the most viable responses to these challenges, noting that most of Najaf’s cities are concentrated in the northeastern part of the governorate, within the fertile alluvial plain and near the Euphrates River and its branches. In contrast, the sole urban center in the central-western part—al-Shabakah—is located on the western plateau, characterized by infertile soils and saline groundwater. Rural areas in these regions are also experiencing decline.

Recommendations include focusing on the western part of the governorate, particularly the town of al-Shabakah and its surroundings, by establishing investment projects and new industries to attract labor, increase population density, and thus create a secure zone resistant to terrorist infiltration. Addressing rural challenges requires: strengthening the agricultural sector by supporting farmers with essential resources and ensuring fair produce pricing to keep them on their land; improving rural social services and infrastructure to ensure quality of life; and enforcing strict laws to prohibit urban encroachment on agricultural lands.

Three future expansion scenarios for 2050 are detailed: stable growth, low growth, and explosive growth. The researcher applied population growth formulas to each scenario to derive projected population sizes for each city, suggesting alternative expansion paths that avoid natural and human constraints.

Economy

The third chapter is dedicated to Najaf's Economy in 2050. The author notes a major obstacle in researching this topic: the severe scarcity or complete absence of reliable economic data about the governorate. When data exists, it is often outdated or based on estimations, making it unreflective of actual economic conditions. This problem is compounded by the limited number of studies focused on Najaf's economy and the general lack of data within those that exist.

The chapter is divided into five key themes. The first reviews the current state of the economy and dominant economic activities, covering three main sectors: agriculture, industry, and services.

The agricultural sector holds a prominent place in Najaf's economy, contributing significantly through the production of grains, fruits, and vegetables—most notably rice, which accounts for 54.2% of national output. Agriculture also absorbs a large segment of the local workforce, helping mitigate unemployment, and includes livestock such as buffalo, goats, camels, and cattle, along with agro-industries.

As for the industrial sector, it reflects the availability of material resources and human skills; the existing industries have emerged because al-Najaf al-Ashraf Governorate contains raw materials and a diverse mineral wealth, which has given rise to the current form of industry. This qualifies the governorate to establish many industries that could advance its economy and raise levels of economic and human development — if optimally utilized. Najaf is historically known for its industrial activity. According to 2020 data, the governorate includes 31 large industrial establishments, 15 medium-sized, and 2,112 small-sized ones. As for the commercial, service, and industrial activities in al-Najaf al-Ashraf in 2017, they amounted to 61,974 activities distributed across sectors such as health professions, tourism, food, trade, maintenance, diversified companies, and others.

The chapter also devoted a section to studying the challenges facing the economy of Najaf, leading up to what is anticipated in the year 2050. The most prominent among these challenges are: the increase in population and internal migration, where it is expected that the population of the governorate will reach 3.19 million by 2050; the rentier nature of the Iraqi economy; issues related to political and security stability; environmental factors and water scarcity; the decline in financial allocations and the problems associated with managing investment budgets; the education system, which does not align with the needs of economic and industrial development; and the global economic transformations, as the world is changing economically at an accelerating pace. However, the greatest challenge of all lies in the problem of administrative and financial corruption, from which both Iraq and the governorate have long suffered.

Future economic transformation mechanisms are also explored. The next 30–40 years are expected to bring major shifts to global systems, with disruptive events that will directly and indirectly affect Najaf's economy. Based on existing research, including this study, three scenarios for Najaf's economy in 2050 are

developed: Baseline Scenario (Stable Growth), Optimistic Scenario (Accelerated Growth), Pessimistic Scenario (Economic Collapse).

The final part of this chapter was devoted to studying the challenges and future options, which serve as recommendations for decision-makers to act upon in order to keep pace with the rapidly changing global landscape. The most important of these options are: keeping up with global economic and technological developments, particularly within the framework of the Fifth Industrial Revolution; working to import technology and adapt it to the local conditions of the governorate in order to advance local technological capabilities; developing administrative cadres in the governorate and employing modern administrative methods in managing its affairs; improving water management practices through the use of advanced technologies; giving attention to the private sector; working to develop it and enhance its role in managing the governorate's economy.

Education

The fourth chapter sought to examine the current reality and future trajectory of the educational and pedagogical institutions in al-Najaf from 2021 to 2050. It investigated the present and projected visions, the number of schools relative to population size, and the actual number of teachers and students, assessing their adequacy for both present and future needs. It also estimated the gap between current realities and what should ideally exist in al-Najaf al-Ashraf. Furthermore, it studied educational resources and ways to enhance them, including the enactment and activation of laws, financial support, and the provision of professional and practical training.

Challenges were addressed as well, such as globalization, political, social, and economic changes, population growth, scientific and technological advancement, wars, and crises. The study included forecasts for future school needs and then discussed various challenges, proposing three educational sector scenarios:

- Baseline scenario assumes continuity of current trends, with modest improvement in educational capacity and quality, and increased student enrollment.
- Optimistic scenario anticipates significant improvements, including the emergence of the "smart school" or "school of the future," and advancement in institutional effectiveness and quality.
- Pessimistic scenario foresees a decline in education indicators and institutional performance under certain assumptions.

The final part of this chapter focuses on responses to challenges, emphasizing the need for sound planning based on scientific research and a comprehensive vision, accurate implementation by competent and honest personnel, and development of educators' skills.

The study concludes that the current state of educational institutions in the governorate is not commensurate with present or future needs, and it closes with a detailed set of findings, recommendations, and proposals.

Higher Education and Scientific Research

The fifth chapter addressed higher education and its special importance as a foundational pillar of sustainable development and a source of skilled labour force. States, particularly developing ones like Iraq, attach exceptional importance to it. Statistics show a steady rise in university enrollment, particularly in universities and faculties in al-Najaf al-Ashraf.

Higher education in Iraq has faced many challenges affecting its quality. After the political change in April 2003, attention to the salaries of those holding academic degrees increased, raising demand for higher education. In the 2019/2020 academic year, Iraq had 31 public universities with 373 academic faculties, 18 technical faculties, and 30 institutes.

Future studies become more complex when projecting a different world in 2050, when the global population is expected to reach around ten billion, leading to heightened conflict and unprecedented challenges.

al-Najaf al-Ashraf constitutes a favorable environment for both vertical and horizontal expansion of higher education, due to its inherent characteristics that make it an attractive hub for investors seeking to establish universities that meet social needs. It is anticipated that private education will become the leading force in steering higher education across Iraq in general. It is also expected that expansion will occur in areas of educational demand, with al-Najaf al-Ashraf being among them. Over the next thirty years, local universities are expected to play an important role in transforming university outputs into market-ready products by establishing business incubators and supporting entrepreneurial ventures. This will necessitate a type of interaction between universities and the business sector—whether public or private—in order to diversify the governorate's economy, create job opportunities, and support small and medium-sized enterprises.

Three scenarios have been proposed for the future of education in al-Najaf al-Ashraf, each based on a set of assumptions developed after conducting population projections and estimating the number of individuals expected to enroll in universities in al-Najaf—taking into account the potential changes that may occur, particularly in the field of educational technology and communications. The optimistic scenario was deemed the most acceptable. The baseline scenario assumes that the development of infrastructure in the country does not support horizontal expansion due to prevailing conditions and the persistence of corruption, which impedes investment in education. While there may be some initiatives, they will not meet internationally recognized benchmarks for educational progress. Furthermore, the continued high tuition costs in private education represent a significant barrier to expanding private higher education. Although the

pessimistic scenario is not the most likely, it was theoretically constructed on the assumption of educational decline in al-Najaf al-Ashraf, based on the premise that universities in the governorate will be unable to absorb the increasing numbers of secondary school graduates—the primary input to higher education—and that these entrants will lack the qualifications necessary to support the development of higher education in the governorate.

Under the optimistic scenario, universities will open up to international institutions, foreign students will be admitted, and universities in the governorate will begin to mirror developments taking place in foreign universities through twinning programs and knowledge exchange. This will also lead to a surplus in capacity, providing flexibility for vertical expansion.

al-Marjaʿīyah and al-Ḥawzah

The sixth chapter addressed the religious seminary's position and future role in Najaf. The study affirms the high status of Najaf's religious authority (al-marjaʿīyah) and its seminary, which has forged a deep historical foundation enabling it to adapt and respond to events and developments on all levels. However, this does not negate the serious contemporary challenges identified by the author, notably emerging competitors and evolving methods of religious instruction.

Religious schools form the backbone of the Najaf seminary, providing space for al-marjaʿīyah to act and disseminate its ideas. They are also its institutional mechanism for training representatives (wakīls) who maintain ties with the broader public. The study highlights the seminary's cultural activities and methods for promoting and safeguarding the faith. The post-2003 environment has enabled expanded institutional capacity and technical growth, evidenced by increased student enrollment from diverse nationalities—helping Najaf reclaim its prominent, historically grounded stature, especially amid growing competition from institutions like Qum's seminary in Iran.

The author details historical turning points and existential challenges faced by Najaf's marjaʿīyah, particularly from state authorities. It survived these trials through its resilience, popular base, and financial independence, eventually asserting influence over national political affairs, including its contribution to Iraq's post-2003 constitution, which recognized its status explicitly.

Nonetheless, this does not mean that the ḥawzah is free from new and emerging challenges, some of which arise from within itself and from among its own followers. Indeed, certain individuals affiliated with it were able to assume positions of power and leadership over the state following the major shift in the balance of ruling forces and the historical transformation that took place after 2003. Despite this, the challenges are expected to intensify with the passage of time, especially in light of the cautious posture adopted by the marjaʿīyah and the preventive measures it has undertaken to shield itself and its future existence from potential risks.

Despite pessimistic projections about its popular support and economic power, the study expresses optimism grounded in its institutional structures and cultural-social activity. The seminary has built a robust economic base through its oversight of holy shrines, which engage in extensive economic ventures that provide financial resources.

The researcher affirmed that the religious authority and its ḥawzah will, from a forward-looking, future-oriented perspective, remain an active and influential force endowed with both spiritual and material assets that wield profound influence over public affairs. It also appears that the marjaʿiyah is aware of its future and of the nature of the challenges it is bound to face, and that it responds to them with flexible pragmatism that serves its interests, particularly in the face of attempts to diminish its influence and effectiveness—whether these attempts stem from competitive motives or exclusionary intentions. However, this very capacity depends on the extent to which it undertakes the modernization of its discourse, the updating of its operational mechanisms, and the revitalization of its juristic positions, which must inevitably be permeated by the breezes of modernity in order to establish a balance and constructive engagement with it—at a time when the world is rapidly propelled forward by the momentum of modernization and new ideas.

Local Governance

The contemporary—and even foreseeable—political, economic, security, and social fluctuations require that local governments pay increasing attention to the indicators of change within the volatile political and economic climate, give due consideration to potential competitors, develop the awareness and appreciation of risks arising from political and economic crises, and remain alert to the rates of social and economic change. This is precisely what this chapter undertakes to analyze—namely, the shape that local government in al-Najaf al-Ashraf should assume in the future.

The themes addressed by this chapter include both current indicators and future-oriented projections of the most pressing issues and matters facing the local authority in the governorate. It also explores proposed solutions for understanding the current reality and anticipating the near-term and long-term outcomes still embedded in the fabric of the future, in order to prepare for coexistence with known variables—particularly in light of the immense wave of contemporary transformations and the remarkable speed with which these upheavals and changes are occurring.

The function of this chapter is first centered on the trajectory of local governance in al-Najaf al-Ashraf since the year 2003, its structure and components (institutions, parties, individuals), and projections regarding the personnel of the al-Najaf Provincial Council. It also provides analyses related to the administrative and organizational structure of the council.

The chapter stresses the importance of both immediate and long-term thinking with regard to the challenges facing local governance in al-Najaf al-Ashraf, such as population growth, economic development, family planning, education, mortality rates and the level of medical support, migration, female participation in the labor market, and the dual challenge of climate and demographic change. It offers a number of appropriate analyses aimed at outlining key strategic directions concerning the reality of the provincial council—both in terms of its social function and governing role. It also studies the implications of the population growth challenge in al-Najaf al-Ashraf Governorate, including rising living costs, depletion of natural resources, and the erosion of social and political culture.

One of the most prominent challenges in reading and anticipating the future lies in the revolution in information and the far-reaching effects this has across all aspects of life, as well as the replacement of physical strength by cognitive power in the economy. Added to this is the challenge posed by the flood of information and ideas, which is creating a new reality detached from traditional frameworks—along with the instability this brings to political, social, and cultural life. As such, the chapter allocates considerable space to discussing the governance of civil administration in al-Najaf al-Ashraf and its subdivisions (economic, administrative, etc.), and the benefits that come from adopting and applying governance systems.

The chapter presents prospective ideas and strategic visions for how to respond to challenges. It emphasizes that the local government in al-Najaf al-Ashraf must focus on issues of public health, human rights, and media, which should be framed within development indicators designed to promote and enhance these sectors. Moreover, local government must move toward adopting major, strategic economic and investment zones, which would lead to the creation of new wealth, increase job opportunities, reduce the expanding unemployment rate, and enhance the revenue base of the local authority.

The author also critically examined the assumptions behind future scenarios for local governance in al-Najaf al-Ashraf, ranging from the continuation of the current relationship between the federal government and the local government based on present constitutional mechanisms and the stagnation of constitutional amendments—with all the implications this would have for the real-world situation—to what he termed the “scenario of confrontation and dispute between the federal and local governments” (the pessimistic scenario), along with the problems and consequences arising from that. Meanwhile, the optimistic scenario was rich with assumptions and proposals, including the advancement of the decentralization process, the transfer of authorities from certain federal ministries to the governorates, and the establishment of a specialized body for local-level planning. It stressed the necessity of developing financial resources and planning for their future prospects in order to diversify income sources, overcome crises, and break the grip of the oil sector on the gross domestic product.

Natural Resources

In this chapter, the researcher devotes effort to identifying Najaf's natural resources—whether already discovered or still latent and undiscovered. The importance of natural resources has increased in light of the significant population growth and the corresponding surge in demand. This has driven specialists to intensify study, research, and writing efforts to draw the attention of relevant authorities to the significance, diversity, and spatial distribution of these resources, and to diagnose the challenges they face in order to ensure their protection and contribute to sustainable investment planning.

The study finds that natural resources generally suffer from overexploitation and unscientific use, whether directly by individuals or through factories and facilities that process these resources into usable goods.

al-Najaf al-Ashraf Governorate is distinguished by the multiplicity of natural resources it possesses—both in terms of types and quantities. There are numerous raw materials, including plant-based, animal-based, and mineral resources, in addition to the availability of soils and water resources. These resources are involved in many industries, including extractive industries such as gravel and sand plants, and manufacturing industries such as those producing gypsum and bricks, which are essential in building and construction and other related fields. The types of soil found in al-Najaf al-Ashraf—such as gypsiferous soils, silty clay soils, and clay-rich muds—are also used in construction and the production of fundamental building materials like bricks, thermoston, and limestone bricks, which are marketed to various areas both inside and outside the governorate.

The governorate is further characterized by its possession of mineral wealth or compound resources that can be invested in industrial and productive projects, particularly in industries such as cement, glass, and ceramics, due to the abundance of the raw materials needed for these industries. These include gravel, sand, limestone, feldspar, and clays that exist in significant proportions in the Baḥr al-Najaf region and al-Tār area, which has helped to develop many industries, attract the necessary investment for project management, and support the operation, development, and expansion of these enterprises. Moreover, the area and location of the governorate afford it great significance in terms of future potential for investing in its available natural resources, especially in view of the future demand for many products derived from these resources—something that constitutes a strong incentive for various investment activities.

The study raises several questions within its scenario-based framework:

- The optimistic scenario envisions sustainable development through the investment of renewable and non-renewable resources, placing al-Najaf at the forefront of sustainable development if resources are wisely and scientifically managed in collaboration with the international community.

- The pessimistic scenario foresees the deterioration of resources due to mismanagement and environmental degradation, with desertification and declining water availability as serious consequences.

The researcher identifies the key variables and response strategies to preserve and wisely utilize these natural resources, emphasizing two main elements: protection and planning.

Electrical Energy

In this chapter, the researcher investigates the present and future of electric power in al-Najaf al-Ashraf, especially since electricity is a vital driver of economic development and public welfare, directly impacting health, education, and service sectors.

This chapter presents detailed data on the current electricity infrastructure in the governorate, including types of power stations, their design capacities, actual output, population growth projections through 2050, the specifications of power plants (fuel type, commissioning year, capacity), and losses. These figures are essential for measuring gaps and planning future provision scenarios based on active variables.

The researcher provides estimates of future energy demand and available supply, annual increases from 2021 to 2050, and evaluates production-consumption discrepancies and energy losses. The analysis is structured around three future scenarios:

- Baseline scenario assumes a continuation of existing energy management mechanisms, along with their known problems.
- Optimistic scenario assumes improved management that meets population needs and increases supply capacity.
- Pessimistic scenario assumes a worsening crisis, with declining capacity to meet growing demand and poor diversification of energy sources.

The study identifies major challenges, foremost among them corruption, outdated infrastructure, and environmental impacts. It explores ways to boost electricity production, particularly through investment in renewable energy sources, which can close the energy gap. This is especially relevant given the current shortage of electricity and rising demand.

Advancing the electricity sector requires significant capital to support projects across the production, transmission, and distribution phases. The study also examines local renewable energy potential—especially solar and wind energy—which could complement fossil fuel-based power in rural and desert areas and help meet rising demand. Furthermore, the shift from conventional generation to hybrid or cogeneration technologies could reduce carbon emissions, provided that modern technologies are adopted.

Transportation

This chapter discusses transportation, a vital sector at both the economic and social levels. Transport serves as the connective tissue between economic and social activity by ensuring the movement of people, linking production centers with markets, creating jobs, and supporting large segments of the population.

Over the past two decades, Najaf has experienced rapid population growth and increased trade, alongside a rise in vehicle ownership and mobility, leading to greater demand for transportation. The study projects that, over the next three decades, continued population growth and urban expansion will significantly increase traffic congestion, especially in urban centers.

These pressures will impede vehicle movement, particularly during peak hours, and make it harder to ensure efficient mobility for people, goods, and raw materials. The environmental consequences—such as air pollution and excessive fuel consumption—will also worsen due to the surge in private vehicle use.

The study investigates strategies to manage the rise in vehicle use, noting that the issue lies not in the absence of transport services but in the inadequacy of the current road network, which cannot accommodate growing traffic. There is also a lack of central government policy regulating vehicle imports.

Additional challenges include low funding for infrastructure projects, high costs for road network expansion, and a continuing backlog in executing road and bridge investment projects. The mismatch between road capacity and vehicle numbers will cause severe traffic congestion and reduce road efficiency, making the network inadequate for current and future socioeconomic demands.

To improve the transport sector and resolve issues stemming from increasing vehicle numbers, the study recommends that both central and local governments:

- Develop strategic plans to promote public transportation as a high-quality alternative to private cars (e.g., large buses, tram and metro systems).
- Pair these projects with the development of expressways and efficient traffic management systems.
- Expand parking infrastructure, ring roads, highways, and bridges to ease movement.
- Modernize air transport services at Najaf Airport, increase aircraft parking space, and add new runways to accommodate increased flight activity.
- Attract foreign investment to develop all forms of transportation and transfer relevant technology and expertise.

Tourism

This chapter explores how tourism can help diversify al-Najaf's economy and enhance its cultural openness to the world, contributing to the goals of Najaf

Vision 2050. Tourism services—transportation, accommodation, dining, shopping, and entertainment—are central to attracting visitors and extending their stays and expenditures.

The study evaluates hotel services from 2010 to 2020, analyzing employment data, wages, and the number of tourists served. It also covers air transport (domestic and international flights), aircraft movement, and passenger traffic.

The study highlights the economic and service value of tourism and identifies the need to develop the sector, especially through eco-friendly “green hotels” that reduce energy and water usage and waste, creating a clean and healthy environment for tourists.

It assesses the features of local restaurants and their appeal to tourists, the economic feasibility of expanding their capacities, and the compatibility of supply with demand. It also examines travel agencies, which are key intermediaries in the tourism sector. Agency efficiency is judged by punctuality and the suitability of tour packages.

Tourism-related transportation—both ground and air—is evaluated, and the study proposes a tram line connecting al-Najaf to al-Kūfah by 2050. Two main recreational zones are identified: al-Kūfah Riverfront and Baḥr al-Najaf Depression. These areas offer natural beauty that can attract visitors. The study categorizes services by type and purpose and proposes land use, tourism functions, and environmental, social, economic, and cultural planning frameworks.

Hotel capacity projections through 2050 are based on tourist influx estimates and classify accommodations from premium to fifth-class hotels.

Three tourism development scenarios are considered:

- Baseline scenario: continued neglect, decline in domestic tourism and investment, and increased pandemic-related restrictions that hurt job creation and raise poverty.
- Optimistic scenario: development of new tourism resources, growth of cultural and digital tourism, and improved worker skills. This scenario includes a SWOT analysis of the sector.
- Pessimistic scenario: increased travel restrictions, health-related constraints, and loss of tourism-related jobs, exacerbating unemployment and poverty.

Discussing the challenges facing the tourism sector is one of the crucial necessities for resolving the problems this sector suffers from, and it serves to provide a realistic picture to decision-makers in order to take all necessary measures and actions. The study also addressed the means of responding to these challenges and ways of dealing with them through a tourism-centered vision that reflects the importance of the tourism sector and the extent of its contribution to achieving economic recovery for the host community. The study concluded with a final section summarizing the key themes it addressed, the methodologies it adopted, and the scientific findings it reached.

Border Crossings

The final chapter presents a specialized study of border crossings, summarizing their role in stimulating tourism and economic activity, facilitating pilgrimages to the governorate's many holy shrines, strengthening ties with other governorates, and activating trade and investment.

Najaf International Airport is identified as a vital and independent revenue source for the governorate. It plays a key role in enhancing its economic, social, and political standing, particularly due to the city's high religious status among Muslims and its draw for millions of pilgrims. The city's legacy as a center of scholarship and the Shi'i religious authority further enhances its appeal for religious tourism.

To keep pace, the transportation system must be improved across all modes, and tourism and trade infrastructure must be developed. Cross-border connections are essential to the region's infrastructure and to achieving prosperity and sustainable development.

The study calls for revitalizing the overland pilgrimage route to Saudi Arabia via Najaf, emphasizing its strategic importance in road network development. The route passes through historic and archaeological areas, making it an ideal corridor for religious tourism during Hajj and 'Umrah seasons, as well as for trade and industrial expansion due to the availability of raw materials on both sides of the route.

The researcher identifies challenges facing border crossings, such as funding shortages and geological obstacles like floods and soil erosion.

Three scenarios are laid out:

- Baseline scenario: continuation of current conditions with minimal changes.
- Optimistic scenario: comprehensive development of border crossings and improved infrastructure.
- Pessimistic scenario: deterioration and regression of existing border facilities due to unfavorable variables.

The study concludes with a set of essential recommendations for enhancing border infrastructure, suggesting that the local government collaborate closely with federal ministries to follow up on the overland pilgrimage route through joint technical and administrative efforts.

2. Urban and Rural Areas

Dr. Ali Laftah al-Asadī

Faculty of Arts, Department of Geography, University of al-Kūfah.

I. Distribution and Reality of Cities

The geographic distribution of cities within al-Najaf al-Ashraf Governorate varies significantly. Cities are concentrated in the northeastern part of the governorate, within the alluvial plain. However, al-Shabakah, one of these cities, is located in the west-central part of the governorate within the Western Plateau region. Below is a concise overview of the geographic distribution of the governorate's cities (see Map 1):

1. al-Najaf al-Ashraf City (Najaf)

As the largest city in the governorate and its administrative center, Najaf spans 9,516.22 hectares (al-'Abdalī, 2021, p. 120) and had an estimated population of 786,968 in 2020. The city exhibits diverse land uses, including residential, commercial, industrial, agricultural, and transportation, alongside community services such as healthcare, education, recreation, religious facilities, and administrative functions. This diversity stems from the city's profound religious significance, as it houses the shrine of Amīr al-Mu'minīn 'Alī ibn Abī Ṭālib (peace be upon him), in addition to the shrines of prophets and righteous individuals, and Wadi al-Salam Cemetery, one of the world's largest cemeteries.

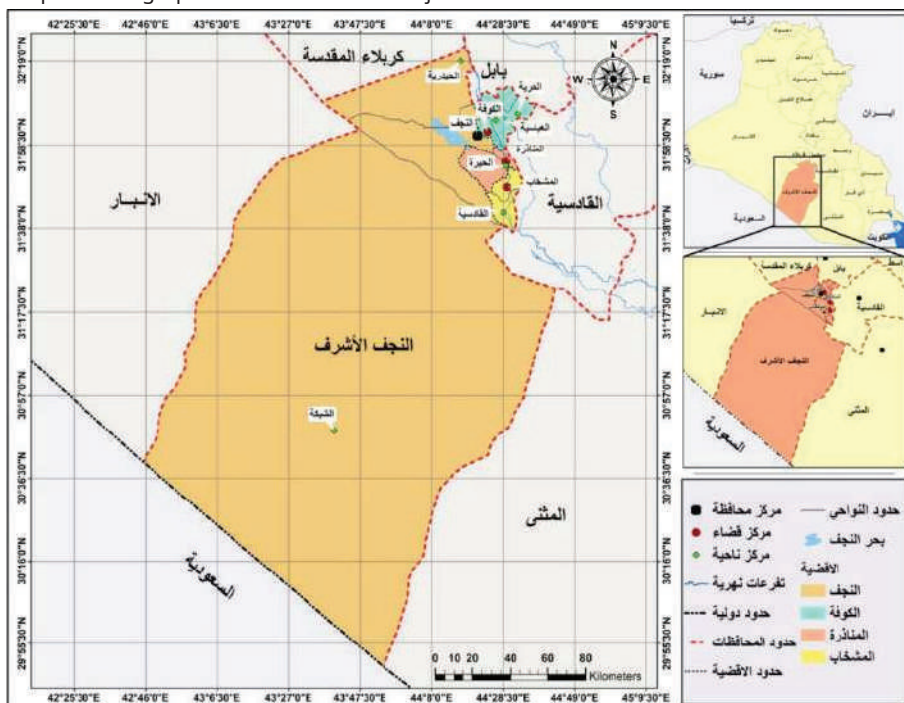
2. al-Ḥaydarīyah City

This linear-shaped city is situated approximately halfway between Najaf and Karbalā', along the main road connecting them. While it features diverse land uses, their scale is smaller than in Najaf due to al-Ḥaydarīyah's more modest area of 1,332 hectares (al-Sa'barī, 2021, p. 60) and a smaller estimated population of 19,542 in 2020.

3. Center of al-Shabakah District

This is the smallest city in terms of population, with only 489 inhabitants. This can be attributed to the area's desert environment, which discourages settlement, leading to simplistic land use characterized by scattered dwellings, a few commercial establishments, a basic health center, and a local administrative center. It also has a small area of 67.86 hectares.

Map 2-1: Geographic Distribution of al-Najaf al-Ashraf Governorate's Cities 2019.



Source: Ministry of Water Resources, General Survey Authority, Administrative Map of al-Najaf al-Ashraf Governorate 2019.

4. al-Kūfah City

al-Kūfah ranks as the second-largest city in al-Najaf al-Ashraf Governorate by population, with an estimated 180,407 residents in 2020. It is considered one of the governorate's important religious cities due to the presence of the shrine of Muslim ibn 'Aqīl (peace be upon him), the Great Mosque of al-Kūfah, al-Sahlah Mosque, and numerous shrines of righteous figures. Land uses in al-Kūfah are also diverse and relatively extensive. It is nearly contiguous with Najaf, leading researchers to refer to the two as "Greater Najaf." Kūfah also boasts a large area of 1,783.96 hectares (al-Kilābī, 2014, p. 80).

5. al-'Abbāsīyah City

This is one of the smaller cities in the governorate, with a population of 15,019. It also exhibits a linear shape, extending along the Kūfah-Ḥurriyah road. Land uses are diverse but occupy relatively small areas due to its modest population size, reflected in its small area of 213.41 hectares (ʿAbd-al-Zahrah, 2020, p. 55).

6. al-Ḥurriyah City

A small city in terms of population, with 13,010 residents, al-Ḥurriyah also has a linear extension, located along the road leading to al-Dīwānīyah Governorate.

Land uses are diverse but occupy relatively limited areas due to its small population. Its area is 148.20 hectares.

7. Abū-Şukhayr City (al-Manādhira)

This city ranks as the third largest in the governorate by population, with 33,408 inhabitants, due to its status as the center of al-Manādhira District. Land uses are diverse and relatively extensive, commensurate with the city's large area of 609.74 hectares and its administrative importance.

8. al-Ĥīrah City

A small city with a population of 19,189, al-Ĥīrah exhibits diverse land uses, predominantly residential, with other uses occupying smaller areas, contributing to its small area of 214.99 hectares.

9. al-Mishkhāb City

Ranking fourth in the governorate by population, al-Mishkhāb had an estimated 32,287 residents in 2020, establishing it as the center al-Mishkhāb District. Land uses are diverse, with the residential use being primary, followed by commercial activities, particularly grain trading, and some industries specializing in crushing and grinding grains. The city also offers community and infrastructure services, as well as transportation, contributing to its substantial area of 433.2 hectares (al-Jinābī, 2021, p. 6).

10. al-Qādisīyah City

This is a small linear-shaped city with a population of 6,692, extending along both banks of a branch of the Euphrates River. It features diverse land uses, but these are small in scale due to its limited population, resulting in a small area of 166.8 hectares.

II. Future of al-Najaf al-Ashraf Governorate's Cities (Old Cities – New Cities)

This section aims to shed light on the future of cities within al-Najaf al-Ashraf Governorate by examining population figures for these cities for the years 2020, 2030, 2040, leading up to the target year of 2050. It will also address the projected population increases and discuss potential expansion alternatives to accommodate this future growth.

The governorate's population is expected to experience significant growth during the aforementioned years. The urban population is projected to rise to 1,438,854 in 2030, continuing its increase to 1,770,898 in 2040. The following is a brief overview of the demographic developments in the governorate's urban centers, according to the years mentioned above, along with a discussion of possible expansion alternatives to accommodate this growth:

Table 2-1: Projected Population and Land Uses in Najaf Governorate Cities 2050

Cities	al-Najaf	al-Hay-dariyah	al-Sha-bakah	al-Kūfah	al-'Ab-bāsiyah	al-Hur-riyah	Abū-Şukhayr	al-Hīrah	al-Mish-khāb	al-Qādisyah
Uses (Hect-ares)**	Projected Population for 2050*									
	2073265	62275	1134	294063	51966	30183	54455	31278	54565	12910
Residential	10366.3	311.3	5.6	1470	259.8	150.9	272.2	156.3	272.8	64.5
Commercial	829.3	24.9	0.4	117.6	20.7	12	21.7	12.5	21.8	5.1
Industrial	829.3	24.9	0.4	117.6	20.7	12	21.7	12.5	21.8	5.1
Health	207.3	6.2	0.1	29.4	5.2	3	5.4	3.1	5.4	1.2
Educational	1658.6	49.8	0.9	235.2	41.5	24.1	43.5	25	43.6	10.3
Recreational	2695	80.9	1.4	382.2	67.5	39.2	70.7	40.6	70.9	16.7
Religious and Cemeteries	207.3	6.2	0.1	29.4	5.2	3	5.4	3.1	5.4	1.2
Administrative	414.7	12.4	0.2	58.8	10.3	6	10.8	6.2	10.9	2.5
Transport	5183	93.4	1.7	441	77.9	45.2	81.6	46.9	81.8	19.3
Total	22391.3	610	10.8	2881.2	508.8	295.4	533	306.2	730.6	125.9

(*) Population for 2050 was calculated using the future population projection formula: $P_n = P_o(1+r)^n$, where P_n represents the population projection for 2050, P_o represents the current population estimates, r represents the population growth rate, and n represents the number of years between the base year (2020) and the target year (2050).

(**) Projected areas for 2050 were calculated using the following formula: Area of Use for Target Year = (Specific Use Standard in $m^2 \times$ Population for 2050) \div 10000. Ministry of Planning defined standards as follows: residential (50 m^2), commercial and industrial (4 m^2), educational (8 m^2), recreational (13 m^2), health and religious (1 m^2), and administrative (2 m^2).

1. al-Najaf City

As evident from Table 2-1, the population of Najaf is projected to significantly increase from 78,698 in 2020 (Ministry of Planning, n.d.) to 1,023,058, 1,259,149, and 2,073,265 in 2030, 2040, and 2050, respectively. This population growth will lead to an increase in the areas of various land uses, reaching 22,391.3 hectares. Consequently, Najaf will require empty spaces for expansion. After exhausting the two existing expansion axes (Najaf-Kūfah and Najaf-Abū-Şukhayr), only one axis remains for the city's future expansion: the Najaf-Karbalā' axis, along the main road connecting the two cities.

2. al-Ḥaydarīyah City

al-Ḥaydarīyah is expected to see a population increase from 19,340 in 2020 to 32,878, 46,416, and 62,275 in 2030, 2040, and 2050, respectively. As a result, urban land uses will expand to 610 hectares by 2050, as shown in Table 2-1. This increase in land use will necessitate space for expansion. Three potential axes for the city's future growth are the Ḥaydarīyah-Najaf axis, the Ḥaydarīyah-Karbalā' axis, and the western axis toward undeveloped areas within the city's master plan.

3. Center of al-Shabakah District

This urban center is characterized by very slow population growth due to its location in a remote desert area, which discourages settlement, except for some residents who have adapted to this harsh environment. Its population is projected to increase incrementally from 489 in 2020 to 685, 880, and 1,134 in 2030, 2040, and 2050, respectively. There will also be a slight increase in land use area, reaching 10.8 hectares. This expansion can occur in all directions due to the absence of natural or human barriers.

4. al-Kūfah City

al-Kūfah is the second-largest city in al-Najaf al-Ashraf Governorate by population, owing to its religious, commercial, and agricultural significance. Its population is projected to steadily increase from 180,407 in 2020 to 216,488, 252,570, and 294,063 in 2030, 2040, and 2050, respectively. Urban land use will also expand due to this population growth, requiring additional space for development. Two main axes are identified for future expansion: the northern axis, extending toward Babylon Governorate in strips along the Ālbū-Ḥidārī village road, and the eastern axis on the left bank of the Shaṭṭ al-Kūfah, comprising agricultural lands incorporated into Kūfah's master plan.

5. al-'Abbāsīyah City

al-'Abbāsīyah serves as the urban center for the agriculturally significant al-'Abbāsīyah district, particularly for grain cultivation. Its population is expected to show a notable increase from 15,019 in 2020 to 27,034, 39,049, and 51,966 in 2030, 2040, and 2050, respectively. Consequently, land use in al-'Abbāsīyah will expand to 508.8 hectares. This urban expansion will require future development areas. Three axes for future expansion are the northern axis in the Abū-Fāris

area toward Babylon Governorate, the western axis toward Kūfah city, and the southern axis toward Āl-Duḥaym village.

6. al-Ḥurrīyah City

al-Ḥurrīyah is an important city in al-Najaf al-Ashraf Governorate, as it is the center of al-ʿAbbāsīyah district, known for its agricultural importance, especially grain crops and palm groves. Consequently, its population will experience significant growth, reaching 18,214, 23,418, and 30,183 in 2030, 2040, and 2050, respectively, up from 13,010 in 2020. Urban land use will accordingly increase to 295.4 hectares, as shown in Table 2-1. Naturally, this increased area will require expansion axes. Two axes are suitable for urban expansion in al-Ḥurrīyah: one toward the northwest of the city, and the other to the south, toward the main road connecting al-Ḥurrīyah to al-Muhānawīyah city in al-Dīwānīyah Governorate.

7. Abū-Ṣukhayr City

Abū-Ṣukhayr is one of the most important cities in al-Najaf al-Ashraf Governorate, serving as the center of al-Manādhira district, which is highly significant for its extensive agriculture, particularly grain, fruit trees, and palm groves. All of these factors will contribute to the city's population growth, reaching 40,090, 46,771, and 54,455 in 2030, 2040, and 2050, respectively, compared to a 2020 population of 33,408. This increase will result in an expanded area of future land uses, reaching 533 hectares. Consequently, this growth will necessitate additional space for expansion. Two axes are identified for expansion: the northwestern axis toward Najaf city, extending along or near the main road to the end of the city's master plan boundaries, and the eastern axis, near the Euphrates River adjacent to Abū-Ṣukhayr.

8. al-Ḥīrah City

al-Ḥīrah represents the urban center of al-Ḥīrah district, which is agriculturally significant, especially for grain and palm cultivation. As such, it is expected to witness substantial population growth in 2030, 2040, and 2050, reaching 23,026, 26,865, and 31,278, respectively, from 19,189 in 2020. Consequently, land use in the city will increase to 306.2 hectares. This urban area expansion will necessitate future expansion areas. Four potential axes for future expansion in the city are: the first axis northward toward Abū-Ṣukhayr city on both sides of the main Abū-Ṣukhayr-Ḥīrah road. The second axis will take a northeastern direction near the Euphrates River in this area. The third axis is located south of al-Ḥīrah city, where there are inexpensive agricultural lands and proximity to water channels branching from the Euphrates River. The fourth axis heads southwest of al-Ḥīrah city toward al-Dasam village, where circular and branch transport routes are available.

9. al-Mishkhāb City

al-Mishkhāb is one of the most important cities in al-Najaf al-Ashraf Governorate, being the third-largest city in terms of population. It also serves as the center of al-Mishkhāb district, known for its significant agricultural importance,

particularly grain cultivation, especially rice (paddy). All these factors will drive the city's population growth, reaching 38,744, 45,202, and 54,565 in 2030, 2040, and 2050, respectively, compared to a 2020 population of 32,287. This increase will lead to an expansion of future land use areas, reaching 730.6 hectares. Consequently, additional areas for expansion will be needed. Three axes are identified for expansion: the first axis northward along the Euphrates River on both sides or near it in the al-Mujayhīlah and al-Jaflāwīyah districts. The second axis will be to the east of al-Mishkhāb city due to the availability of branch roads adjacent to agricultural lands. The third axis will be to the west of the city, near the water resources branching from Shaṭṭ al-Mishkhāb.

10. al-Qādisīyah City

al-Qādisīyah is expected to experience population growth, rising from 6,692 in 2020 to 8,700, 10,707, and 12,915 in 2030, 2040, and 2050, respectively. As a result, its urban land uses will expand, reaching 125.9 hectares by 2050, as shown in Table 2-1. This increase in land use will necessitate space for expansion. Three potential axes for the city's future growth are: the axis located north of the city in the al-Raml district, extending along the al-Mishkhāb–al-Qādisīyah road on one side and alongside a branch of the Euphrates River to the east on the other. The axis located south, extending along both the road connecting al-Qādisīyah city to al-Dīwānīyah Governorate and a branch of the Euphrates River adjacent to the city. Additionally, there is the axis located west of the city, characterized by the availability of branch and ring transport roads.

Following this brief review of the future of historically old cities in al-Najaf al-Ashraf Governorate, it is important to note the absence of new cities in the governorate. This is attributed to the political conditions the governorate and the country have experienced, including wars, embargoes, sectarian strife, and administrative corruption, all of which have hindered the development of such cities. However, there is a project to establish the Najaf Tourist City in the south-western part of Najaf city, overlooking the Najaf Sea depression. The Najaf Investment Commission will implement this project once other requirements are met, and it could serve as a pioneering initiative for such cities in the near future.

III. Najaf's Countryside: Debates on Contraction

The rural areas of al-Najaf al-Ashraf Governorate face the challenge of shrinking and deteriorating agricultural land, which over time will lead to the conversion of these lands into unproductive desert areas. This poses a real threat to food security (al-Sayyid, 2018, p. 195) in al-Najaf al-Ashraf Governorate in particular, and Iraq in general, which is considered a crime against future generations. This can be observed from the data in Table 2-2, which illustrates the decline in productive agricultural areas in most districts and sub-districts of al-Najaf al-Ashraf Governorate during the period (2007-2018).

Table 2-2: Decline in Agricultural Areas in the Districts and Sub-districts of al-Najaf al-Ashraf Governorate in (2007-2018)

Administrative Unit (Rural)	Cultivated Areas 2007 (Dunam)	Cultivated Areas 2018 (Dunam)	Decrease in Area (Dunam)
Sub-district of al-Najaf District Center	6015	5293	-722
al-Ḥaydarīyah Sub-district	5860	12205	+6345
Sub-district of al-Kūfah District Center	11121	2079	-9042
al-'Abbāsīyah Sub-district	55773	2109	-53664
al-Ḥurrīyah Sub-district	20416	16461	-3955
Sub-district of al-Manādhira District Center	4643	373	-4270
al-Ḥīrah Sub-district	27024	817	-26207
Sub-district of al-Mish-khāb District Center	36248	2285	-33963
al-Qādisīyah Sub-district	38422	8080	-30342
Total Rural Governorate	205522	33241	-172281

Source: Directorate of Agriculture, al-Najaf al-Ashraf Governorate, Department of Statistics and Planning, unpublished data.

The data in Table 2-1 reveals that rural areas of the districts and sub-districts of al-Najaf al-Ashraf Governorate experienced a clear decline in productive agricultural lands during the period (2007-2018) due to the following reasons:

- Weak government support for the agricultural sector, leading farmers to abandon their land because cultivation costs outweigh profits.
- Unrestricted import of cheap fruits and vegetables from neighboring countries, which weakened the competitiveness of domestic agricultural products against imported ones.
- Lack of attention to the agricultural sector led to the migration of young agricultural laborers to nearby cities in search of job opportunities or to join the army or police. As a result, agricultural land was abandoned and became vulnerable to desertification or expropriation by owners, changing its classification from agricultural to residential, then parceling it and selling it cheaply, transforming it into residential land.

Therefore, decision-makers must take strict measures to address this problem affecting Najaf's countryside in particular and the Iraqi countryside in general. This can be achieved by:

- Increasing government support for farmers by providing subsidized agricultural inputs such as improved seeds, chemical fertilizers, and agricul-

tural machinery, in addition to supporting national agricultural products to enable them to compete with imported ones.

- Restricting the import of agricultural products that can be cultivated in the governorate, limiting imports only to those that cannot be grown locally, to protect national agriculture from foreign competition.
- Implementing the above measures will reduce the migration of young labor from rural areas to cities. The revitalization of agriculture will undoubtedly create job opportunities for youth and reduce unemployment rates plaguing the governorate's and Iraq's rural areas.
- Enacting strict laws prohibiting the expropriation, parcelling, and reclassification of agricultural lands, as they are a national treasure bestowed by God for human benefit and food provision, and punishing anyone who violates these laws.

IV. Challenges for Najaf's Urban and Rural Areas

The cities of al-Najaf al-Ashraf Governorate face a range of challenges, including:

- Demographic issues
- Air and river water pollution
- Noise, visual, and light pollution in cities
- Housing problems
- Informal settlements (slums)
- Encroachment on urban master plans
- Lack of infrastructure services

Similarly, Najaf's countryside contends with several challenges, such as:

- Deterioration of the agricultural sector due to weak government support, leading to the migration of young laborers from rural areas to work in nearby cities.
- Low levels of community services in rural areas (educational, health, recreational), coupled with a decline in infrastructure services (electricity, water, sanitation).
- Deterioration of transportation networks in the governorate's rural areas, with many villages still relying on unpaved dirt roads.
- Widespread unemployment among a large segment of the rural population due to the decline in the agricultural sector, as mentioned above, resulting in reduced income levels for these residents.
- Urban sprawl from the governorate's cities onto adjacent agricultural land, leading to a reduction in agricultural area and the conversion of fertile land into residential zones.

Here, we will briefly focus on two significant challenges facing both urban and rural areas in the governorate: informal settlements in its cities and the phenomenon of urban sprawl onto adjacent agricultural land.

1. Informal Settlements

a. Definition

The Arab Urban Development Institute defined informal settlements as areas where housing has been constructed without permits on state-owned or privately-owned land. These dwellings are often built outside the scope of government services and lack essential public utilities due to the state's non-recognition of them (al-Najjār, 2017, p. 12).

b. Causes

1. Expansion of urban growth: This is a result of three converging factors: natural population increase, rural-to-urban migration, and the annexation of surrounding rural areas into cities.
2. High natural increase rate in cities: This stems from improved living standards, better health conditions, customs and traditions promoting early marriage, and a desire for larger families.
3. Internal migration: This includes two types: migration from cities lacking employment opportunities to cities with available jobs, and migration from rural areas to cities due to the decline of the agricultural sector.
4. Absence of regional planning and neglect of rural areas: This has spurred migration from rural areas to cities.
5. Compulsory factors: These force residents to abandon their homes and seek refuge in informal settlements due to natural disasters, wars, or arbitrary government policies.

c. Spatial Distribution of Informal Settlement Areas in al-Najaf al-Ashraf Governorate Cities

As per Table 2-3, the number of informal settlement areas in the governorate's cities reached 53, with 26,843 housing units in 2019. Furthermore, the table highlights the geographical distribution of informal settlement areas by neighborhoods and districts, along with the number of housing units in each within al-Najaf al-Ashraf Governorate for 2019:

1. Informal areas in al-Najaf District Center: These include al-Raḍawīyah, al-Raḥmah Neighbourhood, Najaf Sea Depression, al-Shawāfi', al-Quds Neighbourhood's periphery, and al-Jadīdah 3's informal settlements. This area ranked third in the number of informal areas (13.2%) but first in the number of housing units (53.2%).
2. Informal areas in al-Ḥaydarīyah Sub-district: This encompasses parcel numbers 4/1 and 4/2 in District 10. This area ranked last in both the number of informal areas (1.8%) and housing units (0.1%). However, field studies and satellite imagery have indicated a larger number of encroaching informal settlements, totaling 303 housing units.

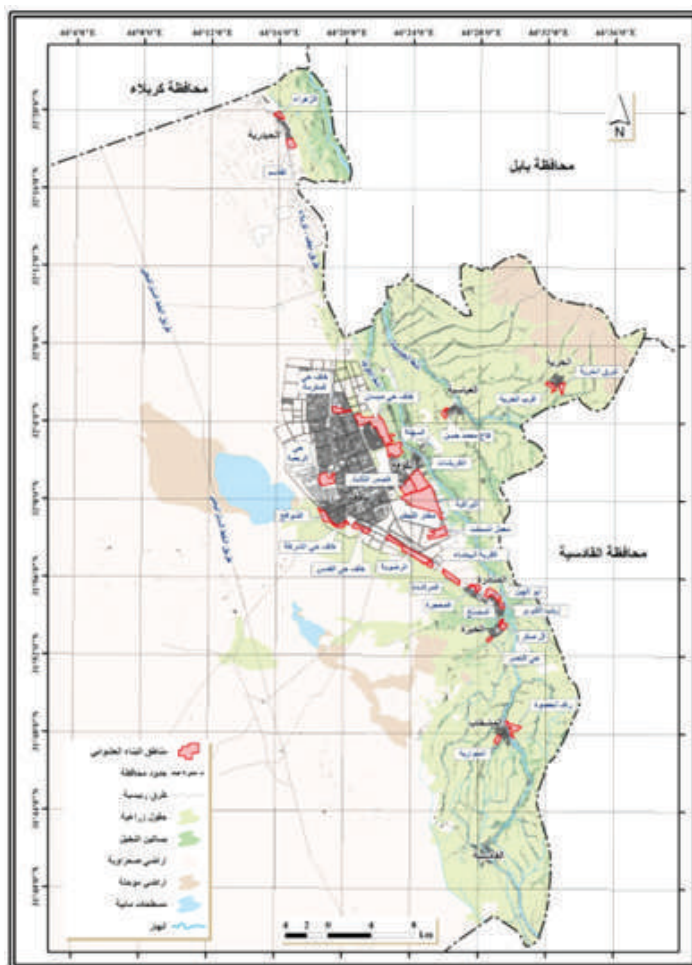
Table 2-3: Decline in Agricultural Areas in the Districts and Sub-districts of al-Najaf al-Ashraf Governorate in (2007-2018)

Administrative Units	Number of Informal Areas	%	Number of Housing Units	%
al-Najaf District Center	7	13.2	14295	53.2
al-Ḥaydarīyah Sub-district Center	1	1.8	29	0.1
al-Kūfah District Center	13	24.6	3501	13
al-'Abbāsīyah Sub-district Center	6	11.3	551	2
al-Ḥurrīyah Sub-district Center	3	5.7	341	1.2
al-Manādhira District Center	11	20.8	4420	16.5
al-Ḥīrah Sub-district Center	5	9.4	1136	4.3
al-Mishkhāb District Center	5	9.4	2210	8.3
al-Qādisīyah Sub-district Center	2	3.8	360	1.4
Total	53	100	26843	100

Source: Republic of Iraq, Ministry of Construction, Housing, Municipalities, and Public Works, Directorate of Municipalities (al-Najaf, al-Kūfah, al-'Abbāsīyah, al-Ḥurrīyah, al-Manādhira, al-Ḥīrah, al-Mishkhāb, al-Qādisīyah), Department of City Planning and Organization, unpublished data for 2019.

3. Informal areas in al-Kūfah District Center: These include parcels 87 and 85 in Area 26/Āl-Bū-Māḍī, Area 1 al-Safīr Neighbourhood (archaeological side), Area 6/al-Kurayshāt al-Janūbīyah, Area 14/area between the Corniche and al-Imam 'Alī Bridge, parcel 13 in Area 18/Alwat al-Faḥl, Area 7/al-Suhaylīyah, Area 14/al-Suhaylīyah, parcel 66 in Area 26/al-Bū Māḍī al-Ṣawb al-Ṣaghīr, parcel 86 in Area 26/Āl-Bū-Māḍī al-Ṣawb al-Ṣaghīr, prohibited areas of Karī Sa'dah (part of Areas 7 and 14/al-Suhaylīyah), parcel 202545 Area 4/Jazīrat al-Najaf, Area 4/al-Suhaylīyah 2 and part of Area 18/Alwat al-Faḥl, Q100 Area 14/al-Suhaylīyah. This area ranked first in the number of informal areas (24.6%) and third in the number of housing units (13%).
4. Informal areas in al-'Abbāsīyah Sub-district Center: These include al-Khadīyah Area 21, scattered buildings Area 36, Āl-Bū-'Ubayd Area 47, al-Bayyātī, al-Ballānah and Umm-Baṣal Area 56, 'Arabīyāt al-Sādah Area 33. This area ranked sixth in the number of informal areas (5.7%) and sixth in the number of housing units (2%).
5. Informal areas in al-Ḥurrīyah Sub-district Center: These comprise parts of Area 38, Area 51, and Area 52 (Sab'ah and Umm-Rafash). This area ranked third in the number of informal areas (11.3%) and eighth in the number of housing units (1.2%).
6. Informal areas in al-Manādhira District Center: These include al-Jazīrah and al-Jazzār villages, al-Jam'īyah Neighbourhood, al-Jumhūrīyah Neighbourhood, al-Zahrā' Neighbourhood, Sayyid Ḥamzah and al-Marāshidah areas,

Map 2-2: Informal Housing Clusters in al-Najaf al-Ashraf Governorate Cities in 2019.



Source: Muḥammad, 2019, p. 122.

- al-ʿAskarī Neighbourhood, the Industrial Zone, al-Hādī Neighbourhood, Area 10/al-Mahjarah lands and orchards, Area 3/al-Barakāt lands and orchards, Area 14/al-Barakāt and orchards. This area ranked second in the number of informal areas (20.8%) and second in the number of housing units (16.5%).
7. Informal areas in al-Ḥīrah Sub-district Center: These include Annex of al-Kuwayt Neighbourhood Area 22, Annex of al-Khaḍrā' Neighbourhood Area 33, al-Turkiyah Area 45, Āl Ṣaqr Area 33, Annex of al-Zuhūr Neighbourhood Area 44. This area ranked fourth in the number of informal areas (9.4%) and fifth in the number of housing units (4.3%).
 8. Informal areas in al-Mishkhāb District Center: These comprise parts of Area 8/al-Siwārīyah, Area 45/Burayhī, Area 2/al-Dabīnīyah, Area 9/al-Mu-

jayhīlah, Area 17/Rāk al-Ḥaṣwah. This area ranked fifth in the number of informal areas (9.4%) and fourth in the number of housing units (8.3%).

9. Informal areas in al-Qādisīyah Sub-district Center: These include Area 1/al-Raml and Area 36/al-Shuwaylah. This area ranked eighth in the number of informal areas (3.8%) and seventh in the number of housing units (1.4%).

d. Negative Impacts of Informal Settlements in al-Najaf al-Ashraf Governorate Cities

1. **Demographic Impacts:** These include a lack of harmony between the demographic characteristics of informal settlement residents and the original city dwellers. Migrating families differ in age structure, gender composition, educational attainment, and family size, in addition to their impact on population growth in the study area (al-Asadī, 2012, p. 293).
2. **Social Impacts:** Informal settlements have negative effects on the residents of the areas where they proliferate, adversely impacting the local population. They create pressure on services in these areas and lead to numerous problems, including an increase in theft and crime. Informal settlements are not solely places for the poor and needy; some groups have exploited these areas to engage in criminal activities.
3. **Environmental Impacts:** The irregular presence of informal housing in al-Najaf al-Ashraf Governorate cities has led to previously non-existent environmental problems, most notably health issues, accumulation of liquid and solid waste, lack of waste collection mechanisms, spread of epidemics, insufficient sunlight and ventilation, and absence of sanitation and drainage networks. Furthermore, visual pollution distorts the urban and architectural appearance (Ḥusayn, 2010, pp. 194, 68) of the governorate's cities.

e. Future Prospects for Addressing Informal Housing

- Policy of improving and developing services in informal areas locally.
- Rehabilitation and development programs for informal areas: These include paving roads, extending essential service networks (water, electricity, sanitation), and providing community services (schools, clinics).
- Urban renewal policy: Urban renewal here aims to improve living standards in the city by replacing informal areas with a healthy environment where all necessary services are available (al-Ash'ab, 1989, p. 254).
- Impact of development planning programs: These programs aim to provide shelter based on improving quality of life.
- Adopting democracy as a crucial condition for implementing and ensuring the success of strategies aimed at providing suitable housing for every family.

2. Urban Sprawl of al-Najaf al-Ashraf Governorate Cities onto Adjacent Agricultural Land

a. Definition

Urban sprawl is sometimes referred to as urban dispersion or urban expansion, signifying the uncontrolled growth of urban centers beyond their established master plan boundaries, encroaching upon surrounding agricultural areas.

b. Causes

1. **Housing Deficit:** This refers to the imbalance between a growing population and a shortage of housing, leading to the emergence of sprawling informal settlements that offer cheap housing on agricultural land adjacent to cities (al-Mālikī, 2011. p. 17).
2. **Desire for Family Separation:** This refers to the desire of children to separate from their original families after marriage and as their own families grow, making the family home insufficient to accommodate them. Consequently, children resort to buying inexpensive homes in rural areas close to cities.
3. **High Construction Costs:** This is another significant factor. Construction costs have become very high recently, with this elevated cost distributed across the rising expenses of building materials on one hand, and increasing labor wages on the other. This leads to the emergence of informal construction, which is naturally less expensive and is characteristic of most sprawling housing in the governorate's cities.
4. **High Land, Housing, and Rental Prices:** The soaring prices of land and housing, which in turn affect rental costs, are major factors contributing to urban sprawl onto agricultural land. This is due to the cheap prices of land offered by some farmers; for instance, 200 m² in some areas costs approximately 200 million Iraqi Dinars or more.
5. **Weak Government Support for the Agricultural Sector:** The lack of government attention to the agricultural sector in the governorate has compelled agricultural land owners to subdivide and sell their land at minimal prices. The buyer's sole objective for this land is residential use, even if it comes at the expense of fertile agricultural land.
6. **Low Economic Standard in Rural Areas:** This reason is a consequence of the aforementioned factors. The lack of government attention has led to a decline in the economic well-being of farmers, pushing them to convert their land into residential plots and sell them for financial gain.
7. **Non-Compliance with Laws and Urban Planning:** The absence of law has allowed farmers to dispose of their land as they wish, without adhering to regulations or encroaching on urban master plans towards agricultural land.

c. Axes of Urban Expansion of al-Najaf al-Ashraf Governorate Cities into Surrounding Rural Areas (‘Abd al-Zahrah, 2020, p. 70-78)

1. **al-Najaf City:** Urban sprawl in Najaf exhibits two primary extensions. The northern direction, towards al-Ḥaydarīyah city, has seen urban sprawl extend 3.61 km northward. Reasons for sprawl along this axis include the low cost of agricultural land and the presence of the main road connecting Najaf and Karbalā’. The second direction is towards the southeast of the city, extending towards al-Manādhira District, with the sprawl reaching 5.27 km to the southeast of Najaf. This is a result of the availability of inexpensive agricultural land close to the main road linking Najaf and al-Manādhira.
2. **al-Ḥaydarīyah City:** There is one axis of urban sprawl in al-Ḥaydarīyah city, extending to the west and southwest of the city. This sprawl is characterized by scattered and irregular expansion further away from the city, due to various reasons, most notably the lack of planning by relevant authorities. The urban sprawl in the city has reached 2.12 km.
3. **al-Kūfah City:** al-Kūfah city has two axes of urban sprawl. The first extends towards Babylon Governorate in strips along the Āl-Bū-Ḥidārī village road. The extent of sprawl in this axis is 4.47 kilometers. One reason for this extension is the Euphrates River, which bisects Kūfah city from north to south. The second sprawl axis extends south of Kūfah city for a distance of 1.90 kilometers. This axis is characterized by continuous residential clusters in the al-Kurayshāt area, which is one of the largest sprawling residential clusters in Kūfah, due to the lack of prior planning.
4. **al-‘Abbāsīyah City:** There are three axes with varying distances: the northern axis at Āl-Bū-Fāris area, extending 0.49 kilometers towards Babylon Governorate. This sprawl is characterized by concentrated residential clusters, largely due to kinship ties through tribes or lineage. The second axis of urban sprawl extends 0.57 kilometers from the city eastward towards Kūfah city. This sprawl was encouraged by the presence of the bypass road connecting to the main road (al-‘Abbāsīyah-Kūfah). The third sprawl axis heads south for a distance of 0.60 kilometers, towards Āl-Duhaym village. Reasons for residential clusters in this direction include their proximity to their own agricultural lands, as well as kinship ties among residents.
5. **al-Ḥurrīyah City:** There are two main axes of urban sprawl in al-Ḥurrīyah city. The first is to the northwest of the city, extending 0.76 kilometers. The reason for this direction of sprawl is the conversion of some agricultural lands into residential areas by their owners and their sale at low prices. This is followed by the southern axis, which extends 0.68 km. This extension has several reasons, including the sprawl of housing along the main road connecting al-Ḥurrīyah city to al-Muhānnawīyah city in al-Dīwānīyah Governorate.

6. **Abū-Şukhayr City:** Abū-Şukhayr city exhibits two distinct axes of sprawl. The first is towards the northwest, extending 4.89 kilometers towards Najaf city, along or near the main street until the end of the city's master plan boundaries. The second axis of urban sprawl extends for 0.83 kilometers. This direction is very close to the Euphrates River's water sources in al-Manādhira city, which contributes to attracting residents and building housing on agricultural lands that owners sold at low prices.
7. **al-Ĥīrah City:** Three axes of urban sprawl were identified. The first is northward, with sprawl extending 0.50 kilometers towards Abū-Şukhayr city. Most of the urban development is concentrated along the main road (Abū-Şukhayr-Ĥīrah) and the agricultural lands adjacent to it, in the form of informal settlements. The second axis extends 0.34 kilometers, or to the northeast. This sprawl resulted from the proximity of the Euphrates River to this area. The third axis of sprawl extends 0.53 kilometers south of al-Ĥīrah city. Reasons for this sprawl include the presence of inexpensive agricultural lands, and the proximity of this area to the water channels branching from the Euphrates River.
8. **al-Mishkhāb City:** al-Mishkhāb is characterized by three main axes of urban sprawl. The first is to the north, extending 1.81 kilometers, characterized by scattered informal sprawl along and near the Euphrates River on both sides in the al-Mujayhīlah and al-Jaflāwīyah areas. The second axis is to the east of al-Mishkhāb city, with sprawl extending 1.28 kilometers, characterized by a cluster of irregular or unplanned residential complexes that have encroached due to the availability of branch and ring roads adjacent to agricultural lands. The third axis extends 0.91 kilometers to the west of the city.
9. **al-Qādisīyah City:** al-Qādisīyah city is characterized by three axes or directions of urban sprawl. The first is located north of the city, extending 0.68 kilometers, showing scattered informal sprawl in the al-Raml area along the al-Mishkhāb-al-Qādisīyah road on one side, and alongside a branch of the Euphrates River to the east on the other. The second axis extends 0.88 kilometers south, characterized by scattered encroaching areas along both the road connecting al-Qādisīyah city to al-Dīwānīyah Governorate and a branch of the Euphrates River adjacent to the city. The third axis, located west of the city, extends 0.58 kilometers and is characterized by the availability of branch and ring transport routes that have led to population clusters due to kinship and family ties.

d. Problems Resulting from Urban Sprawl onto Agricultural Lands in al-Najaf al-Ashraf Governorate

- Decrease in agricultural land area and a decline in per capita share.
- Emergence of informal settlements.
- Pressure on infrastructure networks: (drinking water, electricity, sanitation).

- Sprawling areas contribute to certain forms of pollution: (surface water pollution, soil pollution, solid waste pollution).

e. Policies and Measures to Limit Urban Sprawl onto Agricultural Lands in al-Najaf al-Ashraf Governorate

- Role of urban planning in solving the problem of sprawling housing: Such as promoting vertical construction and providing housing loans.
- Activating legal measures to protect agricultural land.
- Distributing residential plots to citizens at reasonable prices in non-agricultural areas.
- Building low-cost residential projects.
- Government attention to the agricultural sector.

V. Urban Growth Scenarios

In this section, we will explore three scenarios related to urban growth in al-Najaf al-Ashraf Governorate in the future, specifically up to 2050. We will assume three different population growth rates and analyze the accompanying increase in urban areas resulting from the projected population growth. Subsequently, we will propose alternatives for urban expansion for these cities, while considering the natural and human constraints on their growth, to select the most suitable alternative for future expansion. The following provides an overview of each scenario:

1. Reference Scenario (Stable Urban Growth)

We assume a constant growth rate of 3% for al-Najaf al-Ashraf Governorate's cities. Applying the previously mentioned population growth estimation formula yields varying population sizes for the governorate's cities, based on each city's importance, along with projected urban areas for the future, as clearly shown in Table 2-4.

After calculating the additional urban areas for the target year 2050, assuming a stable population growth rate for the governorate's cities, we must identify future expansion alternatives for these added areas:

- Since Najaf city has exhausted its previously mentioned expansion axes due to natural constraints (Najaf Sea depression) and human constraints (Wadi al-Salam cemetery), the northern axis (Najaf-Karbalā') remains the only axis for future city expansion, characterized by the absence of growth impediments.
- al-Haydariyah city benefits from multiple expansion axes (northern, southern, and western) with no expansion constraints, offering a good opportunity for future added urban areas.
- al-Shabakah is an area that repels residents due to its desert nature. If its population and urban areas increase in the future, there are ample vacant and undeveloped spaces that can accommodate the future growth.

Table 2-4: Estimated Population and Proposed Area under the First Scenario in al-Najaf al-Ashraf Governorate Cities Based on 3% Growth Rate

No.	City	Population in 2020 (Persons)	Estimated Population in 2050 (Persons)*	Population Increase (Persons)*	Future Area (Hectares)***
1	al-Najaf	786968	1459239	672271	6722,7
2	al-Ḥaydarīyah	19340	36746	17406	174,06
3	al-Shabakah	489	929	440	4,4
4	al-Kūfah	180407	342773	162366	1623,66
5	al-'Abbāsīyah	15019	28536	13517	135,17
6	al-Ḥurrīyah	13010	24719	11709	117,09
7	Abū-Ṣukhayr	33408	63475	30067	300,67
8	al-Ḥīrah	19189	36459	17270	172,7
9	al-Mishkhāb	32287	61345	29058	290,58
10	al-Qādisīyah	6692	12714	6022	60,22

Source: Republic of Iraq, Ministry of Planning and Development Cooperation, Central Statistical Organization, al-Najaf al-Ashraf Governorate Population Estimates for 2020.

(*) Population for 2050 was extracted using the future population projection formula: $P_n = P_o(1+r)^n$, where $P_n = 786968(1+0.03 \times 30)$.

(**) Population increase = population in target year - population in base year.

(***) Future area = population increase \times per capita share of total city area based on planning standard ($100 \text{ m}^2/\text{person}$) $\div 10000$.

- Given the religious, touristic, and commercial importance of al-Kūfah city, its population is expected to increase by 2050, leading to an expansion of urban areas. The northern axis towards Babylon Governorate will be the strongest alternative for expansion, especially with available transportation routes and water resources (Shaṭṭ al-Kūfah).
- al-'Abbāsīyah city has three expansion axes, previously discussed. Should its population increase in the future, these axes will be the sole outlet for the city's expansion, particularly the western axis towards al-Kūfah city, which still possesses vast areas for expansion compared to the other two axes.
- al-Ḥurrīyah city has two main expansion axes, previously mentioned, which can absorb the area increase resulting from population growth by 2050. The northern axis in particular has not exhausted all areas designated for future expansion in the city's master plan, unlike the southern axis.
- Abū-Ṣukhayr city has two expansion axes, northern and eastern, also mentioned previously. Should urban area increase in the city in the future,

the northern axis will be more attractive for urban expansion due to its vast areas compared to the eastern axis, which has almost exhausted its designated expansion area.

- al-Hīrah city has four axes for future expansion, previously mentioned. If its population and accompanying urban areas increase, the north-western and southwestern axes are the most capable of accommodating expansion compared to the other two axes, due to the large undeveloped areas within them.
- al-Mishkhāb city has three expansion axes, previously mentioned. In the event of future population and urban growth, these axes will play a role in accommodating the increase, especially the northern and eastern axes, as they possess sufficient areas for future expansion.
- Regarding al-Qādisīyah city, it also has three axes, previously discussed. Therefore, any anticipated future population and urban growth will be accommodated by these axes, especially the northern axis, which is the largest in terms of area.

2. Optimistic Scenario (Slowed Urban Growth)

We assume a slowed growth rate of 1.5% for al-Najaf al-Ashraf Governorate's cities. Applying the previously mentioned population growth estimation formula yields varying population sizes for the governorate's cities, depending on each city's importance, along with estimated urban areas in hectares for 2050, as shown in Table 2-5.

After calculating the expected additional areas in 2050 based on the population increase assumed under the slowed growth scenario for al-Najaf al-Ashraf Governorate's cities, it became necessary to identify axes for future expansion. Since we defined the expansion axes in the first scenario of this study, ensuring expansion based on stable urban growth, the researcher believes that these axes will be highly suitable for the expansion of added urban areas based on slowed growth, without the need to find other expansion alternatives.

3. Pessimistic Scenario (Explosive Urban Growth)

An explosive growth rate of 7% is assumed for al-Najaf al-Ashraf Governorate's cities. Applying the previously mentioned population growth estimation formula yields varying population sizes for the governorate's cities, based on each city's importance, along with estimated urban areas in hectares for 2050, according to these population sizes, as shown in Table 2-6.

After calculating the population sizes for al-Najaf al-Ashraf Governorate's cities based on the assumed explosive growth rate (7%) in 2050, significant additional population sizes emerged. These naturally require additional urban areas that can expand along alternative axes, provided these axes are suitable for urban expansion, meaning they are free from natural and human constraints and fall within the city's master plan without encroaching on adjacent agricultural lands.

Table 2-5: Estimated Population and Proposed Area under the Second Scenario in al-Najaf al-Ashraf Governorate Cities Based on 1.5% Growth Rate

No.	City	Population in 2020 (Persons)	Estimated Population in 2050 (Persons)*	Population Increase (Persons)	Future Area (Hectares)
1	al-Najaf	786968	1141104	354136	3541,36
2	al-Ḥaydarīyah	19340	28043	8703	87,03
3	al-Shabakah	489	709	220	2,2
4	al-Kūfah	180407	261590	81183	811,83
5	al-'Abbāsīyah	15019	21778	6759	67,59
6	al-Ḥurrīyah	13010	18865	5855	58,55
7	Abū-Ṣukhayr	33408	48442	15034	150,34
8	al-Ḥīrah	19189	27824	8635	86,35
9	al-Mishkhāb	32287	46816	14529	145,29
10	al-Qādisīyah	6692	9703	3011	30,11

Source: Republic of Iraq, Ministry of Planning and Development Cooperation, Central Statistical Organization, al-Najaf al-Ashraf Governorate Population Estimates for 2020.

(*) Population for 2050 was extracted using the future population projection formula: $P_n = P_o(1+r)^n$, where $P_n = 786968(1+0.015 \times 30)$.

The following is a brief overview of the main alternative expansion axes proposed by the researcher:

- Given the natural and human constraints hindering urban expansion in Najaf city, as previously mentioned, the northern axis towards Karbalā' Governorate will remain the sole axis for future urban expansion, even in the event of explosive growth. Therefore, the city's planning authorities must manage urban expansion along this axis by encouraging the construction of investment residential complexes and avoiding arbitrary land distribution to citizens, which could lead to the waste of areas designated for expansion and subsequent encroachment on the city's master plan.
- al-Ḥaydarīyah city has sufficient space for urban expansion even with increasing population, as there are no natural or human obstacles to this growth. The western axis in particular contains ample areas for future expansion.
- There is no problem if the population in the urban center of al-Shabakah increases, which is unlikely if the current situation persists. This urban center is surrounded by vast desert areas that can be utilized for housing, provided that community services, infrastructure services, and transportation routes are available.

Table 2-6: Estimated Population and Proposed Area under the Third Scenario in al-Najaf al-Ashraf Governorate Cities Based on 7% Growth Rate

No.	City	Population in 2020 (Persons)	Estimated Population in 2050 (Persons)*	Population Increase (Persons)	Future Area (Hectares)
1	al-Najaf	786968	2439601	1652633	16526,33
2	al-Ḥaydariyah	19340	59954	40614	406,14
3	al-Shabakah	489	1516	1027	10,27
4	al-Kūfah	180407	559262	378855	3788,55
5	al-'Abbāsīyah	15019	46559	31540	315,4
6	al-Ḥurrīyah	13010	40331	27321	273,21
7	Abū-Ṣukhayr	33408	103565	70157	701,57
8	al-Ḥīrah	19189	60416	41227	412,27
9	al-Mishkhāb	32287	100090	67803	678,03
10	al-Qādisīyah	6692	20745	14053	140,53

Source: Republic of Iraq, Ministry of Planning and Development Cooperation, Central Statistical Organization, al-Najaf al-Ashraf Governorate Population Estimates for 2020.

(*) Population for 2050 was extracted using the future population projection formula: $P_n = P_o(1+r)^n$, where $P_n = 786968(1+0.07 \times 30)$.

- It was previously mentioned that al-Kūfah city will rely on the northern axis towards Babylon Governorate for future expansion. However, if the population increases in 2050, it will need other axes. The researcher believes that the eastern axis of the city, across Shaṭṭ al-Kūfah, will be prepared for future expansion as it contains sufficient agricultural and vacant lands.
- In addition to the previously mentioned expansion axes, al-'Abbāsīyah city has an alternative axis located east of the city across Shaṭṭ al-'Abbāsīyah, which can be utilized for future expansion in the event of a significant increase in the city's population.
- al-Ḥurrīyah city has two alternative axes for future expansion in case of a sudden population increase, for example, due to migration. These two axes are located to the east and west of the city, where vacant areas are prepared for expansion in 2050.
- Regarding Abū-Ṣukhayr city, the northeastern axis is the suitable alternative for urban expansion in the city if its population increases in 2050, as it contains vacant areas that can be utilized for urban expansion.
- al-Ḥīrah city has two alternative axes for future expansion: the north-western axis towards Najaf city, which is the primary alternative due to its

vast vacant areas, and the southwestern axis towards al-Dasam village, which is the second alternative in terms of available area.

- al-Mishkhāb city has three alternative axes for explosive population growth: the eastern axis, which ranks first due to its vast vacant areas, the northwestern axis in second place, and the southwestern axis in third place in terms of expansion area.
- al-Qādisīyah city also contains three alternative axes for future expansion: the northern axis towards al-Mishkhāb city, which ranks first in terms of its vast vacant area; the southern axis towards al-Dīwānīyah Governorate, in second place; and the western axis towards the Sub-district of al-Najaf District Center, in third place in terms of area.

VI. Challenges and Responses

Challenges

1. Most of al-Najaf al-Ashraf Governorate's cities are concentrated in the northeastern part, within the alluvial plain, characterized by fertile soil and abundant water resources from the Euphrates River and its branches. In contrast, al-Shabakah, the sole urban center in the central-western part of the governorate, is situated in the Western Plateau, known for its less fertile soil and highly saline groundwater. This uneven distribution presents a significant challenge to the governorate, leaving vast areas of land unutilized for agriculture, grazing, or urban development. Consequently, these areas become security vulnerabilities, susceptible to exploitation by terrorist groups, posing a threat to the safety of the governorate's cities.
2. al-Najaf al-Ashraf Governorate's cities are historically ancient and suffer from poor planning, a result of past conflicts, blockade, insecurity, and administrative corruption. These repercussions have also hindered the establishment of new cities based on sound planning principles, unlike projects such as Palm Jumeirah in the United Arab Emirates.
3. Rural areas in al-Najaf al-Ashraf Governorate face the critical issue of decreasing and continuously deteriorating agricultural land. Over time, this problem will lead to the desertification of these lands, resulting in low productivity. This poses a tangible threat to food security in al-Najaf al-Ashraf Governorate specifically, and Iraq generally.
4. al-Najaf al-Ashraf Governorate's cities confront several key challenges, including housing problems, informal settlements, encroachment on master plans, and lack of infrastructure services.
5. The governorate's rural areas also grapple with numerous challenges, primarily the deterioration of the agricultural sector, low levels of community and infrastructure services, and urban sprawl onto agricultural land.

Responses

1. Focus on the western part of the governorate (al-Shabakah center and District) by establishing investment projects and various industries there. This will attract labor, increase the population size in this part of the governorate, and consequently transform it into a secure area, preventing terrorist groups from infiltrating and threatening the safety of the governorate's cities.
2. Emphasize adherence to planning policies in guiding land use within the master plans of the governorate's cities, in a way that prevents encroachment on these designs. Additionally, advocate for building new cities in areas with low population density, while ensuring the provision of suitable environments to attract future population increases.
3. To address the problem of decreasing agricultural areas in the governorate's rural areas, responsible authorities should implement the following:
 - a. Government support for the agricultural sector.
 - b. Prohibiting the import of agricultural crops that can be cultivated within the country and the governorate.
 - c. Enacting laws that criminalize the bulldozing of agricultural lands and their conversion into residential areas.
4. To overcome the challenges facing cities, relevant authorities should take necessary measures such as:
 - Constructing low-cost residential complexes for all segments of society in the governorate's cities to alleviate the housing crisis.
 - Encouraging vertical housing.
 - Developing effective plans to eliminate informal settlements, ensuring alternative housing for residents of these areas.
 - Imposing strict laws on any individual or entity that encroaches on the cities' master plans.
 - Tightening legal procedures against violations of land-use changes, converting agricultural land to residential.
 - Prioritizing infrastructure services to ensure their efficient operation.
5. To confront the challenges facing rural Najaf, the following measures must be adopted:
 - Prioritizing the agricultural sector by providing farmers with all necessary agricultural facilities and ensuring their produce is purchased at fair prices. This aims to keep farmers on their land, preventing them from abandoning it to seek urban employment.
 - Improving the level of community and infrastructure services in rural areas to ensure a good quality of life in the countryside.
 - Enacting strict laws to prevent urban sprawl onto agricultural land in any form.

6. Three scenarios for future urban expansion up to 2050 were developed. The researcher hypothesized three growth rates (stable, low, and explosive). After applying the population growth equation for these three hypotheses, varying population sizes emerged for al-Najaf al-Ashraf Governorate's cities, based on each city's importance. The researcher proposed alternative axes for each scenario, considering their freedom from natural and human constraints.

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3. Economy

Prof. Dr. Ḥaydar Ni'mah Bakhīt

Faculty of Administration and Economics, University of al-Kūfah.

I. Reality of the Economy and Dominant Activities

Najaf's economy is not an independent entity; rather, it's an integral component of the Iraqi national economy, intrinsically linked administratively and financially, and subject to the decisions, policies, laws, and legislation of the federal government. Consequently, the future trajectory of Najaf's economy will largely mirror that of Iraq's. This dependency stems from the relatively limited authorities granted to provincial councils (prior to their suspension by parliament in 2019 due to popular protests), governors, and heads of administrative units. Their roles are primarily confined to managing provincial affairs through various projects and service provision.

Therefore, the governorate's economy remains directly tied to the Iraqi economy, achieving independence only within specific parameters, primarily due to Najaf's unique religious character and its endowment of natural resources and mineral wealth.

This study is structured into five core sections:

- The first section examines the current state of Najaf's economy and its prevailing activities, subdivided into three main branches: the agricultural sector, the industrial sector, and the services sector.
- The second section is dedicated to the primary challenges confronting Najaf's economy, extending to projections for 2050.
- The third section delves into the future of Najaf's economy, focusing on mechanisms for transformation.
- The fourth section presents scenarios for Najaf's economic growth. Drawing upon numerous studies, including the current one, and future forecasts for Najaf's economy, three future scenarios have been formulated for various timeframes, based on several assumptions and active factors: the Reference Scenario (Stable Growth), the Optimistic Scenario (Accelerated Growth), and the Pessimistic Scenario (Collapse of Najaf's Economy).

- The fifth and final section addresses responses to challenges and future options, serving as recommendations for policymakers to implement and align with the rapidly changing global landscape.

1. The Agricultural Sector

The agricultural sector is a key economic pillar in Najaf, encompassing the cultivation of various crops, fruit trees, and the rearing of livestock, poultry, and fish, including the harvesting and marketing of these agricultural products. It serves as a vital source of food for both human and animal consumption and provides raw agricultural materials for industry.

Najaf Governorate's climate is characterized by high summer temperatures and low winter temperatures (Ja'āz & Makkī, 2017, p. 82). The average annual rainfall for the period 1977–2007 was 104 mm, occurring over eight months from October to May. The highest rainfall rates were recorded in November, December, and January, at 16.4 mm, 17.7 mm, and 17.3 mm, respectively. The lowest rates were in May and October (4.8 mm and 4.7 mm, respectively), while rainfall was almost nonexistent in June, July, August, and September during the same period (Ministry of Transport and Communications, n.d.). The average annual total for the period 1970–2014 decreased to 97.7 mm. The prevailing winds in the governorate are northwesterly, northerly, and westerly, often leading to dust storms, which are common from April to October and significantly diminish in winter (al-Qāḍī, 2001, p. 61).

Water sources in the governorate include surface water from the Euphrates River, which branches south of the city of al-Kifl into two main arteries:

- Shaṭṭ al-Kūfah: This branch extends 72.2 km within the governorate and further divides into 78 smaller channels and rivers, each named after the district or sub-district it traverses, hence its various designations such as Shaṭṭ al-Manādhira, al-Mishkhāb, and al-Qāḍiyyah (A. al-Najm, 2015, p. 631).
- Shaṭṭ al-'Abbāsīyah: This branch is 28 km long within the governorate and branches into 20 smaller channels and rivers.

Groundwater sources consist of numerous wells throughout the governorate, historically used for drinking, domestic purposes, agriculture, and livestock watering (Ḍ. al-Najm, 2009, pp. 17-18).

These climatic features define Najaf's agricultural climate, which closely resembles that of the Middle Euphrates governorates, thereby determining the types of crops that can be cultivated. Consequently, the agricultural economy plays a significant role in stimulating Najaf's economy, providing food for its population and livestock, and generating employment opportunities.

According to Ministry of Agriculture data from 2020, Najaf's total area is 11,529,600 dunams (There is some inaccuracy in the data issued by the Iraqi Ministry of Agriculture and the Central Statistical Organization; therefore, the data are stated as presented in their respective official statistics), representing

7.3% of Iraq's total area (excluding the Kurdistan Region). The cultivated area is 512,319 dunams, constituting 3.4% of Iraq's total area. The arable land, according to 2015 data, spans 11,196,470 dunams, which is 21.4% of Iraq's total arable land of 52,301,029 dunams, reflecting the substantial proportion of arable land in Najaf compared to other governorates (Ministry of Agriculture, 2015, p. 3).

The number of farmers in Najaf is 23,899, accounting for 7.5% of all Iraqi farmers (excluding the Kurdistan Region). The number of agricultural laborers is 8,784, representing 5.4% of all agricultural laborers, working in orchards covering 30,946 dunams, which is 2.1% of Iraq's total orchard area (Ministry of Agriculture, 2020, p. 4).

Najaf is renowned for its cultivation of major grain crops. According to 2020 data presented in Table 3-1, the area cultivated with paddy rice reached 205,810 dunams, with an average yield of 1,222.4 kg/dunam and a total production of 251,580 tons, accounting for over 54% of Iraq's total production. However, a significant decrease in production is anticipated for 2022 due to water scarcity. The area cultivated with wheat was 254,948 dunams, yielding 732.4 kg/dunam for a total production of 186,730 tons, representing 2.99% of Iraq's total production. Barley cultivation covered 8,192 dunams, with a yield of 430.66 kg/dunam, Barley cultivation covered 8,192 dunams, with a yield of 430.66 kg/dunam,

Table 3-1: Cultivated Area, Yield per Dunam, and Production of Main Crops in Najaf, 2020

Crop	Cultivated Area (dunams)	Yield (kg/dunam)	Production (tons)	% of Total Country Production
Paddy Rice	205,810	1,222.4	251,580	54.2
Wheat	254,948	732.4	186,730	2.99
Barley	8,192	430.66	3,528	2.0
Yellow Corn	1,050*	-	-	-

(*) No dunams harvested according to Ministry of Agriculture data.

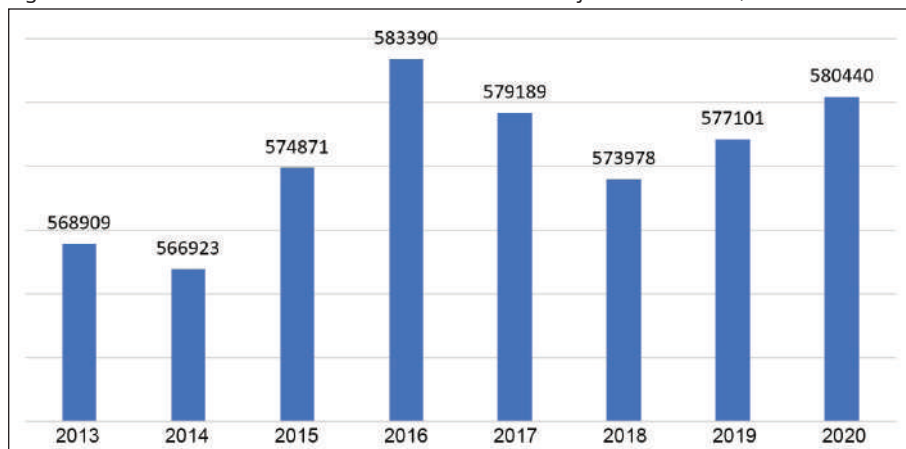
Source: Prepared by the researcher based on: Ministry of Agriculture, 2020, pp. 10-13.

Table 3-2: Number of Date Palm Trees and Production in al-Najaf Governorate , 2013-2020

Year	Number of Date Palm Trees (tree)	Rate of Change	Production (tons)	Rate of Change
2013	568,909	-	30,473	-
2014	566,923	-0.35	30,895	1.38
2015	574,871	1.40	29,666	-3.98
2016	583,390	1.48	31,883	7.47
2017	579,189	-0.72	31,866	-0.05
2018	573,978	-0.90	33,724	5.83
2019	577,101	0.54	29,376	-12.89
2020	580,440	0.58	30,464	3.70

Source: Prepared by the researcher based on: Ministry of Agriculture, Agricultural Data for 2013-2020.

Figure 3-1: Evolution of Date Palm Tree Numbers in al-Najaf Governorate , 2013-2020



Source: Prepared by the researcher based on data from Table 3-2.

resulting in a production of 3,528 tons, which is 2% of the country's total barley production. Despite 1,050 dunams being planted with yellow corn, no dunams were harvested according to Iraqi Ministry of Agriculture data, while no white corn was cultivated.

According to 2020 data, as shown in Table 3-2, the number of date palm trees in al-Najaf Governorate reached 580,440, an increase of 11,531 trees from 568,909 in 2013. This increase is relatively small due to the continuous encroachment and conversion of orchards into residential areas, driven by housing issues and rising land prices. With this number of date palms, al-Najaf Governorate ranks twelfth among Iraqi governorates, after Diyālā, Baghdād, Bābil, Karbalā', al-Dīwānīyah, al-Muthannā, al-Baṣrah, al-Anbār, Dhī-Qār, Wāsiṭ, and Ṣalāḥ al-Dīn. This accounts for approximately 3.35% of the total 17.35 million date palms in Iraq (excluding the Kurdistan Region), including male trees. In 2020, the governorate's date production reached 30,464 tons, similar to the 30,473 tons produced in 2013. With this production, Najaf ranked eleventh among Iraqi governorates in 2020, trailing Diyālā, Baghdād, Bābil, Karbalā', al-Dīwānīyah, al-Muthannā, al-Baṣrah, al-Anbār, Dhī-Qār, and Wāsiṭ (Ministry of Agriculture, 2020, p. 12).

The governorate also possesses significant livestock wealth, supporting agricultural production and local industry by providing essential raw materials such as milk, wool, and hides. As shown in Table 3-3, in 2008, the number of cattle was 64,587 head, representing 2.5% of Iraq's total cattle population of 2,552,113 head (including the Kurdistan Region), placing Najaf fourteenth among Iraqi governorates. The governorate had 88,439 head of sheep, ranking sixteenth among governorates and accounting for 1.1% of the country's total sheep population. However, Najaf ranked last among Iraqi governorates in goat ownership, with only 6,969 head, representing 0.5% of the total. In terms of buffalo, Najaf ranked fifth in the country with 21,303 head, constituting 7.5% of the total 285,537 buffalo in Iraq. The governorate owned 2,838 camels, making up 4.9% of the country's total and

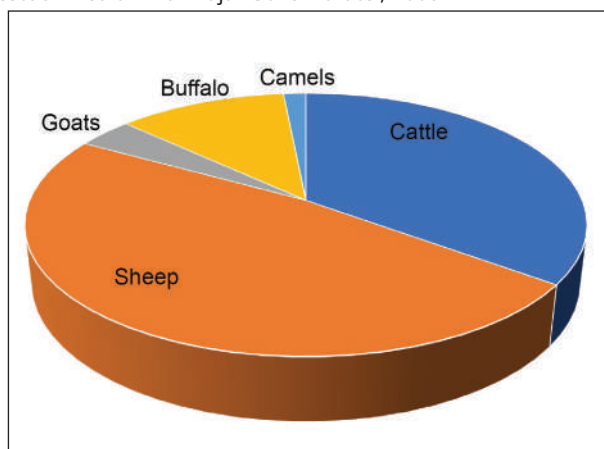
Table 3-3: Livestock Wealth in Najaf and its Proportion to Iraq's Total, 2008* (including Kurdistan Region)

Type	Number in Governorate/Head	Total Number in Country	% of Total Iraq	Governorate Rank
Cattle	64,587	2,552,113	2.5	14
Sheep	88,439	7,722,375	1.1	16
Goats	6,969	1,474,845	0.5	18
Buffalo	21,303	285,537	7.5	5
Camels	2,838	58,293	4.9	8
Total	184,136	12,093,163	1.5	

(*) These data represent the latest survey available from the Iraqi Ministry of Agriculture, published in the Ministry's latest statistical release for 2020.

Source: Prepared by the researcher based on: Ministry of Agriculture, 2020, pp. 25-34.

Figure 3-2: Livestock Wealth in al-Najaf Governorate , 2008



Source: Prepared by the researcher based on data from Table 3-3.

ranking eighth. Thus, the total livestock wealth in the governorate was 184,136 head (Ministry of Agriculture, 2020, pp. 25-34).

According to 2020 data, the governorate contains three poultry feed mills out of 68 in Iraq, all privately owned, with a production capacity of up to 52 tons/hour. There is also one medium-sized table egg production project with a capacity of 79,488 laying hens, among 12 small and medium-sized projects in Iraq. Additionally, there are 45 broiler chicken farms and five laying hen farms.

2. The Industrial Sector

Historically, prior to the establishment of the modern Iraqi state in 1921, the industrial sector in Najaf was limited to certain handicrafts such as pottery, hand-woven textiles, blacksmithing, grain milling, pastries, tailoring, leather goods, perfumes, jewelry, and printing. These industries relied on simple production

techniques and inherited manual skills (Faḍīl & Rasūl, 1984, pp. 19-26). In the 1930s, the first automated factory, a textile mill, was established in the city. Subsequently, industrial projects in the governorate proliferated, mostly belonging to the private sector.

However, these projects did not reach the level of many other governorates in the country, largely due to the state's industrial policies in the decades leading up to 2003. Financial allocations for the industrial sector in Najaf, and for other economic sectors, were low compared to similar governorates in terms of population size. For instance, the industrial sector in Najaf was allocated only 103.3 million Iraqi Dinars (IQD) within the 1976-1980 development plan, representing merely 2.3% of the total allocations for all Iraqi governorates. In contrast, this percentage reached 12.6% in al-Anbār Governorate and 10.1% in Ṣalāḥ-al-Dīn. Allocations to Najaf further decreased during the 1981-1985 plan to 49.6 million IQD due to the Iran-Iraq War, constituting 1.6% of total allocations, while al-Anbār received 10.8% and Ṣalāḥ-al-Dīn 20.6% (al-Rubayṭ, 2008, p. 37).

Industrial sector allocations continued to decline with the ongoing war; during the 1986-1990 plan, only 22.3 million IQD were allocated to Najaf's industrial sector, representing a mere 0.7% of total industrial allocations. Throughout the 1990s, the total allocations for the industrial sector during the 1991-1995 plan amounted to 86 billion IQD, with Najaf's share being 5.1%.

Najaf Governorate possesses diverse raw materials and mineral wealth, enabling the establishment of numerous industries that could significantly develop the governorate's economy and elevate economic and human development levels if optimally exploited. The most important primary mineral resources in the governorate include limestone, gravel and sand, cement clays, gypsum crust, dolomite, sulfur, uranium, and celestite (Shaba', 2007, pp. 50-51). The governorate also contains feldspar-bearing sands found in the al-Dabdash formation in the sands of the Najaf plateau and some areas near the Najaf-Karbala' road. This can be utilized in the production of ceramics and some types of household detergents. Additionally, the governorate has "industrial sands" used in construction, filtration, and the manufacture of lime bricks and thermstone (al-Ṭālaqānī, 2012, p. 64).

These mineral resources and other assets within the governorate will play a significant role in supporting existing industries, such as the three cement factories in the governorate, with the potential for establishing additional factories to meet the demand of Najaf and other Iraqi governorates, and even for exporting part of the production. There is also potential for future industries in the governorate, such as glass manufacturing, pharmaceutical industries, construction-related industries, and energy-related industries like solar panel manufacturing.

Regarding the current state of industrial establishments in Najaf, according to Ministry of Planning data from 2018, there are 2,112 small industrial establishments in al-Najaf Governorate, representing 8.2% of the total 25,747 establishments nationwide (excluding the Kurdistan Region). These establishments

Table 3-4: Industrial Establishments in Najaf and Iraq, 2020 (Billion IQD)

Establishment Type	Number	Employees	Wages & Benefits	Production Value	Production Input Value
Small (Najaf)*	2,112	7,965	13.04	208.69	26.72
Small (All Iraq)**	25,747	83,375	298.80	1,939.29	1,027.28
% of All Iraq	8.20	9.55	4.36	10.76	2.60
Medium (Najaf)	15	223	1.52	19.97	13.50
Medium (All Iraq)**	188	2,639	16.70	117.51	65.79
% of All Iraq	7.98	8.45	9.09	17.00	20.52
Large (Najaf)	31	5,357	34.01	92.8	50.8
Large (All Iraq)**	719	126,317	1,407.9	6,716.8	3,476.32
% of All Iraq	4.3	4.2	2.4	1.4	1.46

(*) 2018 data. (**) Excluding Kurdistan Region.

Source: Prepared by the researcher based on: Ministry of Planning, Central Statistical Organization, Statistical Abstract 2020-2021, Industrial Statistics pp. 29, 45; Republic of Iraq, Ministry of Planning, Central Statistical Organization, Department of Industrial Statistics, Large Establishments Survey 2020, pp. 59-60.

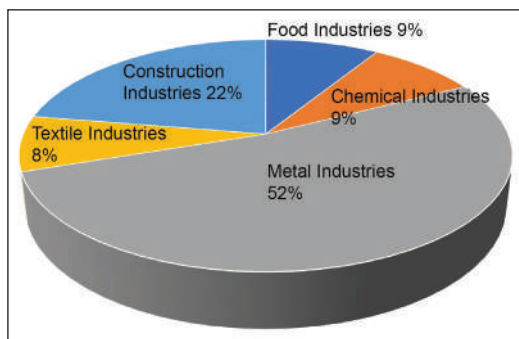
employ 7,965 workers with wages and benefits totaling 13.04 billion IQD. Their production value is 208.69 billion IQD, accounting for 10.76% of the total national production of approximately 1.94 trillion IQD, with production input requirements of 26.72 billion IQD.

As for medium-sized industrial establishments in the governorate, Ministry of Planning data from 2020 indicates 15 such establishments, comprising approximately 8% of the total 188 medium-sized industrial establishments in Iraq. These employ 223 workers, with wages and benefits reaching 1.52 billion IQD. Their production amounted to 19.97 billion IQD, representing 17% of total production across Iraq (excluding the Kurdistan Region), and the value of production inputs for the same year was 13.5 billion IQD, as shown in Table 3-4. Most of these establishments are privately owned, with their production primarily serving local consumption within the governorate and a portion exported to other governorates.

Regarding large establishments, according to 2020 data, Iraq had 682 large establishments. Their ownership was distributed as follows: 24 government-owned, 33 public sector-owned, 6 mixed ownership, and 619 privately owned, constituting approximately 90.8% of all large establishments in Iraq. These employed 112,022 workers, with an industrial production value of 6,346,161 million IQD (Ministry of Planning, 2020–2021b, p. 3).

According to 2018 data, al-Najaf Governorate had 31 large establishments, accounting for 4.9% of the total 627 large establishments in the country (excluding the Kurdistan Region). This placed Najaf tied with Kirkūk Governorate

Figure 3-3: Relative Distribution of Industrial Establishments in al-Najaf Governorate up to June 1, 2022



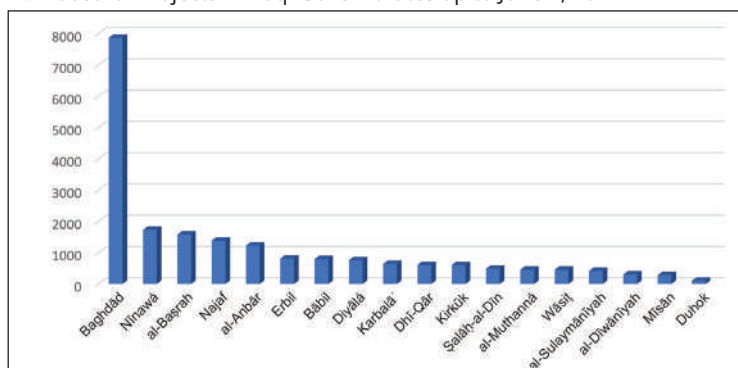
Source: Prepared by the researcher based on data from Table 3-5.

Table 3-5: Industrial Projects in Iraqi Governorates up to June 1, 2022

Governorate	Food Industries	Chemical Industries	Metal Industries	Textile Industries	Construction Industries	Total
Baghdād	1157	1443	2293	2083	894	7870
Nīnawá	379	140	306	271	635	1731
al-Baṣrah	206	120	836	16	401	1579
Najaf	123	118	725	107	310	1383
al-Anbār	104	116	327	69	610	1226
Erbil	104	40	266	140	260	810
Bābil	188	79	208	137	181	793
Diyālā	171	90	189	67	242	759
Karbalā'	118	120	195	89	120	642
Dhī-Qār	112	42	68	7	378	607
Kirkūk	151	119	145	24	166	605
Ṣalāḥ-al-Dīn	120	46	89	18	216	489
al-Muthanná	37	13	153	4	247	454
Wāsiṭ	91	24	154	10	175	454
al-Sulaymānīyah	89	32	78	78	139	416
al-Dīwānīyah	76	21	54	5	147	303
Maysān	67	20	63	1	129	280
Duhok	33	4	14	14	37	102
Total	3326	2587	6163	3140	5287	20503

Source: Ministry of Industry and Minerals, n.d.

Figure 3-4: Industrial Projects in Iraqi Governorates up to June 1, 2022



Source: Prepared by the researcher based on data from Table 3-5.

for eleventh place among the fifteen Iraqi governorates. These establishments employed 4,931 workers and generated a production value of 122,925.6 million IQD (Ministry of Planning, 2018a). In 2020, the proportion of large establishments in Najaf decreased to 4.3% of the total in the country, despite an increase in the national total to 719 large establishments (excluding the Kurdistan Region). The number in Najaf remained at 31 large establishments, employing 5,357 workers, including 1,104 temporary workers, plus 14 unpaid workers. Wages, salaries, and benefits amounted to 34.01 billion IQD, and production value was 92.8 billion IQD. The value of production inputs was 50.8 billion IQD (Ministry of Planning, 2018a, pp. 59-60).

Regarding the ownership of these establishments, two are government-owned, employing 30 workers, with total wages and benefits of 280 million IQD, and a total value of goods and non-goods production of approximately 2.9 billion IQD. Four establishments are public sector-owned, employing 3,993 workers, who constitute 75% of the total workforce in large establishments in the governorate. They receive approximately 24.6 billion IQD annually in salaries and wages, with a total value of goods and non-goods production of approximately 43 billion IQD. The remaining 25 large establishments are privately owned, employing 1,334 workers who receive annual wages and salaries of 9.1 billion IQD, and their production value was 46.8 billion IQD (Ministry of Planning, 2018a, pp. 65, 70).

Based on 2022 data from the Ministry of Industry and Minerals, issued by the General Directorate of Industrial Development, al-Najaf Governorate ranks fourth in terms of total industrial projects, after Baghdad, Ninawa, and al-Basrah, with 1,383 projects. This represents over 6.7% of all industrial projects across the country's governorates. These projects are distributed as follows: 123 food industry projects (8.9% of Najaf's total industrial projects), 118 chemical industry projects (8.5%), 725 metal industry projects (over 52.4%), 107 textile industry projects (7.7%), and 310 construction industry projects (22.4% of Najaf's industrial projects), as detailed in Table 3-5 and Figure 3-3.

3. The Services Sector

The services sector, also known as the tertiary sector or service industry, is the third major sector, following the traditional primary (agricultural) and secondary (industrial) sectors. It comprises establishments that provide services to customers rather than manufactured products. It has emerged as the largest economic sector and a driving force for the economy, contributing an increasing share to GDP, trade, and employment in most countries worldwide (UNCTAD, 2017, p. 2).

According to the latest data from the Iraqi Central Statistical Organization, dating back to 2007, the overall economic activity rate in al-Najaf Governorate was 47.8%, distributed as 82.3% for men and 15.3% for women. This rate is comparable to the general rates for the national economy. The overall unemployment rate in the governorate was 10.7%, with 9% among men and 19.3% among women (Ministry of Planning, 2020–2021d, pp. 34).

Regarding the distribution of workers aged 10 years and older across various economic activities in Najaf, 2012 data indicates that over half of the workers Table 3-6: Distribution of Workers Aged 10 Years and Above by Type of Economic Activity Practiced Over the Past 12 Months, 2007

Type of Activity	Contribution Percentage (%)
1. Wage Employment	54.7
2. Non-Wage Employment (including):	45.3
Agriculture, Hunting, Forestry, and Fishing	17.2
Mining and Quarrying	0.1
Manufacturing	3.4
Electricity, Gas, and Water	0.0
Construction	0.1
Wholesale and Retail Trade, Repair of Motor Vehicles and Personal and Household Goods	16.3
Hotels and Restaurants	0.4
Transport and Communications	5.4
Real Estate Activities, Renting, Business Activities, and Financial Services	0.7
Public Administration, Defense, and Compulsory Social Security	-
Education	0.0
Health and Social Work	0.5
Other Service Activities	1.1
Undefined	0.2

Source: prepared by the researcher based on: Ministry of Planning, 2020–2021d, pp. 39, 41.

in Najaf (54.7%) fall into the category of wage employment (paid work), where workers receive a regular salary for the work they perform. The remaining (45.3%) are distributed among various non-wage employment (unpaid work), which contrasts with wage employment. Individuals in these jobs are typically self-employed and receive irregular income, either in cash or in kind for their work (Hansen et al., 2014, pp. 11), as detailed in the table below.

Workers in the services sector and other sectors are distributed between the public and private sectors as follows:

a. Government and Public Sector

According to 2019 data, the total number of government employees nationwide was 2,941,986, representing 7.48% of Iraq's population. Of these, 682,021 employees are in the Kurdistan Region, accounting for approximately 23.2% of total Iraqi employees. This includes 872,645 employees and security personnel in the Ministries of Interior and Defense, constituting approximately 30% of total Iraqi employees. In al-Najaf Governorate, as per 2017 data, thousands of employees work in the governmental service sector across various departments and service institutions. They represent 4% of total government employees in Iraq and are distributed across various service sectors such as health, education, transport, finance, industrial sectors, and security forces (Ministry of Planning, 2018b, p. 24).

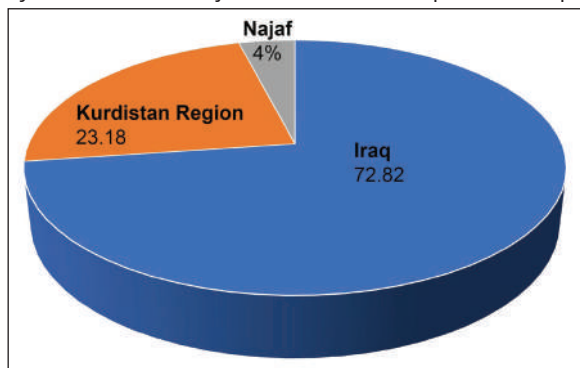
The table below reveals significant disparities in employment rates across various Iraqi governorates, reflecting an unfair distribution of government employment that deviates from the population proportions of each governorate. For example, Erbil Governorate, with a population of 1.9 million in 2019, has an employee ratio of 6%, which is higher than Bābil Governorate (5%), despite Bābil's larger population of 2.12 million in the same year (Ministry of Planning, 2020–2021a, p. 9).

Table 3-7: Government Employment Ratio by Governorate, 2017

Rank	Governorate	Employee Ratio (%)	Rank	Governorate	Employee Ratio (%)
1	Baghdād	21	10	Diyālā	4
2	Nīnawá	9	11	Duhok	4
3	al-Baṣrah	7	12	Karbalā'	4
4	Erbil	6	13	Wāsiṭ	4
5	al-Sulaymānīyah	5	14	Ṣalāḥ-al-Dīn	4
6	Kirkūk	5	15	Najaf	4
7	Bābil	5	16	al-Dīwānīyah	4
8	Dhī-Qār	5	17	Maysān	3
9	al-Anbār	4	18	al-Muthanná	2
Total	100				

Source: Ministry of Planning, 2018b, p. 24.

Figure 3-5: Employee Ratios for al-Najaf Governorate Compared to Iraq and the Kurdistan Region



Source: Prepared by the researcher based on data from Table 3-7.

b. Private Sector:

Despite the strong demand for public sector employment due to various factors, including stable wages, social security (pension), and the cultural preferences of Iraq's and Najaf's youth, the public sector's absorptive capacity remains limited relative to the size of the labor force in the governorate. Consequently, the remaining workforce often turns to the private sector for employment opportunities. Wages in this sector are generally lower than in the public sector, with exceptions for certain jobs, and working conditions can be more challenging, with women's wages generally lower than men's. However, productivity tends to be higher. The average wage level in Najaf's private sector is 9% higher than the national average in Iraq, and this percentage rises to 13% in Baghdād and al-Baṣrah governorates (Salary survey: Iraq, 2022).

According to al-Najaf al-Ashraf Chamber of Commerce data from 2014, al-Najaf Governorate hosts 125 diverse companies, including import-export, industrial, service, and contracting firms. These are classified as 17 excellent companies, 55 first-class companies, and 53 second-class companies (al-Najaf al-Ashraf Chamber of Commerce, 2014, pp. 63-69). The governorate also had 231 real estate offices and 31 car contract offices. Commercial names totaled 7,159 for various service activities, shops, and others, distributed as 80 excellent-classified, 334 first-class, 1,095 second-class, and 1,530 third-class. The final category, fourth-class, comprised 4,120 commercial names for various activities spread across different cities and villages of the governorate (al-Najaf al-Ashraf Chamber of Commerce, 2014, pp. 97-321).

The latest organized data from the Najaf's Chamber of Commerce for 2017 show that the total number of commercial, service, and industrial activities in the governorate reached 61,974 in 2017. This includes 50,641 shops, 82 commercial complexes, 398 salons and barbershops, 595 medical establishments, 39 bakeries and pastries, 513 hotels, 154 restaurants, 141 car repair and maintenance shops, 6,488 offices, 442 goldsmiths, 1,548 various factories, 12 printing presses, 42 cafes, 15 workshops, 218 photography studios, and 646 companies (al-Najaf al-Ashraf Chamber of Commerce, 2017). This is further detailed in Table 3-8.

Table 3-8: Commercial, Service, and Industrial Activities in Najaf, 2017

Shops	50,641	Offices	6,488
Complexes and Mar-kets	82	Goldsmiths	442
Salons and Barber-shops	398	Factories	1,548
Medical	595	Printing Presses	12
Bakeries and Ovens	39	Cafes	42
Hotels	513	Workshops	15
Restaurants	154	Photography Studios	218
Car Repair	141	Companies	646
Total	61,974		

Source: prepared by the researcher based on data from: Najaf Chamber of Commerce, 2017.

According to Najaf's Chamber of Commerce data for 2022, registered factories numbered 21, and there were 210 companies specializing in various activities and services such as trade, contracting, import-export, grain milling, tourism and travel, oil services, consultancies, industries, and medical supplies. Commercial names reached 9,554, encompassing shops, barbershops, public baths, brokerages, cinemas, gaming arcades, goldsmiths, pharmacies, bakeries, hotels, multi-purpose halls, slaughterhouses, commercial complexes, fuel stations, shops, bakeries, warehouses, pharmaceutical depots, hospitals, photographers, printing presses, mills, restaurants, showrooms, institutes, cafes, offices, book shops, and amusement parks (al-Najaf al-Ashraf Chamber of Commerce, 2022).

II. Challenges to Najaf's Economic Reality

Najaf's economy faces numerous challenges in the current and coming decades, leading up to 2050. The most significant among these are:

1. Population Growth and Internal Migration

The primary issue anticipated to escalate in the near future is population growth. Future demographic trends will exert considerable pressure on resources, increase labor demand, and consequently raise unemployment rates. Iraq's population growth rate is 2.6% according to the Iraqi Ministry of Planning, implying an annual increase of approximately one million people. Future projections estimate Iraq's population will reach 50.19 million by 2030, a roughly 25% increase over the decade. By 2040, the population is expected to reach 60.58 million, representing a 20.7% increase within that decade. This growth continues, albeit at declining rates, reaching 107.7 million by 2100 with a 4.36% increase (Population Pyramids of the World from 1950 to 2100).

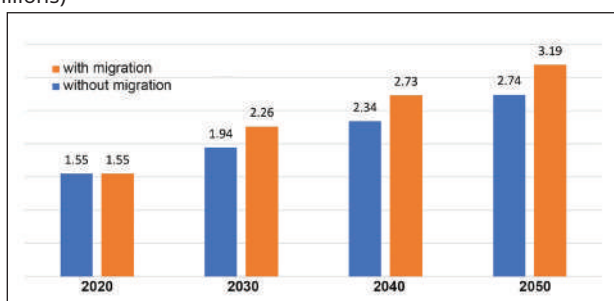
Najaf Governorate, alongside Baghdād, Karbalā', and al-Baṣrah, experiences migration from other Iraqi governorates, further accelerating its population growth rate beyond the national average. According to 2020 data, al-Najaf Governorate's population was 1,549,788, with 1,106,811 (71.4%) residing in urban areas and 442,977 (28.6%) in rural areas. Najaf's population constitutes 3.86% of Iraq's total population of 40,150,174 (Ministry of Planning, 2020–2021a, p. 8). Based on

Table 3-9: Population Projections for Iraq and al-Najaf Governorate until 2050 (Millions)

Year	Population of Iraq	Growth Rate %	Population of Najaf (without migration)	Population of Najaf (with migration)
2020	40.15	-	1.55	1.55
2030	50.19	25	1.94	2.26
2040	60.58	20.70	2.34	2.73
2050	70.94	17.10	2.74	3.19

Source: compiled by the researcher based on projections from: <https://www.populationpyramid.net/iraq/2019/>

Figure 3-6: Population Projections for al-Najaf Governorate with and without Migration until 2050 (Millions)



Source: Prepared by the researcher based on data from Table 3-9.

Iraqi population projections, al-Najaf Governorate's population is expected to reach 1.94 million by 2030, an increase of approximately 400,000. It is projected to rise to 2.34 million by 2040, another increase of about 400,000, and reach 2.74 million by 2050, adding another 400,000 people. Should migration into the governorate persist, the population could exceed three million by 2050. Data from 2015 indicates that five governorates in Iraq, including Najaf (Baghdād, Kirkuk, Najaf, Dhī-Qār, al-Baṣrah), recorded high rates of child labor among internally displaced persons, particularly boys. Displaced families often suffer from poverty, debt, harsh living conditions, and shortages of food, water, and sanitation (League of Arab States, 2019, p. 74).

This population increase presents a double-edged sword. On one hand, it represents an active human resource capable of building and stimulating the governorate's economy, provided suitable conditions such as employment opportunities and educational standards are met. On the other hand, it will exert significant pressure on the health, education, and infrastructure sectors. This pressure will intensify with continued internal migration from rural to urban areas, leading to an increased labor supply and consequently higher unemployment rates if sufficient job opportunities are not created. This internal and external migration is not new to the governorate. Historically, due to its sanctity among Muslims, the city has attracted many Shīʿī Muslims from other governorates and various countries for study, residence, or work. According to 1922 data, foreign residents constituted 33.3% of the governorate's total population, a proportion that rose to 37% in 1930, with the Iranian community accounting for 90% and other nationalities making up the remaining 10% (al-Janābī, 2013, p. 44).

2. The Rentier Nature of the Iraqi Economy

The Iraqi economy has suffered from this problem for decades due to the state's increasing reliance on oil rents and a complex political environment characterized by security challenges, diverse political interests, and competition. Furthermore, the legal and institutional landscape presents challenges that impede the diversification of the Iraqi economy (Bajalan & Wahab, 2016, p. 11).

This rentier structure is expected to persist in the coming decades, meaning that the financial allocations to the governorate will remain dependent on Iraq's oil revenues. These revenues are primarily linked to external variables, as the oil market is influenced by a range of external factors affecting both supply and demand⁽¹⁾, and consequently, oil prices. Domestically, oil exports could face a complete halt, as occurred during the economic sanctions of the 1990s, or a partial halt due to technical export difficulties, or security, political, and social unrest. Therefore, the governorate's financial allocations will be volatile and unstable, increasing with higher oil revenues and decreasing with their decline.

3. Political and Security Stability

Economists view political instability as a serious problem that harms economic performance and can also lead to fluctuations, thereby negatively affecting macroeconomic performance (Aisen & Veiga, 2011, p. 3).

al-Najaf Governorate is considered one of the most secure and politically stable governorates, which has positively impacted its social stability. This stability will have significant economic effects, encouraging local and foreign investment in various economic sectors, particularly tourism, entertainment, industry, services, and agriculture, thus contributing to the governorate's economic stability and prosperity.

4. Environmental Factors and the Scarcity of Euphrates River Water

Iraq, as a nation, suffers from the effects of climate change in ways similar to or even worse than many other countries in the region and worldwide. Manifestations of these climate changes include global warming, shifts in prevailing weather patterns, and rising sea levels. Increased temperatures, decreased rainfall, and increased evaporation lead to water stress in Iraq. The significant pressures facing all governments will escalate in the future unless the government undertakes proper planning and preventative solutions. A long-term series of regular rainfall is crucial for studying the natural variability of climate and hydrology (Agha et al., 2017, p. 57). However, these also lead to other changes in a chain reaction, such as drought, desertification, and dust storms. Iraq is not immune to the consequences of rising sea levels, as the southern part of the Tigris and Euphrates delta is threatened by flooding, and Iraq's ports and marine coastline are at risk due to this anticipated rise. The agricultural sector in Iraq has been severely affected by the lack of water available for arable land, whether rain-fed

(1) For more information, see: (Amarfio et al., 2017; pp. 7-15).

lands in the northern part or irrigated lands using the decreasing discharge of the Tigris and Euphrates rivers in the southern and central parts. These discharges have already been reduced due to unfair practices by Turkey, from which most of the two river's water resources originate (Adamo et al., 2018, p. 43). Iraq has been ranked fifth among the countries most vulnerable to climate collapse; it has been affected by rising temperatures, decreasing and insufficient rainfall, increasing drought waves, water scarcity, frequent sand and dust storms, and floods (International Organization for Migration, 2022, p. 5).

Najaf Governorate has been clearly affected by the negative trends of climate change, and these effects, under the current circumstances, will continue in the future through rising temperatures, loss of arable land due to desertification, increased salinity, recurrent drought waves, and sandstorms, leading to agricultural degradation. This will exacerbate the suffering of the population in the future and cause social unrest. The problem is compounded by water policies in neighboring countries that have significantly reduced water sources. Additionally, rapid population growth in the governorate, urban expansion, and excessive water use in the agricultural and industrial sectors are driving increased water demand. Najaf, Karbalā', al-Dīwānīyah, al-Muthanná, and Wāsiṭ governorates have been affected by climate-induced migration due to water scarcity. In 2021, according to data from the International Organization for Migration, 5,838 individuals (973 families) were displaced from these governorates due to water scarcity, increased salinity, and pollution, with Najaf accounting for 150 families (International Organization for Migration, 2022, pp. 11, 12). According to 2019 data, 66,568 dunams of agricultural land in al-Najaf Governorate have undergone desertification, while 10,287,900 dunams are threatened by desertification, representing approximately 11% of the total land threatened by desertification in Iraq. The area of sand dunes in the governorate was 31,597.3 dunams, and the annual average dust fallout in the governorate was 25 g/m²/month, which is among the highest rates in Iraq, with the exception of Dhī-Qār and Diyālā governorates, which recorded (35, 25) g/m²/month respectively (Ministry of Planning, 2020–2021c, pp. 24, 49).

Despite increasing public awareness of the risks of climate change, few political leaders and decision-makers in the federal and local governments prioritize this issue, implying a potential for future conflicts arising from climate impacts (Younis, 2022, p. 1). Therefore, environmental challenges will remain one of the most significant challenges facing Najaf's economy.

5. Decreased Financial Allocations and Challenges in Managing Investment Budgets

The source of investment funds in the governorate comes from the budgets received by the governorate from the central government, which are:

- **Regional Development Budget:** Investment allocations are distributed at the governorate level based on the population of each governorate. The governorate, in turn, allocates a percentage for general strategic

projects, and the remainder is distributed to districts and sub-districts based on population.

- **Petrodollar Budget from Najaf Refinery:** The proposal to allocate funds to governorates producing crude oil or gas, or those with oil refineries, dates back to 2010. The Ministry of Finance was obligated to allocate \$5 for each produced or refined barrel of oil, which was later reduced to \$2 per produced barrel and \$2 per 150 cubic meters of produced gas, then further reduced to \$1 per produced barrel. Most of the allocated funds did not reach the governorates; instead, the laws remained frozen. These funds are supposed to be allocated to environment-related projects, but reality has proven otherwise (Awan Organization, 2015, p. 45). In Najaf, most of these funds within this budget are allocated to specific projects such as the Culture Palace, the main courthouse, and strategic projects that benefit all residents of the governorate.
- **Poverty Budget:** This is determined by the Ministry of Planning within poverty reduction strategies and allocated to certain projects in the poorest areas, for example, for schools in poor areas. At one point, it was managed by the Planning Department in the governorate. Due to delays, it was transferred to the Reconstruction Authority.
- **International Aid and Grants, and Civil Society Organization Projects:** These are funds that the governorate may receive as aid and grants from various international and local institutions. This source is unstable and typically allocated to specific projects without direct intervention from the governorate.
- **Local Revenues:** These are revenues the governorate obtains from services provided to citizens, such as municipal services and fees, and from local investments such as Najaf International Airport, where a certain percentage is allocated to the governorate and the remainder is sent to the federal treasury according to the relevant ministries.

The allocations to the governorate do not meet the actual needs of its residents for health, education, municipal services, infrastructure, and other services. Furthermore, the procedures and complexities adopted by the Ministry of Finance and the Ministry of Planning, along with the weak financial management of successive governorate administrations, significantly contribute to reducing the execution rates of allocated funds. According to 2021 data, the governorate was allocated an investment budget of 243.703 billion IQD, of which 101.043 billion IQD was spent, representing an execution rate of 41.4%. This rate is lower than that achieved in 2020 but exceeds the national average execution rate of 35.66%, as shown in the following table:

6. Inadequate Education System for Economic and Industrial Development Needs

Education is a fundamental factor for economic development; no country can achieve sustainable economic growth without significant investment in human

Table 3-10: Investment Allocations and Amounts Spent for Iraqi Governorates in 2021

Governorate	Allocated Amount (billion IQD)	Amount Spent (billion IQD)	Execution Rate (Expenditure) %	Increase or Decrease in Rate from Last Year
Najaf	243.703	101.043	41.4	Decrease
Baghdād	1087.188	66.470	6.1	Decrease
Ninawá	543.044	115.767	21.3	Decrease
al-Başrah	1074.969	467.877	43.5	Decrease
al-Anbār	518.610	388.138	74.8	Increase
Bābil	428.221	106.058	24.7	Decrease
Diyālā	240.713	78.294	32.5	Decrease
Karbalā'	176.910	107.211	60.6	Increase
Dhī-Qār	289.421	68.227	29.7	Decrease
Kirkuk*	-	-	-	-
Şalāḥ al-Dīn	309.091	82.986	26.8	Decrease
al-Muthanná	182.000	85.623	47	Decrease
Wāsiṭ	227.083	82.927	36.5	Decrease
al-Diwāniyah	197.241	56.527	28.6	Decrease
Maysān	239.482	61.798	25.8	Decrease
Total	5757.676	1868.946	Average: 35.66	Decrease

(*) Data not available.

Source: compiled by the researcher based on data from: Ministry of Planning, 2021.

capital. Education enriches people's understanding of themselves and the world, improves their quality of life, leads to significant social benefits for individuals and society, and enhances people's productivity and creativity (Ozturk, 2001, p. 39).

The education system in al-Najaf Governorate, being part of Iraq's overall education system, is inadequate for the demands of the governorate's economic development, particularly industrial development. The curricula adopted in various educational institutions across the governorate produce graduates whose skills do not align with labor market demands. These graduates often lack the necessary tools and skills to develop the governorate's economy and fail to keep pace with the rapid technological advancements worldwide amidst the Fourth Industrial Revolution and its consequent high automation of various industries, the Internet of Things, smart robots, and the shift towards clean energy.

7. Global Economic Changes

Global economic developments are accelerating; for instance, the world economy could double by 2050, far exceeding population growth, due to continued productivity improvements driven by advanced technology. Emerging economies are expected to dominate the 21st century. By 2050, China is projected to be the largest economy in the world, significantly surpassing the United States, while India could overtake the United States to claim the second position globally. Significant changes are also anticipated in the policies of countries and

corporations concerning pensions, healthcare, energy, climate change, transportation, housing, and the nature of infrastructure investment (PWC, 2017, p. 3). Furthermore, the effects of the Fifth Industrial Revolution (5IR), also known as the Fifth Economic Revolution, representing the post-Artificial Intelligence and Internet of Things era, will have largely manifested globally. This is a future vision or foresight of what the world will be like after the Fourth Industrial Revolution. The change will primarily involve Artificial Intelligence, in addition to combining robots and humans in the workplace and fostering familiarity between them, as future robots will be emotional, capable of reading human facial expressions and understanding body language.

Therefore, although the Fifth Industrial Revolution will witness more innovation, development, and creativity through high levels of automation powered by Artificial Intelligence, it will differ from the Fourth Industrial Revolution by striving to serve humanity. While the period between the first and second industrial revolutions lasted approximately 90 years, it shrank to 44 years between the second and third, and approximately 31 years between the third and fourth, meaning that the future is happening faster than we imagine, and the Fifth Revolution may knock on our doors in the next decade. The Fifth Industrial Revolution will remove barriers between the natural and virtual worlds, and new technologies will be more advanced than anything we have known before, faster and more scalable, and people will have greater access to devices. Vast amounts of data can be extracted and intelligently processed to improve efficiency and productivity while creating new job opportunities (Ali et al., 2022, p. 203).

These accelerating developments are a significant challenge for decision-makers and will have important implications for the governorate's economy. To keep pace with the global economy and avoid economic isolation, decision-makers must understand what is required of the governorate, whether it is to prepare for currently non-existent jobs, identify the use of technologies yet to be invented, or solve problems not yet defined. Any inaction in this area will have negative consequences for the governorate's economy and the future of its population.

8. Administrative and Financial Corruption

The problem of administrative and financial corruption appears to remain a semi-permanent phenomenon under current conditions, as there are no genuine indications that this phenomenon is being curbed in Iraq generally, and in al-Najaf Governorate specifically. This scourge has played a significant role in undermining opportunities to improve performance and develop the economy due to the squandering of public funds, inflated costs of government projects and procurements, inefficient execution, and weak foreign investment. According to the Integrity Commission's 2021 report, the number of registered reports reached 1,444, and the number of defendants in criminal cases in the Najaf office was 492, including one defendant with the rank of minister, with a total of 646 cases, and 98 arrest warrants issued (Federal Commission of Integrity, 2021, pp. 79, 86, and 88).

III. The Future of Najaf's Economy: Transformation Mechanisms

Humanity has long striven to predict the future; so much so that prediction has become a game for some and an obsession for many. Serendipity and unforeseen events can play a significant role in shaping the future landscape, and forecasting any economy's future demands foresight, vision, and tactical acumen. This is because the pace of change is unprecedented, with rapid advancements particularly in technology, natural resources, environment, geopolitics, and security.

The 21st century is an era of increasing complexity and accelerating change, characterized by ubiquitous information and rapid, hard-to-predict shifts. Thus, we can say with some certainty that over the next 30 to 40 years, there will be radical changes in the world's natural systems, and major events will surprise us (Ministry of Cabinet Affairs and the Future, 2017, pp. 5-9). Therefore, economic life in 2050 will be fundamentally different from what we experience today in terms of consumption patterns and how they are satisfied. This will result from radical shifts in politics, economics, lifestyles, the nature of business, changing markets and sectors contributing to income, universal access to education, and enhanced economic empowerment of women.

Several global concerns are raising anxieties about the future of the world economy. These include Brexit in 2020, following the 2016 referendum, with withdrawal procedures beginning in 2017 (HM Government, 2017, p. 5). This could lay the groundwork for deeper structural transformations in the global economy, fueled by a fierce popular backlash against globalization, automation, and the noticeable impact of these trends in increasing income inequality and weakening social cohesion (PWC, 2017, p. 3). The Russian-Ukrainian war and its effects on economic policies, especially in energy and food, the US-China trade conflict, the future of Taiwan, and the projected increase in the world's population to 9.74 billion by 2050 (Population Pyramids of the World from 1950 to 2100, n.d.) also contribute to these concerns. Additionally, the Middle East remains a volatile and insecure region due to the Arab-Israeli conflict.

These trends pose real political challenges across the developed and developing world, requiring resolute efforts by governments to enhance the quality of education and training and address perceived injustices through effective fiscal policies aimed at mitigating these concerns. They also demand genuine political leadership to resist calls for increased protectionism and maintain momentum on long-term issues such as climate change and global poverty reduction, while preserving enough flexibility to weather future political and economic storms (PWC, 2017, p. 3).

Najaf's economy is not an independent entity but rather an integral part of the Iraqi economy, administratively and financially linked to it, and subject to the decisions and policies of the federal government and the laws and legislations of the Iraqi Parliament. Therefore, the future of Najaf's economy will not deviate

significantly from the future and direction of the Iraqi economy. The powers granted to governorate councils (before their suspension by the Iraqi Parliament in 2019 due to popular protests) and to governors and heads of administrative units are relatively limited, not extending beyond managing the governorate's affairs through implementing various projects and providing services to the population. Consequently, the governorate's economy will remain directly linked to the Iraqi economy, only achieving independence to a certain extent due to the governorate's unique characteristics, its religious nature, and its possession of natural resources and mineral wealth.

In general, Najaf's economy is expected to follow one of two paths: First, in line with OPEC's projections, al-Najaf Governorate's economy will continue to rely on governmental operational and investment financial allocations derived from oil rents, as oil will remain a significant portion of public revenues. Future studies indicate an increase in Iraq's oil production under OPEC's forecasts, which suggest that oil will remain the dominant fuel in the global energy mix until 2045, accounting for 28% of the global energy balance at approximately 99 million barrels per day. Oil and gas combined are expected to continue representing over 50% (OPEC, 2022, p. 51).

Conversely, another scenario by TotalEnergies' groups predicts that global oil demand will fall to just 35 million barrels by 2050 due to the nearly 10% annual reduction in solar, wind, and battery costs over multiple decades (Financial Post, 2021). If this scenario materializes, the governorate's financial allocations would significantly decrease, potentially by more than 50% of current allocations.

Global economic expansion is anticipated in the coming decades through an overall increase in economic productivity and subsequent wealth growth (Ministry of Cabinet Affairs and the Future, p. 13). Najaf's economy will not be immune to this, despite slower growth and potential periods of recession, leading to an improved standard of living for all segments of Najaf's society and a gradual shift towards Western consumption patterns and discretionary consumption, whose features have appeared in the governorate for many years.

Second, these accelerating technological advancements, especially in energy, will lead to a structural transformation in the governorate's economy. As mentioned earlier, by 2050, financial allocations might decrease by over 50%, alongside a significant reduction in public sector employment due to anticipated structural changes in the Iraqi economy's composition and a decreased contribution of the extractive industry sector to GDP, resulting from oil's reduced share in the global energy balance.

Below is a vision for the prospects of Najaf's economy in 2050:

1. Agricultural Sector

With the population projected to reach 2.74 million in 2050, and 3.19 million with anticipated internal migration, the agricultural sector will undergo significant changes. These include phasing out water-intensive crops like rice in favor of crops requiring less water, or altering seed characteristics to reduce water needs.

Modern agricultural methods such as drip irrigation, lined canals, and ground-water utilization will be adopted due to the anticipated significant decrease in Euphrates River water inflow. Increased capital investment in the agricultural sector will aim to bolster the food security of the governorate's residents and provide employment opportunities for its youth. Given the expected technology in 2050, agricultural production can be doubled without increasing land area or water usage (DiPiazza et al., 2010, p. 4). Furthermore, vast areas of the Najaf desert are expected to attract private investment, both foreign and local, through desert reclamation, reliance on groundwater, and cultivation of crops that serve as inputs for certain industries, along with establishing nearby factories. Examples include olive farms and olive oil production plants, and fruit and palm tree cultivation with adjacent canning and packaging factories.⁽¹⁾

These anticipated developments in the agricultural sector will play a significant role in offsetting the deficit in the governorate's financial allocations, enhancing food security for its residents, and supplying local industry and neighboring governorates with necessary agricultural inputs. The governorate will also see the establishment of numerous cattle, chicken, sheep, and ostrich farms, among others, to sustain the food basket for the governorate's residents amidst population growth. Additionally, Najaf's farmers will develop a culture of diversifying agricultural income sources and maximizing land utilization, benefiting from increased demand for agricultural products and advancements in agricultural technology, especially as the governorate's climate, as part of Iraq and the world, will experience climatic changes that increase agricultural risks.

2. Industrial Sector

The industrial sector has suffered significant neglect from both federal and local governments over the years, with most attention focused on the oil industry. Consequently, Iraq has remained heavily dependent on oil and lacks diversification into other economic sectors, leading to the industrial sector's reliance on oil-generated funds (GIZ, n.d., p. 2).

As time progresses towards 2050, the industrial sector is expected to grow gradually through the localization of many new industries. These projects will be economically viable due to the abundance of resources in Najaf and nearby governorates, and the availability of a skilled workforce with moderate proficiency and good experience. The increasing population size of the governorate will have a dual impact on the establishment of numerous industries. On one hand, population growth contributes to market expansion and increased demand for various industrial goods, making certain mega-projects economically viable according to economic theory, benefiting from economies of scale and cost minimization (Kāzīm & Kāzīm, 2009, p. 181). On the other hand, this population increase provides cheap labor for industry by increasing labor supply and encouraging producers to increase investment and employment, thereby driving the economic cycle. The governorate will also see the establishment of numerous food industries such

(1) For more on the future of technological developments in agriculture, see: De Clercq et al. 2018.

as canning, oil production, date packaging, tomato paste production, molasses manufacturing, and others, by utilizing the diverse agricultural output. Construction industries, low-cost and eco-friendly building materials industries, textile and sewing industries, leather industries, and assembly industries for some electrical appliances and digital industries are expected to flourish, as they will be economically viable due to the expanding local market. Technological advancements in material usage can be leveraged, with a four to tenfold improvement in resource and material utilization expected by 2050 (GIZ, n.d., p. 4). This sector will also witness an influx of local and foreign investment, capitalizing on available investment opportunities and transferring foreign expertise to the governorate, especially as the economy becomes closer to a market economy following the diminishing allure of oil rents and reduced financial allocations to the governorate.

By 2050, the governorate's administration aims to lead in combining the foundational industrial base of a modern economy with deep emissions reductions required to achieve climate goals. This would make industrial emissions one of the main obstacles to net-zero total emissions. The challenge here is: Is it possible to reduce industrial emissions to net zero by 2050? Is it possible to leverage technological advancements in this field through carbon capture and storage as the primary option for achieving the required reductions, or to resort to Circular Economy as another important solution to reduce emissions, alongside innovations in industrial processes, digitalization, renewable energy technologies, and more? (European Climate Foundation, 2019, p. 7) And to develop more environmentally effective solutions, lifestyles, and behaviors, and integrate the cost of externalities, starting with carbon, ecosystem services, and water? Therefore, the industrial sector in the governorate will not be isolated from these developments amidst expectations of increasing international interest in environmental and climate issues.

3. Service Sector

Najaf's society in 2050 will not be far from the concept of a network society, a term used to describe modern society where social and media networks form the fundamental pattern of organizational structures. This involves a large professional and social network of great importance to individuals and society, with the internet as the primary driver of this development, as the web makes it easy for producers and buyers to directly connect, bypassing traditional centralized distribution channels. P2P (Peer-to-peer) markets are one of the most prominent manifestations of the network society in the governorate, becoming part of a socio-economic system built around the creation, production, distribution, trade, and shared consumption of goods and services by various individuals and organizations (Ministry of Cabinet Affairs and the Future, 2017, p. 15). Local governments in the governorate are also expected to design and begin building the next generation of social infrastructure, if liquidity is available, and operate it more intelligently, leading to better outcomes for society.

By 2050, the private sector is expected to play a leading role through the privatization of most economic and service activities. The government sector will gradually relinquish its role in providing continuous support to public services such as energy, water, fuel, food, health, and main roads, in order to reduce public spending and focus on strategic projects that the private sector cannot implement due to economic reasons (such as low profitability or incurring losses) or technical reasons (requiring significant capabilities or having national security implications). The service sector's contribution to the governorate's gross domestic product is also expected to increase, surpassing the contribution of other economic sectors.

4. Tourism Sector

al-Najaf al-Ashraf Governorate is distinguished by its religious sanctity to hundreds of millions of Muslims due to the presence of the shrine of Imam 'Alī ibn Abī-Ṭālib, which is one of the most important religious tourism sites, receiving approximately 40 million visitors annually (National Investment Commission, 2013, p. 2). There is also the shrine of his nephew, Muslim ibn 'Aqīl, in al-Kūfah district, and numerous tombs of prophets, religious figures, and various shrines. Furthermore, Wādī al-Salām cemetery, one of the largest cemeteries in the world, has been continuously used for burial for over 13 centuries and is on UNESCO's World Heritage list. Iraq has four UNESCO-recognized World Heritage sites in addition to eleven more on the tentative list (Alabdali, 2018, p. 2).

The governorate also contains numerous historical and natural archaeological sites. Therefore, this sector will play a vital and significant role in stimulating the governorate's economy after long decades of reliance on its share of oil rents. By 2050, the tourism sector's contribution to the governorate's income will increase, providing thousands of direct and indirect job opportunities for the governorate's residents, in addition to generating indirect returns by stimulating tourism-related industries and services. This sector will be attractive to local and foreign private investment.

IV. Scenarios for Local Economic Growth

Interest in future studies has grown due to the significant risks threatening the world, and they are now managed by top executive leadership and planning departments in organizations, institutions, and countries across the developed and developing world. They have evolved to seek foresight and transition from "the future" to alternative future (Inayatullah, 2013, p. 37).

Future analysis is conducted by formulating future assumptions (scenarios) about a specific phenomenon and its evolution over multiple time periods, based on a number of assumptions and active factors, through which potential changes in the future timeline to be anticipated emerge. In light of many studies, including the current study and future projections for Najaf's economy, three future scenarios for Najaf's economy in 2050 will be formulated as follows:

1. Reference Scenario (Stable Growth)

This scenario represents a middle ground between optimism and pessimism, i.e., the realistic state of future expectations, and is usually the closest to actual reality, based on the following assumptions:

- Continued federal financial allocations to the governorate derived from oil revenues.
- Population growth rate within expectations, with no significant waves of displacement or migration to the governorate.
- Continued security stability in Iraq generally, and in al-Najaf Governorate specifically.
- Good management and planning, leveraging rapid technological advancements in the context of the Fifth Industrial Revolution, and developing the governorate's infrastructure.
- Optimal utilization of current and future human and material resources through the establishment of numerous industries.
- Mitigation of administrative and financial corruption.
- Stable water share for the governorate for domestic, agricultural, and industrial purposes.
- Increased contribution of tourism to the governorate's economy.

The key drivers for this scenario are:

1. **Continued rise in oil prices with no significant drops:** According to OPEC's projections, oil will remain an important source, accounting for a large percentage of the global energy mix until 2045, with 28% of the global energy balance and around 99 million barrels per day. Oil and gas together are expected to represent more than 50% (OPEC, 2022, p. 51). Based on this, prices and revenues will remain stable within reasonable limits for the OPEC scenario, meaning continued federal operational and investment financial allocations to the governorate, which will play a major role in stabilizing the governorate's economy and raising the level of economic development for its residents.
2. **Stable population growth rate within the expected average:** According to previous projections, al-Najaf Governorate's population will reach 2.74 million in 2050, and with anticipated migration, the population will be 3.19 million. This number is expected due to the tendency of Najaf's families in the coming decades to reduce birth rates with improved income levels and rising development rates. This size will not exert significant pressure on the governorate's resources and infrastructure, given the continued receipt of operational and investment budgets in line with the first factor related to oil prices.
3. **Constitutional amendment and political and social stability:** As expected, Iraq will stabilize politically and socially after experiencing intermittent political impasses. This will reflect on security stability in all Iraqi

governorates, including Najaf, as political parties and blocs will reach a conviction regarding the necessity of amending certain articles of the 2005 Iraqi Constitution to form the government more quickly and without major problems and obstacles, according to electoral entitlements.

4. **Agreement on Iraq's water share with neighboring countries:** According to this scenario, an agreement is expected with the riparian states of the Tigris and Euphrates rivers, especially with Turkey, to fix Iraq's water share. This will reflect on the governorate's share from the Euphrates River, ensuring continued normal agriculture supported by advanced irrigation methods and water conservation in the domestic and industrial sectors due to the pricing policy of consumed water, and the installation of smart prepaid meters for all subscribers.
5. **Development of the tourism sector:** By 2050, the contribution of religious and recreational tourism to the governorate's economy is expected to increase through attracting foreign investment, by establishing luxurious hotels, developing transportation methods, flourishing popular (folklore) industries, and developing historical and recreational sites like Najaf Sea. Evidence has shown that religious tourism has not ceased even during the worst security and economic conditions the country has faced.
6. **Development of the education system to meet labor market needs:** especially in vocational education and training, and providing the industrial sector with the necessary skills and knowledge in light of rapid global technological development.

2. Optimistic Scenario (Accelerated Growth)

This scenario points to an optimistic state (accelerated growth) for al-Najaf Governorate's economy in 2050, based on the following assumptions:

- Significant increase in operational and investment financial allocations for the governorate.
- Population growth rate lower than current expectations.
- Continued security stability in Iraq generally, and in al-Najaf Governorate specifically.
- Good management and planning, leveraging rapid technological advancements in the context of the Fifth Industrial Revolution, and developing the governorate's infrastructure.
- Optimal utilization of current and future human and material resources through the establishment of numerous industries.
- Complete eradication of administrative and financial corruption.
- Increased water share for the governorate for domestic, agricultural, and industrial purposes, and a flourishing agricultural sector.
- Increased contribution of the tourism sector to the governorate's economy.

Table 3-11: Future Industries That Can Be Established in Najaf by 2050

Industry	Number of Facilities	Industry	Number of Facilities
Pharmaceuticals	1	Petrochemical Industries	1
Cement	2	Paints	1
Medical Supplies and Equipment	1	Concrete Asphalt	1
Bricks	2	Prefabricated Buildings	1
Automobile Assembly	1	Tiles, Marble, and Mosaic	1
Clean Energy Equipment*	1	Ceramics	1
Glass	1	Electrical Appliances	1
Rubber and Plastics	1	Food Industries	2
Computers and Smart Devices	1	Fertilizers	1
Robotics Industry	1	Textiles	1

(*) Especially solar panels

Source: prepared by the researcher based on local resources in the governorate.

Several factors will drive this scenario:

1. **Rising global oil prices and increased Iraqi production and oil revenues:** According to projections from the U.S. Energy Information Administration (EIA), oil prices could reach \$185 per barrel by 2050. The price of West Texas Intermediate crude oil is expected to be around \$64 per barrel by 2025, then rise to \$86 by 2030, \$128 by 2040, and \$178 by 2050 (U.S. Energy Information Administration, n.d.). This significant price increase will be accompanied by increased production and export for Iraq, leading to a substantial increase in oil revenues, which will then reflect in increased financial allocations to al-Najaf Governorate , with the government sector continuing its public employment policies.
2. **Enhanced local revenues:** According to this scenario, the governorate will work to enhance local revenues from taxes, fees, and the cost of services provided by service institutions in the governorate, as well as revenues from strategic projects such as Najaf International Airport, among others. This will foster the growth of the governorate's economy and achieve high levels of economic and human development.
3. **No significant increase in population size:** There will be a strong push towards reducing birth rates and a lack of desire among families to have more children, due to rapid developments in the economic and social life in the governorate, similar to what is observed in developed countries. This will result in a lower-than-expected increase in population size, which will not put significant pressure on services, infrastructure, and per capita financial allocations, contributing to raising the living standard of the population and developing the governorate's infrastructure.
4. **Eradication of administrative corruption and increased automation:** According to this scenario, the problem of administrative and financial corruption in the governorate will be eradicated, and transparency will

increase through amending certain laws and taking appropriate decisions, and eliminating bureaucracy and red tape through high automation in light of technological development. Automation can help reduce down-time, lower production costs, and improve product quality (Elangovan, 2021, p. 1).

5. **Adoption of scientific planning:** A driving factor for this scenario is the existence of sound planning based on solid scientific foundations, with plans prepared by experts and specialists in economics, management, and strategic planning, and the development of management methods for the various institutions and departments of the governorate.
6. **Increased water share for Najaf:** According to this scenario, Najaf's water share from the Tigris and Euphrates rivers is expected to increase, due to an agreement between Iraq and the riparian states of these rivers, especially with Turkey. This will be supported by good water management in Iraq through the construction of dams and reservoirs and the use of modern agricultural methods, leading to an increased share for the governorate from the Euphrates River and thus continued normal agriculture with sufficient water for domestic and industrial consumption.
7. **Flourishing tourism sector:** Given the governorate's sanctity to hundreds of millions of Muslims, this scenario predicts a significant development in the tourism sector. It will become an attractive environment for foreign and local investment, creating many job opportunities for residents of the governorate and other governorates, thus increasing its contribution to the its economy and enhancing opportunities for economic growth and development.

3. Pessimistic Scenario (Collapse of Najaf's Economy)

The pessimistic scenario represents the worst-case outlook for the nature of al-Najaf Governorate's economy in 2050. If it occurs, it will lead to the collapse of its economy, and it is based on the following assumptions:

- Significant decrease in operational and investment financial allocations to the governorate.
- Population growth exceeding expectations.
- Lack of security stability in Iraq generally, and in al-Najaf Governorate specifically.
- Poor management and planning and failure to benefit from rapid technological advancements in the context of the Fifth Industrial Revolution.
- Misuse of current and future human and material resources.
- Persistence of administrative and financial corruption.
- Decrease in Najaf's water share and deterioration of the agricultural sector.
- Deterioration of the tourism sector.

The most important factors expected to drive this scenario are:

1. **Decreasing oil prices and declining Iraqi exports:** According to TotalEnergies, global oil demand is expected to fall to just 35 million barrels by 2050 (Financial Post, 2021). Based on this scenario, Iraq's oil revenues will decrease by more than half, leading to a significant shortage in funding for Iraq's operational and investment expenditures. This will reflect in reduced financial allocations to al-Najaf Governorate, leading to an economic depression for the governorate due to the inability to secure local financial alternatives. This scenario is further reinforced by the Russian-Western conflict through Ukraine, as spending on alternative energy sources has significantly increased, accelerating the transition away from fossil fuels and pushing towards green energy, which is clean, non-polluting, and comes from 100% renewable sources, making it a more environmentally friendly and sustainable alternative to fossil fuels (Ibar-Alonso et al., 2022, p. 2).
2. **Loss of security:** According to this scenario, Iraq will not achieve political, social, or security stability in the coming decades. Without political stability, there will be no social stability, and consequently, no security, which will negatively impact al-Najaf Governorate's stability and its economy. This could lead to either internal conflict or external war, as Iraq is located in a volatile and unstable region. Therefore, the expected outcomes would be more pessimistic.
3. **Population explosion:** A significant increase in the governorate's population is expected, as it is considered one of the safer governorates in Iraq. As a result of certain events, such as natural disasters and wars (as occurred during the Iran-Iraq War in 1980, and the rise of the ISIS terrorist organization in 2014), the governorate will experience internal migration from other governorates, leading to pressure on services, housing, and job opportunities. Alternatively, migration could occur due to a lack of job opportunities in many Iraqi governorates as a result of declining Iraqi oil revenues.
4. **Decreased water share for the governorate:** According to this scenario, Najaf will experience a drought and water scarcity due to a decrease in Iraq's water share from the Euphrates River, insufficient utilization of groundwater in the governorate, and poor water management. This will lead to the deterioration of the agricultural sector in the governorate and internal migration from rural areas to cities in search of job opportunities, threatening the governorate's food security and leading to the desertification of large areas of arable land.
5. **Deterioration of the tourism sector:** Tourism in the governorate will not develop significantly; it will continue to suffer from neglect and poor management of tourist facilities and underdeveloped infrastructure, and will remain limited to religious tourism. As a result, the tourism sector will

remain marginal, generating only low returns that are not commensurate with the governorate's tourism potential.

V. Responding to Challenges and Future Options

Based on the preceding challenges facing al-Najaf Governorate 's economy, the response to these challenges and future options for the governorate's administration are as follows:

1. Keep pace with rapid economic and technological developments world-wide in the context of the Fifth Industrial Revolution, and work to import technology and adapt it to the local conditions of the governorate, while developing local technology.
2. Develop administrative staff in the governorate and use modern management methods in managing the governorate's affairs, through development courses and workshops inside and outside the governorate.
3. Improve water management methods in the governorate through the use of modern irrigation techniques such as lined canals and drip irrigation, water recycling, and the installation of smart meters for domestic and industrial use at fair prices that consider the income level in the governorate.
4. Utilize renewable groundwater in the governorate and drill artesian wells based on precise calculations to avoid depleting water reserves, as the priority for this water in desert areas is to meet the needs of the population and their animals.
5. Support and develop the agricultural sector by increasing financial allocations, providing easy bank loans, and establishing strategic projects that develop the sector.
6. Utilize desert lands through local and foreign investment by establishing large farms and cultivating crops that do not consume large amounts of water, following the example of some international experiences such as Saudi Arabia, which will have both economic and environmental impacts.
7. Diversify the governorate's local income sources through strategic projects and improving municipal, judicial, health, and educational services, among others.
8. Develop religious tourism by initiating the construction of modern hotels, luxurious apartments, and tourist villas, developing transportation routes connected to these locations, and relying on graduates of tourism faculties and faculties as workers and administrators for tourist facilities.
9. Develop recreational tourism by leveraging al-Najaf Governorate 's history and nature, and developing historical tourist attractions such as the ruins of the Kingdom of al-Hīrah, the Emirate Palace, and old caravanserais. Also, develop natural landmarks such as Najaf Sea, and preserve the caves

- and hills of Ṭārāt al-Najaf as a natural landmark, with the involvement of the private sector and foreign investment.
10. Pay attention to and develop the private sector and enhance its role in managing the governorate's economy, providing job opportunities, and creating an attractive environment for foreign investment, especially in agriculture and industry.
 11. Focus on the environmental aspect of the governorate by establishing eco-friendly industries, introducing an environmental tax that considers the external cost of economic projects, and reducing greenhouse gas emissions from industry to approach a net-zero scenario by 2050.
 12. Establish green belts around the governorate and increase green spaces in various districts and sub-districts of the governorate to mitigate the effects of climate change.
 13. Develop the transportation sector in the governorate by establishing modern road networks and maintaining existing ones, connecting the governorate to the international highway, establishing a suspended metro covering key areas in the governorate, and constructing railways connecting the governorate with other governorates, especially Baghdad and Karbalā', and attracting high-speed trains by presenting them as investment opportunities.
 14. Reduce the percentage of operational expenditures and increase the percentage of investment expenditures for the governorate's financial allocations, and work to increase capital assets.
 15. Develop service institutions and improve their performance in a way that enhances the provision of services to citizens and foreigners, and privatize some of them when federal laws do not object.
 16. Establish some strategic and important industries in the governorate, such as pharmaceuticals and cement.
 17. Develop the education sector in the governorate by increasing spending, developing the infrastructure of educational institutions, revising curricula, opening ITI (Information Technology Institutes), and ensuring that educational outputs align with the future labor market in the governorate.

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4. Education

Prof. Dr. 'Ali Jarād al-'Abūdī

University of al-Kūfah.

I. Introduction

Educational institutions hold paramount importance in any society, forming the foundation upon which developed nations build their progress across various fields (cultural, economic, technological, etc.). Studying the reality of education and its institutions in al-Najaf al-Ashraf Governorate and forecasting its future should have received broader attention from researchers. Such a study is crucial for monitoring the number of schools at different levels (kindergarten, primary, secondary), the number of educators (teachers), the actual and realistic number of learners, and estimating immediate and future needs based on analytical scientific visions, while also presenting challenges and ways to address them.

This chapter explores the current state of education and educational institutions in al-Najaf al-Ashraf Governorate, as well as current and future visions until 2050. We will examine the number of schools relative to population size and the actual number of learners, assess the adequacy of schools, teachers, and learners to meet the governorate's current and future needs, present challenges and their solutions, and outline realistic, optimistic, and pessimistic scenarios. Therefore, this study includes an introduction highlighting its importance and problem, a review of the importance of education and educational institutions in the first section, the current educational reality of educational institutions in the second section, an estimation of future school needs in the third section, and a discussion of educational resources and their development in the fourth section. The fifth section addresses challenges, the sixth section discusses scenarios for the education sector, and the seventh section focuses on responding to challenges. In general, the study's main finding is that the current state of educational institutions in the governorate does not meet actual and future needs. The study concludes with a set of detailed findings, recommendations, and proposals.

We posed the following questions:

- Is the number of educational institutions and their teaching staff in the governorate adequate for the number of learners and the population size?

- What are the actual immediate and future needs for schools and educational staff based on population growth rate, community needs, and current requirements?
- What are the challenges facing development, and how can they be addressed?
- What are the current optimistic and pessimistic expectations for educational institutions?

The scope of this study encompasses Najaf Governorate for the year 2021 and its future outlook until approximately 2050. The researcher relied on descriptive data from primary sources (Planning Department at the al-Najaf al-Ashraf Directorate of Education, Central Statistical Organization in the governorate, and Central Statistical Organization at the Iraqi Ministry of Planning), as well as available literature and studies.

II. The Importance of Education and Educational Institutions

In today's world, numerous developments are occurring in various fields, necessitating continuous qualification and training of community members to face these challenges by acquiring knowledge that enables human self-realization, illuminates their world, and clarifies their role in life (Baḥr al-'Ulūm, 2003, p. 11). These developments serve as the benchmark for measuring nations' progress, which can only be achieved through dedication to education (al-Ḥilāh, 1999, p. 19). Education has become a crucial factor in driving social progress, leading countries worldwide to establish educational systems and institutions capable of embracing life's advancements (al-Shiblī, 2000, p. 34).

Historically, education has held a significant place in people's lives, providing the essential elements for community development through the preparation of trained and qualified human resources (al-Tall et al., 1983, p. 1). Modern education, however, no longer simply means imparting information; it has become a major industry that mobilizes financial resources and human energies to confront changes and developments in social, political, economic, civilizational, and knowledge aspects, especially as we live in an era of knowledge, scientific, and technological explosion ('Abd-Allāh, 1983, p. 1).

Education is a purposeful and organized process, not random. It is based on meticulous scientific planning, reaching its highest degree in educational institutions. The goal of education is to bring about desired changes in human behavior. Educational institutions serve as the means to achieve their goals by providing learners with information, facts, concepts, and attitudes that contribute to shaping and refining their personalities. They also guide learners' future paths into various specializations. Consequently, numerous attempts have been made to uplift these institutions and develop their educational state to meet the demands of the era (Baḥrī & al-'Ānī, 1987, p. 65).

Education, at all its stages and levels, represents the foundation of social construction because it interacts with all other social systems comprising this structure, influencing and being influenced. Therefore, it is necessary to continuously develop the educational system at both current and future levels. This helps individuals in society become more productive and less consumptive, meaning fostering creative abilities. This is a national goal pursued by major countries, which believe that educational development means not only solving current problems but also being aware of future challenges (al-Ḥūt, 2008, p. 14).

It is widely known that societies concerned with achieving their developmental goals believe that the challenge facing development is not solely material resources and their availability, but also the presence of creative human elements. Here, the role of educational institutions emerges in qualifying this type of human capacity that relies on itself for construction and development, rather than importing everything from abroad, but rather benefiting from the experiences of others in light of the prevailing social philosophy (al-Ḥūt, 2008, p. 16).

The development witnessed in the contemporary world and the scientific renaissance in various branches of knowledge have compelled educational institutions to keep pace with the accelerating progress of this era, stemming from the role of these institutions in developing human resources and disseminating knowledge. This, in turn, reflects on social development. The impact of educational institutions is no longer limited to providing learners with academic skills but extends to building their personalities in a balanced manner to achieve the correct orientation towards science and knowledge and qualify them for the many responsibilities and significant burdens entrusted to them, including making students more receptive to knowledge and inclined towards it (Karīm & al-Rāwī, 1992, p. 96).

Numerous attempts have been made to improve the reality of educational institutions in developed countries to develop them according to community and labor market needs, including adapting the number of these institutions according to the population growth rate, community requirements, and current cultural development (Rābiḥ, 1990, p. 75).

III. The Current Reality of Educational Institutions in al-Najaf al-Ashraf Governorate

Many educational and psychological studies in Iraq, in general, have confirmed that the reality of education suffers from numerous problems. Based on the researcher's observation of the educational reality in the governorate, some of these problems have been identified through exploratory questions, real-life experiences, or the results of scientific studies and research, including:

1. A significant gap exists between the outputs of educational institutions and the needs of the labor market on one hand, and a general decline in the cultural, religious, moral, and social behavior of learners in these institutions on the other. This may be due to a lack of coordination with

official and unofficial institutions that receive these outputs, or perhaps poor planning for educational institutions, which is a reality we currently witness (Nāşir, 2004, p. 91).

2. Unequal educational opportunities between community members (wealthy and poor), due to the presence of private schools supported by founders, versus dilapidated public schools due to lack of support, which has reflected on their educational services. This means many families turn to the private sector and private tutoring despite free public education.
3. Increased number of learners due to population growth, countered by slow establishment of educational institutions to accommodate these numbers, which has created enormous pressure on the level and quality of educational services provided by these institutions.
4. Increased school dropout rates for economic, cultural, or legal reasons, among others. Many parents have started relying on the labor of their children or adolescents to earn money and compensate for the severe shortage in providing family necessities, which have become much more complex in the current era. Additionally, the cultural awareness of some families has fallen below the level of responsibility, and there is a lack of laws that curb this phenomenon.
5. Some educational staff do not perform their duties correctly, or work ineffectively or without a sense of responsibility. This has led to a low level of graduates. Therefore, the supervisory role must be activated, and accountability for shortcomings must be intensified. This problem adds to the severe shortage in the number of schools.

The reality of educational institutions in the governorate confirms the true suffering of the current educational situation. There are mud schools, others are unfinished iron structures, and educational projects are lagging. Some schools have been demolished or attempts have been made to renovate them without completion. This does not mean that other schools are operating at their best; rather, they face problems with material capabilities, human resources, and an increasing number of students despite double or triple shifts (INA, n.d.).

The researcher will now present a detailed overview of the reality of educational institutions in the governorate based on statistics obtained from the al-Najaf al-Ashraf Directorate of Education (Planning Department - Statistics Division) (Appendix No. 1) and the Ministry of Planning website (Central Statistical Organization - Najaf City Statistics) (Appendix No. 3), in addition to relying on a scientific research (Appendix No. 2), as follows:

1. Kindergarten Stage

The kindergarten stage is one of the most important stages that helps develop a child's skills, abilities, attitudes, and religious and moral values, through the availability of various educational environmental stimuli. The experiences and

Table 4-1: Status of Kindergarten Schools in al-Najaf al-Ashraf Governorate

Number of Schools		Number of Buildings		Number of Learners			Number of Teachers and Lecturers	Hypothetical Number of Schools
public	private	public	private	Males	Females	Total		
53	6	48	6	5459	5117	10576	301	100

Source: Republic of Iraq, Ministry of Planning, Central Statistical Organization, al-Najaf al-Ashraf City.

activities provided to the child contribute to strengthening their personality in physical, spiritual, cognitive, and other aspects (Qināwī et al., 2014, p. 11).

Regarding the number of teachers, recent scientific studies indicate that an ideal ratio is 10 learners per teacher, while the ratio of learners to teachers varies among developed countries, with an average ratio ranging from 11 to 40 in OECD member countries (Wikipedia, n.d.). Taking the higher ratio of 40 learners, to arrive at an approximate number of teachers, we divide the number of learners as in Table 4-1 by 40, which results in approximately 270 teachers. This means the number is sufficient, but this only applies to learners actually present at this stage, as there are no precise statistics for their numbers within the ages of 4 to 5 years. This could be due to an increased dropout rate, non-compulsory education at this stage, or a lack of cultural awareness among some families who do not enroll their children in this important stage. As for the number of schools, Table 4-1 shows that the number of schools and buildings is unequal, and their number is not proportionate to the number of residential areas. al-Najaf al-Ashraf city alone has approximately 51 residential areas (neighborhoods). Assuming that each residential area should have schools proportionate to its population, and that each residential area needs 2 schools, according to the size of the areas and their population density, due to housing crises and the presence of multiple families in the same house or dividing houses into parts, the approximate actual need for schools would be 100 for al-Najaf al-Ashraf city alone.

2. Primary Stage

The importance of the primary stage lies in being the actual beginning of the educational process, where learners acquire basic skills and knowledge in reading, writing, arithmetic, religious, health, and moral culture, among others. This stage also works to refine learners' talents and develop creativity (Rāshid, 2010, p. 55).

Table 4-2: Status of Primary Schools in al-Najaf al-Ashraf Governorate

Number of Schools		Number of Buildings		Number of Learners			Number of Teachers and Lecturers	Supposed Number of Schools	Hypothetical Number of Teachers
public	private	public	private	Males	Females	Total			
635	99	433	53	168929	150372	319301	11616	10000	834

It is clear from Table 4-2 that the number of learners for this stage is 319,301. To determine the number of teachers relative to the number of learners (as done in the kindergarten stage) by dividing the number of learners by 30 (due to the specificity of this stage), we find that we need approximately 10,000 teachers.

This means that their number is sufficient. The reason for this sufficiency may be the high dropout rate among learners, and this number only reflects the learners actually present at this stage, as there are no accurate statistics for learners aged 6 to 11. As for the number of schools, Table 4-2 shows that the number of schools and buildings is unequal due to dual or triple shifts and the presence of more than one school in a single building. Therefore, the approximate actual need for public and private schools is an additional 248 schools to address the shortage of school buildings. If we also consider the high density of students in many school classes, and add at least 100 more schools to make the student numbers somewhat acceptable, the total required number would be around 838 schools.

3. Secondary Stage

The importance of the secondary stage differs from the primary stage due to differences in learners' age groups and characteristics, their thinking patterns, and their needs. This means it is a stage for developing their general cultural knowledge and appropriately directing their energies (Rāshid, 2010, p. 95).

Table 4-3: Status of Secondary Schools in al-Najaf al-Ashraf Governorate

Number of Schools		Number of Buildings		Number of Learners			Number of Teachers and Lecturers	Supposed Number of Schools	Hypothetical Number of Teachers
public	private	public	private	Males	Females	Total			
309	55	199	40	84415	70911	155326	8124	5177	464

Source: Planning Department, Directorate of Education, al-Najaf al-Ashraf (23/12/2021)

It is clear from Table 4-3 that the number of learners for this stage is 155,326. To determine the actual ratio of teachers to learners, by dividing the number of learners by 30 (due to the specificity of this stage), we find that we need approximately 5,177 teachers. This means there is a surplus of teachers. The reason for this might be the high dropout rate among learners, and this number only reflects the learners actually present at this stage, as there are no accurate statistics for learners aged 12 to 17. As for the number of schools, Table 4-3 shows that the number of schools and buildings is unequal due to dual or triple shifts and the presence of more than one school in a single building. Therefore, the approximate actual need for schools is about 125 additional schools. If we also consider the high density of students in many school classes, and add at least 100 more schools to make the numbers somewhat acceptable, the total required number would be around 464 schools.

Vocational education within the secondary stage has been largely neglected by decision-makers over the past five decades. It is necessary to focus on both vocational and academic aspects due to the significant role vocational education plays in the economic aspects of the state at both the production and employment levels. Local skills can be relied upon in commercial, industrial, and health aspects, accommodating youth and investing their potential, talents, and hidden energies.

Table 4-4: Status of Vocational Education Schools in al-Najaf al-Ashraf Governorate

Number of Schools		Number of Buildings		Number of Learners			Number of Teachers
public	private	public	private	Males	Females	Total	
9	-	9	-	1638	467	2105	153

It is clear from Table 4-4 that the number of learners for vocational education is 2,105. To determine the actual ratio of teachers to learners (as done previously), we find that the number of teachers is sufficient. The reason for this might be the high dropout rate among learners, and this number only reflects the learners actually present at this stage, as there are no accurate statistics for their numbers within the ages of 12 to 17. As for the number of schools, Table 4-4 shows that their number is very small compared to the needs of the labor market. It appears that social culture has significantly affected the perception of the importance of vocational education (commercial, industrial, and nursing), as it is viewed as inferior to academic education, and its outputs go to institutes rather than universities, with students who receive low grades opting for vocational education. Therefore, we need a set of real measures to develop vocational education, including:

1. Disseminating cultural awareness among parents and students and highlighting the importance of vocational education through media, seminars, conferences, and workshops that clarify that the large numbers of academic education outputs may not be needed by the labor market currently or in the future, thus making it difficult to obtain employment in the public sector, which means formal encouragement of employment in the private sector.
2. Enacting laws to protect various professions and providing social security on the condition of obtaining a scientific certificate that allows the practice of the profession. Subsequently, all professionals must be obliged to complete their scientific studies in these important institutions, and working in the private sector should be encouraged after the public sector has failed to absorb the enormous numbers of academic graduates.

IV. Estimating the Gap Between the Current Reality and the Hypothetical Reality in al-Najaf al-Ashraf City

In light of the current reality presented in the previous section regarding educational institutions in al-Najaf al-Ashraf City (public and private), the researcher will present a detailed overview of the actual need for educational institutions in al-Najaf al-Ashraf Governorate based on recent statistics (Appendix No. 1, 2, and 3), as follows:

1. Kindergarten Stage

It is clear from Table 4-5 that the approximate actual need for schools is at least 100 schools, with a shortage of 46 schools as stated in the second section, in order to accommodate learners and provide appropriate educational care.

Table 4-5: Estimated Need for Kindergarten Schools in Najaf Governorate

Current Status		Actual Need (2021)	
Number of Schools	Number of Buildings	Hypothetical Number of Schools	shortage
59	54	100	46

Table 4-6: Estimated Need for Primary Schools in Najaf Governorate

Current Status		Actual Need (2021)	
Number of Schools	Number of Buildings	Hypothetical Number of Schools	shortage
734	486	834	348

Table 4-7: Estimated Need for Secondary Schools in Najaf Governorate

Current Status		Actual Need (2021)	
Number of Schools	Number of Buildings	Hypothetical Number of Schools	shortage
364	239	464	225

2. Primary Stage

It is clear from Table 4-6 that the approximate actual need for schools is at least 834 schools, with a shortage of 348 schools as stated in the second section, in order to accommodate learners and provide appropriate educational care.

3. Secondary Stage

It is clear from Table 4-7 that the approximate actual need for schools is at least 464 schools, with a shortage of 225 schools as stated in the second section, in order to accommodate learners and provide appropriate educational care.

V. Educational Resources and Their Development

Educational institutions in al-Najaf al-Ashraf City comprise around 20,041 male and female teachers. This is a significant number capable of transforming educational and developmental plans and strategies into successful projects. However, we need to manage and develop these important resources to keep pace with social aspirations and join the ranks of global progress and development. These resources can be developed based on the following strategies:

1. **Legislation and Activation of Laws:** Educational resources must be treated as important assets capable of achievement, excellence, and innovation through investing their energies. This should be based on legislating and activating laws that grant educational staff their rights on one hand, and hold accountable those who fall short on the other. Enacting a set of legislations contributes to ensuring that those who excel receive their due, instead of equalizing diligent and negligent individuals. Perhaps the foremost laws that must be activated, amended, or re-legislated are those protecting and caring for educational staff, especially after teachers recently felt they were the weakest link. Real health insurance laws must

also be activated, in addition to laws regulating professional conduct, school traditions, educational ethics, and scientific performance evaluation in a way that contributes to developing this performance.

2. **Financial Support:** Material stability and comfortable living inevitably lead to psychological stability. It is crucial to achieve material and psychological stability and provide appropriate living conditions for educational staff to dedicate themselves to professional work with quality. It is unimaginable that merely providing a monthly salary would solve all issues for teachers. New life demands have imposed many requirements, and they create significant pressures on educational employees who receive a limited amount of money, barely sufficient for survival without development. These requirements include suitable housing and technological tools and needs that help teachers develop their work, in addition to numerous family needs and other financial pressures. Therefore, the issue must be studied in a way that ensures the necessary support for educational staff.
3. **Preparation and Training:** It is very important to view the matter from two important perspectives. The first is the ideal preparation of educational staff through coordination and planning between preparatory institutions (faculties of education and basic education) and educational institutions. This is achieved through modern, robust, and relevant training and educational programs that meet the needs of the labor market. Secondly, current educational staff need continuous training to keep pace with all developments in the field of professional work, including the development of educational leaders, their qualification, dispatch, support for vocational qualification programs, and increased awareness of the importance of self-development.

VI. Challenges

Today's world is characterized by continuous movement and uninterrupted progress, making development a primary focus in a rapidly changing world across all fields, including education, which aims to build individuals. Development is carried out by humans and for humans, as they are the tool, means, and ultimate goal. Therefore, educational institutions face a set of unavoidable challenges:

1. Development and reform are based on a comprehensive and scientific mindset (culture), in order to achieve success. The enormous scientific development has forced education to evolve its philosophy for preparing generations. Therefore, one of the obstacles facing reform and development is the resistance of staffers to this issue. This compels decision-makers to understand the reasons for this resistance, analyze them, and overcome them through scientific means. As long as reform means moving from one state to another that the staffer is not accustomed to, it is natural for reactions based on dissatisfaction to occur initially. Many scientific research results have shown that educational institutions have orga-

nizational cultures characterized by relative stability, and changing these cultures represents a challenge to development. Although development is inherent in human life, and all civilizations have strived for the better, we currently observe in third-world countries, including Iraq, a culture of initial resistance to development. This culture is based on following what is existing (tried and tested) without risking the new. Therefore, it is necessary to move to change these cultures through meticulous planning, sound implementation, and disciplined and organized guidance. Based on this, development must proceed through a suitable rational strategy, with acceptable justifications, and gradually, because the opposite could lead to negative reactions that contribute to a state of frustration (‘Alī, 2012, pp. 3-5).

2. The phenomenon of globalization and the political, social, and economic changes witnessed by all global societies, including Iraqi society, represent another challenge facing the reform process. This requires educational institutions to consider these variables when undertaking development. Survival is no longer for the strongest, but for the smartest and most productive in knowledge, technology, and scientific discoveries. The development process relies on awareness, i.e., understanding new life based on an educational philosophy that benefits from the past, understands the present, and anticipates the future.
3. The current reform attempts here and there are often improvised reactions due to emotional impulses or popular pressures leading to certain convictions among some individuals, which then spread among the public, causing officials to respond urgently and unplannedly, rather than scientifically. As a result, the outcomes are not acceptable, and society has entered a state of chaos due to angry behavior and repressed emotions. This is evidence of the absence of a clear vision, contemporary practical values, and appropriate scientific tools for development.
4. The reliance of educational institutions on financial resources as a primary means of operation has become another challenge in addition to the existing ones. This requires these institutions to adjust their conditions to improve the quality of their graduates (human wealth) who are capable of driving development in various fields to compensate for the material costs spent on their preparation (doctors, engineers, teachers, etc.). This, in turn, reflects the extent to which financial institutions accept this realistic vision, leading to increased financial support once convinced that these educational institutions are productive and of high quality, rather than institutions that consume funds without tangible returns (‘Alī, 2012, pp. 6-9).
5. **Population growth:** The increasing number of individuals in society represents a major challenge at all economic, social, and educational levels. This poses a very significant and serious pressure on educational institutions, as it requires the availability of more material capabilities and human resources to accommodate these increases.

6. **Scientific and technological development:** The entry of technology into the realm of challenges has created immense pressure on educational institutions, and the matter here is different because it is intertwined. On one hand, we need to prepare individuals capable of keeping pace with and understanding these challenges. On the other hand, we need a skilled workforce that can utilize this technology in their work. Educational institutions, for their part, must provide this technology.
7. **Wars and social and economic crises:** Iraqi society has experienced exceptional social, economic, and political circumstances. Modern Iraq has not known stability since the establishment of the Iraqi state. Political coups, wars, and economic crises have significantly affected the individuals of this society. Therefore, we are in dire need of building individuals psychologically above all else, and extricating them from the painful experiences they have undergone previously. This requires exceptional efforts and high-level expertise from educational institutions and their staff.
8. **Development of social culture:** The issue of social cultural development has become a new challenge facing educational institutions. Community members are no longer as they once were; their attitudes towards education have changed, and there is a clear interest in this matter through the demand for good schools (private or public) to ensure their children's future, and a focus and direction towards specializations that lead to employment in state institutions.
9. **Performance of workers:** The decline in the performance of workers due to lack of training and insufficient support on one hand, and a feeling of frustration due to social and official pressures to perform better on the other hand, poses a real challenge to development. Furthermore, the presence of young energies lacking experience and good preparation due to the country's circumstances has led learners to complete their studies at the minimum required level to succeed and graduate and secure employment according to their professional specialization. Added to this is the state's policy of accelerating the retirement of experienced staff in response to youth demands for employment. Moreover, the cultural difference between generations (experienced and young) has created a kind of sensitivity and lack of cooperation among them. Consequently, we find a percentage of workers in the educational field performing their work routinely, with a genuine desire to seize opportunities to be absent from work. Also, the criteria for selecting educational leaders are somewhat opaque in terms of putting the right person in the right place, and some provisions of laws, regulations, and instructions are subject to favoritism and sympathy, leading to a decline in the application of laws for both learners and teachers.
10. Weak integration between educational and social institutions (family, school, media, etc.).

11. **Administrative bureaucracy:** This concept refers to the application of laws in organized societies, where these systems rely on standardized procedures and hierarchical distribution of responsibilities. Therefore, evaluative studies must be conducted on all matters related to the transfer of powers between relevant ministries and their affiliated institutions in the governorates, and the impact of transferring supervision and management from ministries to governorates. These scientific studies will undoubtedly contribute to clarifying the vision and adjusting the course.

VII. Scenarios for the Education Sector

Reference Scenario: Improved Educational Capacity, Absorptive Capacity, and Enhanced School Quality

Developing educational institutions means increasing the effectiveness of their performance and quality to achieve their objectives ('Alī, 2012, p. 60). We can envision our educational institutions in an improved state if the following are implemented:

- Appropriate, integrated, and continuous planning for the operations of educational institutions on one hand, and with other social institutions on the other, according to the current reality.
- Allocating a sufficient financial budget to implement educational plans (building schools to compensate for the current shortage, preparing and training high-level educational staff, equipping these institutions with all necessary material resources, and activating material and moral incentives for creative teachers and learners).
- Legislating and activating laws, regulations, and instructions that either reward or penalize (teachers and learners) according to the desired or undesirable behavior.
- Some researchers believe that the factors that can be leveraged for development include the conviction of decision-makers that things must change, clarity on what is required through reviewing global experiences, utilizing existing resources, and anticipating threats (forecasting negative future events) and working to overcome them ('Alī, 2012, pp. 17).

Accordingly, and in light of estimating future school needs in al-Najaf al-Ashraf City, based on the current reality presented in the second section and the hypothetical current reality presented in the third section for educational institutions in the city, the researcher will now present a detailed overview of the future needs of educational institutions in al-Najaf al-Ashraf Governorate, relying on recent statistics (Appendix No. 1, 2, and 3), as follows:

1. Kindergarten Stage

The researcher will present an estimation of the need for schools, learners, and teachers at this stage for al-Najaf al-Ashraf Governorate in the current, hypothetical, and future periods:

Table 4-8: Estimated Need for Schools, Learners, and Teachers for the Primary Stage in al-Najaf al-Ashraf Governorate

Year	Number of Schools	Number of Learners	Number of Teachers
Current Status (Number of Schools, not Buildings)	59	10,576	301
Actual Need for 2021	100	*	301
2030	120	13,000	380
2040	150	16,000	475
2050	185	20,000	600

(*) Requires accurate statistics for the number of learners within this age group, not just those currently enrolled in schools.

Table 4-9: Estimated Need for Schools, Learners, and Teachers for the Primary Stage in al-Najaf al-Ashraf Governorate

Year	Number of Schools	Number of Learners	Number of Teachers
Current Status (Number of Schools, not Buildings)	734	319,301	11,616
Actual Need for 2021	834	*	11,616
2030	1,000	400,000	14,000
2040	1,250	500,000	17,500
2050	1,550	625,000	22,000

(*) Requires accurate statistics for the number of learners within this age group, not just those currently enrolled in schools.

Table 4-10: Estimated Need for Schools, Learners, and Teachers for the Secondary Stage in al-Najaf al-Ashraf Governorate

Year	Number of Schools	Number of Learners	Number of Teachers
Current Status (Number of Schools, not Buildings)	364	155,326	8,124
Actual Need for 2021	464	*	10,000
2030	600	190,000	12,500
2040	750	240,000	15,500
2050	900	30,000	19,000

(*) Requires accurate statistics for the number of learners within this age group, not just those currently enrolled in schools.

Source: Planning Department, Directorate of Education, al-Najaf al-Ashraf (23/12/2021)

Table 4-8 shows that the approximate actual need for schools is 100. The future need estimation will be based on the population growth rate, drawing on estimates from the Ministry of Planning (Central Statistical Organization) and the Central Statistical Organization in Najaf City (Appendix No. 3). It appears that the general population growth rate in Iraq is approximately 2.5%, and in al-Najaf al-Ashraf city it is approximately 2.1% every ten years. Therefore, the actual need during the years (2030-2050) is as stated in the table, based on a population growth rate of (2.1-2.5%).

2. Primary Stage

Table 4-9 shows that the approximate actual need for schools is 834. The future need estimation will be based on the population growth rate, as explained for the kindergarten stage earlier. Therefore, the actual need during the years (2030-2050) is as stated in the table, based on a population growth rate of (2.1-2.5%).

3. Secondary Stage

Table 4-10 shows that the approximate actual need for schools is 464. The future need estimation will be based on the population growth rate, as explained for the kindergarten stage earlier. Therefore, the actual need during the years (2030-2050) is as stated in the table, based on the aforementioned population growth rate.

Optimistic Scenario: Further Improvement and the Dominance of Smart Schools

If we can achieve realistic goals based on scientific research results, we can transition to a more advanced stage: the establishment of smart schools. A smart school, or school of the future, is equipped with electronic classrooms featuring computers and educational technology software that enable learners to communicate electronically with teachers and curricula. Furthermore, smart schools have an electronic management system for school activities (attendance, assignments, exams, communication with parents). Consequently, they excel in the educational process and help develop teachers' thinking and skills in clarifying information to make lessons more effective (al-Şaʿdī, 2005, p. 14).

Adopting this type of school in our society aligns with scientific development and its impact on lifestyle, becoming a necessity. All institutions, including schools, must adapt to modern life and the demands of information technology. This requires:

- Cooperation and integration between Ministry of Education (for coordination, planning, and implementation), Ministry of Finance (for support), Ministry of Communications (for obtaining necessities), and United Nations Development Programme (for expertise).
- Media support for this pioneering project to increase public awareness and engagement with the project.
- Training educational staff and developing their capabilities by leveraging the experiences of countries that have adopted this type of school, such as Egypt, Saudi Arabia, Malaysia, and USA, among others.

Smart Schools in al-Najaf al-Ashraf Governorate (Form, Approximate Number, Distribution)

Developed countries have advanced education in line with the modern technological revolution, and smart schools are a key focus of these efforts. The administration of educational institutions, their practices, educational tools, curricula, educational staff, and their relationship with parents have been reorganized to align with information technology to improve the educational process. This signi-

fies a fundamental change in the educational system and encourages self-acquisition of information. This project was first implemented in Malaysia as a pilot program to address errors and difficulties, and then this experiment began to be applied in many developed countries, such as USA, UK, and Japan, among others. These countries technologically prepared schools in a way that suited the feasibility of this project. Curricula were computerized, educational, administrative, and supporting technical staff were qualified, and students and parents were educated (Aḥmad, 2018, p. 15). Subsequently, some developing countries, including Iraq, implemented this experiment, but not on a large scale. Therefore, can this project be implemented in al-Najaf al-Ashraf city? What are the sound procedures to ensure the success of this idea? How can global experiences be utilized? All of this depends on the seriousness of decision-makers to work effectively and practically to lay the groundwork for the project by forming specialized committees (scientific, educational, technical, and supporting).

The smart school project aims to apply educational technology to benefit from its advantages, which facilitate rapid access to information with minimal effort and cost, and ensure human interaction (students, parents, educational, administrative, and technical staff) with electronic technologies. Educational technology in such projects is not just for use but also a means for development, innovation, production, and problem-solving.

It is important to consider that smart schools are not traditional schools merely equipped with educational technology. They possess a set of unique features. For example, the teacher guides learners to seek information and interact with it independently, rather than being the sole source of information, as in traditional schools. Smart schools also aim to foster creative thinking based on the principle of individual differences and excellence for all, according to their abilities and orientations (groups or individuals), rather than solely focusing on memorization (Aḥmad, 2018, p. 31).

Since such projects require massive financial capabilities, many countries have established partnerships with the private sector to develop a clear plan for project implementation. The experiences of Western, Asian, or European countries can be leveraged in implementing smart school projects in Iraq. The key is to focus on countries where the idea has matured, been tested, and succeeded. This greatly assists the scientific team tasked with this work. Note that this is not a short-term endeavor; it requires time, ranging from 6 years in Ireland to 18 years in the United States (al-Ṣaʿdī, 2005). Therefore, al-Najaf al-Ashraf Governorate could experiment by establishing one school in each district, then generalizing the experience after all conditions are met and the experiment proves successful.

Smart schools require an educational philosophy to manage their affairs, by defining objectives, and enacting the laws, legislation, instructions, and regulations upon which they are based. This ensures the implementation of procedural steps related to school administration, lesson times, attendance, student evaluation mechanisms, the quality and quantity of the curriculum, as well as the selection of appropriate teaching methods and strategies, and rules for student and

teacher behavior (academically, culturally, and ethically), the method of communication with parents, specific conditions for teacher performance, and maintaining the security and safety of material and moral aspects through the use of educational technologies. Student's role, according to the educational plan, begins by becoming aware of teachers' notes to perform required tasks synchronously or asynchronously. The teacher, in turn, verifies learner engagement and the extent of progress achieved each time they interact with their students. All of this occurs under the supervision of administrative and technical staff and with the follow-up of parents (Aḥmad, 2018, p. 113).

Pessimistic Scenario: Decline in Education Indicators

Educational institutions, like any other institution (social, financial, political, cultural, etc.), can "go bankrupt" and fail to achieve their desired goals. Since a "school" is also referred to as an "educational factory," the concept of profit and loss is relevant. There are inputs (learners), processes (curriculum nature, teacher performance, learner interaction, etc.), and outputs or results (learner behavior). Therefore, if educational institutions do not respond to community needs and the demands of the era, and if there is no financial support from relevant authorities, the result will inevitably be a decline.

The most important points indicating a potential decline can be identified as:

- **Logistical Aspects and Financial Support:** If school buildings remain as they are without expansion or genuine addressing of their deteriorating condition, coupled with increasing population growth rates, the result will be a clear decline in the educational services provided by these institutions. This is because everything in these institutions requires monitoring and development (teacher performance, curricula, furniture and educational supplies, health, cultural, and recreational services for learners, etc.). Weak or slow response from officials in providing financial support hinders their development, thus causing them to stagnate or, rather, decline.
- **Cultural Awareness:** If the perspective of officials, educational staff, and some community members remains rooted in the same culture that views educational institutions as consumptive, not productive, then development becomes extremely difficult. Consequently, anything left without direct intervention to develop it will inevitably decline.
- **Correct Planning and Sound Implementation:** Any work without planning leads to errors, improvisation, and a lack of clear vision and objectives. Even if planning occurs, it must be done correctly, meaning it must be based on the real situation and available capabilities. Implementation, on the other hand, means following a strategy that achieves goals with the lowest cost, time, and effort. Therefore, the absence of correct planning and sound implementation means a decline in the level of these institutions.

VIII. Responding to Challenges

If the cost of development is high, the cost of its absence is even higher. We are now in greater need of development than ever before because all the prerequisites for development are present (funds, intellect, popular support). Moreover, the rapid changes the world is witnessing pose a serious threat: either we keep pace or we perish. This is in addition to political changes conducive to openness, competition between governmental and private institutions, and increasing public awareness. To overcome challenges, reform and development must be based on the following points:

- **Clarity of Objectives, Vision, and Mission:** The objectives set for educational institutions must be clear, and they must be built and formulated in a way that suits the reality on one hand, and community needs and the demands of contemporary life on the other. These objectives must be adaptable and not static, and flexible enough to accommodate all opinions and suggestions (specialists, parents, teachers, learners, administrators, etc.).
- **Planning:** Documenting everything that educational institutions need represents the core of planning. However, it's crucial that this documentation achieves integration between community institutions on one hand, and all elements, contents, and areas of these educational institutions on the other.
- **Implementation:** Presenting and showcasing the project and bringing it to reality after testing and making appropriate adjustments must be within the correct controls and guidance to prevent the issue from getting out of control.
- **Meeting the aspirations of employees and the target group, and social expectations:** This is achieved through targeted media on one hand, and financial support that facilitates these matters on the other.
- **Improvement and Remediation:** Working to address weaknesses, support positive aspects, and remove obstacles and problems hindering reform and development.
- **Developing the Skills of Educational Staff:** As life is in constant evolution, and remaining stagnant does not achieve the desired benefit, continuous training for educational staff has become a duty and an indispensable necessity. This is because teachers are preparing learners who look forward to a future with increasing complexities, not just for today. Creative human resources must also be invested in, and a supportive environment must be created for them.
- **Investing in Technology:** The educational sector can benefit from modern technology in a way similar to the benefits achieved by other sectors (economic, political, military, etc.) because technology has become the language of the modern era, controlling all aspects of insti-

tutions under various designations. Through it, time and effort are optimized, and funds are rationalized. Indeed, it has become a medium with which humans interact extensively. Therefore, educational institutions that adopted the idea of educational technology or smart schools, among others, have succeeded.

- **Adopting the Results of Scientific Research:** In all advanced countries, officials rely on the results of scientific research to make appropriate decisions, rather than solely on experience or consultation, because research results are objective and not subject to the biases that generally characterize humans.

The current study has reached the following findings, recommendations, and proposals:

1. Findings

- al-Najaf al-Ashraf Governorate is considered one of the cities attractive to residents due to its historical and religious status. Therefore, the city has developed and grown in terms of population and area, and demand for educational services has increased.
- Educational institutions are a key tool in community development.
- Many learners drop out of educational institutions due to economic and cultural reasons and slow, inactive, or unlegislated law enforcement.
- An increase in student numbers versus slow growth in the number of schools or their rehabilitation, and these numbers are not adequate for the present or the future.
- We currently need a number of schools that is one or two times greater than the current number, and we will need even more in the future.
- A significant shortage in the number of schools in both the present and the future.
- The existence of challenges (financial, cultural, human) that hinder development.

2. Recommendations

- There is a need for accurate and comprehensive statistics on the number of individuals in society within age groups corresponding to each educational stage, not just statistics on learners actually enrolled in these institutions, to ascertain dropout rates.
- The need for correct planning for educational institutions, and joint planning that achieves integration with other social institutions to achieve desired goals.
- There is an urgent need for robust preparation and training of educational staff.
- Laws that (protect or hold accountable) teachers and learners must be activated and legislated.

- Financial support should be increased, and spending should be categorized to suit actual needs, provided that this support is not affected regardless of changing circumstances.
- Creating suitable ground for development by spreading cultural awareness among officials, staff, learners, and parents, and establishing the principle that “educational institutions are productive, not consumptive.”
- Working to change community culture by respecting all scientific specializations, and not focusing solely on some specializations that many parents, and even learners, believe guarantee their financial future through central public employment.

3. Proposals

- Conduct studies addressing educational problems that hinder development related to (teachers, learners, and parents), and provide proposed solutions.
- Conduct a survey study on problems related to curricula, assessment methods, teaching methods, and educational administration.

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5. Higher Education and Scientific Research

Prof. Emer. Dr. Kāmil 'Allāwī al-Fatlāwī

University of al-Kūfah.

I. Introduction

Education is the cornerstone of development, directly contributing to its realization, and it plays an active role in forming an educated workforce. Consequently, all nations and governments prioritize education due to its profound impact on development in its comprehensive meaning. As a fundamental prerequisite for successful development and civilizational progress, all development plans and strategies place education at the forefront of their main objectives. Within the Sustainable Development Goals agenda, Goal 4 emphasizes quality, fair, and inclusive education.

Statistics indicate a growing number of students enrolling in Iraqi universities generally, and particularly in universities and faculties in al-Najaf al-Ashraf Governorate. A significant proportion of these students' desire to enroll in scientific faculties; however, the capacity of these faculties is limited, forcing them to enroll in humanities faculties and theoretical specializations that do not require the same infrastructure as scientific faculties. This has, firstly, created an imbalance between scientific and humanities specializations. Alternatively, students pursue studies in foreign and regional universities, especially in Turkey, Iran, Lebanon, and India, introducing new graduates into a job market that may not require them. This necessitates a re-evaluation of new initiatives and the higher education strategy to ensure educational outcomes keep pace with technological advancements, especially as evidence points towards engaging with the Fourth Industrial Revolution, based on artificial intelligence. In this regard, teaching methods are among the most significant challenges facing the future of education, in addition to the lack of integration between educational outcomes, higher education programs, and labor market demands.

Projections suggest we will live in a different world by 2050, with a global population of approximately ten billion people. This means life will be distinct, conflict will intensify, and humanity will face unprecedented challenges. The question is: will education keep pace with these challenges? Historical experience indicates that education adapts to global events, particularly evidenced by the shifts during the COVID-19 pandemic and the utilization of various unprecedented educational models, facilitated by technological advancements, innovations, and e-learning.

The state of higher education in Iraq demands fundamental reform across all areas. Universities continue to operate using traditional methods, primarily based on rote learning, especially in social and humanities disciplines, and have not kept pace with modern technological developments in education. Universities still operate under centralized instructions and decisions, lacking any independence, despite Article 10 of Law No. 40 of 1988 concerning the Ministry of Higher Education stipulating autonomy. However, university funding relies on the state's general budget, which restricts spending on education according to the country's economic situation. Among the most significant problems facing universities are incompetent senior leadership, some of whom operate based on specific political affiliations, affecting the progress of education.

The spatial distribution of educational benefits is a fundamental issue facing societies, especially in regions with rich cultural, social, and religious heritage. al-Najaf al-Ashraf represents a suitable environment for the vertical and horizontal expansion of education due to its unique characteristics, making it a center of attraction for investors to establish universities that meet social needs. This is because attention is turning towards private education, which is expected to lead higher education in Iraq generally.⁽¹⁾ Vertical and horizontal expansion is anticipated in attraction areas, with al-Najaf al-Ashraf being one such region. Over the next thirty years, local universities are expected to play an important role in transferring university output to the market through the establishment of business incubators and support for entrepreneurial projects. This necessitates a degree of interaction between universities and both the public and private business sectors (Fayhān, 2019, p. 127) to diversify the governorate's economy, create job opportunities, and support small and medium enterprises. Below is a brief explanation of the types of education and the tasks they undertake.

II. Public Higher Education in al-Najaf al-Ashraf

Higher education in Iraq comprised 31 public universities during the academic year 2019-20, including 373 academic faculties, 18 technical faculties, and 30 institutes. Table 5-1 illustrates the number of public faculties and their student enrollment by gender. Public higher education in Najaf emerged in 1977 with the opening of a medical faculty affiliated with al-Mustanşirīyah University, which began teaching in the academic year 1978-79. Ten years later, University of al-Kūfah was established in 1987 with two faculties: Medicine and Education for women. In 1989, the Faculty of Arts was founded. After al-Sha'bānīyah Uprising in March 1991, University of al-Kūfah was merged with University of Babylon, and then reopened in the same year by a political decision. It is worth noting that University of al-Kūfah was originally a project for a private university in the 1960s but did not receive official approval for its opening. The university has expanded horizontally to include twenty-two faculties in the academic year 20-21.

(1) According to the statement of the Minister of Planning at al-Rafidain Forum on August 30, 2021, that public universities are unable to accommodate the increasing numbers of preparatory students.

Table 5-1: Number of Public Faculties and Institutes and Student Enrollment During the Academic Year 2019-20

Faculty Type	Number	Males	Females	Total	Percentage of Total
Academic Faculties	373	258,724	282,731	541,455	85.46
Technical Faculties	18	12,716	9,983	22,699	3.58
Technical Institutes	30	39,048	30,395	69,443	10.96
Total	421	310,488	323,109	633,597	100.00

Source: Ministry of Planning, Central Statistical Organization, Education Statistics

In the academic year 2013-14, Jābir ibn Ḥayyān Medical University was established, comprising the Faculty of Medicine and the Faculty of Pharmacy. The Middle Euphrates Technical University was founded in the academic year and includes five faculties: three in al-Najaf al-Ashraf Governorate (Technical Faculty of Medical and Health Sciences, Technical Faculty of Engineering, and Technical Faculty of Administration), and two in Babylon Governorate. Additionally, it encompasses eight technical institutes, two of which are in the governorate: Technical Institute in al-Najaf al-Ashraf and Technical Institute in al-Kūfah.

In the academic year 2013-14, al-Imām al-Kāzīm Faculty University, affiliated with the Shi'i Endowment, opened a branch in al-Najaf Governorate, comprising six scientific departments in the academic year 2019-20. The following table shows the public universities and faculties in the governorate.

Table 5-2: Public Universities and Faculties in al-Najaf al-Ashraf Governorate for the Academic Year 2019-20

University/Faculty	Faculties	Faculties	Faculties
University of al-Kūfah	1. Medicine	2. Arts	3. Education for women
	4. Jurisprudence	5. Dentistry	6. Basic Education
	7. Pharmacy	8. Archaeology	9. Veterinary Medicine
	10. Agriculture	11. Nursing	12. Sciences
	13. Physical Education and Sport Sciences	14. Education (coed)	15. Administration and Economics
	16. Computer Science and Mathematics	17. Urban Planning	18. Languages
	19. Law	20. Engineering	21. Political Sciences
	22. Graduate Studies		
Jābir ibn Ḥayyān	1. Medicine	2. Pharmacy	
Middle Euphrates Technical University	1. Technical Institute/Kūfah	2. Technical Institute/Najaf	3. Technical Faculty of Medical and Health Sciences/ Najaf
	4. Technical Faculty of Engineering/Najaf	5. Technical Faculty of Administration/Kūfah	
al-Imām al-Kāzīm Faculty University (Najaf Branch)	1. Computer Techniques Engineering Dept.	2. Law Dept.	3. Quranic Sciences Dept.
	4. Sharia Dept.	5. Financial and Banking Sciences Dept.	6. Media Dept.

Source: Official Websites of Universities and Faculties.

III. Private Higher Education in al-Najaf al-Ashraf

Private higher education in Najaf began with the establishment of the Faculty of Jurisprudence (Kulīyah al-Fiqh) in 1958 by the Muntadā al-Nashr Society, which initially focused on harmonizing academic and Hawzah studies. After the Sha'bāniyah Uprising in 1991, the faculty was abolished and merged with the Faculty of Sharia at Baghdād University. Following the regime change in April 2003, the faculty was revived within the public education, but its founders demanded its re-establishment within private education, and it was granted approval in 2014 under the name "Faculty of Jurisprudence University," with the public faculty remaining part of the University of al-Kūfah's structure.

Private education expanded significantly after 2003 to meet social needs, and because it is a sector characterized by a short recovery period and high profitability. As Najaf Governorate is considered one of the attractive governorates for establishing private universities and faculties, it witnessed a significant expansion in this field.

The number of operating private faculties and universities in Iraq reached 75 by the academic year 2018-19, eleven of which are in the Kurdistan Region of Iraq, recognized by the Federal Ministry of Higher Education and Scientific Research, and 64 in the capital and other governorates. In contrast, the number of private faculties was 11 until 2003, meaning it increased sevenfold. The number of private universities reached 52 universities (or faculty universities) by 2017, and the total number of private faculties was 165, enrolling 212,535 students during the academic year 2019-20 (Ministry of Planning, Central Statistical Organization, Education Statistics). Law No. 13 of 1996 (al-Waqā'i' al-'Irāqīyah, 1996) and its

Table 5-3: Private Faculties in al-Najaf al-Ashraf Governorate up to 2019/2020

University/Faculty	Faculty/Department	Faculty/Department	Faculty/Department
Faculty of Jurisprudence University	1. Department of Islamic Jurisprudence and its Foundations	2. Department of Holy Quranic Sciences	
al-Kafil University	1. Faculty of Dentistry	2. Faculty of Pharmacy	3. Faculty of Medical and Health Technologies
	4. Faculty of Technical Engineering	5. Department of Religious Tourism (Admission suspended)	6. Department of Media (Admission suspended)
	7. Department of Sharia (Admission suspended)	8. Faculty of Law	
Islamic University	1. Dentistry	2. Pharmacy	3. Medical Technologies
	4. Technical Engineering	5. Education	6. Law
	7. Media	8. Islamic Sciences	
al-Imām al-Ṣādiq University, Najaf Branch	1. Department of Computer Techniques	2. Department of Law	3. Department of Islamic Education
	4. Department of Sharia	5. Department of Financial and Banking Sciences	6. Department of Media
al-Shaykh al-Ṭūsī Faculty	1. Department of Holy Quran	2. Department of Medical Laboratory Techniques	3. Department of Islamic Education
	4. Department of Nursing		

Source: Ministry of Higher Education and Scientific Research, Department of Private University Education.

amendment by Resolution 57 of 2002 (Waqā'i' al-'Irāqīyah, 2002) regulated the establishment of private universities and faculties, followed by the enactment of Law No. 25 of 2016 (Waqā'i' al-'Irāqīyah, 2016). Article Two of this law states that the private education law seeks to provide primary and higher university study opportunities (theoretical and applied), disseminate and develop knowledge in the country, and conduct, encourage, and develop scientific research (Kāzīm & Kāzīm, 2020, p. 118).

The number of private universities recognized by the Ministry of Higher Education and Scientific Research in al-Najaf al-Ashraf Governorate reached three universities and two faculties by the academic year 2019-20, offering various specializations, in addition to the al-'Alamayn Institute for Graduate Studies, which grants master's and doctoral degrees in Law and Political Science, as shown in Table 3-5.

IV. Challenges Facing Higher Education and Scientific Research Institutions

1. Lack of Infrastructure

Universities and faculties, especially public ones, suffer from a lack of infrastructure such as classrooms, laboratories, equipment, and other public facilities, in addition to the aging of existing facilities. This has led to overcrowding of students in both classrooms and laboratories, affecting the educational process. The current reality indicates that some existing faculties in the governorate were established without possessing an independent building; they are located within other faculties, such as the Faculty of Mathematics and Computer Science, which was allocated a building from the Faculty of Engineering at the University of al-Kūfah. The Faculty of Dentistry occupies part of the Jābir ibn Ḥayyān University building, and some faculties do not have independent buildings suitable as a university, such as the Faculty of al-Imām al-Kāzīm. It is noteworthy that a university specializing in medical sciences, such as Jābir ibn Ḥayyān University, was established without possessing a particularly independent building.

2. Shortage of Human Resources

Human resources, especially teaching staff, are one of the most important pillars of the higher education system. Teaching staff are becoming scarce. The qualitative structure of teaching staff reflects the efficiency and intellectual and scientific performance level of the educational system. The challenge in this field is the dominance of master's degree holders in the teaching staff structure in Najaf universities, as well as the dominance of junior academic titles (assistant lecturer, lecturer) at the expense of higher academic titles (professor, assistant professor). This is a dangerous indicator for the education system and confirms the principle of scarcity in teaching staff, noting that the situation is reversed in a limited number of departments.

3. Financial Shortage for Public Education

Public universities lack financial independence, and their funding is linked to the state's general budget; thus, they are affected by changes in the budget's status. During the COVID-19 pandemic, the Iraqi economy was hit by the shock of oil price collapse, which led to the government's inability to fund even employee salaries. On the other hand, there was no investment spending, which affected the situation of universities, as there are no allocations for scientific research. This is considered the most prominent challenge facing public universities.

4. Focus on Social and Humanities Specializations

There were no specialized universities in the governorate except Jābir ibn Ḥayyān Medical University. The names of other universities, especially private ones, do not indicate their scientific orientation. For example, the Islamic University does not specialize in Islamic sciences; it includes faculties of pharmacy and pathological analysis, among others. The general trend in universities shows the dominance of humanities and social specializations. For instance, the University of al-Kūfah has three faculties of education (Faculties of Education [coed], Basic Education, and Education for women) — with some scientific departments within them — and faculties of Archaeology and Urban Planning. It is worth noting that Archaeology was a department affiliated with the Faculty of Arts, as was the case in other universities and within the University of al-Kūfah itself. Therefore, there was a challenge in serving the community and producing knowledge.

5. Student Overcrowding

The shortage of buildings, the dilapidation of existing ones, and the increasing admissions to the governorate's universities have led to increased student overcrowding; faculty spaces can no longer accommodate the increases in student numbers. On the other hand, some faculties still occupy buildings unsuitable for faculties, such as Faculty of Administration and Economics and Faculty of Education for women at University of al-Kūfah, Faculty of Medicine at Jābir ibn Ḥayyān University, and Faculty of al-Imām al-Kāzīm.

6. Low Gross Enrollment in Higher Education

One of the most important challenges facing higher education is the low overall enrollment in higher education nationwide. However, the ratio at the governorate level is approximately double the national average, due to the presence of students from outside the governorate, both in public faculties and in private universities and faculties (See: Table 5-4).

Table 5-4: Gross Enrollment Ratio for Higher Education in Iraq and al-Najaf al-Ashraf Governorate for the Period 2016-2019

Year	Enrollment in Najaf (%)	Enrollment in Iraq (%)
2016	39.18	19.34
2017	35.15	21.63
2018	34.24	22.45
2019	37.78	23.36

7. Absence of Foreign Universities

One of the problems of higher education at the level of al-Najaf al-Ashraf Governorate is the absence of foreign universities or branches of foreign universities, unlike Baghdad or the Kurdistan Region. The presence of such universities helps in knowledge production due to their expertise and scientific development in the educational system. Especially as the international dimension has become one of the most important indicators in university rankings through several metrics, perhaps the most important of which is the establishment of branches of universities from one country in another, or the existence of twinning between universities in several countries, or the existence of scientific agreements and exchange of students and teaching staff, and the completion of joint research between foreign and local universities (al-Silmī, 2017, p. 405).

8. Meeting Labor Market Needs

The local and global labor market is the primary driver for adopting a flexible and dynamic educational system capable of supporting knowledge-based growth. However, most local universities operate on the principle of achieving the highest profits, which is concentrated in certain specializations such as the medical group, regardless of market needs and the rapidly changing nature of required jobs, as we will see later.

9. Keeping Pace with Global Changes

The primary goals of universities focus on education, scientific research, and community service. However, traditional universities focus on education and provide their services to the community weakly. As for scientific research, it has not been at the required level; it is conducted out of necessity to obtain academic promotion rather than to solve community problems, which has affected the ranking of local universities in global classifications. Table 5-5 shows the ranking of University of al-Kūfah in 2019.

Table 5-5: University of al-Kūfah Ranking in 2019

Classification	Global Ranking	Local Ranking
QS World University Rankings	701-750	2
QS Top 50 Under 55	101-150	1
RUR	646	2
Times Impact Ranking	+301	2

Source: <https://uokufa.edu.iq/%d9%85%d9%84%d8%ae%d8%b5>

V. Scenarios for the Higher Education and Scientific Research Sector

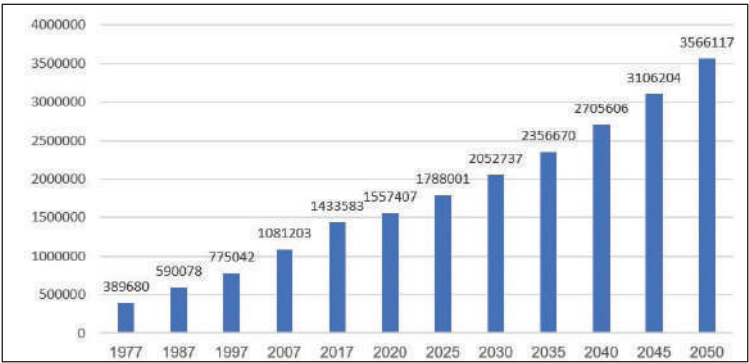
Forecasting the future of education in al-Najaf al-Ashraf Governorate up to 2050 is highly complex, given the intertwined economic and political conditions and calls for changing the governance structure in Iraq and amending the constitution, all of which will impact the future of the Iraqi governorates. Nevertheless, anticipating higher education in al-Najaf al-Ashraf is an attempt to sketch

possible and desired future scenarios amidst these evolving national educational trajectories in Iraq in general. The process of scenario planning aims to limit the available options for the governorate. This foresight effort proposes three future development scenarios:

- **Scenario 1:** The reference scenario assumes the continuation of current educational conditions into the future.
- **Scenario 2:** The optimistic scenario posits an ascendant position for higher education in Najaf, both locally and regionally.
- **Scenario 3:** The pessimistic scenario assumes a decline in the local and regional standing of Najaf’s universities.

The foresight process requires estimating the governorate’s population up to 2050, based on available data from the Ministry of Planning and the researcher’s population projections for the governorate, as illustrated Figure 5-1.

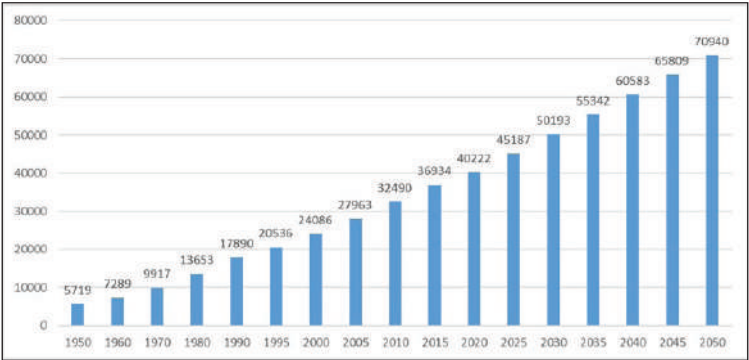
Figure 5-1: Population Projections for al-Najaf al-Ashraf Governorate up to 2050



Source: Researcher’s work based on population projections.

The following figure illustrates Iraq’s estimated population up to 2050.

Figure 5-2: Population Projections for Iraq up to 2050 (in thousands)



The following table presents quantitative and qualitative indicators for higher education that will form the basis for constructing the scenarios, as they represent the historical foundation of higher education development.

Table 5-6: Quantitative and Qualitative Indicators for Iraqi Universities (2004-2020)

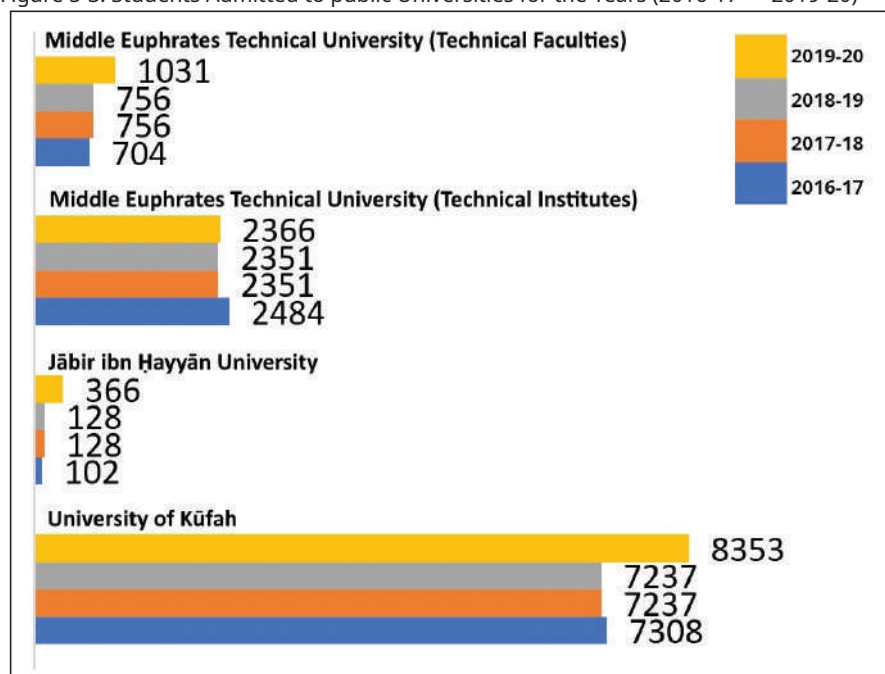
Year	Number of Universities	Number of Students (Enrolled)	Number of Graduates	Number of Professors	Students/ University	Students/ Professor
2004-05	17	368,753	74,518	21,046	21,691.4	17.5
2009-10	19	416,414	73,988	34,016	21,916.5	12.2
2014-15	33	574,997	79,335	35,362	17,424.2	16.3
2015-16	35	608,554	103,537	38,643	17,387.3	15.7
2016-17	35	647,770	116,623	41,233	18,507.7	15.7
2017-18	35	743,825	120,834	47,951	21,252	15.5
2018-19	35	792,553	124,345	49,753	22,644	15.9
2019-20	35	846,132	-	50,791	24,175	16.7

* The last two columns were calculated by the researcher.

Sources: 'Allāwī & Kāzīm, 2020. Ministry of Planning, Central Statistical Organization, Education Statistics

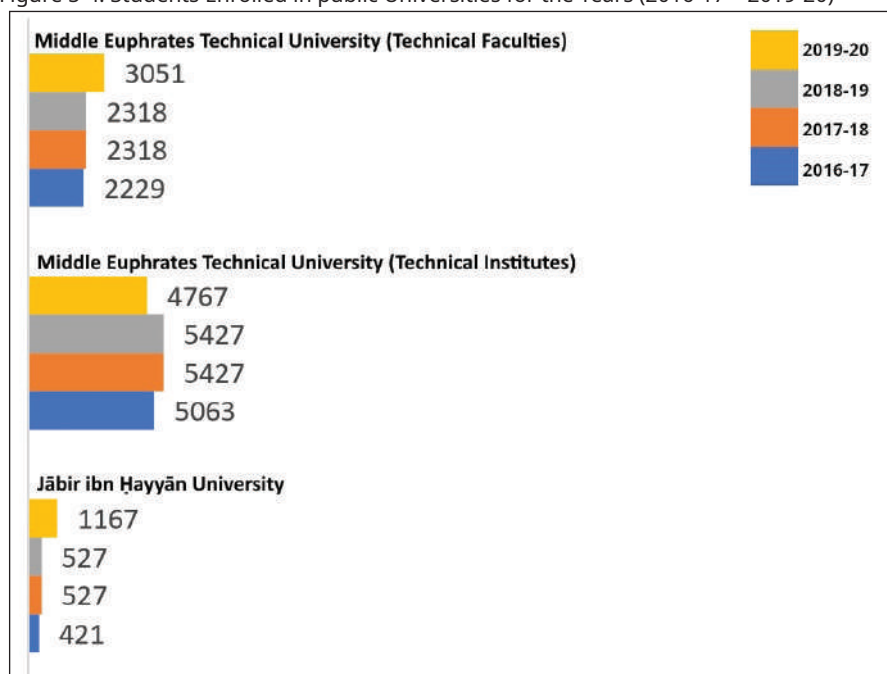
The quantitative and qualitative indicators for public and private universities and institutes are illustrated in the following figures, which represent the foundation for the three scenarios.

Figure 5-3: Students Admitted to public Universities for the Years (2016-17 — 2019-20)



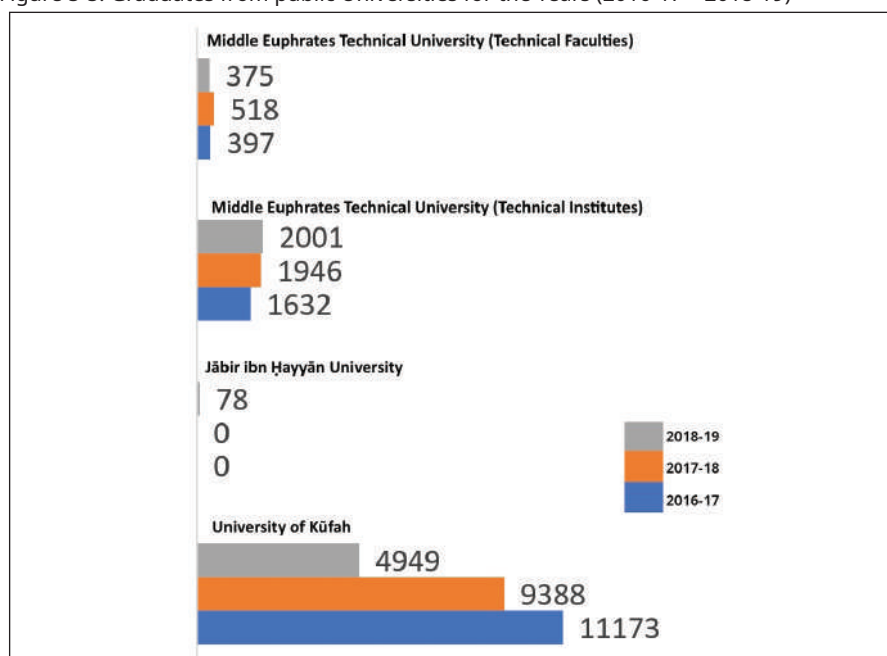
Source: Ministry of Planning, Central Statistical Organization, Education Statistics.

Figure 5-4: Students Enrolled in public Universities for the Years (2016-17 – 2019-20)



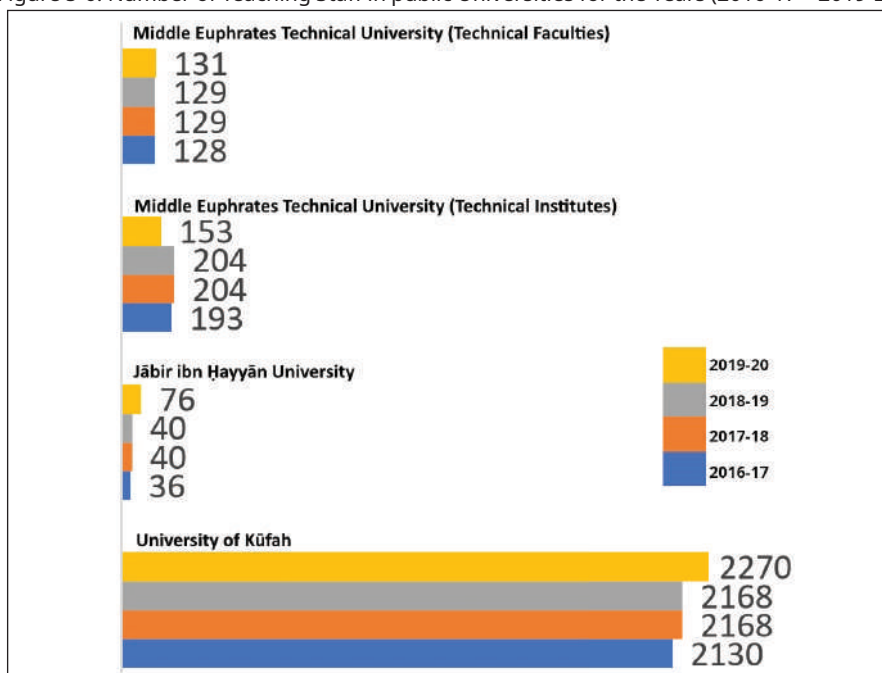
Source: Ministry of Planning, Central Statistical Organization, Education Statistics.

Figure 5-5: Graduates from public Universities for the Years (2016-17 – 2018-19)



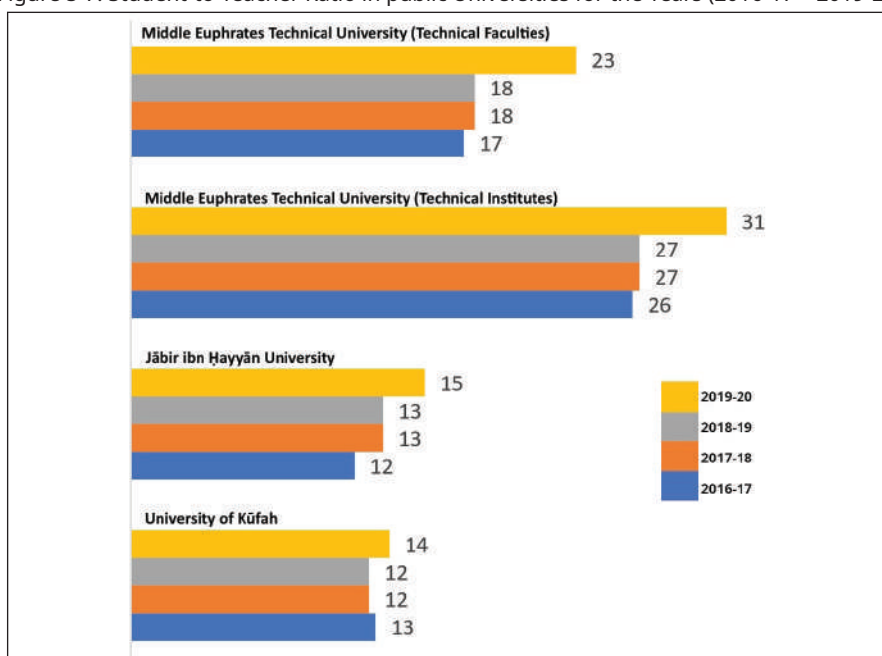
Source: Ministry of Planning, Central Statistical Organization, Education Statistics.

Figure 5-6: Number of Teaching Staff in public Universities for the Years (2016-17 – 2019-20)



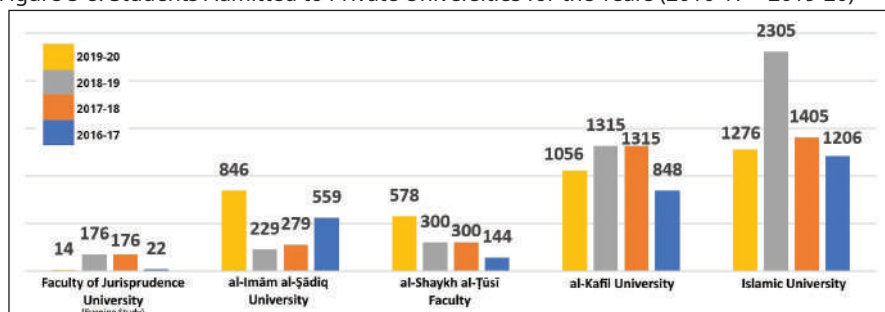
Source: Ministry of Planning, Central Statistical Organization, Education Statistics.

Figure 5-7: Student-to-Teacher Ratio in public Universities for the Years (2016-17 – 2019-20)



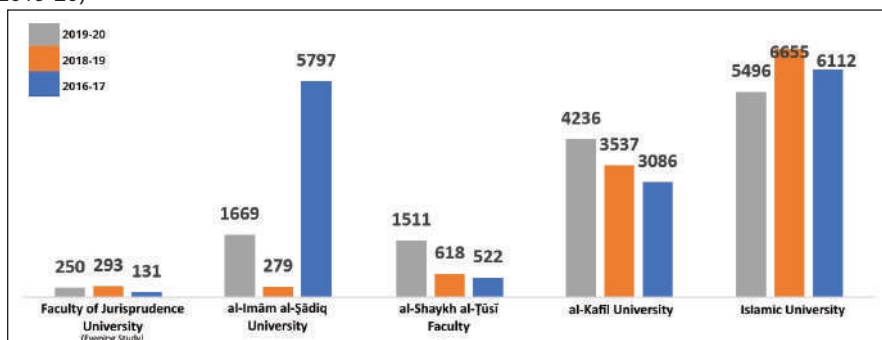
Source: Researcher's work.

Figure 5-8: Students Admitted to Private Universities for the Years (2016-17 – 2019-20)



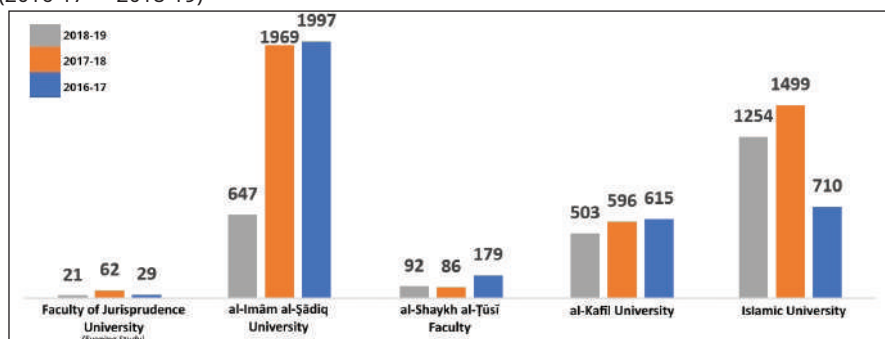
Source: Ministry of Planning, Central Statistical Organization, Education Statistics.

Figure 5-9: Students Enrolled in Private Universities and Faculties for the Years (2016-17 – 2019-20)



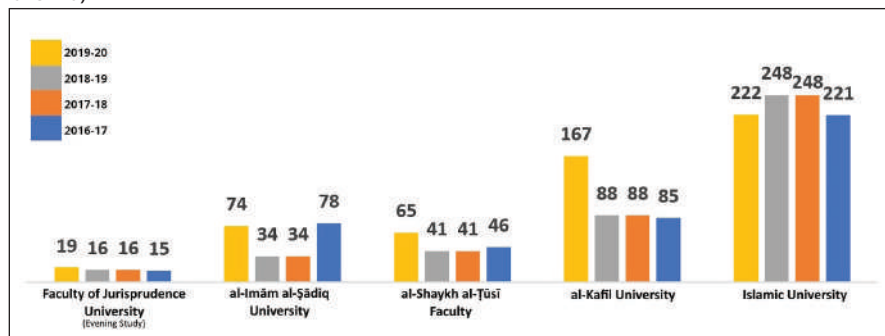
Source: Ministry of Planning, Central Statistical Organization, Education Statistics.

Figure 5-10: Number of Graduates from Private Universities and Faculties for the Years (2016-17 – 2018-19)



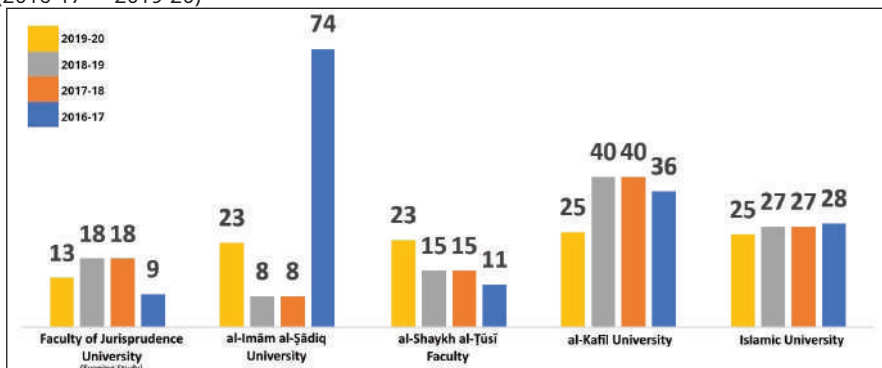
Source: Ministry of Planning, Central Statistical Organization, Education Statistics.

Figure 5-11: Faculty Members in Private Universities and Faculties for the Years (2016-17 – 2019-20)



Source: Ministry of Planning, Central Statistical Organization, Education Statistics.

Figure 5-12: Student-to-Teacher Ratio in Private Universities and Faculties for the Years (2016-17 – 2019-20)



Source: Researcher's work.

1. The Reference Scenario

This scenario is based on the following assumptions:

- University/student and teacher/student ratios remain unchanged.
- The ratios calculated at the Iraq level (mentioned above) are used as a guideline.
- The population growth rate adopted by the Iraqi Ministry of Planning, at 2.56%, continues throughout the forecasting period.
- Existing specializations in Najaf Governorate universities continue until 2050, with new specializations being introduced, though they do not reach the required level of significant development.
- Public spending on public education remains unchanged.
- Expansion occurs vertically and horizontally in both public and private education.
- A natural progression in living standards, with household spending on education remaining within certain limits, and the current parental

Table 5-7: Estimated Potential Developments in Higher Education in al-Najaf al-Ashraf Governorate: Reference Scenario

	2020	2025	2030	2035	2040	2045	2050
Enrolled Students (3%)	39,664	40,854	42,080	43,342	44,642	45,982	47,361
Change in Net Enrollment Rate in Higher Education	37	40	50	50	55	55	55
Number of Public Universities	3	3	5	5	5	7	7
Number of Private Universities	5	5	7	7	8	8	8
Probability of Introducing New Specializations	No	Yes	Yes	Yes	Yes	Yes	Yes
Probability of Establishing Foreign Universities	No	No	Yes	Yes	Yes	Yes	Yes
Probability of Admitting Foreign Students	No	Yes	Yes	Yes	Yes	Yes	Yes
Probability of Attracting Foreign Professors	No	No	Yes	Yes	Yes	Yes	Yes
Responsiveness to Labor Market Needs	No	No	Yes	Yes	Yes	Yes	Yes

inclination towards their children's education continuing along historical trends, with slow improvement in the net enrollment rate in higher education.

Based on the preceding assumptions, we estimate the potential developments in higher education in the governorate through Table 5-7.

Analysis and Results

al-Najaf al-Ashraf Governorate currently hosts three public universities: University of al-Kūfah with 22 faculties, Jābir ibn Ḥayyān University with two faculties, and Middle Euphrates University. The governorate also includes three technical faculties: Technical Faculty of Administration, Technical Faculty of Medical and Health Sciences, and Technical Faculty of Engineering, in addition to two institutes (the Technical Institute in al-Kūfah and the Technical Institute in al-Najaf al-Ashraf) and the Faculty of al-Imām al-Kāzīm, Najaf branch, which is affiliated with the Shi'i Endowment.

Private education comprises the following universities and faculties:

- Islamic University, Najaf branch.
- al-Kafil University.
- al-Shaykh al-Ṭūsī Faculty.
- al-Imām al-Ṣādiq University, Najaf branch.
- Faculty of Jurisprudence University, with two departments.
- al-'Alamayn Institute for Graduate Studies, with two departments.

Table 5-8: Estimated Gap Between Supply and Demand for Education Services: Reference Scenario

	2020	2025	2030	2035	2040	2045	2050
Expected Secondary School Graduates	18,000	20,000	25,000	30,000	35,000	40,000	45,000
Absorption Capacity of Najaf's Universities	15,886	16,363	16,853	17,359	17,880	18,416	18,969
Students Expected to be Admitted Outside Najaf	-	250	300	500	600	700	1,000
Gap	2,114	3,637	8,147	12,641	17,120	21,584	26,031

This scenario assumes the continuation of the status quo, where the ratios mentioned in the assumptions remain unchanged. Any expansion will be vertical, and admission levels and engagement with technological advancements will continue as they are. Consequently, educational outputs may not align with market demands, posing a significant challenge for this scenario, especially as the Fourth Industrial Revolution is expected to eliminate 70% of current jobs (Waṭfah, 2020, p. 27). This scenario is also affected by the lack of infrastructural development in the country, which hinders horizontal expansion due to prevailing conditions and corruption that impedes investment in education. While initiatives may exist, they are unlikely to meet internationally accepted standards for advancement. High tuition fees in private education also remain a barrier to its expansion.

Standard ratios will remain the same, and scientific research may not effectively provide solutions to the country's problems across all aspects of life. The situation will persist, with public education retaining social preference despite its inability to accommodate the increasing number of secondary school graduates. To accommodate these graduates, expansion will occur in private education, with qualitative and quantitative standards remaining unchanged, and university rankings remaining stagnant.

The current situation indicates an imbalance between the supply of graduates and the demand for them, encompassing both quantitative and qualitative discrepancies. As a result, graduate unemployment rates will remain high, as graduate employment represents the biggest challenge facing local universities. Both private and public universities will continue to be unable to absorb the increasing number of students, highlighting the persistent gap between absorption capacity and increasing numbers, as shown in the Table 5-8.

2. The Optimistic Scenario

The state of higher education in developed countries over the next thirty years will differ from that in developing countries. While the developed world will see a decline in the number of universities and the repurposing of some existing buildings, as certain specializations will become location-independent due to online education, implying a reduction in the number of on-campus students and a rise in the student-to-teacher ratio to 1:100. Staff roles will shift to marketing, admissions, and financial affairs, with professors being replaced by robots (Pham,

Table 5-9: Estimated Potential Developments in Higher Education in al-Najaf al-Ashraf Governorate: Optimistic Scenario

	2020	2025	2030	2035	2040	2045	2050
Enrolled Students	39,664	40,854	42,080	43,342	44,642	45,982	47,361
Change in Net Enrollment Rate in Higher Education	37	40	45	50	50	55	55
Number of Public Universities	3	5	5	5	6	6	8
Number of Private Universities	5	7	7	8	8	10	10
Probability of Introducing New Specializations	No	Yes	Yes	Yes	Yes	Yes	Yes
Probability of Establishing Foreign Universities	No	Yes	Yes	Yes	Yes	Yes	Yes
Probability of Admitting Foreign Students	No	Yes	Yes	Yes	Yes	Yes	Yes
Probability of Attracting Foreign Professors	No	Yes	Yes	Yes	Yes	Yes	Yes
Responsiveness to Labor Market Needs	No	Yes	Yes	Yes	Yes	Yes	Yes

2019). However, the situation in Iraq and Najaf Governorate will be different; there will be an expansion in the number of universities, teaching staff, and students due to the nature of these communities. It is worth noting that local universities will deal with technological advancements according to the country's circumstances. This optimistic scenario corresponds to the conditions of universities in developed countries and is based on the following assumptions:

- Improvement in standard ratios.
- Establishment of specialized universities focusing on cutting-edge scientific disciplines.
- Expansion of private education, accompanied by a shift in perception towards it.
- Rigorous application of quality assurance standards.
- Improvement in the economic and social situation.
- Development of infrastructure in al-Najaf al-Ashraf Governorate and Iraq.
- Population growth rate remains stable.
- Engagement with reputable international universities and the establishment of foreign universities in the governorate, making local universities attractive to foreign students.
- Migration to Najaf due to its attractiveness as a region with rich heritage, culture, and religious significance.

- Increased interconnectedness between higher education and community service, especially in the field of business incubators.

Based on the preceding assumptions, we estimate the potential developments in higher education in the governorate through Table 5-9.

Results and Analysis

This scenario is based on an optimistic outlook, where universities in al-Najaf al-Ashraf Governorate will play a role in coexisting with the Fourth Industrial Revolution, based on artificial intelligence and the digital revolution. Infrastructure for this transformation will be available, and spending on education, especially scientific research, will increase, leading to innovation and patents. This is contingent on the complete independence of universities in the governorate, making them, during this period, a source of scientific creativity and discoveries resulting from scientific thought in specialized universities, as employers realize the need for skills. There will be specialized universities in various disciplines, and attention will be focused on the cutting edges of science. It is expected that the specialized universities to be established will include the following specializations:

- **Medical University:** comprising the following medical specializations:
 - Faculty of Human Medicine
 - Faculty of Veterinary Medicine
 - Faculty of Pharmacy
 - Faculty of Pathological Analysis
- **Applied Sciences University:** comprising the following faculties:
 - Faculty of Engineering with its branches (Civil Engineering, Architectural, Mechanical, Electrical, Laser, and Chemical Engineering).
 - Faculty of Medical Technologies
 - Applied Physics Sciences
 - Applied Chemistry Sciences
 - Applied Biology Sciences
- **Humanities and Social Sciences University:** with all its specializations.
- **Economic and Administrative Sciences University:** with all its specializations, in addition to faculties of administrative technologies.

This scenario assumes an improvement in standard ratios, particularly the teacher-to-student ratio, in line with international standards. It will be 1:10 in scientific faculties and universities, and 1:15 in other faculties, mirroring developed countries like France, USA, and Japan (al-Shammā', 2012, p. 59). The University of al-Kūfah and the Faculty of Jurisprudence University are currently the best in terms of this ratio, with an emphasis on qualifying professors to keep pace with scientific and technological advancements, reducing the number of master's degree holders, and restricting their teaching to narrow limits and only for those with accumulated experience. The university should embrace its role in knowledge production and community service, and keep pace with the transition

towards a knowledge society and knowledge economy, as these universities will produce qualified personnel with talents and skills prepared for the labor market, contributing to the development of Najaf's society and, consequently, influencing the prosperity and flourishing of the entire country.

The issue of university independence is crucial in this context, in all its forms (functional, academic, financial, and administrative). In general education, it should operate under a contract between public universities and the responsible authority (Federal Ministry of Higher Education), under which financial grants are provided to universities, which are then responsible for their expenditure according to their financial plan. Academic independence grants the university the right to determine its scientific programs, languages of instruction, and its relationship with other universities.

For this scenario to be realized, the strengths that must be present in the governorate's universities are as follows:

- Highly qualified teaching staff, capable of adapting to developments in AI-based teaching methods and contributing to knowledge production and distinction locally and regionally.
- Integrated infrastructure in the governorate's universities, including laboratories and their equipment.
- Curricula that keep pace with innovation and creativity.
- Local universities possessing competitive capacity to absorb the increasing number of students from within the governorate, other governorates, or foreign students, given Najaf Governorate's cultural and religious heritage that can make Najaf's universities a center of attraction for students.

All obstacles that might limit the strengths of universities must be overcome. A long-term strategy should be developed to define the mechanisms to confront these obstacles, as well as to address potential risks to higher education, particularly private education, such as limited financial resources for educational investment or intensified competition and the limited capacity of the labor market to absorb university graduates.

Education has been significantly affected by global circumstances, especially the COVID-19 crisis, leading to the introduction of educational models previously unused in many countries. One positive outcome of the crisis was the expanded use of modern technologies in education, including remote and blended e-learning. The pandemic forced stakeholders to engage in the virtual space, integrating e-learning with traditional education, and this is expected to become a general approach for the future of higher education in Najaf Governorate.

Economic development in the governorate will occur through small and medium enterprises, requiring cooperation between the educational system in the governorate and the business sector, and supporting these projects through the establishment of business incubators that will contribute to the governor-

Table 5-10: Estimated Gap Between Supply and Demand for Education Services: Optimistic Scenario

	2020	2025	2030	2035	2040	2045	2050
Expected Secondary School Graduates	18,000	20,000	25,000	30,000	35,000	40,000	45,000
Absorption Capacity of Najaf's Universities	15,886	19,000	23,000	27,500	34,000	39,000	45,000
Students Expected to be Admitted Outside Najaf	0	250	500	750	1,000	1,000	2,000
Gap	2,114	750	1,500	1,750	0	0	-2,000

ate's economic development, in addition to their impacts on other governorates, fostering a competitive environment where enterprises can gain a larger market share.

The existence of business incubators will create a kind of interaction among stakeholders and lead to the employment of university scientific, innovative, and creative outputs, transforming them into entrepreneurial projects that contribute to economic diversification, job creation, and human resource development.

According to this scenario, there will be openness to international universities and admission of foreign students. Universities in the governorate will engage with developments in foreign universities through twinning programs and exchange of expertise. There will be surplus capacity in universities, providing flexibility for vertical expansion, as shown in Table 5-10.

3. The Pessimistic Scenario

This scenario is based on the following assumptions:

- Ratios remain unchanged, especially student-to-teacher.
- Expansion in humanities specializations.
- Scientific and engineering faculties remain as they are.
- Continued dominance of public universities in the education process within the governorate.
- The state of education remains unchanged in terms of quality assurance.
- Population growth rate continues at 3.0%.
- Economic and social conditions remain unchanged.

Based on the preceding assumptions, we estimate the likely developments in higher education in the governorate through Table 5-11.

It is likely that this scenario is not the most probable, but theoretically, assumptions have been made regarding the decline of education in al-Najaf al-Ashraf Governorate. This scenario is based on the premise that universities in the governorate will not accommodate the increasing numbers of high school graduates, who are the inputs to university education. It is expected that these inputs will not possess the necessary qualifications for the development of higher education in the governorate.

Table 5-11: Estimated Potential Developments in Higher Education in al-Najaf al-Ashraf Governorate: Pessimistic Scenario

	2020	2025	2030	2035	2040	2045	2050
Enrolled Students	39,664	40,000	41,000	41,000	42,000	42,000	44,000
Change in Net Enrollment Rate in Higher Education	37	37	37	40	40	40	40
Number of Public Universities	3	3	3	5	5	5	5
Number of Private Universities	4	4	4	6	6	6	7
Probability of Introducing New Specializations	No	Yes	Yes	Yes	Yes	Yes	Yes
Probability of Establishing Foreign Universities	No	Yes	Yes	Yes	Yes	Yes	Yes
Probability of Admitting Foreign Students	No	No	No	No	No	No	No
Probability of Attracting Foreign Professors	No	No	No	No	No	No	No
Responsiveness to Labor Market Needs	No	No	No	Yes	Yes	Yes	Yes

The deterioration in the education sector is a result of the general deterioration in economic and living conditions and political instability, in addition to a lack of attention to infrastructure in the country generally and in education specifically.

According to this scenario, the previously mentioned ratios will worsen, affecting the quality of education. There will be no autonomy for universities; instead, they will operate under federal instructions and laws, and their funding will be part of the general state budget. Consequently, they will lack long-term strategic planning and will be recipients of higher orders. Universities will lack clear objectives and vision regarding admission plans for undergraduate and graduate studies, and scientific research. There will be no opening of new public universities or faculties, nor will there be expansion in private education due to internal conditions specific to higher education or external conditions such as the general state policy and the lack of improvement in the political and economic situation. There may also be a contradiction between university graduates and market needs for certain specializations, given the prevailing culture's preference for medical and engineering faculties, leading to a specific type of unemployment for certain categories of graduates who are unable to work in fields outside their specialization.

University leadership will be influenced by political considerations, and appointments will be based on these considerations, meaning a weak connection to scientific tasks. Their focus will be more on financial and administrative aspects than on scientific ones. Capital will dominate the decisions of existing

Table 5-12: Estimated Gap Between Supply and Demand for Education Services: Pessimistic Scenario

	2020	2025	2030	2035	2040	2045	2050
Expected Secondary School Graduates	18,000	20,000	25,000	30,000	35,000	40,000	45,000
Absorption Capacity of Najaf's Universities	15,886	16,363	16,853	17,359	17,880	18,416	18,969
Students Expected to be Admitted Outside Najaf	0	0	0	0	0	0	0
Gap	2,114	3,637	8,147	12,641	17,120	21,584	26,031

faculties and universities to suit investor interests, at the expense of the educational process.

Responding to Challenges

In light of the preceding scenarios, it is expected that the optimistic scenario will prevail over the next thirty years if the necessary elements for development—human, material, and technical—are available. COVID-19 pandemic played a positive role in the adoption of new modes of education, such as distance learning and blended learning. However, these models were met with resistance from many stakeholders. Nevertheless, these models are expected to become dominant. Technological advancements will render blackboards, whiteboards, and pens obsolete, and traditional higher education will decline. In advanced stages, physical attendance will become unnecessary, and higher education will be accessible via the internet to students from around the world.

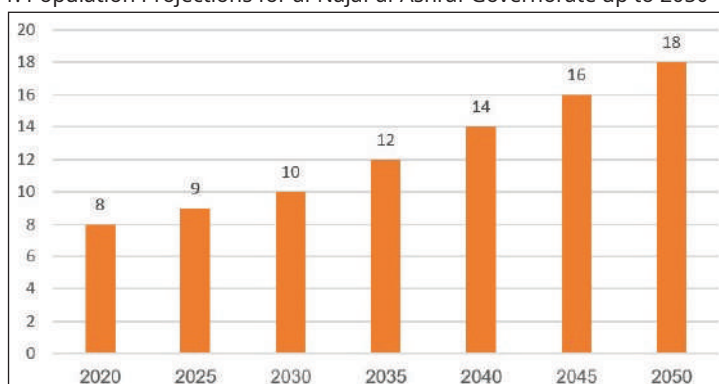
Examination of the existing higher education system in the governorate and Iraq generally, and its university performance, is typically conducted based on internal efficiency, which relies on the professor, curriculum, student, scientific research, and infrastructure. External efficiency, conversely, focuses on the university's relationship with the external environment, represented by the labor market, the quality and skills of desired graduates, their effectiveness, and instances of creativity and innovation. Internal efficiency is considered the foundation of external efficiency (Kāẓim & Kāẓim, 2020, p. 138-145).

- The optimistic scenario indicates the need for specialized universities, in addition to existing universities, to cope with economic and social development and increased awareness of the importance of skills and innovations generated in education.
- **Responsiveness to labor market:** Preparation of students must keep pace with the rapidly changing developments in the labor market. This requires a long-term strategy to renew required skills based on creativity and innovation, which local universities must adopt. Their preparation should be immediate to ensure labor market absorption, and students must be prepared to keep pace with ongoing developments. This means local universities must adapt to the labor market, not only in the governorate but also regionally and internationally, equipping their students

with new skills that help them in critical thinking, people management, negotiation art, flexibility, and creative work. Furthermore, the role of local universities should not be limited to the academic framework; they must also play a role in policy formulation at both the governorate and national levels. The vision of local universities should focus on bridging the gap between education and labor market demands and guiding students toward appropriate professional and vocational specializations.

- The necessity for universities in the governorate to play an effective role in social change, in response to knowledge development. This can only be achieved if universities enjoy academic, financial, and administrative autonomy and possess freedom, both for professors and students, operating in a free and democratic environment. Local universities, based on international cooperation and partnership, must transform into knowledge-producing universities rather than mere consumers.
- Universities may face obstacles from stakeholders who do not believe in change. To overcome this obstacle, local universities, provided they enjoy administrative autonomy, must work to change their existing organizational structures to accommodate rapid developments with the increasing use of artificial intelligence.
- Historical experience indicates that existing universities cannot accommodate graduates from various high school branches. This requires horizontal and vertical expansion in universities, while keeping pace with modern technological advancements and specialized universities. University programs must meet community needs in a way that ensures their effectiveness.
- The Iraqi economy is a rentier economy, dependent on oil for its dynamics. Forecasts suggest that oil will remain the primary source of energy in the world. It is expected that financial resources from oil, along with oil explorations in the governorate, will be invested, leading to an improvement in economic and living standards and the provision of jobs that will require highly qualified inputs. This means local universities will supply these institutions and projects with the necessary workforce across various specializations.
- Scientific research constitutes one of the most important functions of universities, as the quality and effectiveness of universities are measured by their scientific and intellectual output and their competitive capacity in this domain. It is hoped that local universities will achieve the highest level of creativity and innovation and transform them into productive capacities in the economy, especially with the expectation that the Iraqi and local economy will transition to a knowledge-based economy. This requires increasing public spending on education, as well as private investment in higher education, affecting economic life as universities will offer their scientific outputs and highly skilled graduates, creating demand for

Figure 5-1: Population Projections for al-Najaf al-Ashraf Governorate up to 2050



Source: Researcher's work, based on education indicators and population development in the governorate.

them, contrary to the previous trend where demand preceded supply. Academic freedom helps enhance intellectual activity in universities.

- Assuming that the university-to-population ratio in the governorate remains constant, and that universities will advance towards qualitative rather than quantitative education, al-Najaf al-Ashraf Governorate will need approximately seventeen universities by 2050, most of which will be in private education. This is because investment in education will yield a higher return than investment in other fields. Many factors will contribute to the horizontal expansion of private universities, including: migration to the governorate due to its attractiveness, in addition to population growth and improved infrastructure. Figure 5-13 illustrates the projected number of universities until 2050, assuming a ratio of one university per two hundred thousand individuals remains constant.
- The expansion in the number of students pursuing undergraduate and graduate degrees in foreign universities, along with advancements in communication systems and international openness and cooperation, will lead to engagement with reputable universities, especially European and American ones. This will foster twinning programs between local and foreign universities and the exchange of expertise and professors with foreign universities. This twinning will be based on scientific cooperation and exchange, integrating cultural, social, economic, and historical factors in a way that leads to a unique philosophical intellectual structure, rather than merely borrowing ready-made models from Western universities, which could lead to implementation crises and failure in building a knowledge society.
- Rehabilitation of professors and their limited-term secondments to learn from international experiences and develop scientific thinking skills, and to work with various modern teaching methods and approaches.

- One of the challenges facing universities is the issue of funding. This requires local universities to collaborate with productive institutions and companies to provide studies and research that address the problems of these companies in exchange for financial support. One such method is industrial business incubators.
- Among the challenges that future universities, including those in al-Najaf al-Ashraf, will face is the change in required professions in the labor market, both local and international. This requires universities to adapt to this transformation. Table 5-13 shows the top ten most in-demand professions over the next ten years, ranked by salary.

Table 5-13: Top Ten Most In-Demand Professions Over the Next Ten Years, Ranked by Salary

Profession	Change in Employment 2020-2030	Change in Employment 2020-2030 (%)	Average Annual Salary (USD)
Management Occupations	906.8	9.3	\$109,760
Computer and Mathematical Occupations	734.9	14.1	\$91,350
Legal Occupations	116.6	8.8	\$84,910
Architecture and Engineering Occupations	146.0	5.6	\$83,160
Business and Financial Operations Occupations	750.8	8.0	\$72,250
Healthcare Practitioners and Technical Occupations	974.6	10.8	\$69,870
Life, Physical, and Social Science Occupations	113.8	7.9	\$69,760
Arts, Design, Entertainment, Sports, and Media Occupations	349.2	13.1	\$53,150
Education, Teaching, and Library Occupations	920.5	10.1	\$52,380
Installation, Maintenance, and Repair Occupations	392.5	6.7	\$48,750
Construction and Extraction Occupations	400.0	5.7	\$48,610
Community and Social Service Occupations	346.9	12.4	\$47,520
Protective Service Occupations	286.4	8.4	\$43,710
Office and Administrative Support Occupations	-539.2	-2.8	\$38,720
Production Occupations	-39.0	-0.4	\$37,440
Transportation and Material Moving Occupations	1,120.1	8.8	\$34,080
Sales and Related Occupations	-202.9	-1.4	\$31,500

Table 5-13 (continued)

Profession	Change in Employment 2020-2030	Change in Employment 2020-2030 (%)	Average Annual Salary (USD)
Healthcare Support Occupations	1,580.1	23.1	\$29,960
Building and Grounds Cleaning and Maintenance Occupations	386.8	7.5	\$29,940
Farming, Fishing, and Forestry Occupations	26.6	2.5	\$29,670
Personal Care and Service Occupations	841.0	21.7	\$28,120
Food Preparation and Serving Related Occupations	2,267.6	19.6	\$25,500
Total, All Occupations	11,879.9	7.7	\$41,950

Source: <https://www.bls.gov/emp/ind-occ-matrix/occupation.xlsx>

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Peninsula Studies, Kuwait University.

6.

al-Marji'iyah and al-Ḥawzah

Prof. Dr. Ḥaydar Nizār al-Sayyid-Salmān

Faculty of Archeology, University of al-Kūfah.

I. Ḥawzah: The Seminar of al-Najaf al-Ashraf

The religious authority (Marji'iyah) and its scholarly seminar (Ḥawzah) in al-Najaf al-Ashraf Governorate are considered a spiritual, ideological, and educational center, possessing immense potential in terms of influential power, broad reach, and a deeply rooted presence within the Shi'i consciousness, spanning its distant historical depths. Given these attributes, this entity constitutes a solid force of influence with the capacity to act across political, economic, social, and cultural spheres. This is achieved by its ability to formulate general trends that either oppose or support political systems, and to generate public opinion guided by the characteristics of taqlīd (following the teachings of a specific Marji') and veneration. Its capacity for cultural action is also manifest through the creation of cultural patterns that harmonize with its religious function. All of this is underpinned by a robust ideological structure, firmly established within the Shi'i Muslim community, and distinguished by a unique identity, rituals, ceremonies, religious occasions, in addition to meticulously constructed doctrinal narratives.

This research presents a set of insights and readings revolving around the future of the Marji'iyah and its Ḥawzah, and the extent of its resilience. It operates on a research-oriented foresight assumption for the next thirty years, centered on two possibilities: the first represents a pessimistic reading of a state of decline and loss of influence, while the second is an optimistic, foresight-oriented reading that assumes the Ḥawzah's ability to maintain its influence and distinctive role. Both perspectives relied on a set of main pillars, foremost among them: the historical aspect, the nature of Ḥawzah education and its cultural activities, the social performance of Marji'iyah, and the challenges it faces and its responses to them.

The research adopted a descriptive and analytical methodology to provide an answer to a central question: Will the Marji'iyah and its Ḥawzah arm be able to withstand and respond to current and future challenges? The objective of the inquiry that guided the research methodology was to obtain an answer approximating possible foresight, based on critical tools supported by evidence, facts, and events, which we attempted to use as models for affirmation or negation, steering clear of the hagiographic approach prevalent in most research

concerning similar subjects. We can affirm that the research highlighted a set of activities specific to this institution, and while many exist, the nature and methodology of the research necessitated this in order to avoid disparaging a venerable history or compromising truth for politeness, which would render the work futile.

Marji'iyah and Hawzah

It is impossible to separate the Marji'iyah (the Supreme Religious Authority) from the scholarly body (Hawzah)⁽¹⁾ with its schools, its spatial and spiritual entity, and its cultural, intellectual, and preaching activities. Hawzah can be considered the executive apparatus of the Supreme Marji', and his communication channel with believers in all places where his followers, supporters, and sphere of influence are present. At the same time, it is the educational institution that undertakes the function of religious education and the preservation of its methods and curricula, and takes upon itself the cultural aspect of doctrinally connecting people with Marji's. Therefore, Hawzah can be described as a manifestation of the Marji's control and the extent of his capabilities.

Najaf has remained the headquarters of the Marji'iyah throughout its history, with the exception of short periods when Marji'iyah's headquarters moved to other cities within Iraq (al-Ruhaymī, 1985, pp. 100-101).

The Supreme Marji'⁽²⁾ who fulfills the conditions for assuming supreme religious authority in the hierarchy of Marji'iyah represents the origin of action and representation for the rest of the senior Marji's. They align with his proposals, speeches, and directives, and conform to his stances, especially political ones, despite the competition within the framework of Marji'iyah that is covered up and prevented from being publicly displayed.⁽³⁾ For example, regarding the distribution of monthly stipends to students of religious sciences, the salary paid by the Supreme Marji's office is greater than that paid by other Marji's.⁽⁴⁾ His word is

(1) The word Hawzah in Arabic means "side" or "area," and "a place around which a dike is built to protect it from water." Naming religious schools Hawzah either implies that religious sciences are in a specific area of the city, or that it serves as a dike that provides people with immunity and protection against deviant and infidel ideas (see al-Gharawī, 1994, p. 7).

(2) The Supreme Marji': A religious scholar (mujtahid) is chosen as a Marji' based on known criteria, strict conditions, and acceptance by influential senior religious scholars. The selection process is complex due to the difficulty of distinguishing among several mujtahids who have attained high scholarly degrees in religious studies. However, the established practices have provided solutions and remedies to the selection problem, in addition to the necessity of meeting a set of objective and subjective conditions that help finalize the process. For more details, see (al-Sayyid Salmān, 2010, pp. 24-31).

(3) Asceticism and staying away from the spotlight have been a long-standing characteristic of the Marji'iyah, its figures, and its private activities. This may be due to the persecution, oppression, and interference from authorities it faced in historical periods aimed at weakening its influence. It seems to have resorted to this method as a shield to protect itself. However, the competition to gain religious leadership does not align among senior religious scholars, as each sees himself as more scholarly and worthy in religious matters. Nevertheless, there is a spirit of solidarity that emerges when danger arises, and an unwritten agreement on the necessity of cooperation and mutual support to face and ward off dangers.

(4) As the Supreme Marji', he is the first to receive funds from zakāt, khums, and other donations. It is also customary in the Marji'iyah that the Supreme Marji' pays the highest stipend to students of religious schools, as students receive financial amounts from Marji's disbursed according to the Marji's financial capacity and standing. In this context, a striking event occurred within the ranks of the Marji'iyah in Najaf after 2003, represented by the opening of an office in Najaf by the head of the Iranian judiciary, Sayyid Maḥmūd al-Hāshimī al-Shāh rūdī, as a Marji'. In an attempt to gather more followers, he began granting students monthly stipends exceeding what the Marji' al-Sistānī granted, which provoked the indignation

considered an expression of the opinions of other Marji's. Furthermore, the religious Friday sermons held in Karbalā' are conducted by the representatives of the Supreme Marji', Sayyid 'Alī al-Ḥusaynī al-Sīstānī. Religious schools, endowments, and housing approvals in private student residences attached to schools are also placed under his administration. All of these are referred to as "al-Ḥawzah al-Dīniyah," and by Marji' standards, they represent a force and authority that provides the Marji' with importance and the ability to support his stances and mobilize public opinion.

However, this prevailing consensual formula is broken in rare instances;⁽¹⁾ when a Marji' adopts a different approach, he nevertheless remains under the umbrella of the customary consensus and solidarity, in order to preserve the centrality of the Marji'iyah and its spiritual standing, and so as not to damage its sacred reputation among its followers, and to prevent its figures from losing their capabilities in dominance, influence, and obedience.

On this basis, we can attribute the importance of the hierarchy within the ladder of Marji'iyah, and the extent of the adopted taqlīd. Consequently, the Supreme Marji' speaks on behalf of the Marji'iyah and represents it; his statements, speeches, directives, and fatwas are issued in the name of the Marji'iyah. This can be observed in the Marji'iyah of Sayyid 'Alī al-Sīstānī, where all his words and actions are attributed to the supreme Marji'iyah.

The religious school of Najaf differs from the school of Qum in Iran regarding the issue of the Marji's wilāyah (guardianship) and the scope of the authority and influence he attains in all public and private domains. Perhaps in this issue lies the competition between the two sides. The predominant characteristic of the Marji'iyah in Najaf is that it does not believe in general wilāyah (wilāyat al-faqīh), but rather considers this position a religious matter whose duties are limited to issuing fatwas and people consulting him on Sharia rulings and judiciary; this limits the Marji's role to matters of religion and belief, and political intervention only occurs during crises and when necessary, without delving into details, as part of a philosophical and religious presence, based on advice and guidance (al-Bahādilī, 2004, p. 143.). As for the Iranian school of Qum, it grants the Marji' absolute powers and authorities within what is known as wilāyat al-faqīh, extending his function beyond religious matters to general guardianship in economic, political, and military issues as the walī al-amr (guardian) of Muslims (al-Ḥakīm, 2005, pp. 186-187). The theory of wilāyat al-faqīh faced objections and rejection from religious scholars in the Najaf school from its early beginnings a

of al-Sīstānī's office and other Marji's, who considered it a transgression of Ḥawzah norms and traditions. In 2017, al-Shāhrūdī visited Najaf and stayed for seven days, during which he attempted to meet al-Sīstānī. However, all attempts at mediation and obtaining approval from the Supreme Marji's office failed. For details, see: *Dalīl al-Najaf* (Newspaper), Issue 143, September 7, 2017.

(1) At times, there is competition to ascend to the top of the Marji'iyah hierarchy, and this competition is accompanied by verbal campaigns to weaken each party against the other. In this context, we can refer to the conflict between Sayyid Muḥammad Muḥammad Šādiq al-Šadr, who was assassinated by the Ba'th regime in 1999, and the other Marji's, especially Sayyid 'Alī al-Sīstānī, and his presentation of himself as the most learned and highest-ranking Marji'. Najaf witnessed at that time the emergence of this sharp competition through discussions, publications, and the exchange of accusations by those affiliated with those parties or those who claimed to represent them. For more details, see (Āl-Maḥlūm, 2020, pp. 15-28).

few centuries ago (al-Sayyid Salmān, 2010, p. 33). After 2003, the Supreme Marjī', al-Sīstānī, blocked attempts to revive such calls when he rejected the establishment of a government similar to absolute wilāyat al-faqīh as being improbable, calling on the new government in Iraq to respect Islam as the religion of the majority of Iraqis (al-Khaffāf, 2009, p. 336).

The Marjī'iyah in Najaf has enjoyed complete financial independence from any governmental authority throughout its history. Neither it nor any of its institutions have been subjected to governmental financial influences. This financial independence has enabled senior Marjī's to maintain strong relations with their followers, and at the same time, kept them away from governmental influences and provided them with strength in their positions and opinions (al-Sayyid Salmān, 2010, pp. 34-36; Naqqāsh, 1998, p. 278). From these characteristics, the Najaf Marjī'iyah entered the general situation that followed the fall of the Ba'th regime in 2003. Despite the Najaf Marjī'iyah's repeated indications of not playing a political role that would make it a party in this field, it justified its positions by expressing its opinion on what it described as critical junctures in the life of the people (al-Khaffāf, 2009, p. 338).

Religious Schools

Religious schools are considered one of the most important areas affiliated with the Marjī'iyah, and they are subject to the supervision of the Supreme Religious Authority in Najaf. Due to their importance, Marjī'iyah has given them great care. From these Ḥawzah schools, religious scholars graduate, some of whom, after excelling and expanding their studies, become mujtahids (religious scholars), and others become agents and representatives of the Marjī'iyah in Najaf in other Iraqi cities and throughout the Islamic world. Others become preachers who spread out everywhere to disseminate religious teachings and enlighten people about their faith (al-Khalīlī, 1987, p. 83).

The school, as a physical space, constitutes a fundamental area for student gatherings and, symbolically, for the physical structures of the religious institution. It contains a number of rooms for unmarried students, usually a small room designated for one person. As for the rest of the school's service facilities, they are characterized by their shared nature, such as bathrooms, the kitchen, and the basement (sirdāb). Most schools include a library and a study hall. Although most religious students receive their lessons in mosques and Husayniyāhs, there are some schools that combine both residential and teaching functions. A notable feature is the presence of an internal courtyard with a basin and a water tap, used by students for Wuḍū' (ablution) before prayers. A person appointed by one of the Marjī's, known as the Mutawallī (supervisor), oversees the religious school. His primary function is to organize student affairs, supervise their Ḥawzah conduct and religious commitment, verify their presence, and prevent outsiders from staying there, or any activity that contradicts its status as a religious school. He is also responsible for monitoring their needs for water, electricity, and fuel. Furthermore, he serves as a link between them and the Marjī'. The Mutawallī is

usually chosen from distinguished students who have made significant progress in their Ḥawzah studies and have attained a position close to the Marji's' offices, possessing qualities of integrity, honesty, upright conduct, and piety. He is assisted by servants who undertake the maintenance of service facilities, and currently, guards have been added to the assistants.

The Marji'iyah—and specifically the Supreme Marji'—supervises the religious scholarly schools in Najaf, their administration, the determination of curricula for their students, and the disbursement of salaries and aid to them (Naqqāsh, 1998, p. 345; al-Khalīlī, 1987, p. 83). As for the number of religious schools, 95% of which are concentrated within the old city, it can be said that they do not exceed 30 schools. After 2003, a number of modern schools were added, some of which are located outside the old city. These are large, multi-story buildings, including spacious libraries and areas for Ḥawzah study, in addition to providing comfortable living conditions.

Studying in the Ḥawzahs and schools of Najaf attracts students from various countries. Despite the severe hardships of their accommodation and living conditions, these students prefer studying in Najaf over other Ḥawzahs due to its high academic and educational reputation, owing to the presence of the best professors there (al-Najafī al-Qūjānī, 1992, p. 197). It appears that the issue of joining the Najaf Ḥawzah was a driving force that led families to migrate to Najaf and make it their home, ever since Shaykh al-Ṭūsī⁽¹⁾ migrated in 448 AH (1056 CE). It is certain that most of the Najafī renowned families existing today and those that have become extinct originated from a migration aiming to gain a share of knowledge and literature (Āl-Maḥbūbah, Vol. 1, p. 376).

After Najaf's scholarly and cultural standing was solidified, it became a center attracting students of religious sciences and Muslim visitors from various Islamic countries. From its Ḥawzahs, schools, and institutes, mujtahids and lower-ranking clerics graduate from all over the Islamic world. It is a well-known fact that religious schools are not connected to governmental endowments⁽²⁾ that are overseen by the government. These schools often serve as residences for students migrating to Najaf from other Iraqi cities or from outside Iraq. The opening of religious schools always increases whenever the Supreme Marji' is active and strong.

(1) Abū Ja'far Muḥammad ibn al-Ḥasan al-Ṭūsī: Known as Shaykh al-Tā'ifāh (Leader of the denomination), he was the first to open the door of ijtihād, introduced new branches and chapters in jurisprudence, traced jurisprudential branches back to their origins, applied universal rules to external instances, and demonstrated flexibility and adaptability to life's events and affairs. For details, see (al-Ḥakīm, 1975, pp. 102-106).

(2) The Marji' al-Sayyid Abū al-Ḥasan al-Mūsawī al-Isfahānī rejected the offer by the well-known politician and prime minister during the monarchy, Ṣāliḥ Jabr, to link Ḥawzah in Najaf with Iraqi endowments, like other Islamic schools and centers in Iraq. al-Isfahānī insisted on Ḥawzah's independence from governmental influence in both administrative and financial aspects. See (al-Āṣifi, 1384 AH, p. 20).

II. Estimating Student Numbers in al-Ḥawzah of al-Najaf al-Ashraf

Relevant authorities lack a reliable database to ascertain the number of Ḥawzah students, their nationalities, curricula vitae, and other information. Hence, we faced considerable difficulty in obtaining relevant data. We can rely on the records and monthly stipend lists for Ḥawzah students as a primary and sole database for identifying and enumerating the number of students studying in al-Ḥawzah of Najaf. However, the difficulties in obtaining accurate numerical statistics stem from several factors, the most important of which is that the distribution of monthly stipends is handled by a number of Marji's' offices, not just one. Although the largest number of students receive their stipends from the office of the Supreme Marji', Sayyid 'Alī al-Sīstānī, there are other Marji's who also spend in this regard, and some of them do not enjoy a high position in the leadership hierarchy of al-Marji'iyah.

As for the other matter, it concerns the students themselves: some do not take a Ḥawzah stipend but rely on themselves and their private funds. Others do not attend regularly but sporadically. A number of others have been deprived of the monthly stipend for reasons, most importantly non-attendance or misconduct and adherence to ideas considered "deviant" within Ḥawzah circles. In general, any attempt at accurate statistical enumeration remains challenging, especially since the idea of non-institutionalization is prevalent and makes obtaining precise information unreliable.

According to the foregoing, we have statistical figures for the number of Ḥawzah students in Najaf registered in stipend records for Iraqi students, and in the data of the residency department in Najaf for foreign students, which we managed to obtain with extreme difficulty. However, what must be noted is the inability to provide a fixed statistical figure for the actual numbers, due to constant changes in enrollment and departure from the Ḥawzah; new students enroll, and in return, others withdraw, for various reasons, which may be related to death or finding another job or abandoning continuous attendance. This applies more to Iraqis than others. And there is something that must be noted due to its importance, which is that some students join Ḥawzah for purely livelihood reasons, as they find in it a source of income due to not having a source of livelihood.

As for foreign students, they are also subject to statistical changes, depending on various circumstances. Some return to their home countries after completing a period of study without their name being removed. For example, some cannot tolerate living in Najaf for cultural and social reasons, and others are sent as accredited agents to their home countries for one of the Marji's, and some exploit their study residency visa to find another job,⁽¹⁾ leaving Ḥawzah study without a stance from the religious office that helped them obtain it.

(1) The leakage of a number of Ḥawzah students in Najaf, especially Pakistanis, from study to work in commercial and service establishments causes disruption to security agencies. The most apparent observation is that these students bring their families with them and settle in Najaf, residing in informal housing.

In general, the number of Iraqi students today (2021) ranges between 28,000-30,000 religious students, after being no more than 3,000 in 2003. They are distributed, in terms of school and Taqlīd ties, among a number of Marji's and hail from all Iraqi cities. Unmarried students are distributed among a number of religious schools for residence in designated rooms. Married students rent houses for living with their families, and others live in houses within residential complexes, most notably the one that was specially built for Ḥawzah students on the land of the old Najaf infantry training camp, located on the street opposite al-Anṣār neighborhood. In the same complex, houses have been allocated for foreign students. As for the increase or decrease in the number of students in the future, it depends partly on the economic situation, and assuming its stability, the numbers will remain stable and increase, and conversely, its deterioration leads to their decrease.

The presence of hundreds of individuals attending religious study circles held in schools or mosques cannot be overlooked. These individuals cannot be considered regular Ḥawzah attendees; rather, they attend for personal desire, a love of knowledge, and to educate themselves on jurisprudential matters. However, in all cases, they are not officially registered students. This clarification aims to highlight the dense attendance at study circles, which suggests very large numbers, exceeding 30,000 students.⁽¹⁾ According to personal information provided by several experienced Ḥawzah students, the largest number of Iraqi students are from Baghdād, which is likely due to its larger population in Iraq, but this does not diminish the numbers of students from other cities.

As for the number of foreign students studying in the Ḥawzah of Najaf, according to an updated security statistic, it is (3608) students, without their accompanying families. If we add the family members, the current average number reaches more than (10000). These students originate from diverse nationalities, exceeding (58) countries from around the world, led by Pakistanis with (1279), nearly half of the total. The striking diversity of countries from which these students came is noteworthy. The numbers of students studying in the Najaf Ḥawzah who have obtained residency visas can be seen in Table 6-1. The other striking observation is that many of them settle in Najaf, exploiting the lack of a time limit for Ḥawzah study, and also exploiting the Iraqi Nationality Law, which grants it to those who have resided in Iraq for ten years.⁽²⁾

In any case, these numbers of students can increase or decrease according to political and economic circumstances. However, they confirm that the Ḥawzah of Najaf is still attractive for study, and it is more qualitative in its overall situation than it is seeking large numbers. At the same time, the presence of the Supreme Marji' in Najaf, followed by Taqlīd by the majority of Shi'ah in the world, will

(1) According to a conversation with an experienced Ḥawzah student in Najaf, a number of retired employees joined Ḥawzah study out of a desire for knowledge and religious study, and due to feeling bored with the emptiness of retirement. These include former non-commissioned officers, teachers, engineers, and individuals from various professional backgrounds. Interview with Shaykh Maḥdī al-Ḍayfī on September 9, 2021.

(2) See: Iraqi Nationality Law No. 26 of 2006, Article 6, Clause 1.

Table 6-1: Number of Foreign Hawzah Students with Their Family Members

No.	Country	Residents	No.	Country	Residents
1	Pakistan	1279	30	Kenya	5
2	Afghanistan	500	31	Bangladesh	5
3	Iran	426	32	UAE	3
4	India	357	33	Burkina Faso	3
5	Saudi Arabia	193	34	Rwanda	3
6	Bahrain	88	35	Egypt	2
7	Azerbaijan	117	36	South Africa	2
8	Indonesia	66	37	Georgia	2
9	Lebanon	132	38	Cameroon	2
10	Madagascar	63	39	Canada	1
11	Nigeria	60	40	Netherlands	1
12	Tanzania	46	41	Palestine	1
13	Syria	36	42	Russia	1
14	Turkey	33	43	Mali	1
15	Thailand	23	44	Vietnam/Ethiopia	1
16	Kuwait	28	45	Ukraine	1
17	Senegal	15	46	Tunisia	1
18	Yemen	18	47	Algeria	1
19	Ghana	11	48	Denmark	1
20	USA	13	49	Zambia	1
21	UK	11	50	Guinea-Bissau	1
22	Philippines	7	51	Cambodia	1
23	France	7	52	Ethiopia	1
24	Burundi	7	53	Kosovo	1
25	Comoros	6	54	Liberia	1
26	Oman	5	55	Mauritania	1
27	Myanmar	5	56	Mozambique	1
28	Guinea	5	57	Norway	1
29	Ivory Coast	5	Total		3608

Sources: A reliable security source who preferred to remain anonymous.

keep this school active and effective despite challenges, and the flow of foreign students of different nationalities will continue in the next three decades, because this Hawzah has not stopped doing so even in the darkest circumstances that Iraq in general and Najaf in particular have gone through, and the harassment and persecution that the Marji'iyah and its Hawzah have been subjected to. This is a clear indicator whose premises can be relied upon to affirm the continued arrival of foreign students of religious studies to Najaf to complete their religious learning in its school.

III. Hawzah and Culture in al-Najaf al-Ashraf

From 2003 until today (2022), the Hawzah of Najaf has witnessed an unprecedented flourishing in all aspects, most notably gaining extensive and unprecedented freedoms in its activities, freedom of teaching, and the introduction of new curricula. It has also seen steady growth in its numbers and the number of students enrolling; it has become easy, away from security restrictions and fierce governmental surveillance, for large numbers of individuals desiring Hawzah study, both from within Iraq and abroad, to flow into Najaf without significant obstacles. As for the latter, the new political conditions in the country have opened the door for their arrival in Najaf without notable impediments. The Hawzah has also assumed a broad social and cultural role with wide freedom of movement and activity. Dozens of religious schools and cultural institutions have been established, and continue to be, operating openly, engaging in political and cultural discussions that were previously forbidden by the authorities and met with severity and harshness. As for living conditions, students' circumstances have improved significantly, though this has stimulated some to enter the world of politics with its conflicts and problems.

The Marji'iyah and its Hawzah in al-Najaf al-Ashraf undertake a cultural, doctrinal, and ethical role aimed at:

- Consolidating Shi'i doctrine.
- Confronting attempts at skepticism and doctrinal deviations.
- Spreading and promoting Islamic jurisprudence concerning religious necessities in dealings and worship, such as matters of ḥalāl and ḥarām, and responding to religious questions.
- Forming a solid front of believers in Marji'iyah by maintaining continuous communication between both parties.
- Clarifying the Marji'iyah's positions on general events and developments, especially political ones.
- Promoting Islamic ethical behaviors, derived from the conduct and sayings of the Ahl al-Bayt (peace be upon them) among the Shi'ah, as they are considered the role models and supreme symbols of ethical idealism.

After Marji'iyah gained prominence in the Iraqi scene and acquired influential power and voice, it faced a large array of social and political challenges, which are difficult to address in detail. Since the prevalence of chaos, the proliferation of weapons, and the emergence of various armed groups under diverse names, and the accompanying acts of looting and robbery, Marji'iyah's performance escalated, leading to its direct involvement in public affairs after people turned to it, seeking its opinion amidst the dangerous chaos. Meanwhile, Sayyid 'Alī al-Sīstānī firmly rejected religious scholars holding political (administrative and executive) responsibilities in the state and emphasized the necessity of avoiding this path, for religious clerics have a spiritual status that might be tainted when they engage in political and administrative work, out of fear of deviation into practices that

contradict public ethics, such as cunning and deception, thus distancing themselves from their original social and doctrinal function (al-Sayyid Salmān, 2015, pp. 83-84). This clarity in rejecting religious clerics holding executive and political affairs in the state was not, however, capable of preventing many of them from engaging in political work.

The truth that must be mentioned is that the Ḥawzahs in Najaf, in addition to their religious educational role and cultural and intellectual activities, represented an incubator for most Shī'i intellectuals and thinkers from within these Ḥawzahs, to the extent that the culture in Najaf was considered to have emerged from the mantle of the religious Ḥawzah; the religious spiritual tendency dominated most Najaf's literature, and what applies to intellectuals and literary figures also applies to politicians in the early twentieth century (al-Ṣabāḥ al-Jadīd, 2006).

Cultural Institutions of Ḥawzah in al-Najaf al-Ashraf

Ḥawzah students undertake religious functions as agents or representatives, in addition to their other duties related to collecting khums, zakāt, donations, and vows. This traditional method of fulfilling their assigned responsibilities relied on the personal presence of the cleric, using mosques and Ḥusaynīyahs as their headquarters, and the implementation of cultural activities was almost exclusively limited to them. However, what happened after 2003 introduced other methods while retaining the customary approach. The newly introduced methods involved the establishment of institutions that operate with new administrative mechanisms and hierarchical structures, managed by discerning Ḥawzah students with scholarly capabilities, in addition to their proximity to and trustworthiness by the offices of Marjī'īyah, which undertake the tasks of supervision, guidance, and funding. In this regard, we highlight the role of those cultural institutions and centers that originated within the Ḥawzah in Najaf, most of which operate with funding and supervision from the Marjī's' offices, such as al-Ḥikmah Cultural Foundation, al-Murtadhā Foundation for Culture and Guidance, the Specialized Studies Center on Imam al-Mahdī, Kāshif al-Ghiṭā' Foundation, and al-Anwār al-Najafīyah Foundation.

In this context, we highlight the role of those cultural institutions and centers, based first on their affiliation, and second on their reputation and public role, while noting the existence of a large number of them and the difficulty of mentioning them all. Among these is al-Ḥikmah Cultural Foundation, affiliated with the Marjī' Sayyid Muḥammad Sa'īd al-Ḥakīm, which has several diverse departments in its activities.⁽¹⁾ There are also important cultural institutions headquartered in Najaf, including al-Murtadhā Foundation for Culture and Guidance, which operates with funding and supervision from Sayyid 'Alī al-Sīstānī's office and is managed by Ḥawzah students trusted by the office, and its objectives do not differ from other institutions.

As for the important institution to which the Marjī'īyah in Najaf pays special attention, known for its numerous publications written by distinguished Ḥawzah

(1) See its website, al-Ḥikmah Cultural Foundation: <https://www.instagram.com/alhikmeh/>.

students who have reached an advanced stage of study, it is the Specialized Studies Center on Imam al-Mahdī, established with the support and supervision of al-Sīstānī's office. According to the center's definition, its function is to defend the Mahdawī doctrine as the foundation upon which the Shī'i school of thought is based. The center undertakes the tasks of introducing this doctrine globally, solidifying it among the Shī'ah, and confronting all attempts to exploit it by claimants who use it to achieve their own ends, and it monitors everything related to this critical issue.⁽¹⁾

In addition to the aforementioned Ḥawzah cultural institutions, other institutions can be mentioned, considered at a secondary level in terms of financial capabilities and general activity. The most important of these are: Kāshif al-Ghiṭā' Foundation,⁽²⁾ Āl al-Bayt Information Center, which aims to raise the cultural and scholarly level of Ḥawzah students, the Religious Guidance Foundation which is concerned with guidance, al-Anwār al-Najafīyah Foundation funded by Shaykh Bashīr al-Najafī, and the Association of al-Minbar al-Ḥusaynī Orators.⁽³⁾

The cultural action of these institutions is manifested in journalistic publications, digital media, and the issuance of newsletters and books. All of them aim to spread scholarly, cultural, and social awareness in Iraq and the world, and to address social, intellectual, and doctrinal doubts and Western cultural invasion (al-Sayyid Salmān, 2007, pp. 137-143), and to disseminate Shī'i culture through modern methods. The most important of their objectives: strengthening faith and doctrine among believers amidst material excess and the complexities of modern life, and the resulting frustration, psychological, and economic pressures, and the prevalence of a defeatist spirit among individuals.⁽⁴⁾ The establishment of these institutions can be attributed to an attempt to re-establish cohesion between Marji'iyah and believers in the face of the spread of irreligious thought or the abandonment of the practice of Taqlīd of Marjī's. This involves updating traditional methods and replacing them with a moderate and new discourse. This can be observed in al-Najaf al-Ashraf Magazine, a monthly magazine with diverse content.⁽⁵⁾

These institutions constitute the media and advocacy efforts of Marji'iyah and its Ḥawzah in Najaf. From the financial investment in them, we can discern and conclude their importance and the extent to which Marji'iyah relies on them, not only for spreading culture and doctrinal guidance but also for competing with

(1) See its website: <https://m-mahdi.net/main/pages-1>.

(2) Kāshif al-Ghiṭā' Foundation: An institution established under the supervision of Dr. Shaykh 'Abbās Kāshif al-Ghiṭā', see: <https://iraq.shafaqna.com/AR/88701/%D9%85%D8%A7-%D9%87%D9%8A-%D8%A3%D9%87%D9%85-%D8%A7%D9%84%D9%85%D8%A4%D8%B3%D8%B3%D8%A7%D8%AA-%D8%A7%D9%84%D8%AD%D9%88%D8%B2%D9%88%D9%8A%D8%A9-%D8%A7%D9%84%D8%B9%D8%A7%D9%85%D9%84%D8%A9-%D9%81%D9%8A/>

(3) See Shafaqna website, "What are the most important Ḥawzah institutions operating in Najaf?": <https://ar.shafaqna.com/AR/139485/>

(4) See al-Murtadhā Foundation for Guidance's website: <https://wocoshia.org/ar/shia-centers-ar/asia-ar-c/iraq-ar/center12-ar>

(5) First published on April 20, 2003.

the cultural institutions affiliated with the Ḥawzah of Qum with their enormous capabilities and affirming the leading role of the Marjī'īyah of Najaf. From another perspective, it represents a new movement characterized by activity and keeping pace with technological and media modernity, and gaining followers and maintaining the strength of faith in their souls; these institutions, and what we will refer to later, reinforce the influential position of the Marjī'īyah of Najaf and its Ḥawzah and grant it the ability to respond to successive challenges and confront competition with other Ḥawzahs through organization and institutional work. In this case, we can conclude that the institutionalization of Ḥawzah will be a reality in the future despite the principle of non-systematization that currently governs its approach and mechanisms.

IV. The Future of the Ḥawzah in al-Najaf al-Ashraf

1. The Optimistic Scenario: The Rise of the Ḥawzah of Najaf and the Decline of Other Ḥawzahs

If we attempt to view the future of the Ḥawzah with optimism and the probability of its ascent to the ranks of global scholarly centers, and its refusal to succumb to the vicissitudes of time, no matter how difficult and entrenched they become, then a historical evaluation of the stages the Ḥawzah of Najaf has passed through, in terms of counter-measures against its existence—where the authorities moved to suppress its influence and weaken it—is necessary. We will find the strong resistance shown by this Ḥawzah under oppressive conditions against all attempts at elimination and authoritarian weakening. We can focus on a specific time segment that can provide us with a clear evaluative capacity, reinforced by evidence. We refer here to the period extending from 1968 to 2003, which truly represented the ferocity of the authoritarian powers and their systematic counter-action against Marjī'īyah and its Ḥawzah, and the endeavor to eliminate it, with the Ba'th rule being the most brutal in these attempts.⁽¹⁾

What distinguishes the Ḥawzah and its students is that it serves as the link between Marjī'īyah and society, a representation of its manifestations and actions, and an embodiment of its strength. Moreover, the cleric, as a Ḥawzah student, enjoys high social respect and appreciation; he is dubbed "Tālib al-'Ilm" (seeker of knowledge), a descriptive term indicative of his popular importance. The Marjī' Sayyid Muḥammad Sa'd al-Ḥakīm presents an optimistic vision for the survival and "immortality" of Ḥawzah, inferring this from historical evidence and events where Ḥawzah confronted opposing forces that sought to uproot and subjugate it. These hostile forces and dangers were represented by a set of challenges, the most important of which were: internal conflict within Ḥawzah and Marjī'īyah, religious sects that excommunicated Shi'ah like Wahhabism, and Christian missionary attacks, whose essence was the colonial powers that imposed

(1) For a more comprehensive understanding of the problematic confrontational relationship between Marjī'īyah and its Ḥawzah in Najaf and attempts to control it, see: al-Sayyid Salmān, 2010, pp. 205-209. One can also follow the Iraqi government's efforts to control the affairs of Marjī'īyah and the methods it adopted for monitoring and surveillance in its vision in (Kāzim, 2018).

their occupation on Islamic countries. Another imminent danger was represented by atheistic thought that permeated socially and culturally, and other challenges, until Ḥawzah and Marji'iyah ultimately triumphed (al-Ḥakīm, 2010, pp. 169-178).

We can support the optimistic stance by the continued retention of Ḥawzah's strength and future influence on deeply rooted and solid pillars within its entity, derived from the school of the Imams of Ahl al-Bayt (peace be upon them). These must be developed and emphasized, and they are as stated, in one way or another, by a contemporary Marji' (al-Ḥakīm, 2010, pp. 169-178):

- Authentic culture and beneficial knowledge built on the strength of argument, and the precision of calculation and observation.
- Sincerity in seeking knowledge and understanding, and performing duties, not for worldly gains, whether material or moral, or for ranks and positions.
- Efforts made to mend the rift and contain the crisis of trust between some clerics and society, which has damaged the high standing of Ḥawzah. The reason for this is the desire of some to acquire wealth and their diligent pursuit of it for personal interests, instead of spending it to promote religion, raise its banners, and aid the needy and poor. Some have even gone beyond this to reach a stage of luxury and extravagance, which has damaged the reputation of the cleric and distorted his image among many people. In order to preserve the respected image of the Ḥawzah student and restore people's trust in him, he must stay away from suspicious situations,⁽¹⁾ and return to self-restraint in seeking money, and not expand in earning and spending it for themselves, and to avoid extravagance and luxury, even if the money comes from their personal earnings and work (al-Ḥakīm, 2010, pp. 85-87).
- Persevering in improving the situation and the reputation of clerics and Ḥawzah, and emphasizing the solidity of the entity of Ḥawzah and Marji' and its ability to overcome crises, and acknowledging the necessity of pointing out the mistakes and behaviors of Ḥawzah students for the sake of Ḥawzah's survival and immortality. A statement by al-Ḥakīm can be cited in this regard: "If the cleric and preacher are subjected to criticism and scrutiny, they become cautious and vigilant, and try to avoid pitfalls and stay away from suspicious situations, stimulating integration and advancement." (al-Ḥakīm, 2010, pp. 83-84).
- Perhaps the most explicit embodiment is the focus on establishing several charitable and service institutions that undertake work in the fields of relief, aid, supporting poor families, and caring for orphans, in addition to medical projects and assistance for marriage. It is striking that the work and activities of these institutions occur quietly and without promotional

(1) Perhaps the Marji' al-Ḥakīm's mention of Ḥawzah students, urging them to stay away from suspicious situations, means engaging in political and executive work, which caused popular resentment and created a gap between them and the people.

fanfare, in an era where media has become an influential shaper of public opinion and attitude formation.

Regarding these institutions, a sample of them can provide us with information about the social impact of Ḥawzah and its penetration into the fabric of society as an active force of influence, which can support its continued role as an effective actor in the long term, especially since it presents itself as an entity in harmony with its popular base to gain its satisfaction and strengthen its ties with it. This keeps it effectively influential in answering people's questions about the outlets where khums, zakāt, and other religious dues are spent, and closes the doors to all attempts at doubt and suspicions surrounding its large financial resources, especially since these revenues have increased through Marjī'īyah's supervision of the religious holy sites⁽¹⁾ with their large resources; it has been able, through its work, to provide thousands of job opportunities and establish advanced hospitals such as al-Kafil Specialized Hospital by al-'Abbās Holy Shrine in Karbalā', and al-Safir Surgical Specialized Hospital by the al-Ḥusayn Holy Shrine,⁽²⁾ and Amīr al-Mu'minīn Specialized Hospital and al-Imām 'Alī Hospital in the city of Najaf by the Marjī'īyah of al-Sistānī, which are considered among the most modern specialized hospitals with advanced medical equipment.⁽³⁾ It is necessary to note that these hospitals provide free services, or at symbolic fees, to those who cannot afford them.

The expansion of this approach in the field of social services managed and funded by Marjī'īyah and led by prominent and influential Ḥawzah scholars, leads to strengthening the bonds of relationship with its social base of followers through Taqlīd and affiliates and solidifying trust. These services also enable Marjī'īyah to gain popular responsiveness to its fatwas and guidance and keep it a fundamental party in influence, preventing the traditional bond that unites the two parties in a spiritual connection from breaking amidst social and cultural transformations. Certainly, all these actions work to sustain the entire religious system, from Marjī'īyah to its Ḥawzah.

Within the service context, we can point out that the Ḥawzah of Najaf can move forward in establishing institutions under the supervision and patronage of Marjī'īyah, which will be effective in winning people's hearts and maintaining their known spiritual connections with Marjī'īyah. These institutions also indicate that they are a social actor that cannot be weakened.

(1) It can be noted that those who manage the holy shrines are appointed by the Shi'i Endowment, which is a governmental body. However, the approval of the appointed person must be granted by the Supreme Marjī'. Accordingly, the position of (Legal Custodian) subject to the directives of Marjī'īyah was created, as the affairs of the holy shrines revert to it by religious law. For more details, see: An official in the administration of the al-Ḥusayn Holy Shrine reveals (where the holy shrine's funds go and how its projects are managed.) <http://non14.net/public/107733>.

(2) See: https://kh.iq/medical_sections/view_list.

(3) For details on Amīr al-Mu'minīn Specialized Hospital, visit the following link: <https://www.tabeebee.com/ar/doctors/%D9%85%D8%B3%D8%AA%D8%B4%D9%81%D9%8-%D8%A3%D9%85%D9%8A%D8%B1%D8%A7%D9%84%D9%85%D8%A4%D9%85%D9%86%D9%8A%D9%86-%D8%B9-%D8%A7%D9%84%D8%AA%D8%AE%D8%B5%D8%B5%D9%8A-%D9%81%D9%8A-%D8%A7%D9%84%D9%86%D8%AC%D9%81-%D8%A7%D9%84%D8%A7%D8%B4%D8%B1%D9%81>.

In this context, the Ḥawzah of Najaf will continue its ascent in developing the institutions described within the realm of social services, which provide valuable services and enjoy a prestigious reputation among the populace, such as al-ʿAyn Social Welfare Foundation, al-Yatīm Foundation, and al-Wārith International Oncology Foundation. These institutions are the most extensive in providing services, material and human resources, and other capabilities, forming a barrier against a large vacuum represented by governmental neglect in these areas, which they have successfully addressed.

This success in providing social services represents a new approach in terms of its types and mechanisms, through which Marji'iyah and Ḥawzah will regain their performance within their social base and followers until at least 2050. However, this does not mean that it will be easily marked by uniqueness, which we will refer to later. Furthermore, its role has extended to a wider geography than its immediate areas, and this expansion was clearly manifested during the war on terrorism between 2014 and 2017. In addition to its influential participation in the war against terrorism,⁽¹⁾ Marji'iyah deployed dozens of relief teams led by Ḥawzah students in most of the affected cities, transporting tons of food, medical, and livelihood aid, which contributed to alleviating the suffering of thousands of displaced persons from their cities and villages.⁽²⁾ Although all this was happening without media fanfare, Ḥawzah's role in emergencies and logistical support was clear, without distinguishing between beneficiaries of aid on sectarian or ethnic grounds; and Marji'iyah demonstrated its ability to perform better and deal with people's issues skillfully.

From another perspective, and in light of the foregoing and what can be historically examined regarding the competition of the Ḥawzah of Najaf in matters of scholarly rigor, traditions, teaching, curricula, and known reputation, this Ḥawzah can continue its superiority, due to several factors, over its main competitor, the Iranian Ḥawzah of Qum. Among these factors we mentioned earlier, the link between Marji'iyah and Ḥawzah with the political system and its authority is an influential factor. The independence enjoyed by Najaf has granted it power, influence, and a backing by not being subject to the dictates of the authority, its fluctuations, and its positions, which are sometimes popularly rejected or contradict religious law. Perhaps the financial link poses a danger in this regard; this link causes it to lose its economic independence, leading to its assimilation with the desires and will of the authority, which is what is practiced in the Ḥawzah of Qum, which lives in a state of semi-integration with the authority and the political system in Iran, especially if we take into account that the Walī al-Faqīh is considered the highest leadership figure for both political and religious authorities, and

(1) After the Fatwa of "al-Jihad al-Kifa'i" issued by the Marji' Sayyid 'Alī al-Sīstānī in June 2014, following the terrorist occupation of several Iraqi cities, hundreds of Ḥawzah students in Najaf rushed to respond to this fatwa and fight within the ranks of volunteers. Indeed, many of them sacrificed their lives in the battles and were an incentive for thousands of fighters to join and raise morale. For details on the fatwa, see: al-Sayyid Salmān, 2015, pp. 168-175.

(2) For details on logistical support and Ḥawzah's relief teams, in addition to supporting the poor and providing financial aid and covering medical expenses for people in need of surgery and other life matters, see: al-Sayyid Salmān, 2015, p. 32.

holds the reins of Ḥawzah's affairs from institutions and funds to public positions, which is not found in the case of independent Ḥawzah of Najaf.⁽¹⁾

As for the other factor, it is the historical nature of the Ḥawzah of Najaf, as the origin and essence of other Ḥawzahs and the first establishment of traditions within them, and the pioneer in choosing teaching curricula, from which the currently prevalent educational process began.⁽²⁾ Thus, it enjoys a reputation for scholarly rigor and foundational establishment, and the books authored by its scholars are the basis of the curricula of all Ḥawzahs, in addition to the prestige it bestows upon the holder of its license and certificate for every student who received his education in its school.

The psychologically influential factor, with its sacred dimension, comes from Najaf housing the shrine of Imam 'Alī, upon whose allegiance and loyalty the Shi'i doctrine is based.

These factors and others make it extremely difficult to compete with the Ḥawzah of Najaf and replace it. Its historical resilience and accumulated experience enable it to deal with its competitors and even its enemies. We can confidently say that it will remain strong, with its great influence and effective impact over the next three decades (2050), by virtue of its deep roots in the Shi'i social structure, and its ability to bring about changes in its discourse, approach, and mechanisms of action. This is aided by a history extending back a thousand years, during which it witnessed tribulations, crises, and wars aimed at destroying its role and entity. But it emerged from them without its enemies achieving what they sought; moreover, it increased its prestige and influence.

In any case, the future rise of the Ḥawzah of Najaf will represent an advancement over other competing Ḥawzahs, and consequently, an increase in its social and spiritual influences and an augmentation of its capabilities, even in shaping public opinion on various issues, especially political ones if necessary.

However, the question that seems logical and circulated within academic and research circles, concerning the possibility of introducing changes in the adopted study methods, and even in the endeavor to establish an organized Ḥawzah university that approaches modern education, finds part of its answer in the prevailing principle within the circles of the Ḥawzah of Najaf and its Marji'iyah, which is summarized by the adage: "Order through Disorder." According to this view of organizing study, it would lead to the loss of its charm, prestige, and inherited traditions before the year 2050. However, this has not prevented calls for organized study with a defined duration, but they have been hindered. In this context, we have two examples that did not achieve what was intended from them: the opening of Jam'iyyat Muntadā al-Nashr (Forum of Publication Society) for organized study in the 1930s, and the establishment of al-Kalāntar University for religious studies. Despite its distinguished location in one of the city's most

(1) For a precise understanding of the integrative nature between the Ḥawzah of Qum and the political system in Iran, see: Khalajī, 2017.

(2) The migration of Shaykh al-Tūsī to Najaf and the establishment of the Ḥawzah in 448 AH were the first building blocks for teaching Shi'i jurisprudence in Najaf's school.

prestigious neighborhoods and the construction of a fully equipped building, it did not become a model to be adopted by the Hawzah.

In general, if we consider the global waves of organization and modernization pressing even the most traditional social influencers, Marji'iyah may ultimately be compelled to organize Hawzah studies in response to the demands of the era and to preserve its social influence. However, these remain assumptions that may or may not materialize. Through field observation, we found an initial modernization in the organization of religious studies, for example, the use of computers and the beginnings of establishing classrooms, which may herald future development in this context.

2. The Pessimistic Scenario: The Decline of the Hawzah of Najaf and the Rise of Other Hawzahs

After the Marji'iyah in Najaf took center stage in the Iraqi scene and gained influence and an effective voice, it is poised to face a large array of social and political problems, which we summarize as follows:

a. Political Tensions

Since the prevalence of chaos, the spread of weapons, and the alarming emergence of armed groups under various names, some clerics have exploited these conditions and taken over the administration of some government institutions, claiming affiliation with the offices of the Hawzah. After that, their performance escalated, leading to their direct involvement in public affairs after people turned to them, seeking their opinion amidst the dangerous chaos. Despite the strong rejection by the Supreme Marji'iyah in Najaf of clerics assuming administrative and executive responsibilities in the state, and the urgent call to avoid this path, this was not able to prevent many of them from engaging in political and executive administrative work, which will shake the foundations of Hawzah and weaken its cohesion.

The desire of some affiliated with the Hawzah of Najaf to exploit the religious "imamah" (turban) against the wishes of Marji'iyah will lead to suspicion among the people, and consequently, a decline in Hawzah's status. Efforts must be made to preserve the ancient Hawzah traditions and the name of the school of Najaf from being tainted by political and self-serving conflicts. However, these attempts have been met with ambitions and authoritarian temptations from a number of Hawzah students who have strongly pushed in this direction; they have taken on governmental tasks and positions of a political nature, and some of them have begun to show signs of wealth and privileges of power, disregarding the traditional Hawzah conditions for a cleric, despite being a minority compared to the students and scholars of this institution whose traditions are culturally opposed to excessive wealth and political work. Although people initially were not seriously concerned about these matters, signs of discontent and grumbling began to escalate over time, and accusations against clerics became explicit, claiming they were beneficiaries of the political authority and allied with its parties, espe-

cially if the deterioration of living conditions, services, and the corruption of the ruling class continued.

If what we mentioned above continues, people, especially the youth, will not hide their explicit resentment of what is called the support of Ḥawzah or those affiliated with it for specific political and electoral blocs, and what will result from opportunistic and corrupt figures reaching the pinnacle of power and causing severe damage to the reputation of the Shi'i political class with its Islamic ideology. It is not far-fetched that people will consider Marji'iyah to be the cause of these forces coming to power, especially if this is accompanied by Marji'iyah and its agents urging voters to support one side or another.⁽¹⁾ Marji'iyah has become aware of this popular discontent, and its delayed reaction has been to boycott politicians and refrain from receiving them as part of its response to the grumbling reactions and to preserve its emulators and followers. However, this does not negate that its previous stances caused it embarrassment before them and a flaw in its standing and historical role.

b. Traditional Discourse

Religious discourse relates to the methods and approaches of guidance and instruction within Ḥawzah, its traditions and objectives, and dozens of conditions and criteria that must be met by the teacher and the student of knowledge, the nature of the relationship between them, and how to undertake the leadership of society, even from a formal, superficial aspect.⁽²⁾ These rules and others are based on a solid foundation upon which the Najaf school has operated, some of which are represented by asceticism, simplicity, and the rejection of authority. However, a segment of those affiliated with it may deviate from this ancient pattern. Accordingly, al-Sīstānī strongly rejected clerics assuming administrative and executive responsibilities in the state, calling for the necessity of avoiding this path, for clerics have a spiritual status that may be tainted when they engage in political and administrative work (al-Sayyid Salmān, 2015, pp. 83-87). This clarity in rejecting clerics assuming executive and political affairs in the state was not able to prevent many of them from engaging in political and executive administrative work. In line with this, a Husaynī orator (who is an influential Ḥawzah affiliate)⁽³⁾ spoke from 'Ashura's pulpit to a large audience about the necessity of accepting the rule of the current authority despite its corruption and tyranny. For this orator, the free practice of religious rituals is the essence, not good governance.⁽⁴⁾

Many, both clerics and politicians, overlook the reality of the emergence of a new Shi'i generation that possesses a searching spirit for new aspirations and

(1) See, for example: The escalation of hostile campaigns against Marji'iyah with the escalation of its political role, al-Monitor, <https://www.al-monitor.com/ar/contents/articles/originals/2018/02/iraq-najaf-shiite-sistani-election.html>.

(2) For details on this topic, see: al-Āmilī, 2010, pp. 47, 202.

(3) The Husaynī orator is a Ḥawzah affiliate in every sense; he cannot undertake this task without having studied in the school of Najaf and being familiar with its curriculum and traditions, especially the rejection of injustice, tyrannical rule, and corruption. After 2003, these orators gained an influential position.

(4) Shaykh Ṣalāḥ al-Ṭufaylī's speech is available on YouTube: https://www.youtube.com/watch?v=Hk_YaWT6qbU

has different ambitions, which the old system failed to subjugate and dominate (see al-Sayyid Salmān, 2018). This generation can cause concern not only for Marji'iyah and Ḥawzah but also for its future influence and its ability to subjugate and control it. In this context, we can note the necessity of departing from traditional patterns in the traditional guidance context and moving away from the old discourse of Husaynī orators and eulogy reciters (which many of them have noticed and become famous for), and the ongoing competition between this generation, who delve into political, social, and economic issues that affect individuals' lives, and those with ancient discourses of a sectarian or direct preaching nature.

Among the matters that we assume will lead to the weakening of Ḥawzah is the changing image of its affiliates, both in form and content. The image of the ascetic, upright, calm Ḥawzah student, who rejects the pleasures and problems of life, with clothing indicative of his humble circumstances and self-restraint, will remain firmly etched in the memory of Najafis, as they are most in contact and coexistence with clerics from Ḥawzah students. This has endowed Ḥawzah students with more sympathy, respect, and listening to their religious and life guidance. However, what has become a phenomenon is the transformation of some of them to a state completely contrary to this image; they have begun to acquire modern cars, buy real estate and luxurious homes, wear clothes indicative of luxury, show arrogance, violate the law, and engage in political parties, in addition to some of them enjoying personal protection and exploiting the "imāmah" as a means to personal gain. There are many other acts that have been done by some of these individuals that have greatly harmed Ḥawzah students and clerics.

c. The Academic Aspect

It seems that this traditional pattern, which is one of the most important tenets of Ḥawzah in religious education, has begun to lose its luster. This is due to reasons we have partly alluded to, and others related to the openness witnessed by the world as a whole, and the impact of the communication and technological revolution and the spread of the idea of enlightenment and modern education, which has taken hold as a strong competitor and adversary to Ḥawzah education. In this context, there has been competition between the educational role of Ḥawzah and the role of universities and faculties that have opened departments for teaching jurisprudence and its principles,⁽¹⁾ and many of their course materials almost entirely match the materials and topics taught in Ḥawzah. Institutional education witnessed a remarkable expansion after 2003 through the establishment of a number of departments with a Ḥawzah orientation, in addition to the reopening of the Faculty of Jurisprudence affiliated with the University of al-Kūfah.⁽²⁾ A number of faculties with an Islamic character were established in Najaf,

(1) Parallel education to Ḥawzah began with the establishment of the Jam'iyat Muntadā al-Nashr (Forum of Publication Society) and the schools and faculties it founded, as well as the Faculty of Uṣul al-Dīn in Baghdād. For more comprehensive details on the modernization and organization of religious education, see: al-Sayyid Salmān, 2010, pp. 222-241, and Naqqāsh, 1998, pp. 360-361.

(2) In addition to this faculty, a number of founders reopened the private Faculty of Jurisprudence, which dates back to 1957, in its location in Khān al-Mukhaḍḍar area as a private faculty.

including departments for doctrinal, Quranic, and jurisprudential studies with curricula not significantly different from Ḥawzah curricula.⁽¹⁾

These departments will work to prepare qualified learners to teach religious curricula in government schools in addition to spreading Islamic culture. In contrast, Hawzah works to prepare preachers, religious agents, and Husaynī orators, whose primary function is to preserve Islamic social values and culture. In any case, these university departments do not seem to be a supportive factor for the Ḥawzah as much as they will be a factor of weakness and distance from it, and the replacement of its students by academic learners. These will have an impact on religious guidance and instruction on one hand, and will weaken religious education on the other. Despite the conservatism shown by Marjī's for long decades, standing against calls and the process of institutionalizing Ḥawzah education and moving it to a stage of organization and updating curricula and finding formulas to define study periods instead of keeping them open-ended,⁽²⁾ academic religious education will weaken Ḥawzah in the long run, unless it itself works to update its curricula and study methods and develop them, in line with the competition it faces. In any case, the balance tips in its favor among people who see Ḥawzah education as more consistent with specialization in this field.

The general performance of the Marjī'īyah of Najaf and its Ḥawzah is, in some of its details, provocative to public opinion; it must take into account the social nature and deeply rooted culture that rejects extravagance and the expansion of influence, and consider the popular culture based on the ascetic model of Imam 'Alī. It seems to have become aware of the nature of the systematic incitement against its activities and events, despite the respect and veneration it enjoys. Its reaction has been to boycott politicians and refrain from receiving them as part of its response to the grumbling popular reactions.

Based on the developments and their effects on Ḥawzah in terms of the freedom of action and movement it has gained, the horizontal expansion of Ḥawzah study and education has also constituted another challenge. Perhaps this will be completed by the emergence of individuals aspiring to religious authority, and claiming Mujtahid and Marjī'ī status. What has happened is the opening of Ḥawzahs in different Iraqi cities and regions, managed and supervised by clerics of sometimes undistinguished academic levels, and some of whom are not known for possessing a high status in ijtihād, but rather are in intellectual and behavioral conflict with the venerable Marjī'īyah of Najaf.⁽³⁾ It can be said that this expansion and fragmentation of Ḥawzah's structure, within the freedom of action and divi-

(1) See, for example, the curricula of the Islamic University in Najaf for the Department of Quranic and Linguistic Studies, such as jurisprudence, grammar, morphology, rhetoric, hadith sciences, recitation rules, logic, philosophy, and principles of jurisprudence.

(2) See: Calls for organizing Ḥawzah study and updating its curricula in: al-Sayyid Salmān, 2010, pp. 213-223.

(3) See, for example, the Hawzah of Sayyid al-Ṣurkhī, Ḥawzah of Imam al-Jawād in al-Dīwānīyah, the Iraqi Marjī'ī Maḥmūd al-Ṣarkhī in an interview with al-Sharq al-Ūlā newspaper, <https://www.ahewar.org/debat/s.asp?aid=308564>

sion, deprives the Ḥawzah of Najaf of part of its centrality and traditionalism that provided it with uniqueness in religious education, and granted the Najaf school scholarly rigor and prestige, as well as its certificate that grants its holder more consideration and distinction.

V. Responding to Challenges

With the passage of time, the Marji'iyah of Najaf and its Ḥawzah will face a complex set of problems that are considered challenges; just as it has faced challenges throughout its eventful history and demonstrated an ability to respond. We have referred to examples of these in a previous section.⁽¹⁾ According to the data of these challenges and ways to respond to them, experiences have tempered it and bestowed upon it accumulated historical expertise, which can be drawn upon in times of crisis.

A well-informed observer can deduce a set of challenges, most of which relate to the historical evolution of the spirit of the age and its continuous progress.

- Among these are modern ideas permeating the Shi'i structure due to soft globalization⁽²⁾ that dissolves geographical boundaries. Through careful tracking of the stance of the Marji'iyah of Najaf and its Ḥawzah's, it has taken steps to respond to this challenge. In this context, one can look at the sections on (Cultural Institutions and the Rise of the Ḥawzah of Najaf).
- Another challenge revolves around the continued scarcity of its financial revenues from religious dues like khums, zakāt, donations, and vows. Despite indicators suggesting the continued flow of these resources in the distant future, Marji'iyah seems to have realized this with high intelligence and astuteness, and has taken highly fortified economic measures to ensure the protection of its financial income through its indirect supervision and control over the administrations of holy shrines and religious sites⁽³⁾ that have carved a known path in economic activity through a series of industrial, agricultural, medical, and commercial projects that will provide large financial resources in the long run, and these will supply the Marji'iyah with good resources in cases of necessity.
- Regarding competition with other Ḥawzahs, the matter will be in favor of the Najaf school based on several important considerations: the ancient-

(1) In this regard, one can rely on its fluctuating relationship with the authority during the monarch era and also with the republican era, and the conflict against communism, the deportation crisis, the Da'wah Party, and intervention in politics. For more detailed information on this ambiguous relationship, see: al-Ruhaymī, 1985, pp. 269-276, and al-Sayyid Salmān, 2010, pp. 65-68, 203-209, 99-103.

(2) Soft globalization: A phenomenon influenced by daily life experience and by the dissemination of ideas and goods, it also works to unify forms of cultural expression around the world. It is a trend of increasing human homogeneity due to the efficiency and attractiveness of communications and electronic commerce. Examples of soft globalization include the global spread of books, films, and music, as well as diverse traditions and cultures. See: What is Cultural Globalization in: https://mawdoo3.com/%D9%85%D8%A7_%D9%87%D9%8A_%D8%A7%D9%84%D8%B9%D9%88%D9%84%D9%85%D8%A9.

(3) See: Law of the Administration of Holy Shrines No. 19 of 2005, Article 4, which granted absolute authority to the Supreme Marji' in approving the directors and general secretaries of the shrines: <http://iraqlid.hjc.iq/LoadLawBook.aspx?SC=290320062659346>.

ness of this school, and the Taqlīd of the majority of Shi'i believers of the Supreme Marjī' in Najaf, in addition to a factor that cannot be overlooked by any party or bypassed in its essence and spiritual centrality, which is the dazzling sanctity of the Iraqi holy cities of Najaf, Karbalā', Samirā', and Kāzimīyah, in addition to a long list of shrines. In any case, the holy shrine of Imam 'Alī ibn Abī Ṭālib (the first Imam of Shi'ism) gives Najaf its unrivaled distinction. This elevates the status of the Najaf Marjī'īyah and its Ḥawzah with its ancient traditions and renowned scholarly rigor, which many researchers overlook when comparing it with the Iranian Ḥawzah of Qum, which will be weakened by political integration in the long run, at a time when the Marjī'īyah of Najaf tries to distance itself from this struggle.⁽¹⁾ It seems to realize well the danger of taking this path that leads to its weakening and diminishing the qualities of veneration and honor it enjoys from the general public, and as a refuge for them when crises strike, including the tyranny and injustice of authority. Consequently, there is a conscious realization among Marjī'īyah's figures that its direct intervention in political work will cause it to lose its popular bases, and in any case, it cannot sacrifice these bases and stand with the authority, whatever it may be. By referring to its history, we can find models consistent with this cautious behavior.

- There is another challenging situation that increases the gap between Ḥawzah and believers, which is summarized by the weak understanding of the spirit of the age and the requirements of the new world and the present generation. Although Ḥawzah scholars always act in their dealings with some life matters from the perspective of their religious role and doctrinal duties, this clashes with the cultural and social transformations occurring, without many attempting to change their discourse and behaviors to suit these social transformations reinforced by new behaviors and lifestyles. This has been evident in the stance of individuals from Ḥawzah in violent campaigns against some art festivals, considering them to represent immorality and debauchery, and the harsh reactions they met; social media was abuzz with expressions of sarcasm and condemnation, demanding that Ḥawzah affiliates show their objection to governmental corruption, killings, and poor government services. Here we say that the intervention of clerics in people's personal lives requires a great deal of wisdom and tact.
- Caution against what may cause alienation and deterioration in the relationship between Marjī'īyah and Ḥawzah on one hand, and many people, especially the youth, on the other. Although the motives behind the actions of Ḥawzah students lie in their guiding role and guarding the creed, this does not help strengthen the relationship with society, but rather makes alienation and defiance natural, sometimes reaching the

(1) In its speeches, whether in the Friday sermon in Karbalā' or its statements and meetings with visiting politicians and others, the Marjī'īyah of Najaf insists with high persistence that its role is guiding and advisory and has no relation to the government and politics.

stage of rebellion. In general, what has been alluded to is considered a challenge to the role of the Ḥawzah, especially in social influence, particularly if we know the respected position it enjoys popularly. However, the response to rapprochement with the spirit of the new generation and understanding its life needs imposed by the developments of the age will be achieved in the near future, as is happening in the openness witnessed by the Iranian Ḥawzah of Qum.

- In any case, what we are talking about falls within the scope of the Ḥawzah field and is at the core of its interests; Ḥawzah, and behind it Marji'iyah, constitute the (religious) society and its cultural orientations as a priority for it. It targets people in its activities through a process of cultural refinement and standardization and keeping them under its cultural hegemony and intellectual influences within the doctrinal relationship based on constants and doctrinal narratives and rituals, and instilling the spirit of a single group, historically marginalized and united as one body, transcending geography, language, and national political systems. In all the foregoing, this group is formed with common concerns and a single hope for salvation and the establishment of the virtuous society and the righteous state with a divine character.⁽¹⁾
- But what is more dangerous is related to the schismatic intellectual movements that have begun to appear from within the ranks of the Ḥawzah and among its students. The Yamānī movement was one of the most dangerous movements that Ḥawzah faced; it was a movement in which its leader claimed the Mahdawī doctrine, and that he was the Yamānī forerunner for the appearance of the awaited Imam al-Mahdī according to Shi'i belief,⁽²⁾ and he managed to gain supporters and followers from among Ḥawzah students at first. Then his movement expanded in the cities of southern Iraq remarkably among the poor classes and those seeking salvation from their miserable conditions. In response to this challenge that threatens the unity and future of Ḥawzah, the Specialized Studies Center on Imam al-Mahdī—which was established for the purpose of defending the Mahdawī doctrine, providing reputable doctrinal studies, and confronting attempts to exploit it by aspirants—undertook to provide responses written by Ḥawzah students aimed at stopping the spread of these claims, which it labeled as “false,” and their widespread dissemination among Ḥawzah students and ordinary people.⁽³⁾ If this response is represented by a doctrinal rebuttal, then Shi'i public opinion—if one may say so—has come to view these movements with a mixture of anger

(1) For a deeper understanding in this context, see the will of the Marji' Shaykh Muḥammad Mahdī Shams al-Dīn on Awraq al-Ward website: https://awraq-79.blogspot.com/2011/12/blog-post_4703.html.

(2) One can consult the views of Aḥmad ibn al-Ḥasan al-Yamānī, a claimant to be an envoy of the awaited Mahdī, as explained by one of his supporters in: al-'Aqīlī, n.d. Along the same lines, see: al-Zayyādī, n.d. Concurrently, a number of other Mahdawī claimants have emerged, such as 'Abd al-Zahrah al-Gar'āwī, whose group is known as Jund al-Samā' and who authored the book Qādī al-Samā'.

(3) on the coordinated responses by centers affiliated with Marji'iyah, see: al-Khabbāz, 1436 AH.

and aversion. The traditional Marji'iyah of Najaf has achieved success in dealing with this division, and similarly in dealing with the Mahdawi movements.

- We can say that the decline of Hawzah can be countered, as we mentioned earlier, by the process of organization and modernization and taking into account the spirit of the age and its requirements, including: adopting a time-bound study system, introducing some modern sciences into its curricula, emphasizing quality over quantity in the matter of admitting students to Hawzah study, and disassociating its activity from the political aspect that causes a rift in its relations with society. These are beneficial measures to overcome the state of declining influence, attract students, and strengthen the spiritual relationship with its followers.

In the final analysis—as has been alluded to—the Hawzah of Najaf possesses accumulated experiences shaped by the crises and historical circumstances it has gone through; its ability to respond rationally to challenges, and accordingly, it will remain an influential social actor possessing spiritual authorities and symbolic and cultural capital upon which it relies for its survival and preservation of its entity for a long future. If we try to predict the strength of the Marji'iyah of Najaf and its Hawzah for a historical period exceeding fifty years, we can confidently foresee the future with confidence in its cognitive tools and reaching a stage of conclusion accompanied by historical evidence and testimonies. We can then confirm its preservation of its influence and the strength of its doctrinal performance without challenges, crises, and difficult circumstances stripping it of its ability to survive and its spiritual religious leadership.

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7. Local Governance

Prof. Dr. Iyād Muṭaṣṣhar Ṣayḥūd

Faculty of Archeology, University of al-Kūfah.

I. Status of Local Governance in al-Najaf al-Ashraf

The governorate of al-Najaf al-Ashraf was established by Presidential Decree No. 42 in 1976, becoming the 14th governorate among the Iraqi governorates at that time. Following the political change on April 9, 2003, there was a shift towards rethinking the structure of the Iraqi state, aiming to transform it into a federal system. This led to the emergence of decentralization as a necessity for building internal power balance. Its purpose was to prohibit a single system or entity from monopolizing power, proving to be an effective remedy through which local authorities were delegated certain powers to manage the governorate governorates, while central oversight remained.

From a historical perspective, the decentralization experience is quite contemporary. It emerged with the issuance of the Law of Administration for the State of Iraq for the Transitional Period in 2004, whose fourth article stipulated: "The system of government in Iraq shall be republican, federal, democratic, and pluralistic." This was followed by the Iraqi Constitution No. 5 of 2005, which in Article 116 stated: "The federal system in the Republic of Iraq is composed of a capital, regions, decentralized governorates, and local administrations." This administrative decentralization was then codified for the first time in Law No. (21) of 2008 (Law of Governorates Not Organized in a Region), which clearly defined the powers granted to the governorates, while allowing greater administrative and financial authority to local actors, including governorate councils and governors.

Based on these delegations and powers granted to governorate councils, al-Najaf al-Ashraf Governorate Council possessed the authorities stipulated in Article (7) of the Law of Governorates Not Organized in a Region.⁽¹⁾

(1) Article 7 briefly states the following: The governorate council specializes in:

- Electing the council chairman and his deputy by absolute majority of the council members.
- Dismissing the council chairman or his deputy from office by absolute majority.
- Issuing local legislations, regulations, and instructions to regulate administrative and financial affairs, enabling them to manage their affairs according to the principle of administrative decentralization and without conflict with the Constitution and federal laws.
- Drawing up the general policy for the governorate and determining its priorities in all fields, in mutual coordination with relevant ministries and entities. In case of conflict, the governorate council's decision takes precedence.
- Preparing the council's budget draft to be included in the governorate's general budget.

Regarding local governance institutions in al-Najaf al-Ashraf Governorate, the Iraqi Constitution of 2005 definitively outlined the institutions organized within governorates not structured as regions. This was addressed in Chapter Two (Governorates Not Organized in a Region) of Part Five (Powers of the Regions), with Articles (122 and 123) specifying the administrative units comprising the governorates. The amended Law of Governorates Not Organized in a Region then elaborated on these institutions, detailing their competencies.⁽¹⁾

Consequently, al-Najaf al-Ashraf Governorate formed its first temporary governorate council and appointed a governor by having existing departments within the governorate's administrative boundaries select a representative to form the initial council. Thus, the first local governments in the governorate were established after the 2003 political change on a representative basis. The council worked with coalition forces stationed in the governorate to manage citizens' affairs until constitutional and legal institutions were formed. The temporary council's tenure lasted nine months.

II. The Trajectory of Local Governance in al-Najaf al-Ashraf Since 2003

To elucidate the emergence of al-Najaf al-Ashraf Governorate Council post-2003 and understand it in more detail, this topic will be divided into two axes. The first will explore the council's inception, and the second will address the structure of al-Najaf al-Ashraf Governorate Council in 2009, as follows:

1. al-Najaf al-Ashraf Governorate Council After 2003⁽²⁾

The requirements of democratic transformation in Iraq after the 2003 political change represented a primary cornerstone in shaping the frameworks and dimensions of the new democratic political system across Iraq, and particularly at the level of governorates. This system was founded on the principle of citizens participating in managing their affairs and decision-making by electing governorate councils for the governorates not organized in regions, concurrently with federal parliamentary elections. These factors collectively provided fertile ground for genuine public participation in exercising authority and decision-making.

-
- Oversight of all activities of state departments in the governorate to ensure proper performance of their work.
 - Electing the governor and his deputies, questioning and dismissing them, approving the nomination of senior officials in the governorate and their dismissal.
 - Endorsing local security plans submitted by security institutions in the governorate, and administrative changes to districts, sub-districts, and villages.
 - Determining the governorate's priorities in all fields, formulating its policy, and developing strategic plans for its development without conflicting with national development.

(1) Article (8) of the Law of Governorates Not Organized in a Region specified the competencies of the Judiciary Council, and Article (12) the competencies of the Sub-district Council.

(2) Sources for this section include: Hādī, 2005, p. 10; al-Badīrī & al-Āmirī, 2013, pp. 5 et seq; al-Jābir, 2008, pp. 103 et seq.

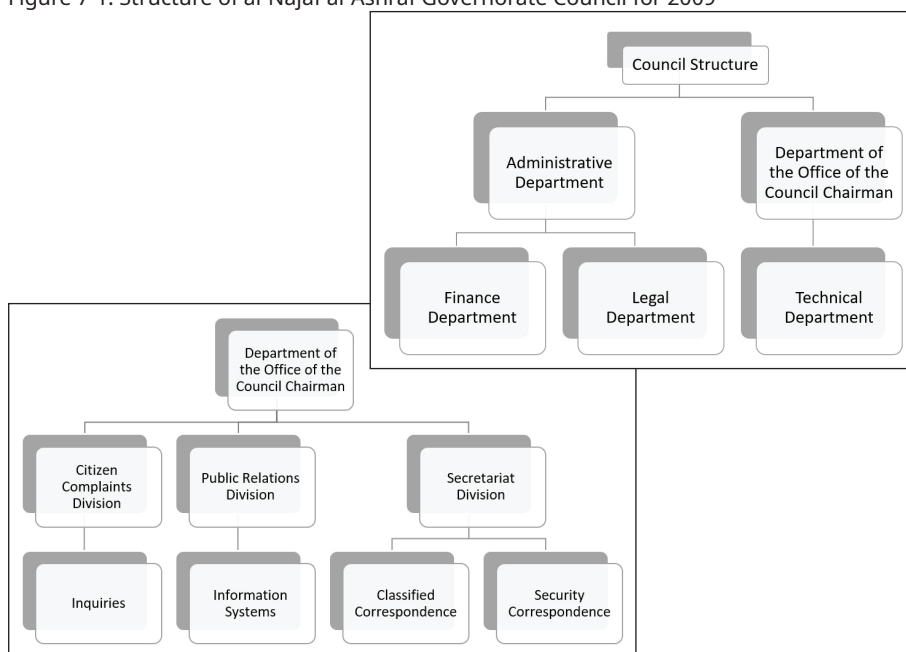
Coalition Provisional Authority defined the priority steps it deemed appropriate for activating the establishment of governorate councils and identifying pathways to materialize local governments in Iraq, in line with relevant United Nations Security Council resolutions, including Resolution No. 1483 of 2003 and Resolution No. 1511 of 2003. These resolutions affirmed the Iraqi people's right to freely determine their political future.

The transition to a decentralized system involved a series of changes and turning points, including the first elections for forming governorate councils across Iraq on December 15, 2005. Subsequently, on January 31, 2009, the second elections for forming governorate councils were held, excluding the Kurdistan Region and Kirkuk Governorate. This marked the continuation of the democratic experiment in selecting governorate councils.

2. Structure of al-Najaf al-Ashraf Governorate Council for 2009⁽¹⁾

- **Presidency** of al-Najaf al-Ashraf Governorate Council: This body comprises the Council Chairman, his Deputy, and the Council Secretary.
- **Members** of al-Najaf al-Ashraf Governorate Council.
- **Committees** of al-Najaf al-Ashraf Governorate Council: These are of two types, permanent and temporary committees.
- **Mechanisms** of al-Najaf al-Ashraf Governorate Council's Work according to its Internal Regulations: This refers to the document containing a list for organizing issues and procedures discussed or handled by the council.

Figure 7-1: Structure of al-Najaf al-Ashraf Governorate Council for 2009



(1) See al-Tamīmī, 2013, p. 171.

Table 7-1: Number of Governorate Council Members 2020-2050

Year	Population	Number of Members
2020	1,500,520	29
2030	1,800,500	31
2040	2,100,300	33
2050	2,400,300	35

Table 7-2: Expected Administrative Structure in the Governorate According to Population and Development Needs in the Governorate 2020-2050

Year	Number of Employees
2020	220
2030	480
2040	530
2050	600

III. Expectations Related to al-Najaf al-Ashraf Governorate Council Employees

Based on the realistic indicators we started with, the number of permanent employees in the governorate council for 2020 reached 220. An additional 260 employees were made permanent at the end of the 2021 fiscal year, pursuant to the provisions of Article 61 of the 2021 Federal Budget Law, for those whose contract period had exceeded five years.

The projected increase in the number of al-Najaf al-Ashraf Governorate Council employees is a very natural matter, given current available data, particularly concerning contractual and daily wage workers and the growing numbers associated with them, both present and future, due to the contracting method adopted during this period.

The local government in al-Najaf al-Ashraf—nor the federal government or any other local government—will be unable to halt the wave of contracting and daily wages, or even the mechanism for transitioning current personnel into permanent civil service positions, based on a political, security, and economic assessment of the current situation.

These escalating indicators are in no way linked to academic, specialized, strategic, or phased studies. Instead, they are mere preferences tied to immediate interests, political, or even social alliances, resulting in numerical inflation at the expense of human capital quality. Readings concerning employee numbers should ideally be based on scientific and knowledge-based foundations derived from actual needs, rather than being merely the product of political interest or personal relationships.

Reflecting on the specified competencies—mentioned at the beginning of this research—of al-Najaf al-Ashraf Governorate Council, similar to its counterparts, reveals a clear inclination towards the actual required number of employees. Furthermore, a careful review of the final employee statistics to date (2022) raises serious questions about the mechanism of distributing employees among the

departments, sections, units, and committees falling under al-Najaf al-Ashraf Governorate Council, as well as the method used for evaluating local employees and their performance.

The statistics indicated above necessitate that al-Najaf al-Ashraf Governorate Council develops one or more plans to address this reality and leverage it in multiple directions. These include professional qualification, equitable professional distribution, adopting a method of transferring surplus personnel to departments where they can be more beneficial, and other possible approaches.

It is more prudent to consider the council's current and future development, preparing visions and concepts capable of understanding the current reality and the foreseeable or even distant future. This can only be achieved by opening up to comparable experiences locally (within Iraq), regionally, or even internationally, given the significant insights these experiences and cases offer, which add to the necessity of developing the council's reality towards its intended functions.

The prevailing approach in organizing the work of governorate councils relies on a policy of functional inertia, meaning a reliance on past methods and a continuation of the same practices in newly elected councils. There is a lack of serious and realistic effort to re-evaluate previous functional experiences and their indicators of success and failure, which would necessitate supporting successful functional experiences and addressing those with performance deficiencies.

The immediate or even distant future requires al-Najaf al-Ashraf Governorate Council to undertake a theoretical and practical integration and experiment, based on a policy of developing and producing knowledge, thought, and theories capable of proposing visions that would advance the council's reality and future towards a broader and more comprehensive organizational and administrative horizon. This theoretical policy can arise from the following:

- **Self-Development:** This involves enhancing the capabilities, potential, and competencies of the human capital within the council's structure, and establishing a clear strategy to achieve this through workshops, seminars, conferences, and lectures—even electronic ones. Alternatively, it can be achieved by collaborating with governmental institutions specializing in supporting current or future endeavors, such as Ministry of Higher Education and Scientific Research, through its universities or research centers located in Baghdād and other Iraqi governorates.
- **Interactive Development:** This relies on the experience, competence, and practices of governmental and even non-governmental councils, bodies, and organizations, whether within Iraq or abroad. This would enhance the council's reality and past experience, and recreate conditions and factors capable of propelling the local council's future trajectory.
- The reality of Iraqi or comparative administrative experience indicates that the optimal method for administrative development is one that first relies on self-evaluation, then expands to similar or comparable experiences, leading to integration, innovation, and effective contribution to

performing required tasks, reflecting the aspirations of the community from which these councils originate.

Observations concerning the administrative and organizational structure of al-Najaf al-Ashraf Governorate Council:

1. It is clear to any observer that the structural division mentioned above is merely a traditional approach adopted some time ago, implying a lack of novelty in the overall structure of al-Najaf al-Ashraf Governorate Council.
2. It can be easily conceived that the current reality, and even the foreseeable future, will not witness any change in the administrative and organizational structure of al-Najaf al-Ashraf Governorate Council. This perception stems from the nature of the cognitive, psychological, and social outlook of the governorate council members, or even the existing human capital—which does not deviate from this collective reality.
3. In this regard, it can be hypothesized that a change in the organizational structure is necessary to address the administrative division for the foreseeable or future reality. This implies that the organizational structure should be flexible, at least in the scope of committees, units, and sections—excluding departments, for example—to confront emerging challenges and problems, rather than remaining stagnant and rigid in a fixed path without development.
4. A careful examination of the current organizational and administrative structure concludes that this division does not include any novelty related to digitalization, governance, and automation, or any field related to contemporary technological or technical development, as if the local council has no connection to the reality of global development.
5. In reality, the administrative and structural organization in al-Najaf al-Ashraf Governorate Council—like other Iraqi governorates—was not built and designed based on function, efficiency, and the main duties of the local council and the optimal way to perform them to provide honest answers to those questions. Rather, it is an improvised organization based on accommodations and interests over a long period.
6. Developing the council's structural reality first results from diagnosing the fundamental problem at hand, which is related to the crisis of political awareness among the majority of Iraqi society and the incomplete liberation from the remnants of previous eras, to the extent that the exercise of administrative and organizational functions has become a reflection of political fragmentation. This means that civil service is fundamentally designed to accomplish state tasks, community interests, and specific work programs, not entitlements, gains, and the division of privileges.
7. Generally, the reality of elected governorate councils reflects the fierce competition for high positions, leadership roles, authority, and status. This is not surprising, as it is a tangible reality observed in federal parlia-

- mentary elections. Consequently, a culture of job creation and irrational proliferation in decision-making centers will inevitably prevail, leading to a dispersion of powers, loss of accountability, and institutional failure.
8. Studies addressing problems should also outline solutions. Therefore, correcting and refining the organization by adopting a contemporary organizational document and roadmap based on scientific, practical, and systematic foundations that embody a true understanding of the function that governorate councils should perform is necessary, provided that these corrections are known and observable.
 9. We propose here the establishment of an Administrative and Organizational Coordination Committee to address the dispersion of tasks and fragmentation in new establishments, control the flow of financial expenditures, adhere to unified rules for the operation of all council departments, and resolve the unacceptable discord in work, visions, and projects.
 10. Adopting a policy based on clear specialization, cost reduction, council oversight of its activities, reducing the number of decision-making units, facilitating supervision and control, transitioning to a developmental approach, enhancing performance quality, protecting rights and the rule of law, and comprehensive integrity.
 11. Seriously striving to activate human resources across all sectors, improve public services, consider practical goals that should proceed in specific time-bound stages, and facilitate dialogue within this complex and intricate issue.
 12. In this foresight and future-oriented domain, it is crucial to examine advanced experiences to draw from them in administrative and organizational development. For example, the World Bank employs the "Voice and Accountability" indicator to measure the effectiveness of government administration, while the European Union focuses on other measures such as "e-governance."
 13. The importance of corrective and evaluative policies lies in their impact on re-evaluating the concept of legitimacy, its foundations, and broad outlines, and even contributing to areas of political leadership selection in the future.
 14. The necessity of embracing citizen participation in public activities to ensure increasing effectiveness of democratic participation, by analogy with traditional democratic participation patterns—such as voting in elections and membership in political parties, etc.
 15. In this regard, one can benefit, for example, from what is called the "Open Government Partnership" initiative, which is a platform of international public measures related to accountability and responsiveness to citizens. The Open Government Partnership was launched in 2011 with the aim of providing an international platform for national reform for leaders deter-

mined to make their governments more open, accountable, and responsive to citizens.

16. The number of member states in this initiative, inspired by US President Obama in 2009, grew from 8 to 70 participating countries. It is expected that the efforts of governments and civil society organizations in these countries will collaborate for the development and implementation of ambitious government reforms related to openness.
17. Developing the scope of public services, enhancing public integrity, fostering effectiveness in public resource management, creating safer communities, and increasing corporate accountability.
18. The Open Government Partnership experience serves as a contribution to a new approach to government responsibility. Ensuring the government's ability to meet citizens' expectations makes us re-examine the concept of "government responsibility" in a more comprehensive and broader sense than classical literature. Transparency and new forms of social responsibilities have become an integral part of government roles.

IV. Challenges of Local Governance

1. Population Growth⁽¹⁾

Population growth refers to an increase or decrease in population size due to natural processes like birth and death, or even unnatural ones such as migration, wars, and disasters.

The total population of al-Najaf al-Ashraf Governorate in 2019 was 1,500,522, with an annual population growth rate of 2.1%. The proportion of the population under 15 years was 614,305, while those aged 15-64 years accounted for 814,831, and those over 64 years numbered 42,456.

The factors influencing population increase in al-Najaf al-Ashraf Governorate can be identified as follows:

- **Economic Development:** Most populations in the early stages of economic development tend to have higher population growth rates. In societies with less government support—such as financial guarantees and pensions—parents often desire more children as a guarantee for their old age. Children are expected to care for elderly parents, and since infant mortality rates are often higher (with an increasing rate exceeding 23 deaths per 250 child births), a larger number of children is necessary to ensure parents have children to care for them in old age. In agriculturally dependent societies, children are viewed as potential sources of income and can assist with household chores and all stages of agricultural production. According to federal government statistics for 2019, the dependency ratio in rural areas reaches 94% compared to 76% in urban

(1) This section was prepared relying on the following scientific sources: Jāsim, 2013; al-Baghdādī & al-Baṣrī, 2015; al-Fatlawī, 2018.

areas. The average per capita share of the local product at current prices for a Najaf resident is approximately 6,077,687.1 Iraqi dinars. Social and cultural factors, such as strong social ties, often necessitate large families, which is in stark contrast to modern societies where smaller families are the norm.

- **Family Planning:** Currently, it is possible for women to maintain family size closer to the desired level due to increased use of medical contraceptives. However, since the availability of these methods in Iraq may be unregulated, it could lead to unplanned births and faster population growth. In al-Najaf al-Ashraf Governorate in 2019, it was estimated that only 33% of women had knowledge of using these methods, while only about 52% of them actually used them.
- **Education:** Education is usually compulsory up to the age of 16 in developed countries. As education becomes mandatory, children no longer represent economic assets but economic costs. Therefore, the cost of raising children acts as an incentive to reduce family size. According to research findings, parents may choose the number of children based on cost-benefit analysis in developed countries with high returns on education, meaning parents have an incentive to have fewer children and spend more on their education to provide their children not only with good education but relatively better education than others, and to give children the best start in life, which requires smaller families and generally leads to a higher per capita real GDP in smaller families. According to official federal statistics for 2019, the illiteracy rate among women, for example, is around 34.6% for ages between 15-49 years. The number of primary school students in the governorate is only 319,301 students, distributed among only 738 schools. In secondary schools, there are around 155,326 students, divided among only 368 schools, while the number of vocational school students does not exceed 2,105 students, distributed among only 9 schools.
- **Mortality Rates and Level of Medical Support:** Generally, efforts to reduce mortality rates precede a slowdown in birth rates, causing a population surge at a certain point in a country's economic development. According to official statistics, the number of health institutions in al-Najaf al-Ashraf Governorate in 2019 was approximately 190 institutions. However, the number of hospitals (public and private) in the governorate is only 18, while the number of primary healthcare centers is only 83. The number of doctors is only 1,385, pharmacists 689, and health professionals 4,571, while nursing staff number only 4,490.
- **Migration:** In some countries, migration is the biggest driver of population growth, and it can also be internal. al-Najaf al-Ashraf Governorate is considered a population magnet compared to other areas and governorates, leading to population growth for economic, social, religious, and

tourism reasons. According to official federal statistics, the urban population in Najaf city exceeds 71%, while the rural population is less than 29%.

- **Female Participation in the Labor Market:** Female education and social mobility are often lower in the Najaf market economy than in societies where women receive better education. According to official federal government statistics, the percentage of educated women is approximately 4% lower than that of males. In such cases, there is a greater tendency to start a family. In the developed world, however, women often choose to delay marriage and childbirth, or not to have children at all, because they prefer to work and focus on their careers.

Implications of the Population Growth Challenge on Local Governance in al-Najaf al-Ashraf Governorate

Among the most important effects of this significant challenge and its ramifications for the council's work, the following can be noted:

Rising Cost of Living

With the increasing disparity between demand and supply due to population growth in al-Najaf al-Ashraf Governorate, prices of various goods, including food, shelter, and healthcare, will rise. This means the Najaf community must pay more to survive and feed their families. This necessitates that local government bodies consider this important indicator, both in preparing annual governorate budgets and in providing remedies to alleviate these effects on Najaf citizens, such as adopting a pricing policy for goods and commodities or supporting local products for the daily food basket. This is crucial for maintaining political, security, and economic stability in the governorate.

Depletion of Natural Resources

Population growth affects natural resources by causing their depletion. Land can only produce a limited amount of water and food, which may fall short of current needs. The increase in population in al-Najaf al-Ashraf Governorate is a cause of most environmental damage observed in recent years, a clear example being the conversion of agricultural lands in al-Najaf al-Ashraf Governorate into residential areas.

This problem is no less serious and impactful than the previous one. Therefore, al-Najaf al-Ashraf Governorate Council must pay close attention to the gravity of this issue, which has taken on a character of stability and permanence. This is clearly observed in the matter of allocating federal water releases to the governorate for rice cultivation, for example, which negatively affected the area designated for cultivation and the expected yield due to this reduction in allocation. This was noted in official statistics, which estimated the governorate's water revenue index at only 40.69%. The total number of water production stations was only 157, and the number of central treatment plants was only 2. The percentage of the population served by sewage networks was 60% of the total population, while the total number of municipal institutions was only 9.

Dealing with the depletion of natural resources or their exposure to the challenge of insufficient allocation necessitates that the council moves towards formulating a clear and detailed policy to provide the basic necessities of life for Najaf citizens and prevent the exacerbation of problems that could lead to serious social and economic consequences, such as those related to dangerous environmental impacts like desertification and the expansion of construction and housing at the expense of agriculture and environmental preservation.

Rising Unemployment Rate

When the population in al-Najaf al-Ashraf Governorate increases, it leads to increased unemployment, as there are fewer jobs to support a larger number of people. The rise in the unemployment rate also leads to crime. According to statistics conducted by the Central Statistical Organization at the Ministry of Planning, the unemployment rate increased in the years (2014-2019) from 8.3% to 9.5% for those over 15 years old, while economic activity decreased from 43.9% to 41.6%. For the age group 15-24 years, unemployment increased from 10.6% to 16.4%, while economic activity decreased from 39.1% to 38.6%.

Unemployment is merely one of the reflections of the daily reality experienced in most Iraqi governorates, including al-Najaf al-Ashraf. The natural consequence of councils' shortcomings in performing their duties in planning, implementation, and follow-up of scientific and systematic ideas, visions, and solutions produces serious economic, social, political, and security repercussions in daily life.

The continuous increase in unemployment rates, rising poverty indicators, low education levels, and declining daily income for the individual and family in Najaf are accompanied by poor planning and an awareness of the daily social reality problem in al-Najaf al-Ashraf. This is evidence that governorate councils remain in their previous state in dealing with identified challenges, without any real indication of creating or innovating environments capable of overcoming these stifling crises in the foreseeable future.

Weak Social and Political Culture

Perhaps the highest and most important goal of governorate councils' work is to strive towards creating a new social culture or strengthening existing ones towards family planning, improving the quality of education, adopting a system of government incentives, and empowering women. These indicators—and others—are signs of the success of these councils in their work, paving the way for further maturation and renewal of these political, economic, and social foundations.

Any shortcoming in shaping and strengthening this culture will create a pile of raging crises within the Najaf social fabric, leading to dangers and challenges that could affect the actual existence of these councils and leave them with only a constitutional presence. This is exemplified by the challenge faced by most governorate councils, involving destruction, burning, sabotage, and disruption in governorates where local governments were unable to cope with the deteriorating political, security, economic, and cultural realities.

Any challenge arising from the environment of population growth will be a factor in creating dangerous and raging crises and problems within the Najaf society, if it is not met with intellectual and cultural preparations and the adoption of clear planning foundations to contain and articulate them in a constructive and effective containment path by governorate councils. This is also evident in further aspects of the research ahead.

2. Climate and Demographic Change

Among the very serious challenges in this field is the water scarcity and drought crisis resulting from record low rainfall, poor water management, climate change, and rising temperatures. This led to a significant shortage in water supplies starting in 2021, generating several crises: a decline in agricultural crop and livestock production, and an impact on vulnerable communities affected by conflict and displacement, resulting in at least 7 million people in Iraq being affected by drought in recent years.

Iraq has been assessed as the fifth most climate-vulnerable country globally in terms of water and food scarcity, extremely high temperatures, and associated health problems. This necessitates aid measures and government support policies to address displacement and the destruction of local populations' livelihoods. Studies conducted in 2020-2021 indicated that the adverse impact of drought on agricultural communities—including al-Najaf al-Ashraf—affected over a third of farmers, with 37% suffering wheat crop damage and 30% barley crop damage, in addition to the devastating effects of climate change on livestock breeders due to water and feed shortages and diseases.

This also resulted in a clear decrease in monthly income and spending due to losses in crop and livestock production, a lack of job opportunities for daily laborers, and the actual need for food, health, and service aid for affected families. This demands urgent attention from federal and local authorities to confront these very serious crises, both immediately and in the future.

3. Social Structure and Services

Among the issues that should not be overlooked in the visions and priorities of governorate councils is the service dimension, especially that which has been severely noted in the health sector, and the level of healthcare and services that the local authority should adopt, particularly during the years of the dangerous COVID-19 pandemic that affected Iraq and all countries worldwide.

The indicators of health services, care, and the institutions that should be available and relied upon to provide health and its standards are important in the vast and geographically diverse Najaf environment, distributed between urban and rural areas, and facing the escalating challenge of treating dangerous widespread diseases. This contributes to raising the success rate in ensuring health security for citizens and preventing a dangerous decline in indicators of increasing mortality rates.

The challenge of enhancing women's status and activating their social role is one of the serious indicators that should be considered, cared for, and addressed at all technical, procedural, and executive levels. Furthermore, women are an important factor in strengthening social, economic, and educational culture and a significant component of the labor market, both in the public and private sectors.

The challenges indicated above—in their health, service, migration, and women's empowerment aspects—impose significant pressure on the local government of Najaf in all areas of its work. This pressure stems from a profound appreciation of these challenges, first, and a serious effort, second, to address them, pay attention to them, and adopt ideas related to them by including them in the governorate's annual plans and incorporating their elements into the governorate's annual budget, or even by contributing to raising awareness about them through seminars, conferences, and workshops.

V. Ways to Adopt a System of Governance in the Civil Administration of Najaf

There is no alternative for local administration in al-Najaf al-Ashraf Governorate but to adopt a system of governance, whether economic, administrative, etc., and to follow the tripartite cycle of planning, implementation, and control, for this effective step to bear fruit, according to the following breakdown:⁽¹⁾

1. Economic Governance

Perhaps the most important principles and features of economic governance are those related to the efficient exploitation of natural resources, achieving economic growth and stability in al-Najaf al-Ashraf Governorate, and employing human resources with their various qualifications, as well as eradicating corruption and acting under the rule of law and enforcing its provisions.

The most important objectives of economic governance in the governorate are:

- Eradicating poverty and achieving sustainable development through optimal utilization of available resources and building self-capabilities.
- Strengthening policies and mechanisms for providing basic social services such as education, healthcare, and providing water and electricity to all Najaf citizens, especially in villages and rural areas.
- Providing opportunities for participation in decisions for all concerned parties at all levels.
- Removing distortions affecting markets, prices, taxes, and subsidies for goods and services.
- Working to correct imbalances in the general budget, trade balance, balance of payments, and the level of foreign currency reserves.

(1) This section was prepared relying on the following scientific sources: Ghādir, 2021; Tayshūrī, 2020; Arab Organization for Administrative Development, 2013; al-Darmakī, 2019; Karyūn, 2020; al-Khafājī & 'Alī, 2019.

- Enhancing the investment climate in al-Najaf al-Ashraf Governorate and creating new job opportunities for the workforce.

2. Administrative Governance

The proper application of governance depends on the civil administration's ability in al-Najaf al-Ashraf to achieve the highest levels and standards of quality for two sets of controls:

1. External controls (the general administrative environment and business climate in al-Najaf al-Ashraf Governorate).
2. Internal controls (internal institutional procedures for each institution).

Along with these two sets comes the necessity of having an effective framework of effective local laws and legislations suitable for encouraging employment opportunities, sustainability, and active cooperation between the institution and stakeholders to achieve strategic goals.

A number of benefits can be realized by adopting and implementing the administrative governance system in al-Najaf al-Ashraf Governorate:

- Administrative governance encourages institutions in al-Najaf al-Ashraf Governorate to make optimal use of their resources.
- Achieving sustainable growth and encouraging productivity.
- Reducing the cost and stabilizing invested capital.
- Facilitating financial control and supervision of the growth, development, and performance of al-Najaf al-Ashraf Governorate institutions.
- Administrative governance aims to achieve several objectives, most importantly: transparency, accountability, responsibility, and equality.
- Understanding, classifying, and respecting the rights and duties of all categories of stakeholders and those concerned with the institution or various institutions of al-Najaf al-Ashraf Governorate in the case of smart governance.

3. Transparency and Integrity

Informing Najaf citizens about various information regarding the policies, decisions, and budgets of the civil administration in al-Najaf al-Ashraf helps limit or eradicate corruption. This system provides an opportunity to evaluate all institutions in al-Najaf al-Ashraf Governorate in terms of integrity, transparency, and accountability, as well as how these institutions interact and cooperate to perform their duties. When government agencies' performance weakens and accountability is absent, it is natural for corruption to spread and lead to undesirable social, economic, and political consequences. Conversely, when indicators of integrity, transparency, and accountability rise in al-Najaf al-Ashraf Governorate's institutions, citizens' trust in its system increases, and the quality of life, sustainable development, and the rule of law improve, and opportunities and manifestations of corruption disappear.

In environments where the rule of law is weak and impunity is high, relying solely on penalties may consequently be ineffective for several reasons:

- To detect corruption, cooperation between several parties is often necessary. Actors facing a penalty-only approach may tend to refuse such cooperation in such cases, as actors fear disproportionate punishment and prefer to cover up problems rather than proactively cooperate to find a solution.
- Penalties as punishment for a corrupt act may not be sufficient to motivate actors to implement preventive measures or adopt other proactive approaches to combat corruption.
- Finally, penalties can help shape behavior in a way that encourages adherence to a certain standard, but they rarely provide motivation to exceed this minimum, which is often legal.

By moving beyond focusing on minimum standards and preventive strategies to reward individuals who are seen to have actively promoted integrity, awards may provide a means to encourage others to do the same, leading to positive, albeit gradual, changes in al-Najaf al-Ashraf's administration.

4. Efficiency

All institutions aim to achieve their goals within the plans they set, and to combine the efforts of individuals and groups to achieve the institution's goals with the highest degree of efficiency and effectiveness. There are a number of characteristics that distinguish efficiency:

- Proper use of available resources.
- Improving productivity.
- Focusing on specific topics.
- Efficiency is linked to education.
- Ability to evaluate it.

The concept of efficiency is considered synonymous with the concept of effectiveness. If they combine, the institution will become one of the most successful institutions that achieve its goals without forgetting the role of its employees, and giving each one his due and placing him in the position that suits his capabilities.

VI. Future Scenarios for Local Governance in Najaf

At the outset, the following must be emphasized:

1. It is importance to adhere to the synergy between local and federal law. This means that the legislative space granted by law to governorate councils to exercise their role is limited. Therefore, any legislation exceeding this space is null and void and violates the constitution and laws. Thus, legislation issued in this regard is valid and consistent with the law, but—

local legislation, that is—must be integrated with federal legislation for its implementation and application.

2. All legislations and decisions issued by governorate councils—as well as their performance—remain subject to the oversight of the Iraqi Council of Representatives according to the provisions of Article 2/3 of Law No. 21 of 2008 concerning governorates not organized in a region. This article states that: “Councils are subject to the oversight of the Council of Representatives.” The oversight authority granted to the Council of Representatives allows the latter numerous rights, perhaps most notably the dissolution of the governorate council and the dismissal of the governor.
3. Adopting a decentralized system requires genuine will and desire from central governments to cede their functions to local authorities in order to contribute to their development. This involves enacting appropriate legislation and providing them with the human and financial resources that enhance their ability to perform the required local functions. In addition to authorizing them with all local functions they are capable of performing.
4. Decentralization can contribute to alleviating the administrative and developmental burden on central government institutions and agencies, shedding several tasks and exercising various powers by entrusting them to local entities. This situation allows central planning agencies to take sufficient time for actual and practical oversight in monitoring development plans.

After this introduction, we present the following:

1. The Reference Scenario: Stagnation in the Relationship Between the Federal and Local Governments

The assertion of continuity or relative stability in the relationship between the federal and local governments along existing constitutional frameworks assumes a consideration of a set of important hypotheses, including the following:

- a. **Freezing Constitutional Amendments:** This implies a halt in the process of proposed constitutional amendments and their non-adoption—especially those amendments related to the federal and local relationship—for various reasons, including:
 - Lack of political consensus to adopt the very idea of amending such concepts related to distributed competencies between local and federal authorities.
 - Lack of clarity in adopting a specific direction regarding the nature and scope of these amendments and the entities responsible for activating the proposed amendment paths.
 - Lack of trust by the federal government in the local governments' ability to adopt the proposed or presented constitutional amendments due to the concerning performance of these local governments during the contemporary or even foreseeable future experience.

- Unwillingness of local governments to adopt powers and capabilities beyond those they have experienced during this past period of political and economic life, as the issue here is linked to the inherent capacity of these local authorities to develop and enhance their current capabilities.
 - Lack of encouragement from research and specialized studies to adopt constitutional amendments that would alter the scope of powers allocated to local authorities, or even cut off any capabilities related to federal authority, given the latter's ability to manage them better compared to local authorities' capacity to handle these constitutional powers.
- b. **Impact of Laws Related to the Work of Governorates Not Organized in a Region:** In this regard, the relative stability of the texts of the Law of Governorates Not Organized in a Region, whether the current law or foreseen changes to it, can be envisioned as follows:
- Past Experience: The previous experience of governorate councils of the governorates not organized in a region proved that the legal amendment paths related to them did not contribute to the advancement of these authorities or to developing their ability to achieve what was expected of them, despite all the changes and amendments to the legislations governing them.
 - Political desire to preserve their achievements by maintaining complete or even relative representation ratios they obtained, which pushes them to prevent any fundamental amendments to the effective texts of laws specific to the governorates not organized in a region.
 - The factor related to the local environment for the work of local governments and its decisive effects towards proving or changing the ruling texts for the work of these authorities, including ensuring the preservation of the stereotypical image of these governments and their working mechanisms.
 - The scope of privileges and guarantees granted by the effective laws governing the work of these councils, and the direct desire of those who benefit from them, or the indirect desire of those who aspire to them, for their stability and continuity and competition to enjoy them, without striving to be content with them, but at least preserving them. This is done by not amending these legislations or amending them relatively without affecting the essence and scope of these privileges.
- c. **Factors Related to the Stability of Competencies and Administrative Boundaries:** These are matters related to the relative stability of the scope of powers granted to the local authority in al-Najaf al-Ashraf Governorate, or those related to the persistence of the administrative and legal boundaries of the al-Najaf Governorate Council without its transformation into a special region or even its association with another

geographical region within the Federal Republic of Iraq. This necessitates the following clarification:

- The issue of expanding and transferring powers from the federal government to the local government may remain on the same path and within the current boundaries, without envisioning further flexibility in this area. This is due to the desire of both the federal government and the local government for more time to evaluate the experience and measure its success. This required time may extend indefinitely, given the newness of the experience.
- The issue of power transfer has not been clear in terms of its basis, concept, and scope—within its current limits. Therefore, the federal legislator may choose to maintain the status quo, due to the fluctuating performance of local governments in interpreting and implementing this power transfer or expansion, which may reinforce federal convictions to maintain the current situation or even its stability.
- The federal government's lack of tendency to grant further interaction and positivity in dealing with such files, which have been or still are a subject of federal or even local debate and disagreement, necessitates continuing to address these matters within the limits of the practical and field results and problems they produce.
- The local government's desire in al-Najaf al-Ashraf Governorate to maintain its administrative, financial, and legal independence, which prevents it from striving for or even agreeing to the concept of forming al-Najaf al-Ashraf Region or joining the proposed Middle Euphrates Region project.
- The novelty of the administrative experience in all its variations—financial and legal—is sufficient to prevent interaction with ideas related to transitioning to the concept of a region—whether self-contained or shared. The proposed transition is merely another form of enormous challenges that require capabilities and capacities exceeding those possessed by local authorities, especially in the transitional or exceptional circumstances that Iraq, in general, and al-Najaf al-Ashraf, in particular, are experiencing.
- The fluctuation and imbalance accompanying calls for establishing new regions—such as al-Basrah Region, for example—or those related to the ongoing process of the existing region—such as Kurdistan Region and its proposal for a referendum on secession from Federal Iraq.
- Lack of intellectual, cultural, and political harmony between the local environment of Najaf and that prevailing in other governorates that could be partners in establishing a new region, or even that this internal nature itself could be an obstacle to forming a special region for al-Najaf al-Ashraf Governorate, thereby creating a real obstacle to this proposed formation.

- d. **Financial Factors:** These are the elements that contribute to the continuation of the political and administrative status quo, due to the unchanging state of federal financial allocations or those related to alternative and possible financial outlets to enhance the capacity of the local authority of al-Najaf al-Ashraf Governorate. This is attributed to the following potential reasons:
- The instability witnessed in the general political situation at the level of the central federal authority, which impacted the federal budget and related laws, negatively affecting the financial situation of local governments like the government of al-Najaf al-Ashraf.
 - The federal budget's reliance on a nearly exclusive rentier source related to crude oil exports has resulted in clear instability in the volume of allocations and their disbursement, which stems from the volume of oil exports, oil prices, and challenges related to distributing oil revenues among all governorates.
 - Federal work based on the principle of carryover, meaning the continuation of allocations directed to al-Najaf al-Ashraf Governorate in their previous state—without significant change—due to several influences, which may include the weak political performance of the governorate's representatives in the Council of Representatives or the limited influence of the internal Najaf environment pushing for more allocations for this important governorate.
 - Inability of local governments to generate new financial outlets capable of supporting central financial allocations, for several reasons, including those related to the powers and authorities originally granted to these local governments, which prevents them from overcoming this deficit.
 - Lack of significant openness from local governments towards the local Najaf environment, in pursuit of inventing alternative outlets and methods to obtain financial resources that contribute to strengthening the financial capacity of the local government in the governorate.
 - Lack of serious desire for local governments to demand additional federal allocations, on the one hand, or even to actively seek new and serious avenues to enhance financial capacity in the governorate, relying instead on existing federal allocations and considering that what is allocated federally to the governorate is a sufficient excuse for the local government not to pay attention to the value, importance, and seriousness of this issue.
 - Lack of scientific and practical projects by the local government to convince the federal government of the importance of strengthening the central funding capacity of the governorate, or even to move towards creating a federal environment that encourages strengthening the

administrative and legal powers and authorities of the local government to enhance these material and monetary capabilities.

Therefore, for the relationship between the federal government and the local government in Najaf to continue, we believe it is necessary to adopt the following proposed solutions to address the identified challenges and repercussions:

- Full commitment by both parties to what is stipulated in the Constitution of the Republic of Iraq of 2005 regarding the distribution of competencies between the federal government and local governments in the governorates. This made some competencies exclusive to the federal government due to their relevance to state sovereignty and political unity. There are also joint competencies that require cooperation between both parties without encroachment by either. Other competencies not falling under exclusive or joint categories should be entrusted to the local government as stated in the Constitution, because the commitment of each party to its assigned competencies is sufficient to ensure the continuity of the relationship without conflict over competencies.
- The necessity of continued federal government support for local government at various levels, and working to develop cadres in al-Najaf al-Ashraf Governorate through training courses and delegations to benefit from international experiences in local administration, and alleviating or removing all obstacles that prevent them from performing their assigned duties.
- The establishment of joint committees between the federal government and local government in al-Najaf al-Ashraf to develop solutions for problems facing local government and work to overcome all obstacles that hinder the development and prosperity of local units.
- The federal government must consider the local interests of al-Najaf al-Ashraf Governorate and meet the basic needs of its residents, as one of the cornerstones of the decentralized system is the existence of local interests alongside national interests that need to be met appropriately, with the necessity of local bodies' actions being subject to federal authorities' oversight to ensure their compliance with the law, as applying this principle will contribute to solidifying the relationship based on the Constitution and effective laws.
- We propose holding an annual conference between the federal government and local government to discuss the reality of their relationship, aiming to identify problems and recommend effective solutions to ensure the continuity of the relationship and cooperation between the two parties in accordance with the Constitution and effective legislations. Holding such conferences will help identify errors and challenges and work on developing solutions for them, as ignoring problems and their accumulation will negatively impact the nature of their relationship.

- Periodic review of laws, regulations, and instructions governing the relationship between the two governments, their suitability to the current situation, and their responsiveness to local needs, and amending some of them or repealing them and replacing them with other laws that are more responsive to the requirements of local administration.
- Fair representation of al-Najaf al-Ashraf Governorate in various federal state institutions, as it enhances the sense among the residents of al-Najaf al-Ashraf and its local government of their effective participation in decision-making.
- There are also other forms of addressing the aforementioned challenges, which we will address in the following scenario.

2. The Second Scenario: Conflict and Debate Between the Federal and Local Governments

This scenario relies on practical and realistic indicators and future perceptions related to the axis of conflict and debate in the bilateral relationship, based on indicators that can be observed as follows:

- Law No. 21 of 2008 concerning governorate councils not organized in a region has faced two amendments: the first, No. 15 of 2010, and the second, No. 19 of 2013.
- The central federal government (during the second term of Prime Minister Nūrī al-Mālikī) challenged the second amendment, arguing that the Council of Representatives introduced fundamental changes to the draft law without consulting the government.
- The main issue for this challenge by the government was linked to the extent of changes in the second amendment, for example, the allocation of \$5 per produced barrel in al-Baṣrah governorate fields, which was restricted to only \$1 by al-Mālikī's government. Also, changes related to the extent of powers transferred to the governorates regarding (sub-departments, agencies, functions, services, specializations, public works, reconstruction and housing, labor and social affairs, education, health, agriculture, finance, youth and sports, etc. with ministries retaining their role in general policy planning) according to the first paragraph of Article 45/First of the second amendment law to the Governorate Law.
- Meanwhile, the government of Ḥaydar al-'Ibādī, on December 30, 2014, withdrew the government's challenge, calling for the legal department in the General Secretariat of the Council of Ministers to prepare a study of the law and propose necessary amendments to achieve harmony and smooth workflow between the central government and local authorities in accordance with the effective 2005 Constitution.
- It is worth noting here that Article 45 of the second amendment to the Law of Governorate Councils Not Organized in a Region stipulated the establishment of the (Supreme Authority for Coordination between Governor-

ates, chaired by the Prime Minister, with the membership of the Ministers of Municipalities and Public Works, Reconstruction and Housing, Labor and Social Affairs, Education, Health, Planning, Agriculture, Finance, and Youth and Sports, in addition to the Minister of State for Governorate Affairs, governors, and governorate council heads).

- The foregoing indicates significant activity and continuous interaction in the bilateral relationship, tending towards monopolization of powers by the federal authority and actual effort to extract whatever capabilities and authorities can be added to the assets of local government entities in governorates not organized in a region, leading to occasional conflict and antagonism. This is a result of observing the trajectory of amendments to the original Law of Governorates Not Organized in a Region, or by observing the struggle between the federal and local sides of the equation to strengthen the center of gravity towards one side at the expense of the other.
- Competition and occasional conflict indicate that the decentralization experiment in Iraq is still in its infancy and experiencing the initial stages of its formation. This suggests a lack of clarity in vision, division of roles, or even understanding the boundaries of concepts and their scientific and practical implications.
- One of the reasons for the bilateral conflict and competition is the failure to activate the constitutional text regarding the establishment of the Federation Council (Article 65), which is a legislative body comprising representatives from regions and governorates not organized in a region. This failure to activate leads to a deficiency in the legislative structure of the Iraqi federal state, limiting it to the Council of Representatives alone without its counterpart, the Federation Council.
- The absence of effective activation of the constitutional text—like the article mentioned above—creates several dilemmas, including: weak representation of regions and governorates not organized in a region in the legislative authority, and difficulty in agreeing upon and reaching solutions regarding legal treatments related to these governorates—such as the file of managing natural resources, oil, and gas, for example.
- The lack of legislative effectiveness for governorates not organized in a region will lead to the application of federal legislation that may be issued by a majority despite the opposition or reservations of the region's representatives in the Federal Council of Representatives, which constitutes an obstacle to granting these legislations practical effectiveness or future interaction within their framework.
- One of the serious loopholes in the bilateral relationship, which necessitates continuous conflict and tension, is the neglect or oversight of activating the constitutional texts governing the frameworks of this relationship. For example, Article 105 of the Constitution stipulated the estab-

lishment of a public body to guarantee the rights of regions and governorates not organized in a region in fair participation in the management of federal state institutions, missions, scholarships, delegations, and conferences. Article 106 also stipulated the formation of a public body to monitor the allocation of federal revenues. This body consists of experts from the federal government and the governorates or regions to ensure fairness in the distribution of grants, loans, and aid, and to verify the optimal use of federal financial resources and ensure transparency and fairness when allocating funds to governorates or regions according to prescribed ratios.

- Additional points supporting conflict and friction in the federal-local relationship can be identified, such as those related to the text of paragraph five of Article 122 of the effective Constitution, which states: "The Governorate Council shall not be subject to the control or supervision of any ministry or any institution not linked to a ministry. The Governorate Council shall have independent finances." However, the Law of Governorates Not Organized in a Region of 2008 stipulated subjecting the governorate council to the oversight of the Council of Representatives. Article 47 also stipulated subjecting the governorate's departments to the oversight and auditing of the Board of Supreme Audit. Undoubtedly, the adherence of each party to a specific direction—complete independence or subjection to oversight—can contribute to deepening crises and fragmentation in the bilateral relationship.

Regarding the treatments related to these problems, in addition to the following pages of the research, the following can be proposed:

- The necessity of having a democratic political elite and effective functional will that believes in the importance of decentralization as an administrative system that allows for controlling the boundaries and trajectory of powers distributed between the federal government and governorates not organized in a region.
- Developing the capacities of local cadres in line with the scope of tasks and powers entrusted to them, with the central government remaining a supportive and advisory facade in the democratic transition process.
- It is very important to understand the true framework for transferring powers and regulating the bilateral relationship in order for governorate councils to fulfill their responsibilities, to unravel the overlap and connection between the work of ministries and local entities, and for governorate councils to be responsive to the demands of the governorate's residents.

3. The Third Scenario: Enhancing Decentralization

In this scenario, we focus on the following:

1. One of the pillars of the decentralized system is the presence of local bodies that undertake to meet the essential requirements of citizens at

the level of administrative units. To achieve this, they must possess the necessary powers to carry out this duty. This necessitates amendments to the laws governing the relationship between the federal government and local government, especially the amended Law of Governorates Not Organized in a Region No. (21) of 2008, making them more independent in decision-making without reverting to the federal government.

2. Proceeding with the transfer of powers from some federal ministries to the governorates, as this contributes to direct supervision of those departments and expediting the completion of important projects related to citizens' essential needs at the local level. The treatment in the transfer of powers should be clearly stated without leaving ambiguity in the relationship between the federal government and local government, to prevent future disputes.
3. Working to issue legislations capable of overcoming administrative bureaucracy and granting local bodies the necessary powers to make decisions aimed at diagnosing and addressing problems in a way that does not conflict with the nature of the decentralized system and considerations of respecting the distribution of competencies between them and the federal government.
4. The federal government should delegate some powers to the local government in areas where it believes the local government is more capable of achieving them. This aligns with what is stated in the Constitution of the Republic of Iraq of 2005 regarding the possibility of delegating competencies between the two parties.
5. Making necessary amendments to the Instructions for Implementing Government Contracts No. (2) of 2014 and other related laws, in a way that grants local governments a degree of freedom in contracting, provided that this is subject to the oversight of the federal government to ensure the legality of those legal actions.
6. Since al-Najaf al-Ashraf Governorate is one of the important religious tourism cities in Iraq and the world, this sector should be given exceptional importance, as it contributes to supporting the state and local government budgets, and employing the governorate's workforce. This requires granting the governorate exceptional powers, with the necessity of allocating a portion of entry visa fees to the governorate to promote its urban development.

The assumed scenarios for the future relationship are not limited to the advanced frameworks but can also be practically embodied as follows:

- The necessity of having a body concerned with local-level planning in al-Najaf al-Ashraf Governorate, whose task is to prepare annual plans in coordination with the Ministry of Planning.
- Directing investments in the form of strategic projects with high cost and long durations to areas and locations distant from the current investment

focus. This can also be achieved by addressing development imbalances resulting from disparities in investment distribution between the center of the governorate and its affiliated districts and sub-districts.

- The necessity of having a supreme authority in the governorate concerned with applying quality controls to governmental and private projects according to international quality specifications.
- Openness to universities—such as the University of al-Kūfah—and research centers and advisory bodies in all matters related to the strategies of the governorate council's work from various aspects related to its standing committees, to support, develop, and anticipate future visions.
- Realistic attention to the assumption regarding the future expansion of the population, urban, and developmental area of al-Najaf al-Ashraf Governorate, without affecting areas related to agriculture or tourism within it, and relying on advisory directions that consider projects related to achieving balance in service departments between the center of the governorate and its affiliated districts and Sub-districts.
- Attention to the important and pivotal role of general and specialized international organizations in aspects of consultation, material and moral support, and implementation, given its exceptional importance in expanding vision, means, goals, and areas of application.
- It is crucially important to capitalize on the religious and civilized role and deep historical legacy of al-Najaf al-Ashraf Governorate, and to open up to the international community in all its diversity, with the aim of contributing to creating a global environment for peace, dialogue, and the convergence of religions and their laws, and global interaction with its great historical legacy and serious contributions, which culminated in the visit of His Holiness Pope Francis to His Eminence the Grand Āyat-Allāh Sayyid 'Alī al-Sistānī.
- Performance evaluation by federal entities for local ones, or adopting the principle of self-evaluation for local authorities, without neglecting the fact that evaluation should not be limited to the amount of financial expenditure only, but rather openness to universally accepted evaluation foundations for measuring indicators of success and progress.
- The establishment of a decentralized system must be implemented gradually on a narrow scale to facilitate control, evaluation, and regulation, noting that the transfer of powers to local cadres must occur after they have been educated and trained.
- Creating additional financial resources to support and enhance the local authority's ability to perform its roles optimally, such as tourism, agriculture, taxes, fees, and investment, without relying solely on the federal budget.

- It is time to begin promoting concepts of community participation (administrative decentralization) by encouraging residents to contribute to exercising the principle of decentralization and raising citizens' awareness of their rights and duties, without neglecting the role of civil society organizations in monitoring and providing appropriate support in this field.
- Attempting to avoid making the same mistakes as previous international experiences, including the multiplicity of local administrative levels, to avoid conflicts of jurisdiction and complicating procedures.
- Increasing opportunities for cooperation, transparency, coordination, and integration between the public and private sectors by creating a suitable environment for these opportunities and establishing the appropriate administrative reference by the local authority in al-Najaf al-Ashraf Governorate, in an effort to create an exemplary model for addressing existing problems.
- Confronting challenges is a necessity and a fundamental dilemma facing local authority in the future, requiring the formulation of policies capable of addressing them, especially in the areas of women's empowerment, unemployment, security, health, and the challenges of the rising generation related to the risks of technology, crime, and social fragmentation.

Developing Financial Resources in al-Najaf Governorate and Its Future Prospects

Chapter Three of the amended Law of Governorates Not Organized in a Region for 2008, under the heading "Financial Resources," stated in Article 44 the following:

The financial resources of the governorate consist of:

- The financial budget granted to the governorate by the federal government according to the constitutional standards prepared by the Ministry of Finance and approved by the Council of Representatives.
- Revenues obtained by the governorate from the services it provides and the investment projects it undertakes.
- Revenues obtained from local fees and fines imposed in accordance with the Constitution and effective federal laws.
- Donations and grants received by the governorate that do not conflict with the Constitution and effective federal laws.
- Revenues obtained from the sale and lease of movable and immovable state property in accordance with the Law on the Sale and Lease of State Property and other effective laws.

From this, the following statement can be added:

- Currently, most (if not all) countries are increasingly interested in studying economic resources. The wealth or poverty of nations is measured not

only by the resources they possess but also by their ability to efficiently utilize them, meaning reaching optimal allocation. No economic plan or program can be realistic unless it relies on accurate information about available economic resources intended for use.

Responding to Challenges (A Foresight Vision)

This will be achieved through concerted efforts, as follows:

- Activating the role of government policies to advance the level of education, health, and general culture due to their influence on the proper use of resources, increasing their efficiency, and preserving them.
- Liberating from excessive reliance on oil export revenues and initiating the development and diversification of non-oil economic sectors, paving the way for creating a diversified and balanced economy that can satisfy the needs of the local market for agricultural, industrial, and service products, and open the way for directing the economy towards export.
- Encouraging the private sector to increase production and investment in all sectors and working to create an appropriate climate to stimulate local and foreign private investment, and adopting a clear strategy to achieve the principle of partnership between the public and private sectors to rebuild the Iraqi economy.
- Expanding agricultural lending and financing and attracting local and foreign investments to the agricultural sector to overcome its severe deterioration.
- Expanding the provision of loans to small and medium-sized enterprises and rehabilitating and activating them, as they are labor-intensive industries that contribute to creating many job opportunities and reducing the burden on the public sector.
- Supporting rural development programs to achieve balance between rural and urban areas by financing the establishment of infrastructure projects, land reclamation, and the establishment of industrial and tourist areas. And providing support to farmers and establishing and developing irrigation networks.
- Utilizing announced investment opportunities in al-Najaf al-Ashraf Governorate, such as establishing tourist cities, complexes, and hotels, developing and rehabilitating the Najaf Sea area, establishing a tourist city and large hotels, and developing infrastructure including roads, transportation, and electricity to receive tourists and visitors throughout the year. Also, developing al-Najaf al-Ashraf Airport and equipping it with the latest devices and services befitting the reputation of al-Najaf al-Ashraf as the most important landmark of religious education and religious tourism.
- Eliminating harmful environmental impacts such as the encroachment of sand dunes between al-Dīwānīyah and al-Najaf al-Ashraf governorates on the desert road, and reducing desertification and protecting soil from

erosion, by planting the area with specific types of plants suitable for the desert environment.

- Intensive application of human development programs, skill rehabilitation, and productivity improvement.
- Strengthening the rule of law and taking serious and effective steps to combat administrative and financial corruption.
- Adopting comparative international approaches and methods to benefit from their experiences in support of ensuring the success of local governments in performing their duties. For example, the experience adopted by USA starting in 2009 by establishing urban planning institutions that provide advice, guidance, and direction for developing the economic, social, political, and cultural reality of every municipality with a population exceeding 20,000, an experience that has proven its success, importance, and effectiveness in achieving its desired goals. There are more than 318 urban planning institutions to date, whose goal is to link the representations of these population centers with local governments or even assist in effective communication with the federal government.
- Benefiting from the experience of the European Regional Development Fund by attempting to transfer the positives of this experience to al-Najaf al-Ashraf Governorate, where investment focuses on areas that need support to keep pace with development in structural reform, promoting creativity, innovation, novelty, the digital agenda, technological development in communications and information, and creating job opportunities and reducing unemployment, having contributed to creating over 600,000 jobs between 2007 and 2012.

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8. Natural Resources

Prof. Dr. Safā' Majīd al-Muẓaffar

Faculty of Arts, University of al-Kūfah.

I. Natural Resources in al-Najaf al-Ashraf

Natural resources are crucial for sustaining life on Earth in all its forms. They determine a population's economic standing and contribute to defining their well-being. All development plans rely on the quantity and quality of natural resources, and a nation's power and political influence largely depend on them. The importance of natural resources has grown significantly with increasing populations and the accompanying rise in demand. This has prompted specialists to intensify efforts in study, research, and authorship to highlight the importance of natural resources, explain their types and spatial variations, and identify the issues they face. The aim is to conserve them, support investment planning, and increase public awareness, fostering community partnership in sustainable natural resource development and reducing waste and environmental pollution (al-Ṣaḥḥāf, 1976, p. 44).

Natural resources are vital for establishing development projects in al-Najaf al-Ashraf Governorate, as most development activities, especially agriculture, industry, and tourism, depend on them. This, in turn, boosts the region's economy. Furthermore, the governorate possesses clear natural potential in terms of raw material availability, making optimal investment a means to create a developed economic base. Given the varied characteristics of the governorate's natural geographical potential, its natural resources also vary. Therefore, studying the geographical potential in the governorate is extremely important for investing in its existing natural resources.

Natural resources in al-Najaf al-Ashraf Governorate are divided into two types:

1. Non-Living Natural Resources

These include soil, water resources, and minerals.

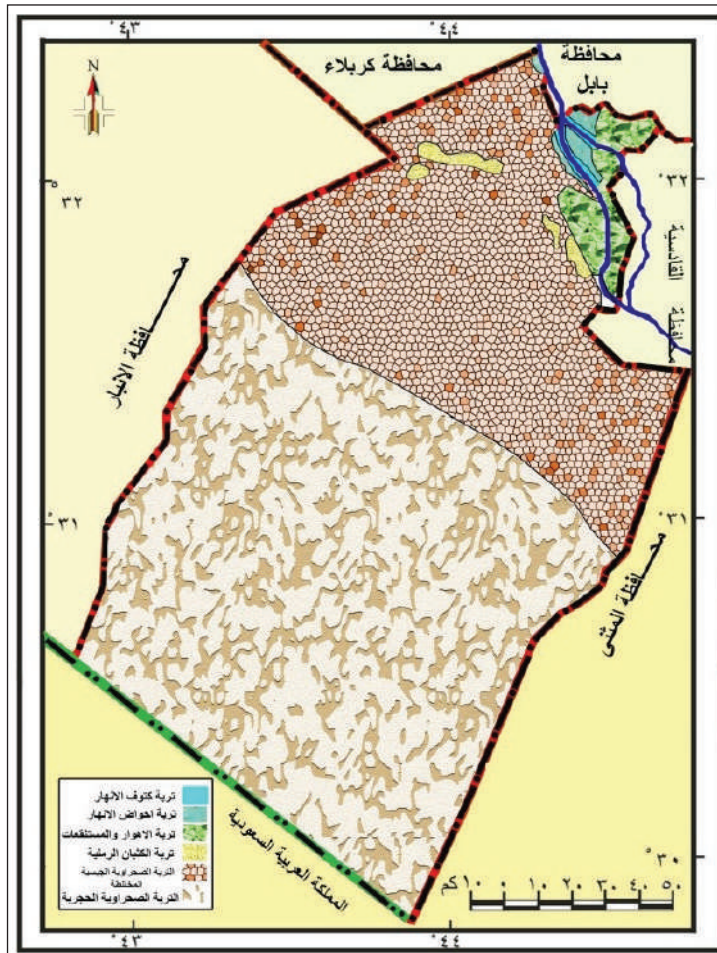
A. Soil

The following soil types can be identified in the governorate (Map 1):

1. **Soils of the Alluvial Plain Region:** The alluvial plain soil zone forms from the deposition of fragmented rock materials and dissolved salts by river networks and irrigation canals, as well as wind-borne sediments, classifying them as transported soils (al-Khalidī, 2016, p. 38). They are divided into:

- **River Bank Soils:** These soils extend along the banks of Shaṭṭ al-Kūfah and al-'Abbāsīyah and their branching canals. Their elevation typically ranges from 2-3 meters, a height particularly clear in northern Najaf, especially around the al-Kūfah District (al-Khalidī, 2016, p. 38), where they are known for their high fertility and productivity.
 - **River Basin Soils:** Geographically, river basin soils extend within lands adjacent to river bank areas and in relatively low-lying lands. This soil type is characterized by a gentle slope where fine textures prevail. They are geographically distributed in the area bordering the river bank region in the northern part of the governorate, specifically in the lands east of Shaṭṭ al-'Abbāsīyah and west of Shaṭṭ al-Kūfah (al-Zāmilī, 2001, p. 44). They are distinguished as clayey soils with noticeable salinity.
 - **Marsh and Swamp Soils:** These soils cover 75% of the alluvial plain. They include the soils of Hawr Ibn-Najm, Baḥr al-Najaf, Hawr al-Ṭawq, and Hawr Ṣalīb, which were once covered by marsh and swamp waters but have recently been drained and are now used for agriculture (al-Muẓaffar, 2007, p. 47). Their soils are characterized by high salinity and a clayey composition.
2. **Soils of the Western Plateau (Desert):** Soils of the Western Plateau region cover vast areas of the governorate. Their surface is covered by limestone, and they are poor in organic matter, often containing less than 1%. They are considered shallow soils, rarely exceeding a few centimeters in depth due to wind erosion processes resulting from weathering factors. These soils have characteristics that include a gypsum content ranging from 0.1% to 81%. This region's soils are divided into three main types (al-Ẓawayhir, 2007, p. 277):
- **Gypsiferous Desert Soils:** Found in the area west of Shaṭṭ al-Kūfah within the lower valley region, these are part of the Euphrates River deposits. They are characterized by a coarse texture and consist of fragmented clayey, silty, and sandy materials of varying sizes, along with some calcareous materials and gravel. This zone also contains ranges of sand dunes. These soils are notable for their high gypsum content, which reaches 25%. This high gypsum content is attributed to the evaporation of near-surface groundwater carrying calcium sulfate salts.
 - **Stony Desert Soils:** These soils are located in the stony area and are covered by coarse, sharp-angled limestone rocks. Sandy soils are predominant here, covering approximately half of the soil area in this region. They extend as a wide band from the central part of the region to the border of Iraq with Saudi Arabia. The thickness of these soils ranges from 10-20 cm and they consist of limestone and sand. They are shallow soils, which causes fine soil particles to flow into lower-lying areas as devastating floods.

Map 8-1: Soils of al-Najaf al-Ashraf Governorate



Source: (Buringh, 1960). Drawn using ArcGIS 10.6, 2020.

- **Sand Dune Soils:** This soil is located within the sand dune zone, which extends 15-25 km west and southwest of Najaf city. It rises about 12 meters above the surrounding lands and is characterized by relatively fluctuating elevations due to varying wind speeds.

From the foregoing, we can conclude that soil, as a natural resource in the governorate, has multiple importance and benefits. Soil is considered one of the important natural resources; it serves as a water reservoir and a habitat for many living organisms, making it the fundamental component for agricultural activity. Therefore, soil indirectly affects the geographical distribution of the population through their connection to agricultural activity, especially since it is the primary raw material used in the production of most construction materials for residential buildings and is essential for establishing urban infrastructure. Soil also contains many mineral resources, which gives it importance in industrial activity. Soil also

has a direct impact on water resources through the volume of internal infiltration. It has become clear that humans play a significant role in changing soil properties through land use in agriculture; plowing operations, for example, contribute to changing soil structure and increasing its permeability. Conversely, ill-conceived agricultural practices can lead to soil stress, resource depletion, deterioration of its fertility, and increased salinity, especially in arid and semi-arid regions.

B. Water Resources

Water resources in the governorate include all forms of water sources such as rainfall, surface water (rivers and lakes), and groundwater. These resources are divided into (al-Khalidī, 2016, p. 42):

1. Surface Water

Surface water is represented by the Euphrates River and its branches, which enter the governorate from the north after branching off 1 km south of al-Kifl. It splits into two branches: the western branch known as Shaṭṭ al-Kūfah, and the eastern branch known as Shaṭṭ al-'Abbāsīyah (Map 8-2). Therefore, prioritizing water resources as a natural resource is crucial for meeting human daily needs and securing the requirements for plant and animal life, as well as agricultural, mining, and industrial purposes.

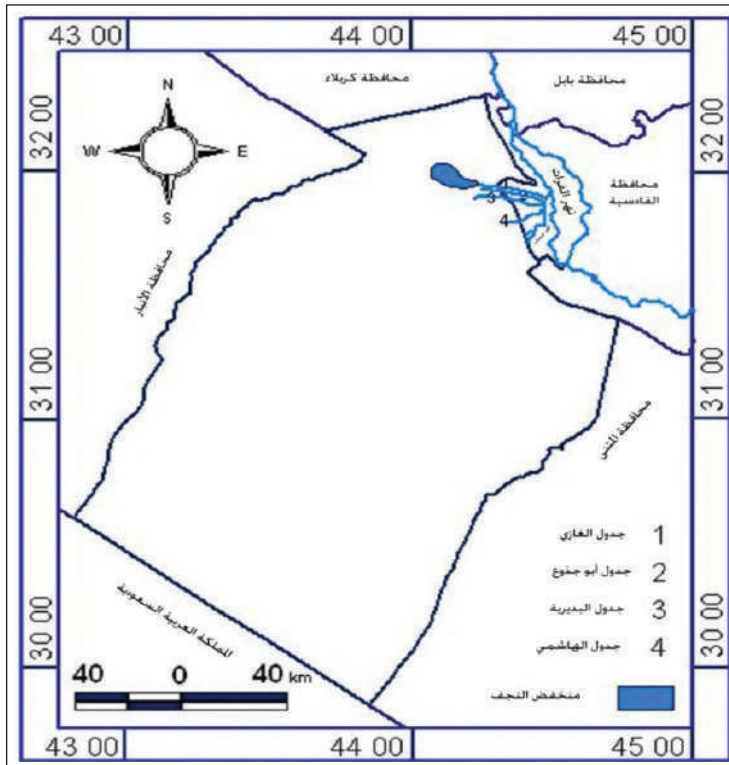
- **Shaṭṭ al-Kūfah:** The Euphrates River (Shaṭṭ al-Hindīyah) enters the al-Kūfah District. Its length in the governorate is approximately 75.200 km. It is named after the cities it passes through: Shaṭṭ al-Kūfah when it passes through al-Kūfah District, and Shaṭṭ Abū-Ṣukhayr, Shaṭṭ al-Mish-khāb, and Shaṭṭ al-Qādisīyah when it crosses through them. More than one canal and tributary river branch off Shaṭṭ al-Kūfah from its entry into al-Kūfah District to its last point in the governorate.
- **Shaṭṭ al-'Abbāsīyah:** Shaṭṭ al-'Abbāsīyah enters the sub-districts of al-'Abbāsīyah and al-Ḥurrīyah. A group of 23 canals and tributary rivers branch off Shaṭṭ al-'Abbāsīyah from its entry into al-'Abbāsīyah sub-district to its last point (al-Ḥurrīyah Sub-district).

2. Groundwater

Groundwater in the governorate is represented by artesian wells and springs, which vary in depth from one area to another. Groundwater is extensively used in the Western Plateau region due to scarce and seasonal rainfall and the lack of surface water sources in the area. Most groundwater currently used in agriculture is found within the al-Dabdabah formation, which consists of sand, gravel, sandstone, and clay, having good permeability that facilitates water movement through it. Groundwater is relied upon as a secondary irrigation source for agricultural areas in arid and semi-arid regions (Jāsim, 2017, p. 53).

In summary, water resources, as a natural asset in the governorate, are the foundation upon which economic and social development activities depend. The relationship between water resources and development projects is close, as the distribution of populations and their projects is usually linked to river courses. al-Najaf al-Ashraf Governorate boasts unique and distinguished water features,

Map 8-2: Surface Waters in al-Najaf al-Ashraf Governorate



Source: ('Abd, 2008).

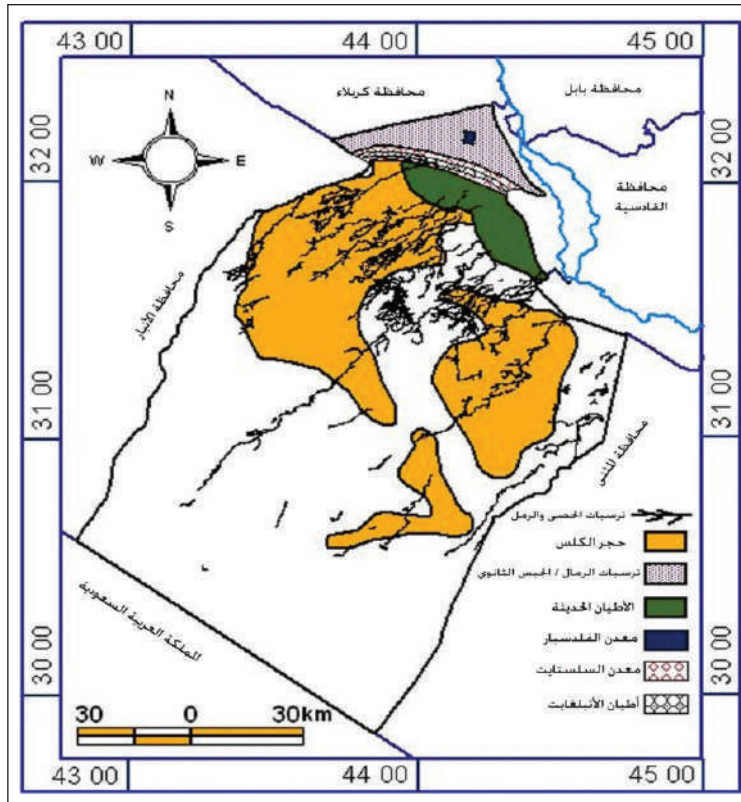
but these sites are currently underutilized and require essential services to become an attraction factor and contribute to providing various types of water-related, recreational, or therapeutic services that depend on the presence of water.

C. Mineral Resources

Mineral deposits in the governorate are linked to the nature of its geological framework. Prospecting and exploration operations have led to the discovery of many of these deposits or evidence of them, and the possibility of other discoveries remains. Here is an overview of some discovered minerals and industrial rocks in the governorate (Jāsim, 2017, p. 53) (Map 8-3):

1. **Limestone:** The uses and importance of these rocks are widespread. They are used in cement production, with rocks from the Euphrates Formation near Najaf City currently being extracted (al-Kūfah Cement Plant quarry in the 'Uyūn al-Shajīj area). They are also used in lime production, and for cutting for construction, where locals utilize them as building stones. There are studies on limestone rocks for their use in interior construction and facades, with some types suitable as marble substitutes, having suitable physical properties in terms of color, hardness, and porosity. Engineering tests have shown the suitability of limestone rocks from al-Dammām

Map 8-3: Geographical Distribution of Mineral Resources in al-Najaf al-Ashraf Governorate



Source: (‘Abd, 2008).

Formation in al-Rahabah area for this purpose (Hasan, 1983, p. 88). Limestone is found in Najaf plateau, and its quantity is estimated in thousands of tons.

2. **Clays:** There are two types of clays in the governorate (modern clays and attapulgite clays), as follows:
 - **Modern Clays:** Generally composed of a mixture of several clay and non-clay minerals, primarily calcite and dolomite (30-40%), quartz (20-25%), and clay minerals (30-35%) including kaolinite, illite, chlorite, and palygorskite. These clays are spread in the Baḥr al-Najaf area. While backfill clays do not require specific specifications, clays for brick manufacturing must be suitable for that industry, which is confirmed by laboratory tests conducted by the General Company for Geological Survey and Mining.
 - **Attapulgite Clays (Zeolites):** These clays are locally known as “Ṭīn al-Khāwah” and are found in some areas of Ṭār al-Najaf, west of Najaf city, as lenses within alternating layers of sandy and silty rocks, with a thickness ranging from half a meter to one meter. They can be distinguished

in the field by their greasy feel and color, which often grades from bluish-green to gray. These clays are considered geological features or part of the geological heritage of Najaf city and neighboring areas. They have gained wide popularity among women, who use them for hair washing to make it soft, due to their crystalline structure, which gives them the property of efficiently absorbing and trapping impurities in their fibrous channels compared to other types of clays that crystallize in a layered form (Azhar et al., 1982, p. 201).

3. **Sand Deposits:** These are primary raw materials of mechanical sedimentary origin, formed by wind and river deposits. The main components of these sands are quartz, gypsum fragments, and a percentage of clays. However, there are vast areas of these sands that are semi-pure and can be quarried and marketed without treatment, screening, or washing. Sand in the region is utilized for several purposes, including construction and the manufacture of sand-lime bricks and Thermstone. Sand for construction is exploited from the Jazīrat al-Najaf area, and sand for sand-lime brick and Thermstone manufacturing is exploited from the two factories in the Ḥaṣwat al-Khuwarnaq area (Ḥusayn, 2005, p. 34).
4. **Gravel and Sand Deposits:** Gravel and sand deposits are limited in distribution in the governorate, and their reserves are small. The most important areas where they are found are Wādī al-Khamasāt in Baḥr al-Najaf, Wādī Ḥasab Abū-Ṣukhayr – al-Raḥabah deposits, and Ḥaṣwat al-Khuawarnaq deposits. Gravel in the region is exploited for construction from the Wādī al-Khamasāt, al-Rahīmāt, and ‘Uyūn al-Shajj areas, with exploitation occurring through open-pit quarrying methods (Azhar et al., 1982, p. 220).
5. **Secondary Gypsum Deposits:** Secondary gypsum is found mixed with soils and widely distributed superficially within the deposits of the al-Dab-dabah formation. It is exploited for plaster production from al-Ḥaydarīyah and Baḥr al-Najaf areas using the open-pit quarry method. Despite the high percentage of impurities in the gypsum deposits in the region, the produced plaster has a thriving market in the governorate. Gypsum deposits extracted from Baḥr al-Najaf area are used in cement production, where they are mixed with clinker to slow down hardening (‘Abd, 2008, p. 97).
6. **Celestite Mineral:** This is an important and heavy industrial mineral, believed to have formed as a result of alteration processes from the precipitation of salts found in groundwater rising to the surface through the Euphrates fault. Celestite is used in multiple fields (Dāwūd, 2000, p. 105), and it is found in large areas in the desert plateau of the governorate.
7. **Feldspar:** This is a group of essential minerals in the formation of igneous rocks. It is sometimes colorless or exists in various colors like white, gray, yellow, or red. Feldspar is considered a metalliferous ore of industrial importance due to its use in many industries (Azhar et al., 1982, p. 245). It

is found in specific parts of the Western Plateau of the governorate, and it can be extracted and used in many fields.

8. **Sulfur:** Sulfur is considered a mineral with limited presence in the governorate. The areas where it is found are known as sulfurous regions, and they are characterized by what are called "balū'āt" (sinkholes) from which a foul odor emanates due to the emission of hydrogen disulfide gas. Sulfur is one of the dusting materials used in treating skin diseases in camels and livestock, as well as human skin diseases (Ḥasan, 1989, p. 34). Sulfur is found south of the governorate within the Western Plateau, where sulfur springs like 'Ayn al-Imām al-Ḥasan in al-Ḥīrah exist, in addition to artesian wells with high sulfur content. Furthermore, al-Shabakah Sub-district contains many sulfur springs that have not yet been utilized.

From the foregoing, we can conclude that the minerals in al-Najaf al-Ashraf Governorate are diverse and exist in very large reserves. The mineral resources in the region depend on the nature of the rocky components of the geological formations and the natural factors affecting them. The formation of minerals was indirectly linked to regional structural movements, and the geographical characteristics that prevailed in ancient times played a large role in providing the appropriate conditions for the formation of these deposits. The study showed that the mineral deposits in the governorate, despite their limited variety, are important economically as a source of wealth and raw materials, contributing to the development of Iraqi industry, as well as to the economic growth of the governorate.

2. Living Natural Resources

A. Natural Vegetation

Natural vegetation the governorate is diverse and can be divided as follows:

1. **Natural Vegetation in the Alluvial Plain Region:** Most natural plants in this region grow near riverbanks and their courses. These types of plants require moderate amounts of water. The most important of them are willow (ṣafṣāf), desert poplar (gharb), sesbania (saysabān), tamarisk (ṭarfā'), halfa grass (ḥalfā'), and Christ's thorn jujube (sidr) in agricultural fields, and thorny plants, camel thorn ('āqūl), and schanginia (ṭarṭī) along riverbanks and in low-lying areas. Other natural plants that grow in lands adjacent to canals and irrigation channels include grasses such as Bermuda grass (ṭhayyil) (al-Zawayhir, 2007, p. 230).
2. **Natural Vegetation in the Plateau Region:** This region is home to natural plants that have adapted to the prevailing desert climate, such as gum acacia (ṣamghah), vetches (huruṭmān), truffles (kam'ah), wild fenugreek (hulbah barrīyah), schanginia (ṭarṭī), thorny plants, caper bush (shafallah), and wild cress (rashād barrī). These are annual plants that begin their life cycle with winter rainfall and end when it ceases. Perennial plants such as camel thorn ('āqūl), wormwood (shīḥ), Achillea (qayṣūm), Haloxylon (ramth), Rhanterium ('arfaj), mangrove grass ('ijrish), boxthorn ('awsaj), saltwort (Aushnān), juniper (junaybarah), wild mallow (khubbāz barrī), Syrian

rue (ḥarmal), colocynth (ḥanzāl), and thyme (za'tar) are also widespread in this region. These plants, during their varied lifespans, contribute significant amounts of organic matter to the soil (Jāsim, 2017, p. 150).

3. **Natural Vegetation in the Depressions and Marshes Region:** In the depressions and marshes, well-known natural plants adapted to the prevailing environmental conditions grow; these are water-loving plants. The marshes, represented by Hawr al-Jabsah and Hawr Ibn-Najm, contain natural plants that adapt to high salinity, such as reeds (qaṣab), papyrus (bardī), and sedges (jawlān). These plants also appear in some areas of Baḥr al-Najaf, as well as at the ends of canals and drainage channels (Field Study, 2022). Some plants in the region contain important medicinal substances and are the main source for many pharmaceutical industries.

B. Animals

Many types of animals, fish, and wild birds are found in the governorate. These animals can be gathered to form part of a natural protected area. The governorate's Directorate of Environment has conducted field studies on the possibility of local and migratory animal and bird populations existing, highlighting the importance of making these birds stable in the region for the purpose of establishing a natural reserve. Types of such birds, including wild pigeons, were found.

Most of the governorate's population in rural areas, depressions, and marshes often rely on buffalo farming, fishing, bird hunting, agriculture, and grazing for their livelihood. They benefit from their meat, milk, or eggs. These animals are concentrated in aquatic areas, such as buffaloes. Regarding animals along riverbanks (channels and canals branching from the Euphrates), the common jackal can be observed, inhabiting open holes and crevices in soil and rocks. Also present is the common tree squirrel, which is like a mouse but larger and with very soft fur. As for animals of the marshes, swamps, and water channels, one finds the northern bat, the Iraqi wildcat, and wild boars. River basin animals (fields and orchards surrounding the river delta plain) include the Iraqi wildcat, which frequents orchards and farms to hunt birds and some rodents like rabbits and mice. It has paws like a domestic cat and can be tamed and domesticated. Also present are wolves, hedgehogs, weasels, and birds such as sparrows, bulbuls, and doves (ring-necked dove) (al-'Attābī, 2008, p. 87).

Animals of the al-Najaf marshes (Hawr al-Jabsah – Hawr Ibn Najm) include wild boars and snakes. Animals of the Western Plateau region (lower valleys and stony areas) include snakes, rodents, foxes, and wild rabbits.

II. Investment in Natural Resources

Available resources can be utilized, and future projections and plans can be made to increase and benefit from them. This involves managing and developing available natural resources optimally and sustainably, and undertaking productive projects that meet local and regional demand.

The diversity of natural resources in al-Najaf al-Ashraf Governorate has made it attractive to investors. Its vast area and distinguished location give it additional importance that could draw future attention for investing in its natural resources, in addition to a future developmental need for the region. It is considered a good factor for investment, and studies of the region have shown that it possesses many advantages that qualify it as an investment attraction area, including:

- Availability of water resources
- Availability of suitable soil and land
- Availability of natural vegetation and animal wealth
- Availability of mineral resources

The lands of the governorate are characterized by abundant vegetation cover and agricultural production, which helps secure necessary food for its residents and neighboring areas, in addition to its potential to host many development projects, whether for local consumption or export. There is a reciprocal relationship between the investment level and the increased demand for agricultural products (plant and animal). Agriculture is an important incentive for establishing an area that benefits the society, thereby attracting the largest possible number of residents, as a source of livelihood through the availability of agricultural production. Given the region's fertile land and permanent surface water resources, represented by river canals branching from the Euphrates, and other surface waters, they can be exploited for various agricultural purposes.

The animal sector also holds significant importance in the governorate. The region is characterized by a diverse animal environment where this vital sector can be invested, given the availability of animal development sources in all aspects. Fish, for example, are a source of animal wealth, especially since there are many means for their sustenance, reproduction, and development, and food is abundantly available.

The study of natural resources in the governorate, including their various types and quantities, revealed the presence of many raw materials, whether primary materials (plant, animal, mineral resources, in addition to the availability of soil and water resources). These resources are used in many industries, including extractive industries (gravel and sand factories) and transformative industries (plaster and brick) that depend on the available natural resources in the region, which are used in construction and building. Other industries can also be established given the availability of these natural resources. As for the types of gypsiferous soils, silty-clayey soils, and available clays, they are used in plaster production for the first type, and in brick production for the second type. These materials are utilized in construction and building and are marketed to different areas within and outside al-Najaf al-Ashraf Governorate.

The governorate is also characterized by its mineral wealth, which can be invested in industrial and productive projects, especially in the cement, glass, ceramics, brick, and Thermstone industries. This is due to the availability of natural resources (raw materials) for these industries, represented by gravel, sand, lime-

stone, feldspar mineral, and clays found in high proportions in the Baḥr al-Najaf area near al-Ṭār region. These minerals and raw materials have contributed to the development of many industries. We note the reliance of the governorate and neighboring governorates on them to meet their needs for lime mortar, the main material for the production of sand-lime bricks and Thermstone. The governorate has the capacity to develop these industries and establish new construction industries that meet the increasing market demand, due to the abundance of raw materials sufficient for investment, as well as the availability of skilled labor and scientific competencies capable of managing, developing, and operating projects. The governorate's area and location give it great importance in terms of future potential for investing in its available natural resources, in addition to the future need for many products originating from these natural resources, which is an encouraging factor for various investment operations.

III. Obstacles to Investing in Natural Resources (Investment Challenges)

There are many problems facing agricultural production and investment in al-Najaf al-Ashraf Governorate, and natural resource investors suffer from them. These can be explained in the following points:

1. Weak guidance services regarding dates for planting and adding pesticides and fertilizers, types of fertilizers used, disease control, and modern irrigation methods in some areas of the governorate.
2. Lack of sufficient quantities of high-yielding, salinity-resistant seeds to meet farmers' needs, and the presence of a significant gap between local producers and modern agricultural technologies used globally.
3. One of the significant problems in the governorate is the large number of abandoned agricultural lands, which exposes them to salinity and makes them poor in organic matter, thus difficult to invest in easily.
4. Weak private sector and government investments in packaging and refrigerated storage for crops and leafy vegetables. Crops and vegetables are traditionally packaged in a way that does not preserve their nutritional value due to poor storage and transportation, and they are transported by medium-load, non-refrigerated vehicles.
5. Existing resources and minerals are extracted using traditional methods that waste large quantities of these resources.
6. There is significant and clear encroachment by quarry owners and brick factories on agricultural lands and through well drilling.
7. Properly paved roads that can handle the weight of vehicles transporting gravel, sand, and plaster from quarry sites to the governorate and neighboring governorates are not available.
8. There is no clear government oversight over quarry owners, nor over the methods of extraction, screening, and transportation.

9. Quarry and brick factory waste is left and dumped in the depression of Baḥr al-Najaf, which pollutes and disfigures its appearance.
10. Brick factories and quarries Lack technical and administrative expertise as well as experienced and skilled workers.
11. Lack of cooperation between government investment agencies and the private sector, which acts as an obstacle affecting investment.
12. Complex and exhausting procedures for obtaining loans granted to private industrial projects.
13. Lack of legal and security protection for investors by the local government.
14. Significant neglect of local industries by state institutions, and the import of required goods and products from neighboring countries, which discourages investors from investing.
15. Extensive neglect of the natural resources in the governorate, lack of oversight over existing brick factories and quarries, and failure to provide services in all sectors. Instead, there are many problems, including pollution in Baḥr al-Najaf area, where some owners of restaurants and factories dump their expired products into the waters of Baḥr al-Najaf, causing water and soil pollution.

IV. Scenarios for Natural Resource Investment

1. Optimistic Scenario (Development and Investment of Natural Resources)

Table 8-1 and Figure 8-1 show that the expected investment rate for living natural resources, represented by plants and animals, was estimated at 5% during the five-year period between 2021-2026. This is attributed to the use of certain investment methods that contributed to their development by preventing overhunting and preserving natural vegetation and planting trees.

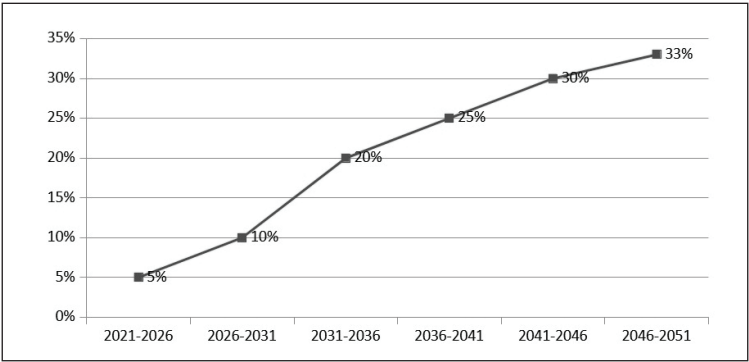
It is also likely that the investment rate will increase to approximately 10% during the period 2026-2031 if these natural resources are properly maintained and utilized more effectively than they are now. Investment is expected to increase to 20% during the period 2031-2036 if new methods are adopted for proper utilization of these resources by reducing extinction rates to 10% and preventing overhunting. This can be achieved through establishing nature reserves to protect ecosystems, reducing natural vegetation removal, and continuously planting plants and trees to replace those that are cut down. It is likely that the investment rate will increase to approximately 25% during the period 2036-2041 through focusing on fish resources and benefiting from them, and continuously planting trees, especially varieties used for timber production and various other purposes, and recycling wood products. Also, planting trees to prevent soil erosion caused by wind and water is essential for maintaining the ecosystem, as they serve as habitats for most insects, birds, and some symbiotic plants, which

Table 8-1: Optimistic Scenario for Investment in Living Natural Resources (Plants and Animals) over the Next 30 Years

Year	Optimal Investment Rate	Methods for Optimal Investment in Natural Resource Development
2021-2026	5%	Maintain healthy ecosystems, restore environmental systems, combat and reverse degradation, conserve animals, prevent overhunting, and preserve natural plants.
2026-2031	10%	Reduce extinction rates to 10% by establishing natural reserves to preserve ecosystems and minimize the removal of natural vegetation in any form.
2031-2036	20%	Continuously plant trees, especially those used for timber. These can be utilized for various purposes, and wood products can be recycled.
2036-2041 2041-2046 2046-2051	25% 30% 33%	Allow dead trees to decompose naturally, aiding in soil regeneration. Replant trees to replace those that are cut down. Avoid repeatedly planting the same crop in the same location over time, which depletes soil and weakens its productive capacity. Establish gardens and wildlife reserves to preserve wildlife, which requires conserving animals and plants in their natural habitats. This also includes protecting designated protected areas, which will certainly help conserve endangered plant and animal species.

Sources: Researcher.

Figure 5-1: Projected Rates of Investment in Living Natural Resources (Plants and Animals) Over the Next 30 Years



Source: Data from Table 8-1.

in turn creates a wildlife habitat, thereby completely preserving wildlife in the future. We can expect that the investment rate in natural resources could increase to approximately 30% during the period 2041-2046. If all these modern methods and approaches are followed, the investment rate is likely to exceed 33% by 2051, as shown in Table 8-2 and Figure 8-2.

For non-living natural resources, specifically soil, the projected investment rate for 2021-2026 was 5%. This was to be achieved by avoiding incorrect agricultural practices, cultivating diverse crops to reduce soil erosion, and refraining

from unsustainable harvesting methods that negatively impact soil. Additionally, investments would target neglected and unused arable lands. It's anticipated that the investment rate could reach 8% by 2026-2031 if sound methods are employed and optimized to preserve soil from degradation and destruction through various preventive measures. This rate is projected to rise to 10% by 2031-2036, provided these methods are correctly implemented. This includes, for instance, preventing informal construction on agricultural lands and ensuring continuous government support for optimal natural resource investment.

The investment rate is expected to exceed 16% during 2036-2041, and potentially reach over 26% by 2051. This relies on the use of plastic pipes for water transfer, the latest innovative water harvesting techniques, and the discovery of new agricultural crop varieties that contribute to maintaining soil fertility for as long as possible. These advancements will be facilitated by genetic engineering technologies and applications, focusing on developing crop varieties with lower water consumption.

In essence, stabilizing all economic, social, political, and environmental sectors will positively impact the governorate, propelling it into a more advanced stage of development by optimally leveraging its diverse natural resources.

For water resources, the investment rate is projected to increase by approximately 7% during 2021-2026 (Figure 8-3). This will involve using genetic engineering technologies and applications to develop agricultural varieties that consume less water, desalinating both surface and groundwater for maximum utilization across various sectors, and treating wastewater through advanced recycling methods. Additionally, the maintenance and rehabilitation of wells by relevant departments will be crucial. Water resource investment is also projected to increase to 15% during 2026-2031 if water consumption is rationalized, conserved, and optimally exploited. For the period 2031-2036, water investment is expected to rise by 22% through the use of plastic pipes to minimize water loss, the establishment of permanent artificial dams to store water for periods of scarcity, and the desalination of both surface and groundwater for maximum utilization across various sectors. The investment rate is expected to reach 22% by 2036-2041, according to the table's estimates, and potentially 24% by 2041-2046. This depends on the methods and means employed for water resource investment. By 2051, the water resource investment rate is projected to reach approximately 33% if competent and strict management is provided. Iraq needs a unified national will that prioritizes national interest as a supreme policy and implements sustainable development programs using the best natural resources to advance the country's capabilities.

For mineral wealth, investment is projected to increase by an estimated 5% during 2021-2026 (Figure 8-4), potentially reaching 8% by 2026-2031. This growth is driven by allowing the private sector to participate in long-term productive projects, encouraging them to gain experience, with the state retaining 25% of the capital and the remainder allocated as employee shares. There's also a push to attract foreign investors for projects requiring significant expertise, large invest-

Table 8-2: Optimistic Scenario for Investment in Non-Living Natural Resources over the Next 30 Years

Year	Optimal Investment Rate	Methods for Optimal Investment in Natural Resource Development
Soil		
2021-2026	5%	Avoiding harmful agricultural methods, cultivating diverse crops to reduce soil erosion, avoiding excessive harvesting, and utilizing fallow and unused arable land.
2026-2031	8%	Promoting soil conservation to prevent degradation through protective measures for drylands from desertification, which requires encouraging governments and dryland inhabitants to adopt positive land management.
2031-2036	10%	Preventing unregulated construction in fertile agricultural areas, as this will inevitably lead to a severe environmental catastrophe and a gradual reduction in arable land.
2036-2041 2041-2046 2046-2051	16% 20% 26%	Prioritizing optimal soil investment for preservation, as it is the primary control over the agricultural sector. Any deficiency will reduce production, harming all life sectors. Any agricultural disruption will affect all sectors, leading to a future environmental catastrophe; thus, the best preservation methods must be adopted.
Water Resources		
2021-2026	7%	Rationalizing water consumption and treating wastewater for reuse by eliminating toxic substances. Raising public awareness, especially in areas with water pollution or depletion, through media, schools, and universities.
2026-2031	15%	Protecting groundwater from depletion by rationalizing consumption to rebalance aquifers, balancing extraction with rainfall replenishment. Exploring new groundwater sources to reduce pressure on exploited water, allowing for replenishment. Limiting water pollution by enforcing laws, especially on factories, and monitoring all pollution sources to ensure compliance with correct regulations and standards.
2031-2036	22%	Providing skilled and strict management for proper water distribution based on modern scientific and technical principles, employing advanced irrigation methods, and increasing irrigation network efficiency to reduce losses.
2036-2041 2041-2046 2046-2051	24% 28% 33%	Using plastic pipes for water transfer instead of open channels to conserve maximum water. Establishing permanent artificial dams to store water for scarcity. Employing the latest innovative water harvesting methods. Discovering new agricultural crop varieties through genetic engineering for less water-intensive strains. Desalinating saline water (surface or groundwater) for various uses. Treating wastewater through recycling.

ments, and advanced technology, especially for various minerals. This re-activation is crucial as these projects yield considerable economic returns.

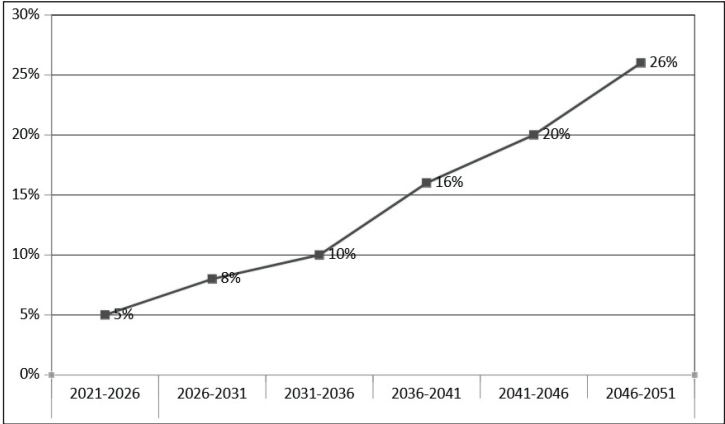
Based on the table's estimates, the investment rate is expected to reach 13% during 2031-2036, assuming efforts are made to discover and directly exploit new

Table 8-2 (continued)

Year	Optimal Investment Rate	Methods for Optimal Investment in Natural Resource Development
Mineral Wealth		
2021-2026	5%	Emphasizing research and development in ore and mineral processing and quality improvement to enhance productivity by providing geological and mineral information, developing laboratories, and upgrading geological survey equipment as a reliable reference for mineral exploration, and stopping excessive mining.
2026-2031	8%	Encouraging private sector participation in productive projects to stimulate long-term initiatives and foster experience, with the state retaining 25% of capital and the remainder as employee shares. Seeking foreign investors for projects requiring expertise, significant investment, and advanced technology (e.g., sulfur and phosphates), reactivating these economically viable projects.
2031-2036	13%	Discovering and directly exploiting new ores and minerals or processing them for production to benefit humanity, giving them utilitarian and market value.
2036-2041 2041-2046 2046-2051	20% 22% 32%	Developing a long-term, binding mineral investment strategy for both private and public sectors. Continuous monitoring of mineral extraction by responsible authorities to ensure optimal exploitation and prevent depletion of mineral wealth. Opening avenues for private sector mineral exploration in promising areas.

Sources: Researcher.

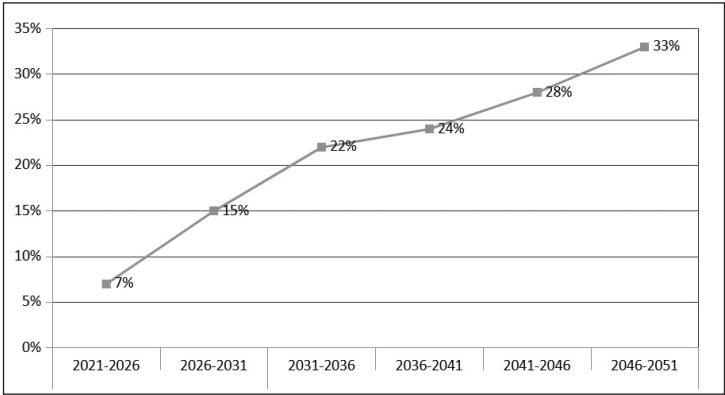
Figure 8-2: Projected Rates of Investment in Non-Living Natural Resources (Soil) Over the Next 30 Years



Source: Data from Table 8-2.

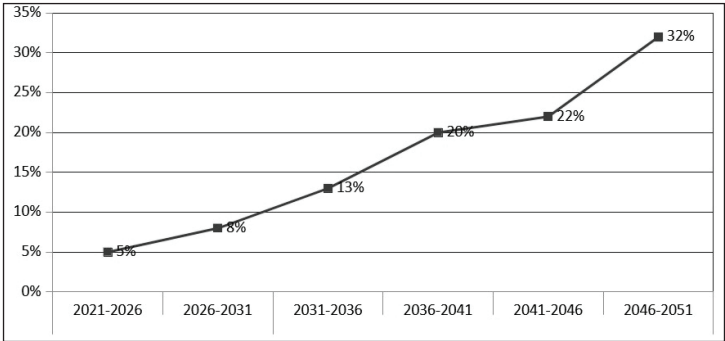
ores and minerals, or to process them for production to achieve future benefits for humanity, thereby giving them substantial use and market value. The investment rate could potentially reach 20% during 2036-2041 if these minerals are exploited using modern methods. Furthermore, investment outcomes are

Figure 8-3: Projected Rates of Investment in Non-Living Natural Resources (Water Resources) Over the Next 30 Years



Source: Data from Table 8-2.

Figure 8-4: Projected Rates of Investment in Non-Living Natural Resources (Mineral Resources) Over the Next 30 Years



Source: Data from Table 8-2.

expected to reach 22% during 2041-2046, and potentially 32% by 2051. This hinges on adopting the latest optimal investment methods and implementing long-term investment strategies for mineral wealth that are binding for both the private and public sectors. Continuous monitoring of mineral extraction by responsible authorities will ensure optimal exploitation, prevent depletion of mineral resources, and open avenues for the private sector to conduct mineral exploration in promising areas for future mineral discoveries.

From the preceding analysis, we can conclude that both living and non-living natural resources play a vital role in achieving optimal sustainable development. This is contingent on their correct and optimal exploitation and cooperation with the international community to transition al-Najaf al-Ashraf Governorate to a new, optimal stage of stability, free from all impediments to progress and development that have long hindered project implementation.

2. Pessimistic Scenario: Decline of Natural Resources and Inability to Invest

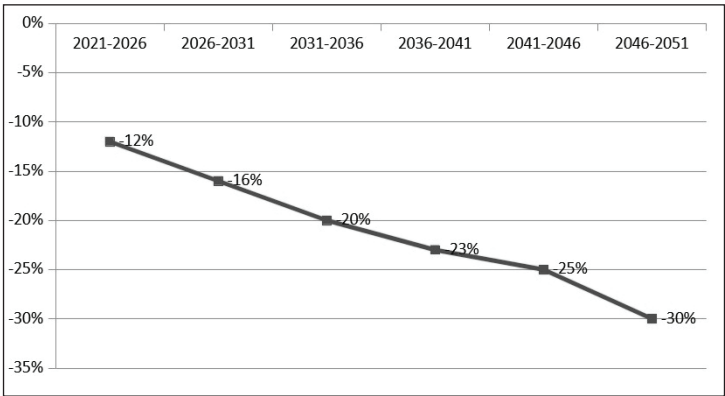
Table 8-3 and Figure 8-5 clearly illustrate a significant variation in the degradation rates of living natural resources over the coming years, indicating constant change. The degradation rate is estimated at -12% for 2021-2026. This is attributed to multiple factors, including poor exploitation, incorrect plowing, mismanagement, overgrazing, neglect by farmers, traditional methods of fishing and hunting, increased spread of plant diseases and pests, and excessive use of fertilizers and pesticides, all of which have led to a decline in these natural resources. The decline in living natural resources (plants and animals) is expected to worsen to -16% during 2026-2031 due to population growth, increased pressure on resources, and pollution resulting from scientific and technological advancements, which intensifies the demand for these resources and subjects them to continuous strain. The degradation rate is projected to increase to -20% during 2031-2036 due to expanding human activities, rising pollution levels, deforestation for unregulated housing, and unregulated hunting. It's plausible

Table 8-3: Pessimistic Scenario for Investing in Natural (Living) Resources Over the Next 30 Years

Year	Degradation Rate (%)	Causes of Degradation
2021-2026	-12%	Misuse, overuse, and neglect.
2026-2031	-16%	Pests and diseases affecting plants, overhunting of animals, and pressure on these resources.
2031-2036	-20%	Population growth, pressure on resources, and pollution from development.
2036-2041	-23%	Climate change is expected to gradually threaten and destroy living natural resources in the coming years, in addition to the extinction of many plants and animals resulting from these changes.
2041-2046	-25%	
2046-2051	-30%	

Sources: Researcher.

Figure 8-5: Projected Degradation Rates of Natural (Living) Resources (Plants and Animals) Over the Next 30 Years



Source: Data from Table 8-3.

that the degradation rate could reach -23% during 2036-2041, which will negatively impact the quantity of natural vegetation and animals. This could lead to their degradation and a decline in both quantity and quality due to increased demand.

The degradation rate might increase to -25% during 2041-2046, resulting from improper exploitation and the persistence of ineffective methods for managing these resources, leading to the destruction of many living natural habitats. It is probable that an unsatisfactory outcome will be reached in the coming years. Thus, we can anticipate that for the period from 2046-2051 onwards, the decline rate could reach -30%. This is attributed to the gradual impact of climate change, which threatens and destroys living natural resources in the coming years, in addition to the extinction of many plants and animals. All these potential changes and the pessimistic outlook for these resources could indeed materialize if natural resources are not properly managed and exploited using ill-conceived methods. Therefore, a re-evaluation of how to manage and preserve these resources as much as possible is essential.

Table 8-4 and Figure 8-6 indicate a decline in the productive capacity of non-living natural resources (soil) by -7% during 2021-2026. This is due to a reduction in the quantity and quality of plant and animal cover, along with incorrect agricultural and plowing methods. Soil degradation is expected to increase by -14% during 2026-2031. This is attributed to environmental degradation, including the decline of plant and animal cover, soil erosion, and landslides. The land's productive capacity will decrease by 25% due to increased soil erosion and denudation, resulting from population growth and intensified pressure on the soil.

It is likely that soil productivity will significantly deteriorate during 2031-2036, by an estimated -18%. This is due to increased soil salinity and erosion, leading to a substantial drop in production or even a complete loss of productive capacity, with plants beginning to go extinct. At this stage, it may be too late to address the issues, and the cost of reclamation would be prohibitively high and challenging. During 2036-2041, the degradation rate is expected to increase, potentially reaching -20%. Furthermore, a projected increase in degradation to -24% is anticipated during 2041-2046.

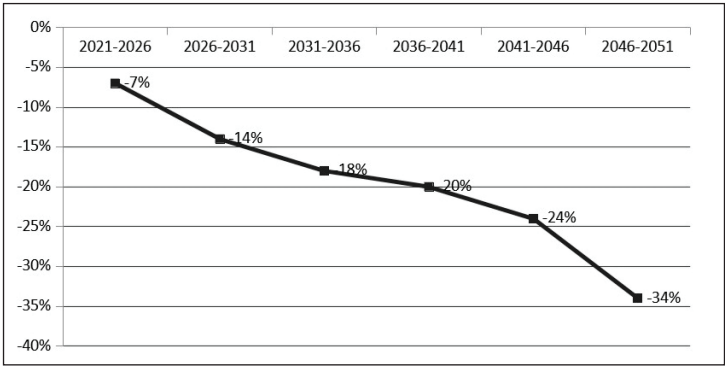
From this, we observe that al-Najaf al-Ashraf Governorate faces the risk of soil degradation and desertification, leading to the destruction of its ecosystem and biodiversity, especially in arid and semi-arid areas. This leaves negative impacts on economic, social, and political aspects. Consequently, Iraq, including al-Najaf al-Ashraf Governorate, suffers from desertification due to its natural characteristics, primarily the physical and chemical properties of its soil, its dry climatic conditions, and poor exploitation and neglect. Soil degradation contributes to food insecurity, famine, and poverty, and can cause social, economic, and political problems, potentially leading to conflicts, increased poverty, and land degradation.

Table 8-4: Pessimistic Future Outlook for Non-Living Natural Resources Over the Next 30 Years

Year	Degradation Rate (%)	Causes of Degradation
Soil		
2021-2026	7%	Decrease in quantity and quality of plant and animal cover, incorrect agricultural and plowing methods, and an estimated 50% reduction in land productive capacity.
2026-2031	14%	Environmental degradation, including deterioration of plant and animal cover, soil denudation and erosion, reducing land productive capacity by 25% due to increased soil erosion from population growth and pressure on soil.
2031-2036	18%	Increased soil salinity and erosion, significantly reducing or eliminating production capacity, leading to plant extinction. At this stage, it may be too late to rectify the situation, and reclamation costs will be extremely high and difficult.
2036-2041 2041-2046 2046-2051	20% 24% 34%	Soil is expected to degrade significantly if population growth and pressure continue, reaching peak desertification and losing productive capacity.
Water Resources		
2021-2026	8%	Poor water resource management in terms of investment size, usage efficiency, and pollution.
2026-2031	12%	Increased pollution rates, policies of neighboring countries, and political, economic, and environmental repercussions leading to water scarcity.
2031-2036	17%	Natural and human factors contributing to the future decline of water resources, including climate change with rising temperatures and decreasing rainfall. High irrigation water wastage, exceeding 50%, and lack of modern, efficient water supply systems in the region.
2036-2041 2041-2046 2046-2051	20% 27% 35%	If neighboring countries complete or construct additional water projects, it is expected to significantly impact Iraq's water resources, reducing water supplies from 43 billion cubic meters in 2020 to approximately 28 billion cubic meters in 2051.
Mineral Wealth		
2021-2026	6%	Traditional mineral extraction methods lead to significant waste, lack of technical and administrative expertise, and an absence of clear government oversight on extraction sites.
2026-2031	12%	Lack of importance given to economic activity in mining due to poor services, low investment, and continuous unplanned waste.
2031-2036	19%	Significant neglect of natural resources and continuous extraction due to ongoing population growth will lead to the depletion of some minerals over time.
2036-2041 2041-2046 2046-2051	25% 28% 33%	Some minerals are expected to be depleted in the future, especially those used in smart device manufacturing, due to increasing demand driven by technological advancements.

Sources: Researcher.

Figure 8-6: Projected Degradation Rates of Non-Living Natural Resources (Soil) Over the Next 30 Years

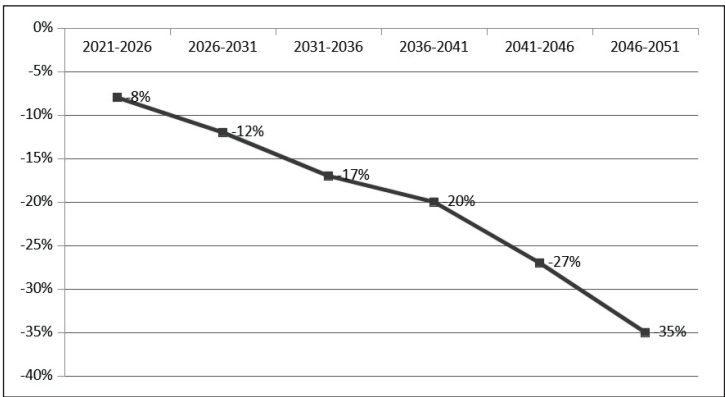


Source: Data from Table 8-4.

The estimates presented in the table above indicate that continued exploitation of natural resources in this manner will lead to increased soil salinity and degradation of plant cover. We know that natural pastures (fodder) are the primary source for livestock, and their deterioration will lead to a decline in livestock and a shortage of food for the population, thus negatively impacting human health. We also observe that as a result of soil salinization, degradation, and destruction of plant cover, another problem emerges: sand dunes and dust storms, especially in central and southern regions, as is the case in Najaf. If this degradation continues in the coming years, the soil will become barren and desolate, and by 2051, the degradation rate could reach 34% according to projections, and it may even increase beyond that.

The table above and Figure 8-7 illustrate that water resources are experiencing degradation and a decline in their availability, reaching -8% in 2021-2026. This is attributed to poor management of water resources in terms of investment size, usage efficiency, pollution, and the construction of dams and reservoirs by neigh-

Figure 8-7: Projected Degradation Rates of Non-Living Natural Resources (Water Resources) Over the Next 30 Years



Source: Data from Table 8-4.

boring countries. Often, problems are deferred to the future instead of being addressed, leading to their accumulation and compounding. Among the most prominent of these issues is the reduction in water resources, which will negatively impact many aspects of life in the future. An increase in the degradation rate is also expected during 2026-2031, reaching -12%. It is anticipated that water resources will continue to decline, with their quantity decreasing by an estimated -17% during 2031-2036. This is due to rising pollution levels and the policies of neighboring countries, along with economic and environmental repercussions that lead to water scarcity. Meanwhile, a reduction in water productivity and quantity, with a decline to -20%, is expected during 2036-2041.

Precisely diagnosing the extent of water imbalance is challenging due to insufficient data, particularly regarding demand, as no official data exists. Projections indicate that Iraq, in general, will face a severe water shortage during 2041-2046, estimated to be over 10 billion cubic meters, with a potential degradation rate reaching -27%.

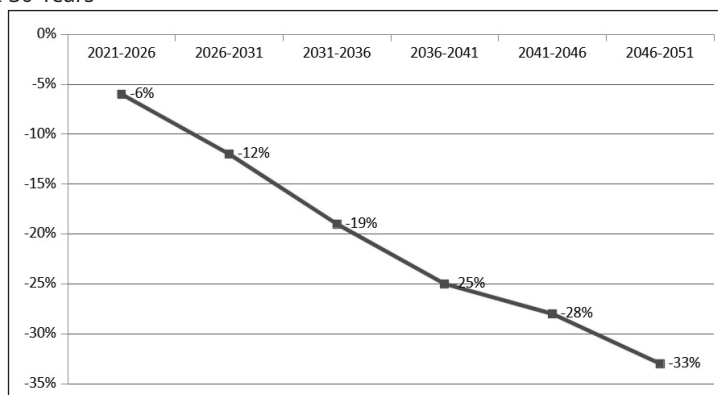
The problem is exacerbated by the continuous decline in water supplies versus the ongoing demand. Estimates suggest that the discharges of the Tigris and Euphrates rivers will continue to decrease over time and may dry up completely by 2050 or later, meaning Iraq's water problem is growing with time. According to the projections in the table, the degradation rate could reach -35%. If this water resource imbalance persists without correction, it will lead to further negative consequences across various sectors in the near, medium, and long terms.

In summary, based on the foregoing and the estimates and projections in Table 8-4, four main factors influence water scarcity in the current and distant future. First, neighboring countries, Turkey and Iran, are cutting off water to Kurdistan and Iraq, contributing to the water shortage problem. Second, reduced rainfall due to climate change, rising temperatures, and evaporation from stored water bodies. Third, wars and violence have caused the bombing and destruction of water storage facilities, leaving negative impacts. Fourth, the Iraqi government is also a contributing factor, lacking a modern policy for water security. Simultaneously, Iraqis are using water extravagantly, far from rational use, and if this situation persists, the two rivers will eventually dry up.

Regarding the other natural resource, minerals, predictions from Table 8-4 and Figure 8-8 show a noticeable change in the quantity and quality of minerals over the years indicated.

The decline in mineral quantity during 2021-2026 is estimated at -6%. This is attributed to traditional extraction methods that lead to significant waste, a lack of technical and administrative expertise, and an absence of clear government oversight on extraction sites. By 2026-2031, the decline is estimated at -12% due to a lack of emphasis on economic activity in mining, poor services, low investment, and continuous unplanned waste, contributing to the initial depletion of several vital minerals.

Figure 8-8: Projected Degradation Rates of Non-Living Natural Resources (Minerals) Over the Next 30 Years



Source: Data from Table 8-4.

It is likely that the quantity and production of minerals will decline by -19% during 2031-2036. This is due to the significant neglect and continuous extraction of natural resources, driven by ongoing population growth, which will lead to the depletion of some minerals over time. Furthermore, this percentage is expected to deteriorate and reach its lowest point during 2036-2041, reaching -25%. If this neglect of minerals persists for an extended period, degradation is projected to increase during 2041-2046, reaching -28%. This will negatively impact the overall mineral wealth in Iraq. Moreover, some minerals are expected to be depleted in the future, particularly those used in various industries, due to increasing demand driven by technological advancements. The degradation rate during 2046-2051 is estimated at -33% or more.

In conclusion, combating corruption, improving administrative aspects, and developing planning are imperative for building the national economy and creating an attractive environment for investing Iraq's natural resources, free from all forms of corruption.

V. Responding to Challenges for Natural Resource Preservation

The modern concept of nature conservation emphasizes the maintenance and wise, optimal exploitation of natural resources. This concept is founded on two core elements: protection and planning. These elements are simultaneously modern and ancient global cornerstones for nature conservation, aimed at preserving it for the distant future. The global natural strategy affirms that the protection of nature and its resources is essential for sustainable development.

This protection can be achieved through the following:

1. Conducting more specialized studies and research to analyze the region and provide insights to stakeholders for investment.

2. Focusing attention on endangered plant and animal species after surveys are conducted by relevant authorities, including departments of life sciences, geography, and faculties of agriculture, among others.
3. Collecting genetic resources of wild species and economic strains, with an emphasis on wild relatives of crop plants, fodder, farm animals, and poultry through scientific departments in the faculties of agriculture, sciences, and geography.
4. Implementing projects that address relevant traditional knowledge, such as medicinal plant projects and genetic resource initiatives, where knowledge and practices from local communities are documented, with encouragement from research centers and the faculties of life sciences, agriculture, and pharmacy.
5. Protecting natural vegetation from degradation through various methods and means, including regulating grazing, establishing enclosures, reducing animal pressure on natural plants, providing fuel sources for desert inhabitants to limit the uprooting of fodder plants used for fuel, and expanding the establishment of reserve fodder stores due to their importance for the governorate's livestock.
6. Establishing infrastructure and a desalination plant for surface and groundwater to make it suitable for human consumption, alongside building an integrated network of drainage systems and connecting them to main drainage canals. This will attract investors and promote residential, economic, and agricultural development in the region.
7. Preventing the dumping of waste, garbage, and debris into water bodies and soils near agricultural areas, which are transported from the city of al-Najaf al-Ashraf and surrounding areas. This harms the region's environment and causes diseases for residents.
8. Moving away from surface irrigation methods and adopting modern irrigation techniques that provide water quantities suitable for plant needs, such as drip irrigation and sprinkler irrigation, to conserve water resources.
9. Mixing the surface layer of soil with soil conditioners to enhance its quality and productivity.
10. Regulating the operations of quarries and brick factories scattered throughout the governorate and establishing controls for them.
11. Reclaiming land and making it suitable for agriculture, and establishing natural reserves and fish farms, given the vast land area and water availability in large parts of the governorate.
12. Developing pond, earthen, and floating fish farms and analyzing the water used in fish farming.
13. Developing and preserving palm groves from uprooting and burning, and increasing the number of citrus saplings and other fruit trees in different parts of the governorate.

14. Cultivating new crops that are compatible with the local environment and conditions and align with local demand, utilizing advanced genetics.
15. Activating product protection laws and preserving and marketing local products.
16. Establishing new mechanisms to facilitate the establishment of companies and mergers between local factories, companies, and manufacturers, even outside the governorate.
17. Constructing electricity generation stations, especially for industrial and artisanal areas, separate from urban and rural distribution. A generation unit based on solar or wind energy can also be established.
18. Preserving and sustaining the natural environment by protecting crops from wild animals.
19. Given the presence of vast salt-rich lands, it is important to establish a specialized salt production plant instead of relying on traditional extraction methods.

VI. Results

1. The study revealed that the soils in the governorate vary in type and characteristics and are one of the region's important natural resources. Transported soils, for example, are found in the eastern part of the governorate, in the al-Najaf plateau, and in low-lying areas. The prevailing natural characteristics have significantly influenced this, as the clear aridity has affected the soil's cohesion and structure, making it susceptible to wind and water erosion, aided by surface factors and sparse vegetation cover. The study also showed that the organic matter content of the soils increases from west to east, resulting from agricultural activities in the eastern regions.
2. The study of water resources in the governorate indicated a water deficit, especially during summer months, which has prevented the development of permanent water channels or streams. Under these circumstances, the significant role of groundwater as the primary source in some areas has become clear, with wells widely distributed throughout the region, which can be relied upon for various activities.
3. Based on the characteristics of the climate, soil, and available water resources, desert plants are prevalent in the governorate, with other types of natural vegetation present, such as riparian, aquatic, and semi-aquatic plants.
4. The study indicated the presence of numerous species of wild animals, fish, and birds in the governorate. These animals could be gathered into natural protected areas within the governorate if properly managed.
5. The study highlighted that the mineral resources in the governorate depend on the nature of the rock components of geological formations and influencing natural factors. The formation of minerals was indirectly

linked to regional structural movements, and the geographical characteristics prevalent in ancient times played a significant role in creating suitable conditions for these deposits. The study showed that the region contains many minerals that have played a crucial role in various activities.

6. The natural components—site, climate, surface features, soil, water resources, vegetation, wild animals, and minerals—have a fundamental impact on development if exploited optimally.
7. Natural resources in the governorate face several challenges, including many abandoned agricultural lands, weak private and government investment, and a shortage of technical and administrative expertise in many sectors.

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9.

Electrical Energy

Prof. Dr. Aḥmad Jāsīm al-Yāsiri
Faculty of Administration and Economics, University of al-Kūfah.

I. Reality of Electrical Energy in al-Najaf al-Ashraf

al-Najaf al-Ashraf Governorate is part of the alluvial plain and the Western Plateau, situated at a graduated elevation above sea level that ranges from 20-55 meters (al-Jaṣṣānī et al., 2019, p. 931). The power stations constructed within it are limited to just five. Four of these are gas-fired, comprising eleven operational units, and there is one hydroelectric station with two units. The total design capacity for the operational units is 1,152.5 megawatts (MW), while their actual productive capacity is approximately 595 MW, due to numerous challenges that will be addressed (Ministry of Electricity, 2018, pp. 5, 7).

Table 9-1: Types of Stations, Number of Operational Units, and Design Capacity in al-Najaf al-Ashraf Governorate

Station Type	Station Name	Number of Operational Units	Design Capacity of Operational Units (MW)	Produced Energy (MW)
Gas-Fired Stations	al-Najaf	4	244	113
	New al-Najaf	2	246	122
	al-Ḥaydariyah	1	160	356
	al-Ḥaydariyah	4	500	
Hydroelectric Station	al-Kūfah	2	2.5	4
Total	5	13	1152.5	595

Sources: Table compiled by the researcher based on data from (Ministry of Electricity, 2018, pp. 5, 7).

The table above shows that these stations vary in their number of units and design capacity. They rely heavily on fossil fuels (gas) for the generation of electricity produced within the governorate, with approximately 98% of station operations dependent on gas. This significant reliance on fossil-fuel power stations, particularly those using natural gas, has led to numerous economic and environmental challenges. These are manifested in the failure to meet the growing demand for electricity, due to the central government’s inability to secure natural gas supplies for the governorate to maintain current production levels or to develop them in the future. This is a result of the absence of direct foreign invest-

Table 9-2: Actual Need and Received Energy in al-Najaf al-Ashraf Governorate

Year	Actual Energy Need	Total Annual Energy Received	Energy Received	Deficit	Percentage
2015	625,000,000	3,616,639,410	301,386,617	323,613,383	48%
2016	690,000,000	4,203,983,674	350,331,972	339,668,028	50%
2017	725,000,000	4,659,445,648	388,287,137	336,712,863	53%
2018	750,000,000	4,766,823,607	397,235,300	352,764,700	52%
2019	780,000,000	5,549,478,448	462,456,537	317,543,463	59%
2020	800,000,000	5,548,888,427	462,407,368	337,592,632	57%
2021	900,000,000	2,856,774,918*	476,129,153	490,537,514	45%

*Average for six months only.

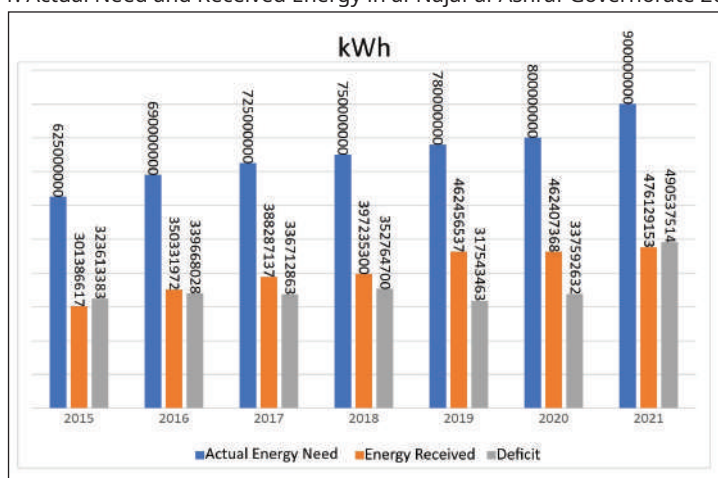
Source: (General Directorate for Middle Euphrates Electricity Distribution, 2015-2021).

ment in Iraq's gas reserves, which has pushed the central government to import natural gas from neighboring countries to cover part of this deficit. On the other hand, the governorate has suffered environmental degradation resulting from the reliance on fossil fuels for electricity generation. Regarding the actual need for electrical energy versus the energy received in al-Najaf al-Ashraf Governorate, the situation can be clarified Table 9-2.

We note from the data in Table 9-2 that the governorate's actual need for electrical energy was 625,000,000 kWh in 2015. In contrast, the received electrical energy for the same year was 301,386,617 kWh, a deficit of 323,613,383 kWh, representing about 48% of the governorate's actual need. Despite the continued rise in actual need, which reached 900,000,000 kWh in 2021, the amount of energy received for that year was below the required level, at 476,129,153 kWh, representing about 45% of the actual need. This indicates a clear deficit in meeting the continuous demand for energy. This is because most power stations in Iraq do not operate at their full design production capacity due to the obsolescence of most of these stations, as well as a lack of spare parts and maintenance, in addition to the acts of sabotage that the stations were subjected to during the period 2015-2021. This means the deficit in electricity production persists in the face of increasing demand.

This gap between received energy (supply) and actual need (demand), manifested in power outages, imposes significant costs on the Iraqi economy in general and the governorate's economy in particular. This is due to lost production time, damage to capital assets, and the inability to continue normal business operations on a reliable schedule. This shortage also imposes great hardship on citizens benefiting from the grid (household consumption). This has led to the proliferation of alternative sources and the widespread use of private diesel generators; 90% of households in the governorate rely on some form of private sector-run diesel power generation. Their continuous operation imposes high generation costs that burden the citizen, in addition to the noise they produce and the air pollution resulting from the emission of large quantities of carbon dioxide into the atmosphere. This can be illustrated by the following figure:

Figure 9-1: Actual Need and Received Energy in al-Najaf al-Ashraf Governorate 2015-2021



Source: Prepared by the researcher based on Table 9-2.

II. Expected Demand for Electrical Energy

To understand the extent of the potential increase in demand for electrical energy and the effective measures to address this increase in al-Najaf al-Ashraf Governorate, we must know the long-term forecasts for electricity demand. When calculating these forecasts, we take into account a set of factors, including economic growth, changes in population at an annual growth rate of 2.8% in the governorate, and technological development.

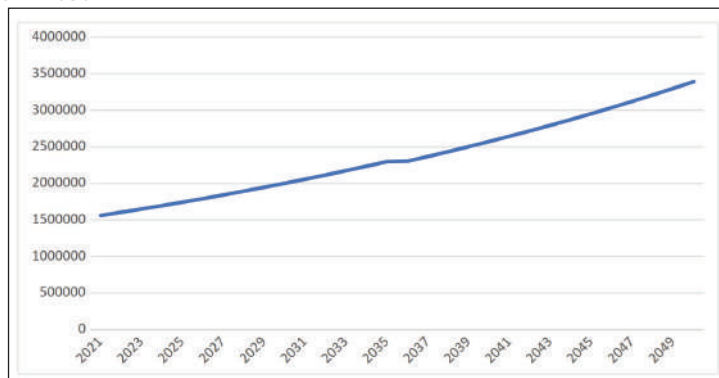
The forecasts are based on the assumption that the governorate's population will increase from approximately 1,561,213 people in 2021 to about 2,001,701 and 2,573,656 people in 2030 and 2040, respectively, eventually reaching about 3,392,196 people in 2050. Most of this population increase will be concentrated in the city center. This can be clarified by Table 9-3.

Table 9-3: Estimated Annual Population Increase in al-Najaf al-Ashraf Governorate for the Period 2021-2050

Year	Population	Year	Population	Year	Population
2021	1,561,213	2031	2,057,748	2041	2,645,718
2022	1,604,926	2032	2,115,364	2042	2,719,798
2023	1,649,863	2033	2,174,594	2043	2,795,952
2024	1,696,059	2034	2,235,482	2044	2,874,238
2025	1,743,548	2035	2,298,075	2045	2,954,716
2026	1,792,367	2036	2,304,509	2046	3,037,448
2027	1,842,553	2037	2,369,035	2047	3,122,496
2028	1,894,144	2038	2,435,367	2048	3,209,925
2029	1,947,180	2039	2,503,557	2049	3,299,802
2030	2,001,701	2040	2,573,656	2050	3,392,196

Source: Data calculated by the researcher based on 2021 data from the Annual Statistical Report, Iraqi Ministry of Electricity, Statistics Department, and based on a growth rate of 2.8%.

Figure 9-1: Estimated Annual Population Increase in al-Najaf al-Ashraf Governorate for the Period 2021-2050



Source: Prepared by the researcher based on Table 9-3.

The importance of population growth as a factor affecting the demand for electrical energy comes from the nature of the demand this growth will create, especially since most of the increase in demand for this energy will be for household consumption. Since the population increase will be greater in the urban center than in villages and rural areas, it is not expected that the governorate will be able to reduce energy demand by providing alternatives or adopting policies capable of reducing or controlling demand. This can be illustrated by the Figure 9-2.

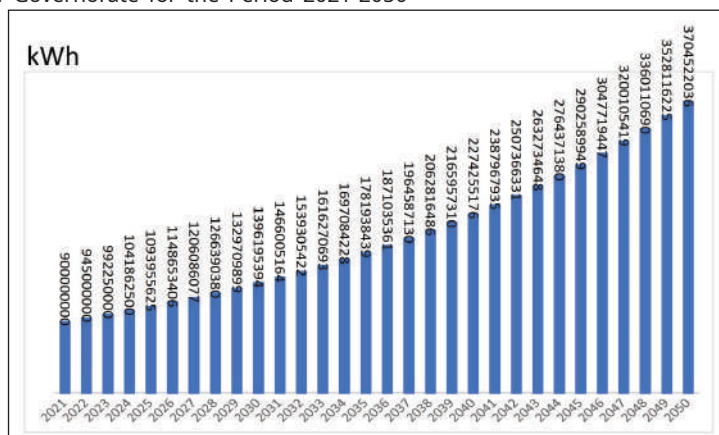
Regarding the estimated increase in the quantity of energy demanded annually in the governorate, this increase has become one of the main problems added to the production problem, which has remained unsolved to this day (2021). The rate of electricity consumption has increased significantly in recent years due to economic liberalization and the import of electrical appliances, especially cooling and heating devices. This has led to an increase in demand for electrical energy,

Table 9-4: Estimated Increase in the Quantity of Energy Demanded Annually in al-Najaf al-Ashraf Governorate for the Period 2021-2050

Year	Energy Demand (kWh)	Year	Energy Demand (kWh)	Year	Energy Demand (kWh)
2021	900,000,000	2031	1,466,005,164	2041	2,387,967,935
2022	945,000,000	2032	1,539,305,422	2042	2,507,366,331
2023	992,250,000	2033	1,616,270,693	2043	2,632,734,648
2024	1,041,862,500	2034	1,697,084,228	2044	2,764,371,380
2025	1,093,955,625	2035	1,781,938,439	2045	2,902,589,949
2026	1,148,653,406	2036	1,871,035,361	2046	3,047,719,447
2027	1,206,086,077	2037	1,964,587,130	2047	3,200,105,419
2028	1,266,390,380	2038	2,062,816,486	2048	3,360,110,690
2029	1,329,709,899	2039	2,165,957,310	2049	3,528,116,225
2030	1,396,195,394	2040	2,274,255,176	2050	3,704,522,036

Source: Data calculated by the researcher based on 2021 data from Table 9-2, and based on a growth rate of 5%.

Figure 9-3: Estimated Increase in the Quantity of Energy Demanded Annually in al-Najaf al-Ashraf Governorate for the Period 2021-2050



Source: Prepared by the researcher based on Table 9-4.

which in turn has led to a deficit in electricity production, as shown in Table 9-2. This prompted the Ministry of Electricity to resort to programmed power cuts. In light of this increase in demand for electrical energy, the increase in demand was estimated at a rate of 5%. It is expected that demand for consumption purposes will increase from 900,000,000 kWh in 2021 to about 1,396,195,394 and 2,274,255,176 kWh in 2030 and 2040, respectively, eventually reaching about 3,704,522,036 kWh in 2050.

III. Expected Supply of Electrical Energy

The electrical energy sector in Iraq in general, and in al-Najaf al-Ashraf Governorate in particular, suffers from numerous problems, chief among them being the persistent inability to meet the growing demand for electrical energy due to low production. To develop and advance this sector, it requires large amounts of capital to establish numerous projects at various stages (production, transmission, distribution). Therefore, we note that the central government has allocated investment and operational funds to the Ministry of Electricity to advance this sector. If invested correctly, these funds will lead to an increase in the supply of produced energy. Accordingly, it is expected that the electricity supply in the governorate will increase from 476,129,153 kWh in 2021 to approximately 1,122,687,637 and 2,911,962,593 kWh in 2030 and 2040, respectively, eventually reaching about 7,552,881,021 kWh in 2050.

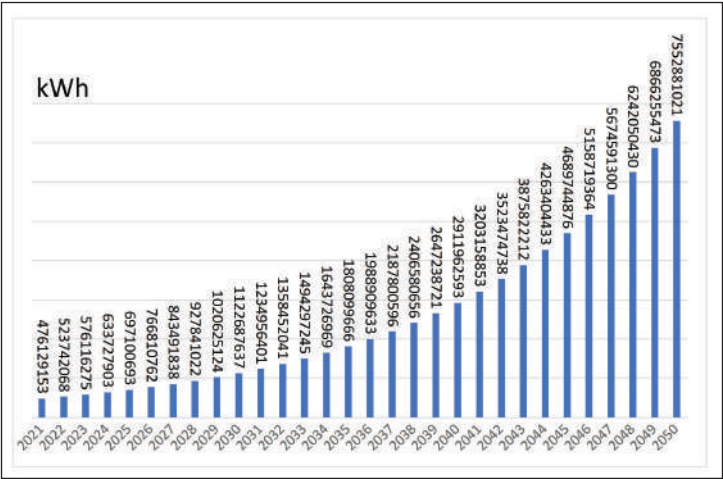
In light of this, we observe from Tables (9-4) and (9-5) that the governorate will achieve a balance between supply and demand by the end of 2035, with an electricity production of 1,808,099,666 kWh, providing 24-hour supply per day. It will also achieve a reserve margin of electrical energy in 2040, which will enable it to support the grid during peak times.

Table 9-5: Estimated Increase in the Quantity of Energy Supplied Annually in al-Najaf al-Ashraf Governorate for the Period 2021-2050

Year	Supplied Energy (kWh)	Year	Supplied Energy (kWh)	Year	Supplied Energy (kWh)
2021	476,129,153	2031	1,234,956,401	2041	3,203,158,853
2022	523,742,068	2032	1,358,452,041	2042	3,523,474,738
2023	576,116,275	2033	1,494,297,245	2043	3,875,822,212
2024	633,727,903	2034	1,643,726,969	2044	4,263,404,433
2025	697,100,693	2035	1,808,099,666	2045	4,689,744,876
2026	766,810,762	2036	1,988,909,633	2046	5,158,719,364
2027	843,491,838	2037	2,187,800,596	2047	5,674,591,300
2028	927,841,022	2038	2,406,580,656	2048	6,242,050,430
2029	1,020,625,124	2039	2,647,238,721	2049	6,866,255,473
2030	1,122,687,637	2040	2,911,962,593	2050	7,552,881,021

Source: Data calculated by the researcher based on 2021 data from Table 9-2, and based on a growth rate of 10%.

Figure 9-4: Estimated Increase in the Quantity of Energy Supplied Annually in al-Najaf al-Ashraf Governorate for the Period 2021-2050



Source: Prepared by the researcher based on Table 9-5.

IV. Challenges Facing the Electricity Sector

The electricity sector in Iraq in general, and in al-Najaf al-Ashraf Governorate in particular, suffers from imbalances in its production capacity and the volume of demand, rendering it unable to fulfill its role in meeting the growing demand. This is due to several challenges, as follows:

1. Financial and Administrative Corruption

This phenomenon emerged prominently after 2003 due to the weak rule of law, the weakness and lack of independence of oversight bodies, and the weakness of the judiciary and its inability to enforce rulings. Financial and administra-

tive corruption has become a phenomenon affecting all ministries, including the Ministry of Electricity and its various departments, where corruption has taken multiple forms, including embezzlement, bribery, and others. This has resulted in the failure of the ministry and its departments to provide continuous or regular electrical power, despite the ministry spending approximately \$64.9 billion on electrical energy by the end of 2019 (Şabāh & Jukhaywir, 2018, pp. 93-94).

2. Aging Power Generation Stations

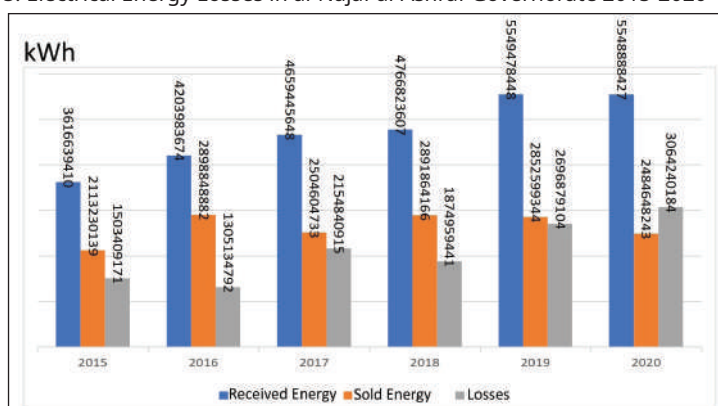
The electrical system or power stations are described as old, using outdated technology, lacking stability, and having lost reliability in all their parts. The governorate's electricity department has been unable to find the necessary solutions to achieve stability in the system's various sections, especially in increasing production to address rising consumption. Table 9-6 shows the high percentage of losses in the governorate between received and sold energy, which reached 55% in 2020. This is a high rate compared to the technically permissible level, which does not exceed 8% in developed countries.

Table 9-6: Electrical Energy Losses in al-Najaf al-Ashraf Governorate 2015-2020

Year	Received Energy (kWh)	Sold Energy (kWh)	Losses (kWh)	Percentage
2015	3,616,639,410	2,113,230,139	1,503,409,171	42%
2016	4,203,983,674	2,898,848,882	1,305,134,792	31%
2017	4,659,445,648	2,504,604,733	2,154,840,915	46%
2018	4,766,823,607	2,891,864,166	1,874,959,441	39%
2019	5,549,478,448	2,852,599,344	2,696,879,104	49%
2020	5,548,888,427	2,484,648,243	3,064,240,184	55%

Source: Data from the General Directorate for Middle Euphrates Electricity Distribution, Directorate of al-Najaf al-Ashraf Electricity Distribution, 2015-2020.

Figure 9-5: Electrical Energy Losses in al-Najaf al-Ashraf Governorate 2015-2020



Source: Prepared by the researcher based on Table 9-6.

3. Fuel Supply Shortages

Power stations suffer from fuel scarcity, both in quantity and quality, which is the main affliction of gas-fired generation plants and the most prominent factor in reducing their productivity; and this matter has a special importance because most stations in the governorate run on natural gas. Additionally, the poor quality of fuel used in power stations, especially gas-fired plants that have been operated with alternative fuels like diesel or heavy oil, has led to a decrease in their output. As a result, losses in the governorate reached approximately 1,054,552,647 kWh in 2021, representing about 43% of the received energy production in the governorate (General Directorate for Middle Euphrates Electricity Distribution, 2021).

4. Population Growth

Population is one of the challenging factors affecting energy production and consumption in the governorate. An increase in population leads to an increase in energy demand, and vice versa. The population of the governorate is expected to increase from about 1,561,213 people in 2021 to about 2,001,701 and 2,573,656 people in 2030 and 2040, respectively, reaching about 3,392,196 people in 2050. This population increase will be accompanied by an increase in demand for electrical energy. Demand for consumption is expected to increase from 900,000,000 kWh in 2021 to about 1,396,195,394 and 2,274,255,176 kWh in 2030 and 2040, respectively, reaching about 3,704,522,036 kWh in 2050. This increase necessitates a rise in investment, commercial, and service projects, thus increasing the demand for energy and requiring the construction of numerous diverse power stations, especially since the production capacity of the gas-fired plants in the governorate does not exceed 500 MW, which is insufficient to meet the governorate's need of 900 MW.

5. Weak and Undiversified Investment in Electricity Production

This is because the electricity sector suffers from weak investment legislation, as well as political instability and a deteriorating security situation, which leads to the flight of local capital abroad (Ministry of Planning, 2017, pp. 153-154). On the other hand, although al-Najaf al-Ashraf Governorate possesses significant potential from various renewable energy sources provided by nature, only a small fraction of it has been exploited. It has not received significant contributions in investment for renewable energy production to meet its essential needs in an era where energy consumption has become much easier than its production, especially through the use of fossil fuels.

6. Significant Delays in Electricity Fee Collection

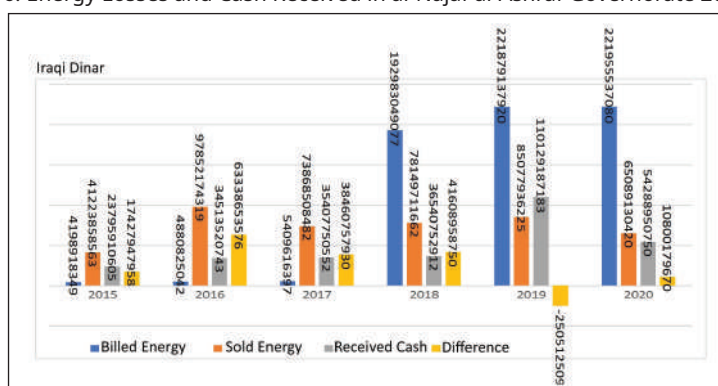
Most general directorates for electricity distribution in Iraq, including al-Najaf department, suffer from poor collection of electricity fees, both from private sector beneficiaries and from government entities that have remained indebted to the Ministry of Electricity for electricity fees. This is due to the weak application of legal procedures to compel consumers to pay their dues, as well as weak accountability for those illegally tapping into the electricity grid. Poor collection

Table 9-7: Energy Losses and Cash Received in al-Najaf al-Ashraf Governorate 2015-2020

Year	Billed Energy (Dinar)	Sold Energy (Dinar)	Received Cash (Dinar)	Difference (Dinar)	Percentage
2015	4,198,918,349	41,223,858,563	23,795,910,605	17,427,947,958	58%
2016	4,880,825,042	97,852,174,319	34,513,520,743	63,338,653,576	35%
2017	5,409,616,397	73,868,508,482	35,407,750,552	38,460,757,930	48%
2018	192,983,049,077	78,149,711,662	36,540,752,912	41,608,958,750	47%
2019	221,879,137,920	85,077,936,225	110,129,187,183	-25,051,250,958	129%
2020	221,955,537,080	65,089,130,420	54,288,950,750	10,800,179,670	83%

Source: Data from the General Directorate for Middle Euphrates Electricity Distribution, Directorate of al-Najaf al-Ashraf Electricity Distribution, 2015-2020.

Figure 9-6: Energy Losses and Cash Received in al-Najaf al-Ashraf Governorate 2015-2020



Source: Prepared by the researcher based on Table 9-7.

and delays lead to a revenue shortfall, and consequently, the inability of the ministry and its departments to maintain and rehabilitate the electrical system. This can be illustrated by Table 9-7.

7. Impact of Environmental Changes

Climate changes, represented by the significant rise in temperatures in summer to over 50°C and the continuous dust storms, have contributed to damaging many parts of these stations, which in turn leads to a decrease in the productivity of the stations in generating electrical energy.

8. Capital

The industry of producing electrical energy is capital-intensive, as it requires the construction of power stations as well as the organization of transmission and distribution networks, among other things. Therefore, providing financial allocations is one of the influential factors in raising the growth rates of electricity production capacity. The production costs of stations vary according to their type. Gas-fired stations are considered low-cost per kilowatt compared to other stations, ranging from \$300-350 in conventional gas-fired stations, rising to \$375 in combined-cycle gas stations, and reaching \$531 per kilowatt in steam stations (al-Jaššānī et al., 2019, p. 949).

V. Expected Scenarios for the Electricity Sector

Conceptualizing future situations helps in identifying the needs for estimating resources, funds, and the necessary requirements for electrical energy to achieve objectives. This is done by following a set of policies and plans. Through this foresight, which we formulate according to three scenarios, we seek to explore these possibilities.

The first scenario assumes the continuation of the same previous management mechanisms for the electricity sector into the future, meaning the current situation with its problems and manifestations will continue until 2050. The second scenario assumes an improvement in the management mechanisms of the electricity sector and the ability to meet the population's energy needs, both now and in the future. It is an optimistic scenario based mainly on the premise of a decline in the financing problem and a steady increase in the ability of the government and the private sector to finance electrical energy projects, especially renewable energy generation stations. The third scenario assumes a deterioration of the electricity sector and an inability to meet the population's needs in the future, i.e., further decline in the deployment and use of electrical energy sources and a lack of diversification (renewable energy), meaning a retreat in the ability of the government and the private sector to provide the required financing for electrical energy.

1. The Reference Scenario: Continuation of Previous Sector Management Mechanisms into the Future.

A number of assumptions have been made to analyze this scenario, as follows:

- Continued connection the governorate's power stations to the national grid, i.e., not being disconnected from the central electrical energy feed.
- Continued reliance on current central financial allocations for financing expenditure on electrical energy projects, with no new funding sources being created.
- Continuation of austerity in allocating investment spending and failure to attract foreign investment or activate the role of the private sector in investing in the electricity sector.
- No change in the community's lifestyle patterns in the governorate and a steady rise in the level of electricity demand without finding alternative and highly efficient sources.
- Weak capacity of the central and local governments to adhere to plans for achieving the Sustainable Development Goals 2030.
- As a result of the government's declining capacity, we assume an increase in the supplied energy at a rate of 0.5%.
- Continued legislative delay in passing a special law for renewable energy and developing strategic plans based on feasible technical and economic studies.

- Continued weak performance of the central and local governments in achieving required reforms and combating financial and administrative corruption in the electricity sector.
- Continued reliance on fossil fuels from oil derivatives, especially imported gas, to operate most electricity generation stations in the governorate.
- Continuation of modest investment in financing and constructing solar power stations with limited capacities, without developing the electricity management and distribution system or expanding and upgrading the electrical grid.
- Rapid increase in the local consumption under the pressure of population growth and the expansion of cities and the industrial sector, without an accompanying increase in the number of power stations.
- Continuation of losses in the electricity sector, as well as the absence of an advanced collection system mechanism.

According to the reference scenario, which involves the continuation of previous sector management mechanisms, it is expected that no electricity policies will be developed in the governorate that are adapted to potential changes. The governorate faces several challenges, including its power stations remaining connected to the national grid, a large deficit in the federal budget, and continued reliance on central financial allocations to finance electricity projects, with no new funding sources. This will make it more difficult to address the significant shortfall in the governorate's electricity supply.

Electricity generation in the governorate heavily depends on natural gas, the supply of which is tied to the volume of oil production (associated gas, a by-product of oil production). Any decrease or slowdown in crude oil production, due to weak production capacity or OPEC agreement constraints, is expected to cause a deficit in natural gas production. This will affect the support for the electricity production system, forcing the central government to import gas from other sources. Furthermore, the continued lack of adequate facilities to process extracted gas exacerbates the problem of electricity supply shortages in the governorate.

Meeting peak electricity demand by relying on imported gas to operate power stations increases production costs due to the high price of imported gas. For example, the price of Iranian gas is estimated at about \$5.1 per million British thermal units (BTU), while the contract price for dry gas from the Basra Gas Company is about \$1.7 per BTU at current Brent crude levels, for comparison. Despite this, it is considered cheaper than using a fuel mix of gas oil, crude oil, and heavy fuel oil, which is currently estimated at 200,000 barrels/day to operate generation stations, according to the Iraqi Ministry of Oil.

To achieve self-sufficiency in gas, Iraq needs to invest more than \$44 billion over five years under the gas-to-power plan (Istepanian, 2020, p. 10). Iraq currently produces 16,000 MW of electricity, which is much less than the estimated need of 24,000 MW, reaching 30,000 MW during the summer peak. This means a growing electricity supply shortage in various governorates, including al-Najaf al-Ashraf,

Table 9-8: Estimated Gap Between Demanded and Supplied Energy for the Reference Scenario in al-Najaf al-Ashraf Governorate for the Period 2021-2050

Year	Demanded Energy (kWh)	Supplied Energy (kWh)	Energy Gap (kWh)
2021	900,000,000	238,064	-899,761,936
2025	1,093,955,625	348,550,346	-745,405,279
2030	1,396,195,394	561,343,818	-834,851,576
2035	1,781,938,439	904,049,833	-877,888,606
2040	2,274,255,176	1,455,981,296	-818,273,880
2045	2,902,589,949	2,344,872,438	-557,717,511
2050	3,704,522,036	3,776,440,510	71,918,474

Source: Table prepared by the researcher based on Tables 9-4 and 9-5.

which experiences an increasing number of visitors from other governorates and from abroad during religious occasions.

This projected shortfall in electricity supply during the period 2021-2050 cannot be addressed in the short term and requires significant resources, whether for investment in gas production or alternative energy projects, as well as the required infrastructure for both cases—either for gas production, processing, and transportation facilities or for upgrading the electrical grid to accommodate additional capacities, while the previous sector management mechanisms continue. This can be illustrated by Table 9-8.

Based on the assumptions of the reference scenario, and considering the high population growth rate in the governorate—expected to reach 2,001,701 by 2030, a high rate globally—this will require massive investments in the electricity sector, commensurate with population and economic growth. The governorate's population is expected to reach about 3,392,196 by 2050. This increase will be accompanied by a rise in electricity demand. In 2025, demand is expected to increase to 1,093,955,625 kWh against a supplied capacity of 348,550,346 kWh, resulting in a gap between supply and demand with a deficit of -745,405,279 kWh. This deficit is expected to continue, reaching about -557,717,511 kWh in 2045, against an increasing demand of about 2,902,589,949 kWh for the same year. On the other hand, the deficit is expected to decrease in 2050, when demand reaches 3,704,522,036 kWh and supply reaches 3,776,440,510 kWh, potentially resulting in a surplus of about 71,918,474 kWh due to achieving investment in electricity production.

Iraq has committed to achieving the Sustainable Development Goals 2030 by implementing development plans at the governorate level, especially within the Integrated National Energy Strategy 2013-2030, to add 750 MW during 2020, in line with the ministry's plans to add 500-1000 MW from renewable sources to constitute 20% of the electricity generation mix by 2030. This direction is driven by several reasons, including Iraq's commitment to achieving energy security, diversifying its sources, reducing reliance on fossil fuels and greenhouse gas emissions, and bridging the growing gap in electricity production. However, these timid steps, in the context of mismanagement of financial resources and

the spread of financial and administrative corruption in various electricity departments, do not seem promising for reaching the required levels (20%) of electricity production from renewable sources by 2030, given the population growth and expected high demand.

Implications and Outcomes of the Reference Scenario

This scenario leads to a number of future outcomes for the central government, the local government in al-Najaf al-Ashraf Governorate, and the population as energy consumers. It raises serious questions about the policies that must be adopted in the field of electricity production.

At both the central government and governorate levels, where the electricity sector problem has accumulated, there must be work to diversify electricity sources by establishing power stations that operate on renewable energy, such as solar power, and not relying solely on stations that depend on fossil fuels. This raises a fundamental question as to whether it would be better for al-Najaf al-Ashraf Governorate to disconnect its power stations from the national grid, i.e., separating them from the central electricity supply, and to work on utilizing the financial allocations for this sector to meet the requirements of the massive infrastructure projects expected in the energy sector.

2. The Optimistic Scenario: Improving Sector Management and the Ability to Meet Population Needs in the Future.

A number of assumptions have been made to analyze this scene (scenario), as follows:

- Disconnecting the power stations of al-Najaf al-Ashraf Governorate from the national grid, i.e., separating them from the central electricity feed.
- Increasing the capacity of the central and local governments to finance investment in conventional combined-cycle and renewable energy projects and their manufacturing technology.
- As a result of the government's increased capacity, we assume an increase in the supplied energy at a rate of 0.10%.
- Changing community lifestyle patterns, a steady rise in the level of technology, and finding alternative and highly efficient sources.
- Enacting laws that support renewable energy and amending administrative regulations and systems for the electricity sector in production, transmission, and distribution.
- Investing in infrastructure for transmission and distribution networks and modernizing electricity management systems.
- Establishing an advanced supervisory system that helps in collecting fees for electricity generation from various sectors.
- Benefiting from leading countries in the field of renewable energy through international cooperation with international energy agencies and specialized institutions and organizations.

- Continued commitment of the central and local governments to achieving the Sustainable Development Goals 2030.
- Continued technological development and improvement in the efficiency of renewable energy use, and working to mitigate technical challenges for the use of renewable energy in a manner suitable for the governorate's situation.

The announcement of optimistic and promising policies according to the positive scenario—improving sector management and the ability to meet future population needs—suggests that the local government will likely develop electricity policies for the governorate that align with potential changes. Although the governorate faces many challenges in the electricity sector, this scenario envisions it seeking to disconnect its power stations from the national grid and increase the central and local governments' capacity to finance investments in combined-cycle conventional and renewable energy projects and manufacturing technology. Renewable energy is expected to represent a growing share of the governorate's future energy mix. Its share in consumed energy is expected to grow and its sources to diversify, especially with changes in consumer lifestyles. This can be achieved if the local government adheres to the 2030 Sustainable Development Plan to diversify energy sources and reduce reliance on fossil fuels, transitioning to a clean and sustainable energy mix that contributes to solving the electricity shortage by 20-30% by 2030. This scenario is very optimistic, as it requires numerous elements, huge investments in infrastructure, and overcoming all financial, legislative, and technical challenges.

In light of the assumptions in this scenario, the local government will seek to establish solar power generation stations by taking advantage of the governorate's geographical location. It lies between longitudes 42.50° - 44.44° E and latitudes 29.50° - 32.21° N, placing it within the global sun belt that extends through the southwestern desert of Iraq. This feature gives it the ability to produce energy equivalent to 30 million tons of oil equivalent annually per 100 square kilometers, and produce 3.4 billion kWh per year per 10 square kilometers. It is also characterized by a long duration of solar radiation, ranging from 2,800 to 3,000 hours of radiation per year, which is equivalent to 6.5-7 kWh per square meter per day, making the location of al-Najaf Governorate very suitable for building these stations (Istepanian, 2020, p. 9).

Furthermore, the central government will aim to increase its gas production to achieve self-sufficiency by 2025. With continuous advancements in renewable energy technology and current solar energy costs, a dual approach of using local gas in generation plants and increasing investment in renewable energy projects will be possible. This is supported by contracts signed by the central government in 2021 with Chinese companies to build solar power stations with a capacity of 2,000 MW, with the first phase of 750 MW to be implemented. A strategic agreement was also signed with Abu Dhabi Future Energy Company (Masdar) to develop solar photovoltaic projects with a total production capacity of at least 2,000 MW, among other contracts (www.independentarabia.com). Such

Table 9-9: Estimated Gap Between Demanded and Supplied Energy for the Optimistic Scenario in al-Najaf al-Ashraf Governorate for the Period 2021-2050

Year	Demanded Energy (kWh)	Supplied Energy (kWh)	Energy Gap (kWh)
2021	900,000,000	476,129,153	-423,870,847
2025	1,093,955,625	697,100,693	-396,854,932
2030	1,396,195,394	1,122,687,637	-273,507,757
2035	1,781,938,439	1,808,099,666	26,161,227
2040	2,274,255,176	2,911,962,593	637,707,417
2045	2,902,589,949	4,689,744,876	1,787,154,927
2050	3,704,522,036	7,552,881,021	3,848,358,985

Source: Table prepared by the researcher based on Tables 9-4 and 9-5.

contracts in the renewable energy field at the national level are expected to have a positive impact on improving electricity production in the governorate, given its advantages in renewable energy. Through this integrated combination of electricity production from gas and renewable energy, the governorate can stay on the right track to achieve a secure energy mix in the future. Despite the efforts of the central and local governments under this scenario, the electricity gap can be controlled and reduced, as shown in Table 9-9.

Based on the assumptions of the optimistic scenario, and considering the high population growth rate in the governorate, demand for electricity is expected to increase to 1,093,955,625 kWh in 2025, against a supplied capacity of 697,100,693 kWh, resulting in a gap with a deficit of -396,854,932 kWh. According to this scenario, a surplus in electricity production is expected to be achieved in 2035, reaching about 26,161,227 kWh, if the central and local governments continue to implement investment policies and rely on diversifying electricity production sources, including renewables. In contrast, despite the increasing demand for electricity during the period 2040-2050, a surplus in production is expected, reaching about 3,848,358,985 kWh in 2050. This means the governorate could achieve a surplus despite rising demand, as a result of achieving the required level of investment in electricity production.

Implications and Outcomes of the Optimistic Scenario

This scenario leads to a number of future outcomes for the central government, the local government in al-Najaf al-Ashraf, and the population in general regarding energy production. This is achieved by following policies adopted in the field of electricity production.

At both the central and governorate levels, which will seek to reduce the electricity production deficit, the dual approach of relying on local gas for generation stations and increasing investment in renewable energy projects will allow for the diversification of electricity sources. This will be achieved by establishing power stations that operate on renewable energy like solar, and not relying entirely on fossil fuel-based stations, through the investment of financial allocations for this sector and meeting the requirements of massive infrastructure projects. This increase in electricity production will mean an increase in the local government's

ability to develop economic sectors by operating various industrial facilities and plants, as well as increasing spending and financing for infrastructure projects.

3. The Pessimistic Scenario: Sector Deterioration and Inability to Meet Population Needs in the Future.

A number of assumptions have been made to analyze this scene (scenario), as follows:

- Continued connection of al-Najaf al-Ashraf Governorate's power stations to the national grid, without separation, and heavy reliance on the central electrical energy feed.
- Decline in the ability of the central and local governments to finance investment in the electricity sector, with reliance on old, traditional stations to meet the growing demand for electricity.
- As a result of the government's declining capacity, we assume an increase in the supplied energy at a rate of 0.25%.
- Continued rapid increase in the governorate's population, exceeding global population growth rates.
- Continued lack of change in community lifestyle patterns and a steady rise in the level of electricity consumption.
- Increase in government subsidies for fossil fuels, and the absence of a regulatory system for collecting electricity fees from various sectors.
- Growth of irrational local consumption of electricity, which increases the demand for fossil fuels due to reliance on them to operate generation stations.
- Failure to adopt solar or wind energy technologies in the governorate, and the absence of real investments in renewable technology, whether at the manufacturing or assembly level.
- Failure to enact laws supporting renewable energy, in addition to the absence of a realistic policy that aligns with the renewable energy goal for the governorate.
- Significant decline in the central and local governments' commitment to achieving the Sustainable Development Goals 2030.
- Stagnation of economic reform processes in the electricity sector, and the spread of financial and administrative corruption in this sector.

According to the pessimistic scenario—the deterioration of the electricity sector and an inability to meet future population needs—it is expected that flawed policies in this sector will lead to its significant decline. The governorate is expected to face a shortage of financial funding, continued connection of its power supply to the national grid, significant legislative delays regarding the regulation of renewable energy, political instability, and consequently, a major setback in the required reforms for the electricity sector. These reforms include important aspects ranging from encouraging the private sector and reforming

customs tariffs to developing and expanding the electrical grid. This fragile situation will negatively affect foreign investors' confidence in investing in the governorate.

Such circumstances will push the central and local governments to revert to previous plans, such as focusing on investment in gas projects and their facilities. This is based on the government's goal of solving the electricity supply shortage amid population growth and a continuously rising demand that is increasing at rates far exceeding supply. Several factors push towards increased investment in gas: most types of generation stations in Iraq, especially in al-Najaf al-Ashraf Governorate, operate on gas with high efficiency. However, it is expected that due to this sector's inability to meet the increasing demand and the rising volume of government subsidies for both local and imported fuel supplies, as well as maintenance costs for stations and distribution networks, there will be a widening production gap. Therefore, a shift towards more practical and effective solutions will be necessary, through which the local government can increase production to nearly double the current output by 2050. These solutions include increasing the use of fossil fuels for electricity generation to cover the large deficit in electricity production and moving away from renewable energy sources or diversification of electricity generation sources. This is despite the National Energy Strategy's goal of investing in the electricity sector to deploy and use renewable energies to bridge the large and growing deficit in electricity production through solar energy projects, for which the governorate has more abundant resources than other renewable sources.

In the context of an expected decline in the local government's financial revenues, which are tied to its financial allocations from the central government, it will be difficult to finance large investments with high capacities that produce more than 100,000,000 kWh in the near future to cover the current growing deficit, or more than 7,552,881,021 kWh of electricity by 2050. This is especially true given the lack of infrastructure to accommodate new capacities for this type of energy. The process of modernizing and developing the electrical system and expanding and updating distribution networks requires very large investments that cannot be provided under such conditions. This is in addition to the initial investment costs for renewable energy projects, as well as many legislative, technical, social, and other administrative reform challenges in managing the electricity sector that were previously mentioned. The size of the gap in electricity production according to this scenario is shown in Table 9-10.

Based on the assumptions of the pessimistic scenario, the central and local governments will require massive investments in the electricity sector, commensurate with population and economic growth, and with the increasing demand for electricity. Demand is expected to rise to 1,093,955,625 kWh in 2025, against a supplied capacity of 488,032,381 kWh, resulting in a gap with a deficit of -605,923,244 kWh. This deficit is expected to continue, reaching about -2,363,893,518 kWh in 2045, against an increasing demand of about 2,902,589,949 kWh for the same year. Furthermore, the deficit in electricity production is

Table 9-9: Estimated Gap Between Demanded and Supplied Energy for the Pessimistic Scenario in al-Najaf al-Ashraf Governorate for the Period 2021-2050

Year	Demanded Energy (kWh)	Supplied Energy (kWh)	Energy Gap (kWh)
2021	900,000,000	476,129,153	-423,870,847
2025	1,093,955,625	488,032,381	-605,923,244
2030	1,396,195,394	500,233,190	-895,962,204
2035	1,781,938,439	512,739,019	-1,269,199,420
2040	2,274,255,176	525,557,494	-1,748,697,682
2045	2,902,589,949	538,696,431	-2,363,893,518
2050	3,704,522,036	552,163,841	-3,152,358,195

Source: Table prepared by the researcher based on Tables 9-4 and 9-5.

expected to persist until 2050, when demand reaches 3,704,522,036 kWh against a supply of 552,163,841 kWh, meaning a deficit of about -3,152,358,195 kWh, as a result of failing to achieve the required level of investment in production.

Implications and Outcomes of the Pessimistic Scenario

In this scenario, public budget constraints and weak financial allocations will sideline options for diversifying electricity production sources, reduce investments directed towards clean and renewable energy programs, and lead both central and local governments to neglect the required development plans, especially in the field of renewable energy, during the scenario's years. This is despite rapid global technological advancements in renewable energies and the likelihood that this will reduce the cost of these energies from their current, non-competitive level with oil, making them a suitable alternative to oil and gas for electricity generation across various sectors.

VI. Available Potentials to Help Respond to Challenges

- al-Najaf al-Ashraf Governorate possesses renewable energy potential, especially solar and wind, which can be invested in for electricity production. This would serve as a complementary energy source to the fossil fuel-based stations, particularly in rural and desert areas, helping to meet the growing demand for electricity in the governorate. Furthermore, shifting power generation technology from traditional sources to combined or hybrid technologies helps reduce carbon emissions, especially if traditional technology and solar energy are used together for electricity generation, which would lead to a 40% reduction in carbon emissions compared to traditional methods (al-Sallāl, 2013, p. 388).
- Work to disconnect the power stations of al-Najaf al-Ashraf Governorate from the national grid, i.e., separating them from the central electricity feed.
- The continued absence of a clear strategy and solid future plans in the governorate, as well as the ongoing financial and administrative corrup-

tion that will accompany projects for developing and maintaining the electricity sector, will make it difficult to respond to the available potential to overcome challenges. Therefore, it is necessary to establish and draw up a clear policy for electrical energy that addresses all the challenges in this sector.

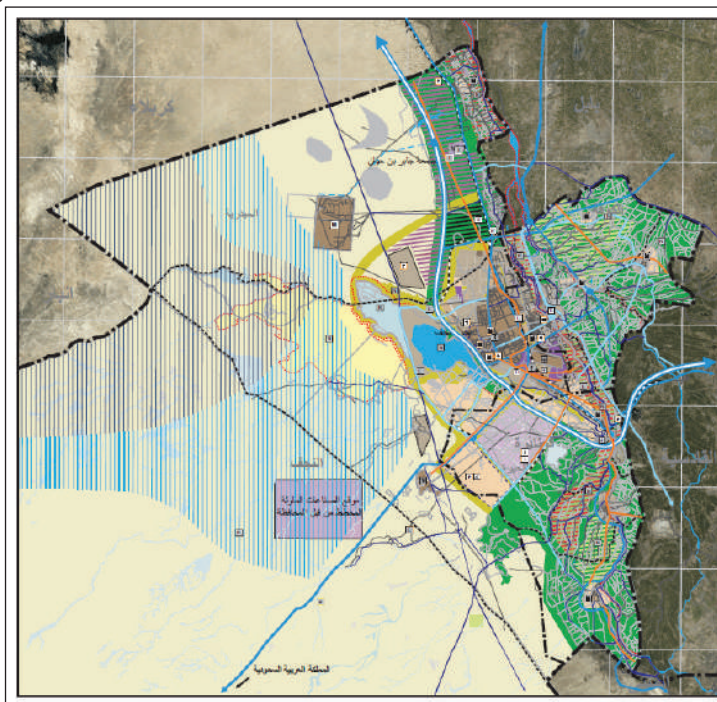
- Encourage and work to increase awareness, change community lifestyle patterns, harness the steady rise in the level of technology, and find alternative and highly efficient sources.
- The possibility of converting most of the operating stations in al-Najaf al-Ashraf Governorate from natural gas stations to combined-cycle stations, instead of simple-cycle, to increase generation capacity.
- Enact laws related to renewable energy, as well as laws that contribute to involving the local and foreign private sector in increasing electricity production.
- Limit the import of electrical appliances with high electricity consumption by establishing controls and oversight on various imported household and industrial appliances, ensuring they are highly efficient and economical in electricity consumption.
- Educate the community on using modern methods for managing electricity supply, such as turning off power in projects or homes after departure.
- The possibility of establishing a new mechanism in city construction, by enacting building laws that comply with international standards, and urging owners of residential complexes and units to ensure these complexes are enhanced with thermal insulation to rationalize energy consumption.

VII. Proposed Project to Establish a Large-Scale Renewable Energy Power Plant

al-Najaf al-Ashraf Governorate is located in central Iraq, southwest of the capital, Baghdād, at a distance of 161 kilometers, with a total area of about 28,824 square kilometers. It is located between longitudes 42.50° - 44.44° E and latitudes 29.50° - 32.21° N. Therefore, it is located within the global sun belt that extends into the southwestern desert of Iraq. This feature gives it the ability to produce energy equivalent to 30 million tons of oil equivalent annually per 100 square kilometers, and produce 3.4 billion kWh per year per 10 square kilometers. It is also characterized by a long duration of solar radiation, ranging from 2,800 to 3,000 hours per year, which is equivalent to 6.5-7 kWh per square meter per day, making the location of the governorate very suitable for building the proposed station (Istepanian, 2020, p. 9).

For the purpose of identifying or designating a site for a solar panel power plant project in al-Najaf al-Ashraf Governorate, several proposed sites have been

Map 9-1: Proposed Site for the Photovoltaic Generation Station in al-Najaf al-Ashraf Governorate by the Investment Commission



Source: al-Najaf al-Ashraf Investment Commission, One-Stop Shop and Investor Services Department, unpublished data, 2020.

put forward by the local government in the governorate in cooperation with the Ministry of Electricity to obtain official approvals for allocating an area or site for the project.⁽¹⁾ A site has been identified in the al-Ḥaydarīyah area, which falls within the administrative boundaries of al-Najaf al-Ashraf Governorate. This site is approximately five kilometers from the main transmission line (al-Ḥaydarīyah–al-Najaf) and is located southwest of the city. The al-Najaf al-Ashraf Investment Commission, within the investment map of Iraq published in 2019, has offered an investment opportunity by proposing the site shown in Map 9-1 for a photovoltaic power generation station with an area of 1,807 dunams.⁽²⁾

This is considered one of the successful and geographically suitable locations for solar cells for the proposed power generation station, in terms of solar radiation intensity, longitude, latitude, and elevation above sea level. The intensity of solar radiation at this location is the main factor in determining the site for a solar station.

(1) According to a personal interview with Dr. Salām Maḥdī 'Azzūz, Advisor to the Governor of al-Najaf al-Ashraf for Energy and Communications Affairs.

(2) al-Najaf al-Ashraf Investment Commission announced an investment opportunity to establish a power plant using solar panels, per its letter No. 1247 dated 26/8/2020, on Plot No. 1, Area 1, al-Shabakah, The Contaminated Area.

As mentioned earlier, the amount of photovoltaic energy generated daily in al-Najaf al-Ashraf Governorate is approximately 6.5-7 kWh per square meter, taking into account the factors that affect the increase or decrease of this amount. Based on this data, it is necessary to use suitable solar panels to generate the required photovoltaic energy. The use of stations operating on renewable energy, especially solar, alongside stations that run on fossil fuels, will help reduce the gap between electricity supply and demand, with these stations serving as a complement to the others.

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10.

Transportation

Asst. Prof. Dr. Ibrāhīm Jāsīm al-Yāsiri

Faculty of Administration and Economics, University of al-Kūfah.

I. Reality of Transportation Sector in al-Najaf al-Ashraf

Transportation sector is a critical component supporting the nation's economic structure and serves as the primary foundation for the national economy across its various activities. It secures the movement of passengers and goods at both local and international levels and plays a vital role in driving economic momentum by providing transport services to productive and service sectors. The establishment and development of a transportation system must, therefore, precede any economic, social, or urban development, as it is the stimulating element. A weak transportation network in the governorate undermines communication between regions and limits potential economic and social interactions. The underdevelopment of transportation infrastructure and the road network constitutes an obstacle to the movement of passengers, goods, and trade, and impedes individuals' ability to reach institutions and workplaces on time. Furthermore, the rising population growth rates in the governorate, coupled with an increase in the number of vehicles, have led to heightened demand for various transport services, simultaneously placing greater pressure on the road network and causing damage to most primary and secondary roads.

With limited financial allocations and the high cost of developing transport services, the work of responsible authorities has been confined to modest road maintenance, which is inconsistent with the governorate's stature, and the extension of only a few new roads. This situation demands a serious commitment to developing the governorate's transportation sector in a manner that meets its needs and addresses its challenges. This can be achieved by adopting policies that contribute to a strategy for resolving urban transport issues and by creating a sustainable transportation system to alleviate traffic congestion and bottlenecks.

The population of the governorate is approximately 1,510,338, according to 2019 projections, making it the sixth-largest governorate in Iraq by population after Baghdād, al-Mawşil, al-Başrah, Dhi-Qar, and Bābil. Of this population, 71% reside in urban areas, with the remaining 29% in rural areas (Ministry of Planning, 2019, p. 53). The governorate covers an area of about 28,824 km², representing 6.6% of Iraq's total area. It comprises four districts: al-Najaf, al-Kūfah,

al-Manādhirah, and al-Mishkhāb, which in turn include twelve sub-districts (Ministry of Planning, 2019, p. 5).

The governorate is distinguished by its profound religious significance, as it is home to the shrine of al-Imām ‘Alī ibn Abī-Ṭālib (peace be upon him) and is the center of the religious seminary (al-ḥawzah al-ilmīyah) in Iraq. Additionally, it contains the shrines of several prophets and righteous figures, such as the prophets Ṣāliḥ and Hūd (peace be upon them). It was selected as the Capital of Islamic Culture in 2012. This importance has led to significant demographic changes, with population increases driven by continuous and diverse migration flows, reflecting its long history of settlement. The governorate also receives a large number of visitors for religious tourism. This religious status has made al-Najaf al-Ashraf a major attraction, drawing hundreds of thousands, and even millions, of visitors. All these factors have contributed to an increased demand for transport services. The geographical and demographic characteristics of al-Najaf al-Ashraf Governorate necessitate a distinct approach to transportation in general. Accordingly, this analysis will address the most important transport activities in the governorate, including:

1. Terminals

The transportation sector in al-Najaf al-Ashraf Governorate is characterized by four main terminals, which operate 77 routes for passenger transport. These terminals facilitate the movement of individuals and goods and connect the governorate with neighboring governorates and its own districts. Table 10-1 details the number of routes and registered vehicles.

Table 10-1: Terminals, Routes, and Vehicles in al-Najaf al-Ashraf Governorate (2020)

Terminal Name	Number of Routes	Number of Registered Vehicles
North Terminal	14	4,901
Internal Terminal	28	14,539
al-Kūfah Terminal	18	2,327
South Terminal	17	6,531
Total	77	28,298

Source: Prepared by the researcher based on data from the Transportation Department in al-Najaf al-Ashraf Governorate.

2. Road Network

Transportation in the governorate relies predominantly on the land road network for all types of internal transport, whether for individuals or for goods and services. Specialists in road planning use various principles and criteria for classification, often based on calculating road corridors according to traffic movement, volume, and economic importance. To understand the current and future impact of the road network in the governorate, these classifications regarding road lengths and types have been utilized.

The governorate's current transportation infrastructure consists of main roads, secondary roads, rural roads, agricultural roads, and dirt tracks. The governorate has three main roads: Najaf-Karbalā' road, Najaf-Dīwānīyah road, and Kūfah-Bābil

Table 10-2: Road Network and Lengths in al-Najaf al-Ashraf Governorate (2018)

Type	Number	Length (km)
Main Roads	3	314.522
Secondary Roads	18	2,130
Rural Roads	68	323.68
Agricultural Roads	3	31.3
Dirt Tracks	188	1,427.1

Prepared by the researcher based on data from the Ministry of Housing and Construction, Directorate of Roads and Bridges of al-Najaf al-Ashraf Governorate, Technical Division.

road, with a total length of 314.522 km (Ministry of Housing and Construction, n.d.). Some of these, like Karbalā'-Najaf road, pass through the city center, dividing the city of Najaf into eastern and western sections. These roads have a significant impact on the governorate's economic, social, and cultural development, serving as the main arteries that supply it with diverse economic activities. This contributes to the prosperity of trade between al-Najaf al-Ashraf Governorate and other Iraqi governorates and works to elevate and balance the level of services. These roads also enable the utilization of potential resources in each geographical area within the governorate.

Secondary roads, also known as branch roads, connect the centers of districts and sub-districts within the governorate, link different parts of the governorate, and connect it to other governorates and main roads. There are 18 secondary roads in the governorate, with a total length of 2,130 km. They are distributed across all parts of the governorate, ensuring no area is without a secondary road, which serves as a link between main and rural roads.

Rural roads rank third among the types of land roads in the governorate. They connect villages to cities and to each other, and they typically lead to main and secondary roads. Consequently, their engineering and technical specifications differ entirely from the previous types. They are characterized by their adherence to the local topography and have few access points, as they are narrow, single-layer paved tracks. This makes them highly susceptible to subsidence, cracking, and potholes due to the weight of vehicles and the effects of surface and ground-water.

There are two other types of roads: agricultural roads and dirt tracks, which lack all services, access points, and bridges. Table 10-2 illustrates the road network and its lengths in al-Najaf al-Ashraf Governorate.

3. al-Najaf al-Ashraf International Airport

al-Najaf al-Ashraf Airport is a significant hub in the governorate's transportation system, facilitating the flow of passengers and goods. It receives millions of visitors from around the world and meets the needs of the governorate and its neighbors for passenger and cargo transport. The airport is a vital component of the transportation sector in Iraq generally and in the governorate specifically. It is an extremely important facility due to the services it provides to the community, its role in developing infrastructure, its contribution to providing employment

Table 10-3: Number of International Flights and Passenger Traffic for the Period 2017-2021

Year	Total International Flights	International Flights from al-Najaf Airport	al-Najaf Airport's Share of Total International Flights %	Total Passengers	Passengers from al-Najaf Airport	al-Najaf Airport's Share of Total Passengers %
2017	69,642	24,654	35.4	7,953,447	3,141,482	39.5
2018	71,148	22,469	31.6	7,759,469	2,769,537	35.7
2019	75,859	17,990	23.7	7,711,433	1,978,790	25.7
2020	43,367	2,712	6.3	1,700,591	267,527	15.7
2021	-	4,018	-	-	740,506	-

Source: Prepared by the researcher based on primary statistics of Iraqi air transport activity in the governmental and public sectors for various years.

Table 10-4: Number of International Flights and Passenger Traffic for the Period 2017-2021

Year	Total Domestic Flights	Domestic Flights from al-Najaf Airport	al-Najaf Airport's Share of Total Domestic Flights %	Total Domestic Passengers	Domestic Passengers from al-Najaf Airport	al-Najaf Airport's Share of Total Domestic Passengers %
2017	21,530	2,580	12.0	1,644,246	56,561	3.4
2018	21,040	366	1.7	1,632,542	23,682	1.5
2019	17,046	356	2.1	1,090,748	10,890	1.0
2020	5,752	124	2.2	329,589	5,243	1.6

Source: Prepared by the researcher based on primary statistics of Iraqi air transport activity in the governmental and public sectors for various years.

opportunities for unemployed youth, its enhancement of the governorate's civilized image, and its contribution to improving the standard of living.

al-Najaf al-Ashraf International Airport is located 6 km southeast of the city of Najaf, and is also close to the city of Kūfah, which has great religious and historical importance. The airport consists of an asphalt runway (3,000m x 45m) with shoulders on both sides (7.5m), capable of accommodating C and D type aircraft. Its potential for expansion in length is limited due to a lack of space. There are two interconnected aprons for aircraft parking that can accommodate 15 aircraft, and a large passenger terminal that has been expanded to accommodate a greater number of arriving and departing passengers. This is in addition to its ancillary facilities, including a control tower, a fuel station, and a VIP lounge. Table 10-3 shows the movement of departing and landing aircraft and the number of passengers in international transport.

From Table 10-3, we note that al-Najaf al-Ashraf Airport achieved a 35% share of total international flights in 2017 and nearly a 40% share of total passengers. The situation was similar in 2018, placing it third after Erbil and Baghdad airports in terms of the number of international flights and passengers. However, this percentage declined over the last three years due to the global health situation, which caused a halt in air traffic for some months of the year and preventative

measures that restricted travel. Nevertheless, air transport activity has begun to recover, and international flights are on the rise.

As for domestic transport at al-Najaf al-Ashraf Airport, we note from Table 10-4 that its contribution to the number of domestic flights and passenger traffic on Iraqi Airways was low. This is because most domestic flights operate between Baghdād and Erbil airports, and between Baghdād and Baṣrah airports. Table 10-4 shows the movement of departing and landing aircraft and the number of passengers in domestic transport.

II. Estimating the Need for Growth in the Transportation Sector

al-Najaf al-Ashraf Governorate possesses cultural, civilizational, and religious characteristics that have given it a great status among Muslims. Millions of visitors flock to it annually from within and outside the country for various purposes, primarily to perform pilgrimage rites at the holy shrines and visit its vast cemetery. This creates an urgent demand for transport services and generates significant traffic pressure on both the road network and terminals.

To determine the need for growth in the governorate's transportation sector during the study period (2021-2050), it is necessary to estimate the growth in factors affecting the sector, including population growth and the increase in the number of vehicles. Future population estimates for the governorate are of great importance in understanding what the future population size will be, and consequently, in determining the need for transport services and related activities over the next three decades.

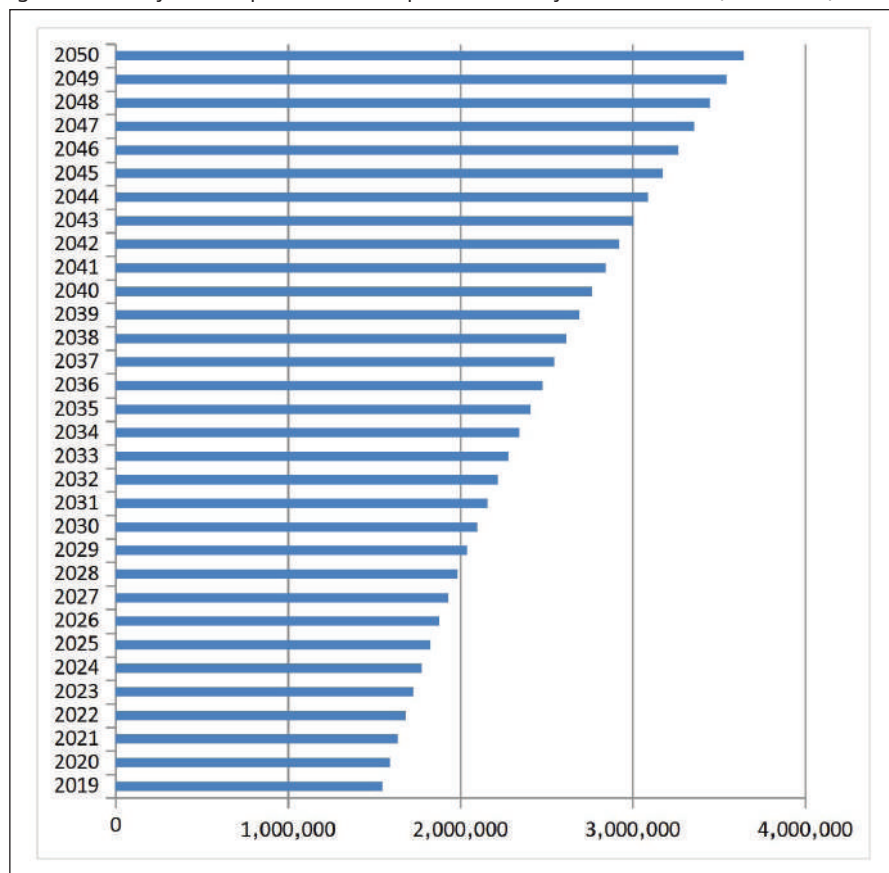
al-Najaf al-Ashraf Governorate, like other Iraqi governorates, has witnessed a tangible rise in the standard of living and improvements in health and education, which have worked to reduce overall mortality rates, particularly infant mortality. This means that the rate of natural increase will rise, leading to an increase in the population growth rate, which has averaged around 2.8% across all districts of the governorate. It is expected that this rate will hover around this level in the coming years due to factors such as changing family mindsets in recent years; families have begun to focus on improving the quality of family life for its impact

Table 10-5: Projected Population Development in al-Najaf al-Ashraf Governorate (2021-2050)

Year	Population	Year	Population	Year	Population	Year	Population
2019	1,549,000	2027	1,931,952	2035	2,409,579	2043	3,005,289
2020	1,592,372	2028	1,986,047	2036	2,477,048	2044	3,089,437
2021	1,636,958	2029	2,041,656	2037	2,546,405	2045	3,175,941
2022	1,682,793	2030	2,098,822	2038	2,617,704	2046	3,264,867
2023	1,729,911	2031	2,157,589	2039	2,691,000	2047	3,356,283
2024	1,778,349	2032	2,218,002	2040	2,766,348	2048	3,450,259
2025	1,828,143	2033	2,280,106	2041	2,843,806	2049	3,546,867
2026	1,879,331	2034	2,343,949	2042	2,923,432	2050	3,646,179

Source: Prepared by the researcher based on data from: Ministry of Planning, Central Statistical Organization, Annual Statistical Abstract for 2019, and population projections for 2020 issued by the Central Statistical Organization.

Figure 10-1: Projected Population Development in al-Najaf Governorate (2021-2050)



on their well-being. Accordingly, we have provided projections for the increase in the population of the governorate based on population projections for 2019 and 2020 issued by the Central Statistical Organization, with a population growth rate of 2.8%. Table 10-5 shows the projected population development in the governorate for the period 2021-2050.

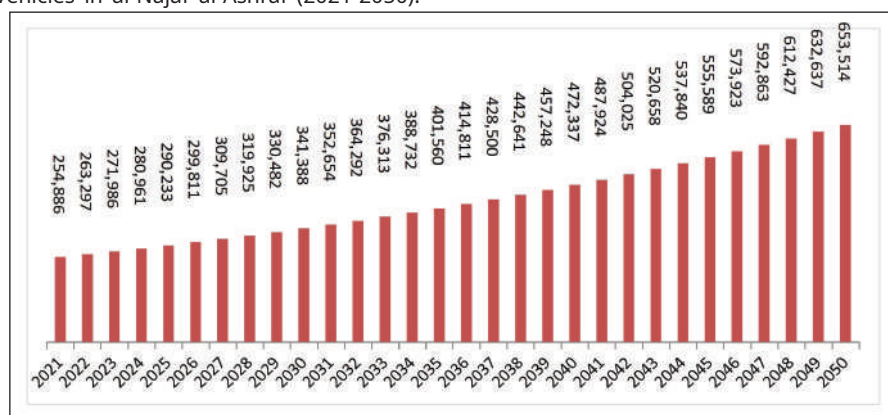
Table 10-5 indicates that the population of the governorate will rise from 1,636,958 in 2021 to 2,098,822 in 2030, then to 2,766,348 in 2040, reaching 3,646,179 in 2050. This means the population size will double over the next three decades due to population growth or internal migration from the southern governorates. Figure 10-1 illustrates the evolution of the population size during the study period.

The other factor that influences the transportation sector is the number of transport vehicles. Today, al-Najaf al-Ashraf Governorate is witnessing a rapid increase in the number of private vehicles, reaching approximately 238,861 vehicles in 2020 (Ministry of Planning, 2019, pp. 256-258). Private vehicles constituted about 97% of the total vehicles in the governorate, while public sector vehicles

Table 10-6: Projected Development in the Number of Private, Public Sector, and Kurdistan Region Vehicles in al-Najaf al-Ashraf (2021-2050)

Year	Population	Year	Population	Year	Population	Year	Population
2021	254,886	2029	330,482	2037	428,500	2045	555,589
2022	263,297	2030	341,388	2038	442,641	2046	573,923
2023	271,986	2031	352,654	2039	457,248	2047	592,863
2024	280,961	2032	364,292	2040	472,337	2048	612,427
2025	290,233	2033	376,313	2041	487,924	2049	632,637
2026	299,811	2034	388,732	2042	504,025	2050	653,514
2027	309,705	2035	401,560	2043	520,658		
2028	319,925	2036	414,811	2044	537,840		

Figure 10-2: Development of the Number of Private, Public Sector, and Kurdistan Region Vehicles in al-Najaf al-Ashraf (2021-2050).



accounted for about 0.4%, and vehicles from the Kurdistan Region made up about 2.1% in the governorate, according to statistics from the al-Najaf Traffic Directorate (Ministry of Interior, n.d.). This indicates a rise in the number of private vehicles, resulting from an increase in individual income and a higher level of economic activity in the governorate, which allows for the acquisition of more than one vehicle per family.

As for the projected increase in the number of vehicles, it is based on the growth rate in vehicle numbers according to historical trends for the period 2016-2020. According to data from the Statistical Abstract of the Central Statistical Organization and the al-Najaf al-Ashraf Traffic Directorate, this rate was about 3.3%.

According to the data in Tables 10-5 and 10-6, the governorate will witness an increase in population, accompanied by an increase in the number of vehicles, which will grow at an accelerating pace from 254,886 vehicles in 2021 to 341,388 in 2030, then to 472,337, and reaching 653,514 vehicles in 2050. This will have negative repercussions on the movement and flexibility of transport in the governorate. Therefore, over the next decade, with the rising population growth rate due to increased fertility rates, al-Najaf Governorate will need an increase in transport activities and must address the significant infrastructure deficit in

various transport fields by opening new main and secondary roads. This requires increasing the financial allocations for the transport sector and the Directorate of Roads and Bridges in the governorate, as they are responsible for the maintenance and rehabilitation of the road network. Investment allocations have long been characterized by low levels of implementation. Low investment spending hinders the rehabilitation and construction of transport infrastructure to cope with population growth.

In the future, during the study period, the increasing number of vehicles will create pressure on the road network, leading to more traffic jams and congestion that will impede vehicle movement in the governorate, especially during morning peak hours, and make it difficult to ensure easy access for students, employees, individuals, goods, and raw materials between areas. Therefore, transport in the governorate will face difficulties in movement, not a shortage of means, due to the high number of private vehicles. Furthermore, private transport services do not cover the entire geographical area of the governorate, which has led individuals to purchase private cars and use them for most of their daily travels. Additionally, the governorate lacks high-capacity government transport services that would help reduce the use of private vehicles.

With a modest road network, whose main streets have a total length of 314.522 km and secondary streets about 2,130 km, and which is unable to accommodate the increasing number of vehicles due to the absence of a central government policy to regulate vehicle imports through legal controls and legislation, al-Najaf Governorate will suffer from a significant deterioration in its transportation system and an increase in transport problems due to traffic congestion. This requires the development of future plans that include creating modern means of transport capable of accommodating the population increase in the governorate and carrying large numbers of people, such as introducing public transport with large buses and an internal rail system (tram), and working to open new main, secondary, ring, and arterial roads, which play a role in reducing traffic congestion and ensuring faster arrival times.

The future role of transport terminals in al-Najaf Governorate is to actively meet the growing demand for transport services, as they form an important part of the transport network. A lack of prior planning for this effective element will cause many problems related to selecting the optimal location in terms of area and the suitability of access roads to ensure smooth traffic flow. Additionally, preparing good access roads is difficult due to the exorbitant financial costs, which has left some terminals suffering from many problems.

The selection of terminal locations is the responsibility of the General Company for Private Transport Management, as is the engineering design of these terminals. It is noted that the current designs are far from ambitious and lack scientific and practical rigor in meeting current and future transport needs. Criteria such as the population density of the areas served by the terminal must be taken into account when selecting a location, as this factor determines the number of transport lines operating to and from the terminal. The location must also ensure

Table 10-6: Projected Development in the Number of Private, Public Sector, and Kurdistan Region Vehicles in al-Najaf al-Ashraf (2021-2050)

Year	North Terminal		Internal Terminal		al-Kūfah Terminal		South Terminal	
	Routes	Vehicles	Routes	Vehicles	Routes	Vehicles	Routes	Vehicles
2021	14	4,903	28	4,541	18	2,329	17	6,533
2022	14	4,905	28	14,543	18	2,331	17	6,535
2023	14	4,907	28	14,545	18	2,333	17	6,537
2024	14	4,909	28	14,547	18	2,335	17	6,539
2025	14	4,911	28	14,549	18	2,337	17	6,541
2026	14	4,913	28	14,551	18	2,339	17	6,543
2027	14	4,915	28	14,553	18	2,341	17	6,545
2028	14	4,917	28	14,555	18	2,343	17	6,547
2029	14	4,919	28	14,557	18	2,345	17	6,549
2030	14	4,921	28	14,559	18	2,347	17	6,551
2031	14	4,923	28	14,561	18	2,349	17	6,553
2032	15	4,925	29	14,563	19	2,351	18	6,555
2033	15	4,927	29	14,565	19	2,353	18	6,557
2034	15	4,929	29	14,567	19	2,355	18	6,559
2035	15	4,931	29	14,569	19	2,357	18	6,561
2036	15	4,933	29	14,571	19	2,359	18	6,563
2037	15	4,935	29	14,573	19	2,361	18	6,565
2038	15	4,937	29	14,575	19	2,363	18	6,567
2039	15	4,939	29	14,577	19	2,365	18	6,569
2040	15	4,941	29	14,579	19	2,367	18	6,571
2041	15	4,943	29	14,581	19	2,369	18	6,573
2042	16	4,945	30	14,583	20	2,371	19	6,575
2043	16	4,947	30	14,585	20	2,373	19	6,577
2044	16	4,949	30	14,587	20	2,375	19	6,579
2045	16	4,951	30	14,589	20	2,377	19	6,581
2046	16	4,953	30	14,591	20	2,379	19	6,583
2047	16	4,955	30	14,593	20	2,381	19	6,585
2048	16	4,957	30	14,595	20	2,383	19	6,587
2049	16	4,959	30	14,597	20	2,385	19	6,589
2050	16	4,961	30	14,599	20	2,387	19	6,591

easy access for passengers to their destinations. Some terminals do not meet transport needs due to their limited space; that is, there is no balance between the increasing population on one hand and the number of vehicles on the other, amidst the rapid and continuous development in this area. Some terminals, due to their unsuitable location, suffer from traffic congestion, which negatively affects the arrival and departure times of vehicles. These bottlenecks in some terminals result from a lack of prior planning for their locations. Some lack essential operational factors, such as modern, systematic designs, and most suffer

from several problems, rendering them substandard and unable to accommodate the increasing number of vehicles. This has negatively impacted their efficiency. Therefore, future planning for the locations and sizes of the governorate's terminals is necessary to improve their services.

To keep pace with the population increase in al-Najaf al-Ashraf Governorate, the increase in the number of transport routes and vehicles in the main terminals has been estimated based on data from the General Transport Authority in the governorate for the year 2020. The increase in the number of transport routes has been estimated at about one route per decade, with the expansion of urban areas in the governorate to cover newly developed geographical areas. As for the number of vehicles, it has been increased by about two vehicles per year, due to the large number of surplus vehicles during normal times of the year. Table 10-7 shows the projected increase in the number of transport routes and vehicles during the period 2021-2050.

III. Challenges of the Transportation Sector

The transportation sector is a vital sector and an essential element of daily life. It is a fundamental requirement for providing accessibility and thus sustaining current economic activity. Therefore, it is considered a foundation for future economic growth and for improving the quality of life in the governorate, based on the principle that "roads create the city, and at the same time, the city creates the roads." However, this sector faces a number of current and expected obstacles, including:

1. The transport sector in al-Najaf al-Ashraf Governorate faces many logistical, professional, administrative, and technical challenges, represented by a shortage of qualified personnel to work in its various fields and services.
2. Lack of attention to urban transport planning and studies in the governorate, which has negatively affected the urban transport network. This network suffers from high rates of transport and traffic problems, foremost among them traffic congestion, traffic accidents, and environmental pollution. There is no clear, applicable mechanism that makes the Ministry an effective means of influencing policies and coordinating the work of ministries. The role of the Ministry has remained limited and unclear despite the broad tasks defined by the planning law. The absence of such a mechanism and means of enforcing coordination (whether in the planning law or its implementation instructions between the Ministry of Transport and the Ministry of Housing and Construction, which is responsible for the road and bridge network) means that the Ministry's role in implementing plans and projects depends on political support. Therefore, most of the national development plans that have been formulated do not rise to the level of binding procedures or rules for implementation. These plans have no connection to the public budgets; for budget documents and tables do not refer to these plans. This is due to the lack of a clear tool to compel

- budgets to implement investment allocations for them, corresponding to a list of project costs, if such a list existed (Mirzā, 2018, p. 339).
3. Increasing population growth leads to increased demand for transport services and increased pressure on the road network.
 4. The productivity of the transport sector is characterized by seasonal and daily fluctuations in demand for its services, for both passengers and goods. This leads to many problems that affect the effectiveness of investment in the transport sector, given the huge costs borne by individuals and companies to provide transport units that are used only for limited periods (high demand during religious occasions). This leads to the depreciation of transport means, with part of the depreciation linked to the volume of operation and the other part due to obsolescence and non-use.
 5. Low financial allocations in the public budget for the transport sector in general. A review of the expenditure chapters for the investment spending share of total public expenditures for the transport sector in 2018 shows that the transport sector received 2.5% of total public spending (Central Bank of Iraq, 2018). The share of al-Najaf Governorate from these allocations was about 0.05% of total public spending, a percentage that does not meet the requirements for providing new transport infrastructure or for expanding, maintaining, and renewing the existing infrastructure. According to data from the Central Statistical Organization, all Iraqi governorates have witnessed a tangible decrease in total fixed capital formation despite the urgent need for it. The allocated value was 31,944 billion dinars during 2018 (Ministry of Planning, 2019, p. 513), which is insufficient for the needs of most Iraqi governorates, as they suffer from stalled projects and aging infrastructure in the transport sector. Additionally, the percentage allocated to investment spending in general has been low, reaching at best about 22%. Less than half of what was planned for the investment programs during the period 2007-2018 was implemented (Mirzā, 2020, p. 12).
 6. The investment environment in Iraq in general, and in al-Najaf in particular, is characterized by numerous constraints. These include the difficulty for companies to enter the market due to the lack of transparency in the regulatory and economic environment, which is of great importance for the investment decisions of companies and capital owners. Transparency provides companies and investors with information and data that help in predicting future internal economic conditions, based on which investment plans can be formulated and directed, and appropriate future decisions can be made. Consequently, Iraq ranked 172nd out of 190 countries in the Doing Business 2020 report, with a score of 44.7 out of 100 (World Bank, 2020).
 7. A weak transport management system, due to its lack of qualified material and human resources, plans, and objectives, has rendered it an ineffective

administration in providing solutions and treatments for the governorate's transport problems.

8. Lenient tax policies, low customs duties, and unjustified import policies are a major reason for the increase in the number of vehicles within the governorate and all other governorates of the country.
9. The increase in the number of vehicles that entered Iraq in general, and al-Najaf in particular, after 2003, which has created pressure on the roads and consequently caused significant damage to the road network.
10. The small number of model terminals in the governorate and their lack of capacity to accommodate the vehicles of the transport lines, in addition to the lack of rest services for travelers.
11. The low number of bridges and tunnels at intersections, which has caused increased traffic congestion, especially during official working hours.
12. The unclear role of the private sector and the decline in the value of its investments to very low levels. According to World Bank statistics for 2017, the value of private sector investments in the transport sector was about 120 million dollars for all of Iraq (World Bank, 2020).
13. Environmental pollution resulting from the increasing number of vehicles in the governorate. The presence of a large number of vehicles, coupled with the road network system's inability to accommodate them, leads to negative effects on the environmental system. This results from two types of pollution from land transport: air pollution, represented by toxic materials and gases released from transport means, and noise pollution, represented by the noise and clamor from the worn-out engines of old cars. This leads to a deterioration in the quality of life for many urban residents.
14. Political interventions have contributed to creating an environment conducive to corruption and have provided more opportunities for corrupt individuals to inflate the costs of public projects, especially in the field of transport (roads and bridges), thereby squandering large amounts of public funds. These interventions have also caused a large gap between the oversight institution and public spending in disclosing financial and governmental performance. According to annual reports issued by Transparency International, Iraq ranked very low in these reports throughout the period 2004-2020. Iraq's ranking among the countries participating in this report, especially during the last years of that period and particularly in 2020, was around 160th out of 179 participating countries. The Corruption Perceptions Index did not rise above a score of 2 (Transparency International, 2020).
15. The efficiency of the road network has declined to very low levels, as it is characterized by narrowness and an inability to accommodate the huge number of vehicles due to its low capacity and the lack of periodic maintenance. This is in addition to the closure of some main and secondary roads

- and streets, especially during religious occasions, which are regular in the governorate.
16. Environmental pollution in the governorate due to the large number of transport means. The transport sector is the main source of this pollution due to its reliance on burning fuel of all kinds. This has caused negative repercussions on the environment and air quality, especially in the city center, which contains the internal terminals where more than 14,541 vehicles operate throughout the day, causing the release of harmful gases, most importantly carbon monoxide and nitrogen oxides resulting from combustion processes. This is in addition to the effects of noise pollution resulting from vehicle traffic.
 17. The continuous damage and destruction to which the road networks in the governorate are exposed due to the inability of traffic checkpoints to hold heavy-load trucks accountable.
 18. The lack of transversal roads between the governorate and the neighboring governorates to the east.
 19. Widespread encroachments by individuals on the road networks, as well as the difficulties faced by the Directorate of Roads and Bridges in expropriating land from farmers for the purpose of building roads and bridges.

IV. Scenarios for the Transportation Sector

Foresight represents a set of activities that work to improve future decision-making. The primary goal is to strengthen the decision-making process for the future and to be prepared for a range of possibilities. Foresight seeks not only to identify risks but also to find future opportunities to be seized through various means that are varied in their methodologies and scientific rigor to provide the observer with a developed method to monitor this future. The foresight attempt we are undertaking is based on three scenarios, each containing a set of assumptions and visions as required by the stage. The first scenario assumes the continuation of the transport sector's problems into the future (2021-2050). The second scenario assumes further deterioration in the transport sector and its infrastructure, and a decline in the ability of the government and the private sector to provide the required funding, up to the year 2050. The third scenario is an optimistic one, based on the fundamental assumption of the availability of financial funding and a steady increase in the ability of the local government and the private sector to finance the transport sector.

1. The Reference Scenario: Continuation of the Current Reality

This scenario is based on several assumptions:

- Continuation of the public budget's spending pattern by allocating three-quarters of public revenues as operational expenditures versus one-quarter as investment expenditures.

Table 10-8: Estimated Need for Road Networks in the Reference Scenario

Period	Average Population Projection	Average Vehicle Increase Projection
2022-2025	1,754,799	276,619
2026-2030	1,987,562	320,262
2031-2035	2,281,845	376,710
2036-2040	2,619,701	443,107
2041-2045	3,007,581	521,207
2046-2050	3,452,891	613,073

Source: prepared by the researcher based on Tables 10-5 and 10-6.

- Continuation of the funding approach currently adopted by the government, and its inability to create new sources of funding.
- Continuation of the current indicative planning approach, without obliging ministries and administrative units to implement the plan or adhere to its general guidelines.
- Continuation of the government's inability to combat financial and administrative corruption.
- The road networks' need for huge investments for rehabilitation and the implementation of new projects.

Based on the projections of this scenario, with the continued increase in population growth rates in al-Najaf Governorate at a rate of 2.8% (according to Table 10-5) and the accompanying significant increase in the number of private vehicles (according to Table 10-6), the period averages for both tables have been taken, as shown in Table 10-8. We note that the population increases gradually from 1,754,799 in the next ten years of this century to 1,987,562, matched by an increase in the number of vehicles from 276,619 to 320,262 during the same period. This means there is a significant development in the number of vehicles. Similarly, during the period 2031-2035, the growth in the number of vehicles far exceeds the growth in population, leading to the number of vehicles nearly doubling by one and a half times during the period 2046-2050, reaching 613,073 vehicles, which is also met by a doubling of the population. This expected increase in vehicles and population will create exceptional pressure on the road networks and on traffic and transport movement, under the assumption of a lack of funding and low implementation rates of investment projects in roads and bridges.

Under the continuation of the current reality of insufficient funding for new projects in the transport sector, the governorate's transport network will suffer from clear traffic congestion during the third decade of this century. This will result in an increased rate of pressure on the network due to the lack of proportionality between the expansion of paved roads and streets and the number of existing and incoming vehicles. This will cause negative effects, such as a decrease in the efficiency of roads and streets, their exposure to damage, and their insufficiency for current and future population, economic, and social requirements, and consequently, a weak capacity to accommodate vehicles.

These projections are supported by the lack of implementation of the strategic planning objectives for the transport sector at the country level in general and the governorate level in particular, despite them being ambitious goals. There is no mechanism that obliges the administrative units in the governorate to implement the objectives of that strategy. Instead, reliance was placed on the development plans formulated during the period 2010-2014 and the 2013-2017 development plan to identify the main and subsidiary objectives and to identify the problems and failures facing the transport sector in all governorates. The objectives set for the transport sector were merely suggestions that were not implemented due to a lack of real and serious follow-up. In addition, there is an absence of the necessary legal framework for implementing development plans in Iraq, as they were not issued as binding laws, which deprived them of force and effectiveness. Therefore, the projects included in the budget are based on suggestions from various ministries dictated by immediate needs, in addition to the skewed behavior in the allocation of public expenditures towards operational expenses at the expense of investment expenses. These factors combined have contributed to the delay and non-implementation of some investment projects in the country and in al-Najaf Governorate in particular, and the inability to find self-financing sources to fund various transport activities. According to data from the Transport Authority in al-Najaf Governorate, the revenues collected from all terminals did not exceed 2.4 billion dinars in 2020.

Based on the assumptions of this scenario, the transport sector in the governorate will witness in the coming years the inefficiency of road networks due to the lack of new main and secondary roads. Reliance will be on private transport, which will result in increased traffic congestion and difficulty in ensuring access to government departments and institutions. This requires the local government to find solutions to the existing problems in the governorate.

2. The Pessimistic Scenario: Exacerbation of Transportation Sector Problems and Insufficient Funding

This scenario is based on several assumptions:

- A decline in the government's ability to implement economic development policies due to several factors, most notably a drop in crude oil prices or a decline in the country's export capacities.
- Continuation of the government's inability to combat financial and administrative corruption, and the spread of the phenomenon of financial and administrative corruption.
- A halt in the development planning process.
- Failure to take into account the expected future increase in the number of vehicles when implementing traffic projects.
- Worsening conditions of the infrastructure and an increased need for more investment in it.
- Continuation of the population growth rate at its historical rates.

- Absence of coordination between the institutions responsible for the transport process in the governorate.
- Absence of the role of civil society institutions in raising awareness among vehicle owners and citizens about the need to adhere to the system and thus preserve the safety of citizens and the infrastructure that was created to serve them.
- Weak funding and investment, and a low level of public transport services due to the high costs of financing proposed projects.
- Lack of partnership between the public and private sectors for the operation and development of transport services and the road network.
- Administrative and social weakness in transferring the experiences of developed countries in the transport sector and applying them in the governorate.

According to the assumptions of this scenario, the results achieved during the foresight period will be unfavorable for the transport sector in the governorate due to a lack of funding and the continuation of the Covid-19 pandemic. The scarcity of financial resources for the transport sector will lead to the creation of a minimal level of investment in infrastructure projects for the transport sector in the governorate, and consequently, the inadequacy of roads and streets for the expected changes, namely the population increase resulting from the lack of awareness among community members of the consequences of a growth rate exceeding 2.8%. It is expected that the population will increase from 1,636,958 in 2021 to 2,098,822 in 2030, then to 2,766,348 in 2040, reaching 3,646,179 in 2050. This population increase will be accompanied by a desire among individuals to own more than one vehicle per family, which will cause an increase in traffic congestion, in addition to the increase in the number of vehicles resulting from the absence of legislation and laws limiting the import of new and used vehicles.

The lack of financial allocations to create infrastructure to expand the road network in the governorate and the high levels of corruption mean the failure of the local government to find ways to solve the transport problem and design modern road networks. Therefore, it is expected that private transport will continue to dominate the transport of passengers, goods, and services, which will result in an increase in the number of private vehicles. This will have a negative impact on the road network, leading to traffic congestion and jams due to the lack of overpasses to eliminate intersections, and thus pressure on the road network and the continuous exacerbation of the transport crisis, which will cause major complications in ensuring access to government departments and institutions, especially during official working hours. The lack of funding in this scenario means the inability of the Directorate of Roads and Bridges in the governorate to open new roads and build bridges, secondary corridors, and ring roads; instead, they will be limited to maintenance operations for the existing road networks.

In this scenario, more problems could arise in the absence of funding for the local government, represented by the failure to complete most of the basic equip-

ment and services for the transport sector in the governorate and the failure to develop the operational aspects of this sector's elements, in addition to the future demand for transport services. The demand is expected to continue to increase as a result of the continuous increase in population (assuming an increase in growth rates to more than 2.8%) with the continuous increase in their income. The increasing density of vehicles on the roads requires a radical change to the main and secondary road network of the governorate. If the roads remain at their current capacity, it will lead to increased congestion, and the transport sector will become an obstacle to economic activity due to the high costs of transport. This is what will happen in the absence of financial funding in this scenario.

As for the negative impacts on the urban environment in the governorate resulting from the increase in traffic movement due to the increase in transport means from 254,886 vehicles in 2021 to 341,388 vehicles in 2030, then to 472,337 vehicles, reaching 653,514 vehicles in 2050, they are represented by air pollution with carbon monoxide and the emission of large quantities of hazardous greenhouse gases and other pollutants that contribute to spoiling air quality, such as smog resulting from the reaction of nitrogen oxides and hydrocarbons ('Abduh, 2007, p. 201). This is in addition to land pollution resulting from noise, traffic congestion, and traffic accidents, and the inability of the road network to accommodate these large numbers of vehicles within the governorate center.

3. The Optimistic Scenario: A Decline in the Funding Problem

This scenario is based on several assumptions:

- Development of the development planning approach in the country, towards improving the planning process and the quality of the institutions responsible for it, by adopting a pre-planned and programmed approach through the development of sound immediate, phased, and future plans for the management and organization of transport affairs in the governorate.
- Increased ability of the government to finance economic development due to several factors, the most important of which are an increase in crude oil prices or an increase in the country's production capacities.
- The government raises the allocation for investment spending to 40% in the public budget, and then increases the investment allocation for the transport sector in general and for transport in al-Najaf Governorate in particular.
- Success of economic reforms in the country, especially towards the adoption of administrative decentralization in the provision of public services.
- Allocation of a portion of total oil revenues to the governorates based on population, to be spent according to the priorities of local governments for the purposes of financing development and infrastructure in the transport sector, by developing and operating a wide transport network

of roads and working to diversify the means of transport to support various economic developments.

- Development of cultural awareness among citizens about the need to activate and develop public transport.
- Activation of transport services by subway and elevated trains through the establishment of advanced infrastructure.
- The ability to attract foreign investment for the purpose of investing in the transport sector to transfer expertise and technology.
- The existence of supportive laws to promote the use of public transport and develop its services in a way that makes it able to compete with private cars.

This scenario is based on addressing all the main challenges and shortcomings in the transport sector by creating a balance between transport infrastructure projects and the increase in population and vehicles. Key investments in infrastructure are chosen carefully and are of a high level due to sufficient funding. This will result in an increased capacity of the road network to accommodate the number of vehicles as a result of continuous expansion in the creation of roads, streets, city entrances, and parking spaces.

According to this scenario, it is expected that the number of vehicles in Iraq in general, and in al-Najaf Governorate in particular, will decrease during the fore-sight period, due to several factors, the most important of which is the issuance of legislation and laws that limit the excessive import of vehicles from abroad through high customs duties imposed at border crossings, and the implementation of Decision 215 of 2009, which includes the scrapping of old vehicles. The decision requires every citizen, when registering any new (imported) vehicle, to scrap an old vehicle in order to eliminate old vehicles and reduce traffic congestion in the streets. Consequently, the implementation of such decisions will contribute to reducing the number of vehicles.

On the other hand, there will be efforts to find alternatives to private transport modes (private cars) with mass transit modes such as public transport services and multi-modal transport buses for passengers, goods, and services, and the full implementation of the main road network for modern buses. The development of cultural awareness among citizens in al-Najaf Governorate about the need to rely on public transport (by bus or train) will directly contribute to reducing the use of private transport and thus alleviating traffic congestion.

Perhaps one of the most important driving factors towards achieving this scenario is the abundance of financial funding and the possibility of creating a national strategy for the future development of the transport sector, which will lead to addressing the problems facing the elements of the transport sector and thus improving transport services. The existence of such strategies, supported by financial funding, will help the local government to direct investments towards roads and the construction of a network of overpasses on the road network that will transfer traffic from one side to another, especially on main roads such as the

road to the city center and the northern neighborhoods, and the road connecting the city center with the district of al-Kūfah, in order to avoid surface intersections and contribute to relieving bottlenecks.

It is also expected in this scenario, as a result of the financial abundance supported by high crude oil prices and the recent decisions issued by the Prime Minister's Office regarding improving the service and economic reality of the governorate, that sustainable rail transport with suspended trams and metro (subway trains) will be introduced in the governorate for distances not exceeding 10 km, as a major part of the internal transport system. This type of transport is characterized by being one of the safest modes of transport, less polluting to the environment, and less energy-consuming. It helps to reduce the severity of traffic congestion by reducing the use of private transport, in addition to being one of the ideal modes of transport in the urban center of cities. The rail transport also includes the construction of a distinct railway network connecting the northern neighborhoods with the governorate center and connecting the city center with the district of al-Kūfah. Promoting the use of public transport will help to cover the increasing demand for transport in the future, especially if it is low-cost and offers a high quality of services. The construction of infrastructure projects in the transport sector according to the transport strategy will contribute to reducing carbon dioxide emissions and noise, and thus reduce the impact of the transport sector on the environment.

It is expected in this scenario that al-Najaf al-Ashraf International Airport will witness a significant development in the number of passengers over the next ten years, especially after the improvement of health conditions (the end of the Covid-19 pandemic). The number of passengers will increase from 740,506 in 2021 to 5 million in 2025, then to 7 million in 2030, reaching 9 million in 2040. In return, aircraft movement will witness a noticeable increase from 4,018 landing and departing aircraft to more than 30,000 aircraft in 2025, then to 40,000 in 2030, reaching more than 50,000 in 2040, due to the high demand for travel services to the governorate, especially in religious occasions. These forecasts are confirmed by the historical trends of aircraft and passenger movement in al-Najaf Governorate before the Covid-19 pandemic, where the number of landing and departing aircraft annually reached about 25,000 and the number of passengers reached more than 3 million during the last decade of this century. This requires the current airport administration to develop services within the airport and transport means to raise them to the required level for the airport, commensurate with its importance, and to establish expansion projects in aircraft parking areas to accommodate more aircrafts, as well as the need to establish an additional runway to cope with the increasing movement of landing and departing aircraft.

Perhaps one of the most important driving factors towards the optimistic scenario is the issuance by the Council of Ministers of a number of decisions that will contribute to improving public transport projects, developing road systems, and designing traffic programs to ensure a safe and smooth road network that

plays a fundamental role in the success of economic and social development plans. Among these decisions are:

- Construction of the fifth al-Kūfah bridge, which will connect the airport road with the cement factory road, reaching al-Kūfah road east of the Euphrates river.
- In continuation of the agreement between Iraq and Saudi Arabia to move forward with new steps to activate trade exchange at the 'Ar'ar border crossing between the two countries, the Council of Ministers recommended the necessity of starting work on the land pilgrimage route (first phase) by connecting with the 'Ar'ar crossing or with the pilgrimage route from al-Najaf directly, in light of a Saudi orientation to connect with its neighboring governorates. The completion of this road and its entry into service will contribute to opening new horizons in various fields, including economic, developmental, and investment for the governorate.
- Emphasis on the completion of all overpasses at intersections, as well as tunnels that work to facilitate and streamline the movement of transport in the governorate.

To achieve the aforementioned decisions, financial grants have been provided to improve the service reality of the governorate. The Central Bank has allocated a financial grant to the governorate of about (5) billion dinars, while the Ministry of Communications has provided (5) billion dinars. The National Oil Company has also allocated about (10) billion dinars to implement road network development works in the governorate in coordination with the governor of al-Najaf al-Ashraf. A grant of (5) billion dinars was given by the Iraqi Bank for Trade to complete supplementary projects in the infrastructure. The latest grant came from the Communications and Media Commission with an allocation of (10) billion dinars. Directing these resources towards the most needed areas, such as rebuilding and diversifying infrastructure and establishing solid transport institutions, will work to develop the reality of transport and rehabilitate it in the governorate in a way that ensures the creation of sustainable transport with the support of the central government, and makes the transport sector more diverse and places it on a strategic path in a way that contributes to creating horizons for economic diversification and economic development.

V. Responding to the Challenges

1. Link urban planning in the governorate with five-year plans and a comprehensive strategy for transport and traffic within a future vision, which will contribute to influencing the new urban reality of the city and the movement of transport and traffic performance for all modes and means of transport.

2. Work to develop the operating terminals in the governorate and make them responsive to increasing demands according to modern, contemporary systems.
3. Work to introduce public transport by buses with larger seating capacity, which will contribute to reducing the severity of traffic congestion and bottlenecks and the level of pollution, and will work to reduce the use of private transport means.
4. Work to expand the main and secondary roads and raise the level of some roads in terms of their number of lanes and specifications, especially the main roads that connect al-Najaf Governorate with neighboring governorates, and to establish multiple ring roads in the governorate for their role in accommodating the rapid increases in vehicles and achieving transport efficiency within the governorate by reducing traffic congestion.
5. Work to establish a number of mandatory financial and regulatory measures and controls to reduce the negative environmental impacts of the transport sector by reducing the average age of used cars and relying on transport means with modern technology characterized by better performance and fuel economy.
6. Establish new terminals capable of accommodating the large increase in the number of vehicles and individuals, especially during religious occasions, to provide sufficient transport services for all travelers.
7. Create new routes within the governorate's borders to cover its geographical area, as well as create a highway connecting it with Karbalā' Governorate to accommodate the flowing traffic throughout the year.
8. Work to create main roads that connect the governorate's road network with Expressway No. (1) by creating transversal roads between governorates and cities to reduce the congestion and chaos that the main road network witnesses during regular occasions (religious and holidays), in addition to reducing the economic cost of using these roads by shortening time and distance and achieving the highest degrees of speed in communication between parts of the country, specifically the eastern governorates due to the lack of direct roads to them.
9. Establish a railway link connecting al-Najaf Governorate with the main railway line in the Central Euphrates governorates (al-Dīwānīyah and Bābil), and another railway line connecting al-Najaf Governorate with Karbalā' Governorate due to the economic and religious importance of the two governorates. In addition, railways complement and support the road transport network by providing safe transport for passengers, goods, and services over long distances, and at the same time contribute to preserving the land road network, especially highways, from damage due to the passage of heavy vehicles.

10. Activate the joint operation system between the public and private sectors and ensure coordination in planning, implementing, and operating transport systems in the governorate.
11. Strengthen the administrative leadership of public terminals by giving them the necessary powers while strengthening the mechanisms of regulation and performance monitoring.
12. Review the fees collected from transport services in order to narrow the funding gap and reduce the financial burdens on the state to provide the requirements for developing transport facilities and their continuous maintenance, and to find a collection system from users of the main roads in the governorate, especially large trucks.
13. Rehabilitate the existing road network by promoting and attracting direct foreign investment and creating a suitable environment to attract it and rely on it as external funding sources in order to advance the transport sector in the governorate, by adopting economic programs and policies that work to attract investment and grant many facilities and competitive advantages to foreign capital.
14. Involve the private sector in investing in the infrastructure field in the transport sector by developing a joint agreement on investment objectives, which contributes to the availability of financial resources, within the items of the development objectives of the Private Sector Development Strategy 2014-2030, which included working to strengthen the private sector and reform the legal and regulatory frameworks that regulate the work of the sector in both its organized and unorganized parts, according to three developmental pillars that will lead to improving the business environment and the competitiveness of small and medium enterprises in a way that enables companies to become more productive and more competitive (Council of Ministers, 2014, pp. 4-6).
15. Enhance international and regional cooperation with international financial institutions with the aim of providing financial assistance or grants to be invested in establishing infrastructure for the transport sector in the governorate.
16. Create new methods to increase the demand for transport services during low-demand periods more regularly, such as enticing customers from passengers within the governorate by transporting school students and factory workers at a low fare, and working to create recreational and tourist trips outside the governorate.
17. Establish weigh stations at the entrances of the governorate, which will contribute to preserving the road network from damage due to heavy loads.

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11.

Tourism

Asst. Prof. Dr. Aḥmad ‘Abd-al-Karīm al-Najm

Faculty of Administration and Economics, Department of Tourism, University of al-Kūfah.

I. Reality of the Tourism Sector in al-Najaf al-Ashraf

Tourist services encompass a variety of offerings that differ in their premises, objectives, and degree of technical and artistic advancement. Due to modern developments and technology, services that attract tourists are now termed the “hospitality industry.” These are services capable of enticing tourists and increasing their spending rates by extending their length of stay and encouraging the purchase of goods and gifts. Furthermore, they achieve tourist satisfaction. Such services include transportation, food and beverage, accommodation, retail services, and entertainment services (al-Ṭāṭ, 2005, p. 45). Spending on tourist services within the tourism market extends from the moment they enter the host country’s borders until their departure (Dānyāl, 2006, p. 65). This can be detailed as follows:

1. Tourist Hotel Services

Tourist hotels are a critical component of the hospitality industry due to their functional and service-oriented connection; they have a direct relationship with incoming tourists and are the service medium that provides a point of stability for tourists outside their original homes (Kāẓim, 2011, p. 19). They are services that contribute to the economic, social, and cultural well-being of the host community and are considered important tourism indicators. Tourist hotel services are the fundamental axis upon which tourism, in general, is based. Moreover, hotel services are productive sectors in their own right, constituting an effective economic resource in tourism development. They are sometimes referred to as “tourist attractions” for their ability to draw tourists and generate maximum profits by increasing the length of stay.

Given the tourism assets of al-Najaf al-Ashraf Governorate, hotel services have developed accordingly. The number of tourist hotels reached 119 in 2010, with 1,122 employees. The total wages and benefits amounted to 3,413 million Iraqi dinars. The number of resident tourists was approximately 780,098, while the total tourist nights reached 3,091,081 bed/days. This number decreased in 2011 to 104 tourist hotels, corresponding to a drop in employees to 791. This was reflected in the total benefits and wages paid, which fell to 2,985 million Iraqi

Table 11-1: Number of Tourist Hotels, Employees, Total Wages, Tourists, and Bed/Nights in al-Najaf al-Ashraf Governorate (2010-2020)

Year	Number of Hotels	Number of Employees	Total Benefits and Wages (Million Dinars)	Number of Tourists	Number of Bed/Nights (Bed/Day)
2010	119	1,122	3,413	780,098	3,091,081
2011	104	791	2,985	553,759	1,521,080
2012	189	1,209	3,762	986,982	2,203,810
2013	214	1,272	5,532	1,255,136	3,484,804
2014	231	1,189	5,121	1,321,212	3,789,219
2015	247	1,033	4,141	490,632	4,344,564
2016	295	1,345	4,925	595,801	6,782,192
2017	339	14,161	5,784	654,310	7,321,879
2018	315	12,365	4,765	574,321	6,498,762
2019	303	11,987	4,214	527,861	6,123,654
2020	307	13,873	50,981	596,432	6,987,321

Source: Ministry of Planning (2010, pp. 4, 18; 2011, pp. 6, 20; 2012, pp. 5, 19; 2013, pp. 6, 30; 2015, p. 6) and Ministry of Culture, Tourism and Antiquities (n.d.) for the years 2016, 2017, 2018, 2019, 2020.

dinars. This decline was accompanied by a decrease in the number of tourists arriving in al-Najaf al-Ashraf Governorate to 553,759, with tourist nights dropping to 1,527,080 bed/days.

The severity of this decline was mitigated by urban expansion, as some merchants moved to increase the number of hotels to provide better tourist services despite the decrease in wage values. The number of tourist hotels increased in 2012 to 189, an increase of 85 hotels from 2011, with the number of employees rising to 1,209, accompanied by an increase in tourist nights to 2,203,810 bed/days.

Despite the decrease in the cost of accommodation for incoming tourists and the spread of the Covid-19 pandemic with its subsequent precautionary measures, tourist services continued to evolve. The number of tourist hotels in 2015 was about 247, an increase of 33 hotels from 2013. The numerical and service increase continued, reaching 307 hotels in 2020, an increase of about 60 tourist hotels from 2015, as shown in Table 11-1.

2. Air Transport Services

The tourism industry is directly linked to the air transport industry, with airlines playing a role in stimulating tourism traffic (al-'Ubaydī, 2015, p. 124). Air transport is one of the most important pillars in the development of tourist services, through connection with the outside world and openness to tourist-generating markets. There is an international consensus that the expansion of global tourism is a condition for the continuation of air transport services (Hasan, 1991, p. 140). It also provides transport services to the city's residents, offering connections to all countries of the world, both neighboring and distant.

Air transport consists of several main elements (aircraft, airport, airway—flight paths), the internal arrangement of the aircraft, food services, and passenger care. This includes government facilities and procedures such as reservations, customs, security, and aviation safety, as well as care for institutional offices and service departments, such as the external appearance of the airport and waiting halls, in addition to the use of modern communication means (al-Şā'igh, 2014, p. 24).

Air transport services can be divided into two basic categories. The first is primary services related to the transport of passengers and goods from one region to another outside the city or state, which includes passenger, baggage, cargo, and mail transport services. The second category includes auxiliary services that facilitate the provision of primary services, such as air traffic control, aviation engineering, and the organization of landing and takeoff operations related to ground operations (Bal-Atrash, 2015, p. 10).

The airport is one of the most prominent air transport services. Airports can be classified as commercial, military, and civil, and by flight type as medium, short, or long-haul, or as tourist flights (al-Qarā, 2014, p. 40). al-Najaf al-Ashraf International Airport is one of the Iraqi airports, and it is located southeast of the city. Following the recommendations of the International Civil Aviation Organization (ICAO), the airport was established according to the standard rules and recommended practices indicated by the ICAO, as a basis for airport design standards in Iraq. It was officially opened on November 19, 2008. Its most prominent functions are:

- Transporting passengers to Islamic and non-Islamic countries, and providing services to passengers such as shopping, dining, and waiting in halls equipped for this purpose with the latest air conditioning and heating systems.
- Receiving incoming aircraft of international origin that ensure passenger comfort in terms of capacity, seating comfort, speed, and safety in takeoff and landing operations.
- Providing reservation and reception services for arriving passengers during religious occasions through travel and tourism companies.
- The airport stimulates travel motives for the residents of the governorate and other Iraqi governorates through offers during the summer holidays or religious occasions, such as travel to Iran, Syria, and Saudi Arabia (Hajj and Umrah), or to Lebanon for medical purposes. al-Najaf al-Ashraf International Airport provides travel services for these motives, such as booking and ticketing, and scheduling flights, which ultimately leads to repeat travel. It also provides services for those with chronic diseases and promotes recreational motives, such as travel to northern Iraq or abroad, leading to a diversification of tourism motives due to the availability of air transport services.

The number of passengers, whether arriving or departing, is an important criterion for measuring the efficiency of the services provided at the airport, as al-Najaf witnesses a continuous influx of travelers from various countries.

Table 11-2: Number of Flights, Aircraft Movement, and Passenger Traffic at al-Najaf International Airport (2010-2020)

Year	Total Flights	Aircraft Traffic		Passenger Traffic		Total Passenger Traffic
		Arriving	Departing	Arriving	Departing	
2010	360	186	174	2,427	2,593	5,020
2011	389	191	198	2,667	2,879	5,546
2012	462	229	233	2,854	3,167	6,021
2013	547	269	278	2,984	3,193	6,177
2014	565	276	289	3,128	3,219	6,347
2015	582	288	294	3,643	3,859	7,502
2016	854	442	412	4,356	4,115	8,471
2017	936	508	428	5,477	3,477	8,954
2018	987	476	511	3,938	5,937	9,875
2019	*	*	*	*	*	*
2020	452	213	226	2,342	2,073	4,415

* No flights to al-Najaf International Airport due to precautionary measures for the Covid- 19 pandemic.

Source: Republic of Iraq, Civil Aviation Authority, al-Najaf al-Ashraf International Airport Administration, Ground Operations Division, unpublished data for the period (2008-2020).

Table 11-2 shows the total domestic flights (arriving and departing) at al-Najaf International Airport for the period (2010-2020). In 2010, there were 186 arriving flights and 174 departing flights (Civil Aviation Authority, n.d.). The total number of passengers was 5,020. The number of domestic flights increased in 2011 to 389, an increase of 29 from 2010. This was accompanied by a rise in the number of arriving passengers to about 526. The number of flights then rose in 2013 to 547. This increase was reflected in the number of passengers, which reached 6,177, an increase of about 170 from 2012. The increase continued until the number of flights in 2017 reached 936, with a total of 8,954 passengers, an increase of about 483 from 2016. The number of arriving flights was 805, and departing flights was 428. In 2018, the total number of flights was approximately 987, with 476 arriving and 511 departing, and the total number of passengers reached 9,875. Due to the health changes of the Covid-19 pandemic, flights were suspended in 2019. In 2020, the number of flights to the airport was 452, with 213 arriving and 226 departing, and a total of 4,415 passengers. Flights resumed due to the gradual recovery that accompanied health measures such as vaccination, social distancing, and the dissemination of health guidelines in international airports.

II. Assessing the Need to Develop the Tourism Sector

Tourism studies are concerned with providing a range of tourist facilities and services to meet the desires and needs of incoming tourists while improving the quality of the service provided, in order to achieve the greatest possible tourism growth in the shortest time and at the lowest cost (Shayyād, 2014, p. 51). This is achieved through the following:

1. Green Hotels (Eco-Friendly Hotels)

Green hotels are tourist hotels that consider environmental conditions in their design and the services offered to tourists. They are of two types. The first relies on modern construction techniques and technological methods. The second uses locally made design materials with smart environmental architectural treatments, creating an environmental harmony between the hotel building and its surrounding environment (ʿAntar, 2014, p. 4). Protecting the tourism environment and how to preserve it is one of the important objectives for increasing tourist attraction (Aloj et al., 2001, p. 161). Those in charge of green hotel services realize that they require sound practices towards the environment and society (al-Khawwām, 2001, p. 181). Environmentally considerate practices have a positive return in terms of cost reduction, which includes energy consumption, wastewater, and waste disposal. This means that green hotel services provide a healthy and suitable environment for receiving incoming tourists, free from pollutants and diseases (Ḥammād, 2015, p. 263).

Table 11-3 shows that there are eight indicators for green hotels. The air quality in hotel rooms indicator ranks first, representing the purity of the air and its impact on the health of the host community and the non-proliferation of diseases. When this indicator is applied to tourist hotels, it is found to be unavailable. The quantity of treated waste (liquid and solid) ranked second, as tourist hotels consume large quantities of cleaning materials and food supplies. The entity responsible for implementing this indicator is the Ministry of Environment, and this indicator is not available in all hotel grades. The third indicator points to the optimal use of electrical energy through the utilization of solar energy. Despite high temperatures reaching 50°C during hot months, tourist hotels use their own generators to produce electricity, making them inefficient in terms of supply. The fourth indicator refers to the quality of potable water, but tourist hotels use the same water network as residential neighborhoods, making the high level of pollution a likely issue. The fifth indicator stipulates the availability of communication and technology services in hotel buildings; this indicator was found to be absent in tourist hotels. The skill of the workers in hotel services was a prominent and important factor in the sixth indicator. When this indicator is applied to tourist hotels, it reveals a low efficiency of workers in terms of practical and professional experience, and they require training courses to improve the quality of service provided to incoming tourists.

The seventh indicator showed the compatibility of the external form of hotel buildings with the surrounding environment. When applying this indicator, it becomes clear that most tourist hotels do not conform or harmonize with the land uses, especially in the old city, where tourist hotels are scattered in narrow alleys that are inconsistent with the adjacent land uses. The eighth indicator pertained to noise pollution. Attention to achieving complete comfort for tourists is achieved by selecting the best locations away from noise. When applying this indicator, it is found that tourist hotels are located in unsuitable places, such as residential or commercial land uses or on public roads, which has made the level

Table 11-3: Application of Green Hotel Indicators in al-Najaf al-Ashraf Governorate for the Target Year (2050)

Indicator Type	Indicator Function	Responsible Authority
Air Quality in Hotel Rooms	Measures the purity of air inside hotel rooms and the absence of unpleasant odors.	Ministry of Culture, Tourism and Antiquities
Waste Treatment (Liquid and Solid)	Tourist hotels produce large quantities of solid waste from tourist consumption, such as paper, glass, cleaning materials, and towels. It is necessary to recycle them in a way that does not harm the environment and to utilize them in various fields.	Ministry of Environment
Optimal Use of Electrical Energy	Green hotels work on the optimal use of electrical energy by using solar radiation to generate electricity.	Ministry of Electricity
Quality of Potable Water	Measures the current and expected usage rate of potable water.	Ministry of Municipalities and Public Works
Communications and Technology	Measures the readiness of tourist hotels for investment through four axes: regulatory environment, infrastructure readiness, usage method, and economic impacts.	Ministry of Communications
Efficiency of Workers	Measures the performance efficiency of workers in the tourist hotel sector, such as language, demeanor, and quality of reception.	Ministry of Labor and Social Affairs
Harmony of Form with Environment	Measures the degree of compatibility and harmony in the form of hotel buildings with the surrounding environment.	Directorate of Urban Planning
Noise Pollution	Measures the achievement of complete comfort for tourists by selecting optimal locations away from noise.	Ministry of Environment

of noise pollution very high. Furthermore, the building materials do not contain sound-insulating materials, which has led to a decrease in the efficiency of this indicator.

2. Developing Tourist Restaurant Services

One of the most important characteristics of restaurant services is seasonality; it is not a fixed activity in its volume but is characterized by service changes according to the volume of tourist traffic, which varies from one season to another. In other words, it falls within economic activity if there is a desire from tourists to purchase its services (Lewis et al., 1996, p. 7). It is directly linked to the desires and tastes of incoming tourists. Therefore, before establishing and building a tourist restaurant, the economic feasibility must be determined in terms of the following:

- **Capacity Study:** One of the problems facing tourist restaurants in al-Najaf is the failure to determine capacity before construction, which makes the place crowded with diners. Capacity should be determined based on normal days, holidays, and religious celebrations.

- **Inclusion of Entertainment Services:** Tourist restaurant services should include entertainment services such as gardens, green spaces, and amusement and recreation services.
- **Study of Furniture Costs:** This includes tables, chairs, counters, refrigerators, electrical appliances, as well as kitchen equipment.
- **Optimal Location Selection:** Choosing the best tourist locations that are easily accessible for tourist restaurants.

3. Developing Travel and Tourism Company Services

The services of travel and tourism companies and travel agencies were limited, summarized as intermediary services between the tourist and the suppliers of tourist services such as airlines, tourist hotels, and ticketing. Nowadays, the work of tourism companies has evolved to include various tourism programs of different types and purposes. Therefore, their employees try to increase the presentation of images in the form of brochures to create a clear picture of the nature of the tourist services provided in hotels and tourist restaurants (al-Muḥammadāwī, 2013, p. 20). To raise their service efficiency and development, the following must be followed:

- Providing sufficient and truthful information about the nature of the tourism programs.
- Exercising control over the quality of services provided to tourists.
- Paying attention to confirming reservations according to the tourism programs well in advance of travel dates.
- Increasing the number of trips to tourist resorts.

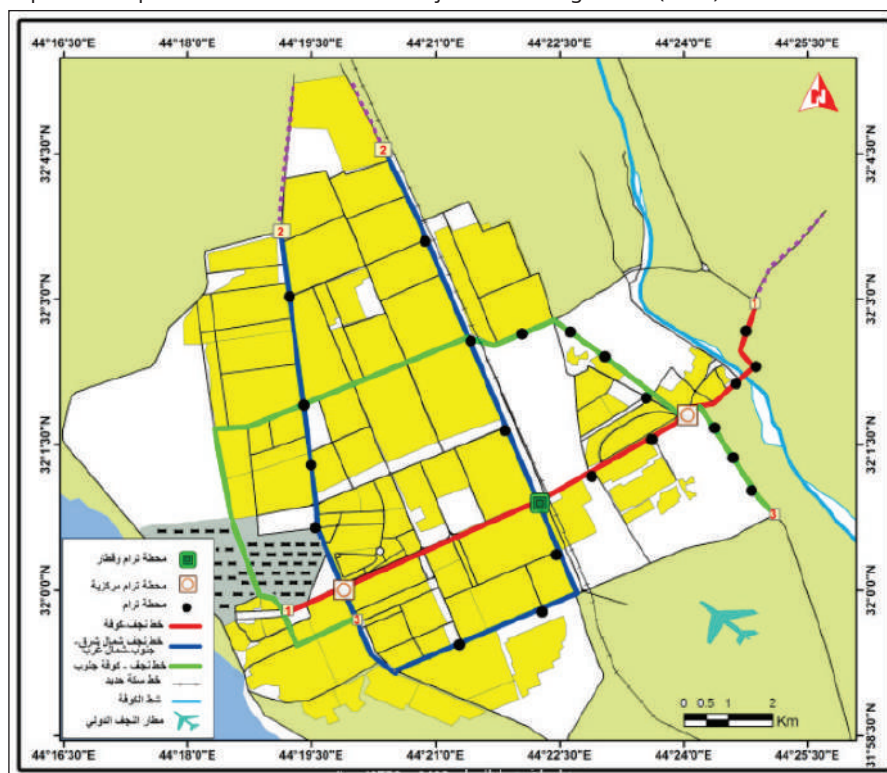
4. Developing Tourist Transport Services

Tourist transport services are essential for the development and investment of all service potentials, in terms of ease of access to hotels, tourist restaurants, travel companies, and entertainment services. The flow of tourists cannot be imagined without transport routes leading to tourist destinations. Road services are the backbone of tourism service development. The reason for this is that the tourist is not only looking for a hotel or a restaurant but also chooses comfortable means of transport (heating and cooling services), a skilled driver, and a learned tourist guide capable of providing necessary information about the nature of the tourist area (al-Ṭāṭī, 2005, p. 18). The main purpose of developing tourist transport services is to provide comfort to the tourist in moving from one place to another. This is achieved by providing real and practical solutions characterized by complete flexibility in their application. Transport routes in al-Najaf face several problems, including poor continuous maintenance, both technically and technologically, in addition to the lack of "road furniture," which is one of the most prominent transport services, and the absence of sufficient sewage networks for the needs of both residents and tourists. To improve the efficiency of the transport network, the following strategies must be adopted:

a. Developing the Internal Transport Network:

Map 11-1 illustrates that the development of transport services in al-Najaf depends on the diversity of its fast, comfortable, and safe means. Therefore, the presence of a tram line will reduce travel time, in addition to reducing the economic costs of transport. Furthermore, it provides the tourist with the comfort, safety, and enjoyment they seek, reduces the problem of traffic congestion, adds a civilized appearance befitting the urban landscape as in Picture 11-1, and avoids the damage from closing some roads during religious occasions such as the martyrdom of al-Imam 'Alī and Ziyarat al-Arba'een of al-Imam al-Ḥusayn. The track will extend along three lines. The first will start from the old city towards the city of al-Kūfah. This will transport tourists from the shrine of Imam 'Alī, the cemetery, the shrine of the prophets Hūd and Šāliḥ, the maqam of Imam Zayn al-'Ābidīn, and Šāfi Šafā, passing through al-Ḥannānah Mosque, al-Kūfah Mosque, and the al-Sahlah Mosque. This means this line will be directly connected to the religious shrines and their surrounding services such as hotels, restaurants, travel and tourism companies, and shopping services. The second line will start from 1920 Revolution flyover, heading north and northwest of the city. This axis

Map 11-1: Proposed Tram Services for al-Najaf for the Target Year (2050)



Source: Ministry of Municipalities and Public Works, Directorate of Urban Planning in al-Najaf al-Ashraf Governorate, GIS Division, Proposal for the Development of Transport Roads in the cities of al-Najaf and al-Kūfah.

Picture 11-1: Departure and Stop Stations for the Proposed Tram in al-Najaf Governorate for 2050



Source: Ministry of Municipalities and Public Works, Directorate of Municipality in al-Najaf al-Ashraf Governorate, GIS Division, unpublished data.

represents one of the main and important motives for the continuous influx of tourists, in addition to covering most of al-Najaf, reaching al-Najaf al-Ashraf International Airport. The third line will be dedicated to transporting the residents of al-Najaf, covering the area near 1920 Revolution flyover, passing by the shrine of Imam 'Alī (peace be upon him) and the cemetery, as well as the northern neighborhoods, reaching the University of al-Kūfah on the facade overlooking Maysān neighborhood and near al-Sahlah Mosque, until it reaches al-Kūfah Mosque and then ends near al-Kūfah Cement Factory.

b. Developing the External Transport Network:

al-Najaf al-Ashraf Governorate is not connected by a transport network commensurate with its tourism importance. Access to its commercial and service center is primarily through external roads that rely on the northern and southern axes. The advisory team formed in the governorate's Directorate of Urban Planning has proposed two main axes (north-south) and (east-west) to increase the fluidity of traffic flow, as in Map 11-2, to improve the efficiency of the external road network connected to the governorate. A railway extension has been proposed, as well as stations connected to the metro, which is a transport system that transports tourists for short distances between residential and commercial areas. It has been divided into the following axes:

1. **Northern Governorates Axis:** This axis serves the northern governorates and other cities located in this direction, which serves tourists and develops economic activity between this city and the governorates, as the flow of tourists from them to al-Najaf is continuous, especially during religious occasions. This will be achieved by extending the railway that connects al-Najaf city with other cities, through main stations dedicated to transporting tourists to the shrines and related services such as hotels, tourist restaurants, and travel and tourism companies, reaching the city center.

- Visiting tourist hotels in the morning and evening and verifying tourists' documents.
- Submitting daily, weekly, and monthly reports to the relevant security authorities on the volume of tourist traffic.
- Monitoring tourists from their entry into the tourist hotel until their departure.
- Dividing the work into sectors of responsibility to ensure the accuracy of the information provided to them.

To develop tourist security services, the following measures must be adopted:

- Adopting the principle of experience and professional competence in dealing with tourists through continuous training.
- Using electronic technologies for monitoring and surveillance, as these technologies provide high flexibility in use, in addition to the accuracy of information with a low error rate.
- Developing the cultural awareness of most employees in the Directorate of Tourist Security.

D. Attention to Old Markets (Heritage Souqs):

al-Souq al-Kabīr (Grand Market) is one of the old and heritage markets, containing several sub-markets. It represents the main commercial gateway or entrance to the old city. Commercial activity peaks during religious occasions or on Thursdays and Fridays. Therefore, its care represents an economic gateway for the city by adopting a distinctive Islamic style, especially from the al-Maydān area and the side overlooking the shrine of Imam 'Alī. al-Souq al-Kabīr includes several commercial centers consisting of ground floors that allow for freedom of movement and shopping within them. Special places for sitting and waiting are also designated, in addition to the necessity of providing various types of shade trees that work to cool the atmosphere and provide shade, as in Picture 11-2.

Picture 11-2: Development of the al-Souq al-Kabīr Area in al-Najaf al-Ashraf Governorate



Source: Ministry of Municipalities and Public Works, 2015, p. 99.

5. Developing Green Spaces

The old city lacks gardens and parks. Some green areas have been created surrounding 1920 Revolution flyover, but they are insufficient. Therefore, creating new green areas within the city will enhance its efficiency and capacity to accommodate the largest possible number of incoming tourists. For the purpose of developing tourist services in al-Najaf al-Ashraf Governorate, we propose two tourist areas:

a. Shaṭṭ al-Kūfah Corniche

This area is characterized by low land prices and the availability of natural elements such as green areas and water. This is what most tourist countries have done, benefiting from their natural features and employing them in the tourism field, taking advantage of all available potentials. To achieve service integration in al-Najaf al-Ashraf Governorate, it is necessary to invest in its optimal locations. This area is considered one of the recreational places frequented by the residents of the governorate, and a group of services and recreational activities are spread there, including:

- **Fast Food Stalls:** There are dozens of specialized stalls that offer various foods to their patrons.
- **Sports:** Due to the atmosphere of the area, visitors come to enjoy playing table games and similar activities, and there are several halls to accommodate them. This field can be developed to modern forms.
- **Restaurants:** The number of specialized restaurants has reached 34, offering various services, including juices, hot and cold drinks, hookah, and appetizers. These restaurants are busier during the summer and high temperatures, as residents resort to them. In addition, the Corniche area includes entertainment services such as riverboat rides, swimming in isolated pools, and places for social gatherings.

As a result of these data and available potentials, this area must be invested in and given top priority in the development of tourist services and the improvement of its urban structure, foremost among them hotel, restaurant, and travel and tourism company services, and the selection of the best environmental sites with beautiful and distinctive nature (al-Bāriqī, 2011, p. 150). This requires increasing the volume of tourism investments, especially in tourist transport services to facilitate access to it, and developing hotel, tourist restaurant, travel and tourism company, and entertainment services (Gharrūd, 2007, p. 21).

b. Baḥr al-Najaf Depression

With its natural and human characteristics, Baḥr al-Najaf depression represents the optimal location for investing in religious tourism services in al-Najaf. This area is located to the south and southwest of al-Najaf al-Ashraf Governorate, on the right side of the main road connecting al-Najaf and al-Ḥirah. It forms a natural extension of the sedimentary plain in the form of a tongue extending through the western plateau from south to north from the direction of the al-Manādhirah sub-district (al-Mūsawī, 2004, p. 70).

Picture 11-2: Future of Tourist Hotels and Restaurants in Baḥr al-Najaf Depression

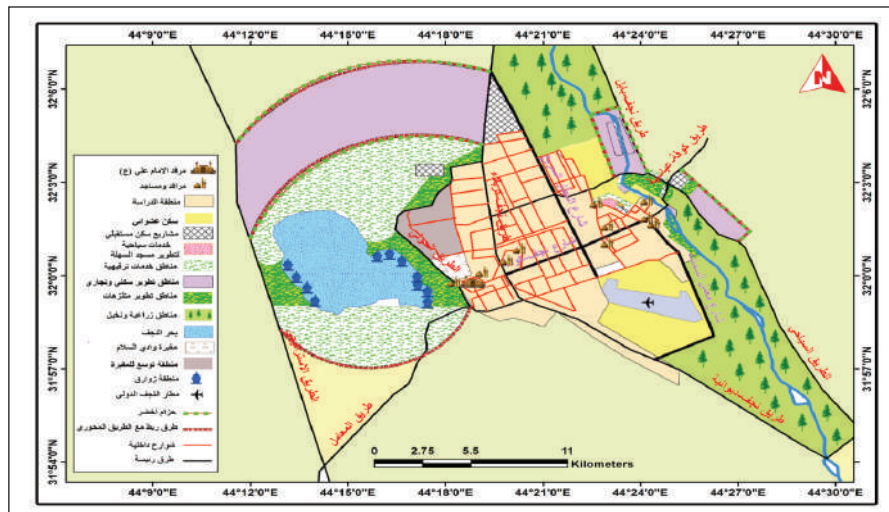


Ministry of Municipalities and Public Works, Directorate of Municipality in al-Najaf al-Ashraf Governorate, Study submitted by al-'Aqilah International Company in Kuwait, Proposed Tourism Planning for Baḥr al-Najaf Depression, Urban Development Advisory Office.

This area was chosen for environmental and aesthetic reasons. The spread of tourist services such as hotels and restaurants within the narrow alleys of the old city has made them unsuitable for the surrounding land uses, especially residential land uses. Therefore, addressing this problem requires selecting suitable areas for them, and among these areas is Baḥr al-Najaf depression, which includes an environmental diversity of various plants and animals and is a candidate to be one of the proposed nature reserves in the Governorate. Picture 11-3 is taken from a detailed study on the investment of hotel and tourist restaurant services in Baḥr al-Najaf depression, which showed that it represents the optimal location for planning tourist services for the following considerations:

- Proximity to the shrine of Imam 'Alī and the nearby shrines and maqams such as the maqam of Imam Zayn al-'Ābidīn and the shrine of Ṣāfi Ṣafā.
- Building tourist hotels and restaurants that are compatible with the conditions of the community and contemporary tourism requirements.
- Providing adequate protection for the residents of this area by installing monitoring devices using computers.

Map 11-3: Proposed Areas for the Development of Religious Tourism Services in Shaṭṭ al-Kūfah Corniche and Baḥr al-Najaf Depression for the Target Year 2050



Baḥr al-Najaf depression area has included many proposed tourist land uses as in Map 11-3, most prominently the recreational areas which occupied an area of 1,123 hectares.⁽¹⁾ Several tourist activities can be established, such as creating special complexes for amusement games, especially for children, which contribute effectively and influentially to their attendance by families during the summer holidays, in addition to water boats, distributed on the shores of the water depression with 11 launching points for amusement and entertainment, covering an area of 52.1 hectares.

To make it a tourist station, residential projects were proposed in it, with an area of 459.3 hectares, which contributes effectively to addressing residential slums, in addition to developing commercial services through the economic investment of commercial complexes and malls, with an area of 987.7 hectares, which contributes to reviving the economic movement.

Parks and gardens represented a tourism importance in Baḥr al-Najaf depression; their proposed area within this region reached 978.7 hectares. Their importance emerges through two features: the first is their facing the shrine of Imam 'Alī, and the second is their natural view on the edge of the steep slope, which increased their tourism importance in terms of their geographical location.

Transport road services had their share in Baḥr al-Najaf depression, connecting that area with them, by opening main roads and linking them with all proposed tourist activities, in two directions. The northern roads extended from the Najaf-Karbala' road axis with two branches. The first extended from the Abū-Ṭālib neighborhood towards the strategic road in the form of a two-way road, adopting the feature of afforestation and traffic signs, which are among the priorities of

(1) The proposed areas in the Baḥr al-Najaf depression were calculated based on the satellite image using the GIS program.

tourist roads. The second begins from the Najaf checkpoint towards the strategic road. The southern transport roads extended from the al-Nūr neighborhood towards the factories road to meet with the strategic road. The proposal of services in the water depression will enhance the tourism and service potentials and become one of the tourist centers that attract various nationalities of incoming tourists.

III. Development of the Accommodation Capacity of Tourist Hotels for the Target Year (2050)

In 2020, the number of tourist hotels was 307, in addition to 34 tourist restaurants. This is added to the increase in incoming flights to al-Najaf al-Ashraf International Airport. However, through the analysis of data for the governorate and based on the proposed data in Table 11-4, it became clear that the governorate needs to develop these hotels, not only in number but also in the quality of their actual services and their ability to employ labor, absorb unemployment, generate hard currencies, in addition to tourism investments and achieving economic recovery for the population. For this reason, the number of hotels for the year 2050 should rise to 575 tourist hotels, of which the deluxe grade is 200 hotels (34.78%). The reason for this is that this type of hotel is characterized by service diversity that achieves satisfaction for tourists arriving in Najaf, in addition to its distinction in employing the largest number of workers with tourism specializations.

As for first-class hotels, the governorate needs 150 of them (26.09%), for the tourist services they provide, similar to deluxe hotels except for some luxury services. The governorate's need for second-class hotels is 100 tourist hotels (17.39%), due to the suitability of their prices for incoming tourists and the provision of services to tourists in line with their desires.

The governorate's need for third-class hotels is 75 tourist hotels (13.04%). The availability of this type will enhance the governorate's capacity to accommodate incoming tourists, in addition to its services that suit tourists with limited incomes.

Table 11-4: Future of Hotel Services and the Development of Their Accommodation Capacity for the Target Year (2050)

Hotel Grades	Required Number of Tourist Hotels	Percentage (%)	Required Hotel Rooms	Percentage (%)	Required Hotel Beds	Percentage (%)
Deluxe Grade Hotels	200	34.78%	10,932	32%	121,457	29%
First-Class Hotels	150	26.09%	8,738	26%	110,765	26%
Second-Class Hotels	100	17.39%	5,436	16%	101,876	24%
Third-Class Hotels	75	13.04%	4,879	14%	56,230	13%
Fourth-Class Hotels	50	8.70%	3,924	12%	32,687	8%
Total	575	100%	33,909	100%	423,015	100%

Source: Ministry of Culture, Tourism, and Antiquities, Estimates of the Tourism Authority in al-Najaf al-Ashraf Governorate, Planning and Follow-up Division, unpublished data. Ministry of Municipalities and Public Works, Directorate of Urban Planning in al-Najaf al-Ashraf Governorate, Designs Division, unpublished data.

While al-Najaf's need for fourth-class hotels is about 50 tourist hotels (8.70%). The effects of the development of accommodation capacity can be positively reflected on the situation of the governorate.

IV. Scenarios

The United Nations report titled "Tourism and the COVID-19 Pandemic" discussed the decline in global tourism revenues, which could reach \$3.3 trillion, due to travel restriction measures and the closure of tourist facilities. The following are the expectations for the future of tourism.

1. Baseline Scenario: Continuation of the Current Situation in Tourism and heritage Investment

There is currently no indication of a resolution to the tourism crisis. Medical studies speak of many waves of the COVID-19 pandemic, and that the coming period will be the most impactful on the tourism sector, which still suffers from significant material losses.

On the other hand, tourism investment is one of the most diverse investments, as the fields it extends to are varied in terms of place, time, and the type of sector it represents or the institution or organization. Tourism activity is characterized by being long-term, whether as a single project or a group of organized projects. On this basis, it differs from other economic investments. These investments are either direct, through investment in deluxe tourist hotels, tourist or heritage cities, villages and tourist complexes, and tourist restaurants, or indirect, through investment in complementary sectors such as industry, agriculture, health, and public services in the state (Ḥasan, 2013, p. 71).

Foreign direct investment requires the availability of a number of basic elements to ensure the success of the investment process and attract foreign capital. Among these factors are: security, liquidity, return, currency stability, and income level. Therefore, it is necessary to create a suitable climate for it and provide factors of political, economic, and tourism stability, and to work on protecting foreign capital from damage or confiscation, with the establishment of regular rules for the transfer of investors' profits and the amendment of laws and legislation, provided that the state has a role in determining the types of desired projects.

In the event of the continuation of the Corona pandemic and its subsequent preventive measures, a set of practical applications must be taken that serve al-Najaf al-Ashraf Governorate, including reliance on local tourism, or what is called domestic tourism, which works to increase the bond between the population and enhance the archaeological and heritage aspects. This helps in benefiting from tourism income and investing leisure time by promoting a sustainable tourism environment (Nādī & Mughtāb, 2021, p. 109).

On the other hand, attention to the domestic tourism market and strengthening tourism products that can compete with foreign markets will lead to more

specialization and expertise, which will in turn have an impact on adapting to local and foreign tourists within the available resources.

Attention to tourism resources helps to revive local establishments, which have an active and influential role in driving the wheel of economic development. Its impact is on increasing cultural tourism awareness for the local population. In light of the weakness of marketing options in promoting tourism services and convincing guests of the quality of the service provided, this confirms the need for training courses for workers in the tourism sector, which works to increase expertise and skills.

2. Optimistic Scenario: Development of Tourism Resources

The main goal of any tourism work is to achieve high levels of performance while preserving the available tourism resources, by making effective decisions related to policies and practices on how to manage tourism resources. There are two ways to manage the tourism sector. The first is the approach that assumes that Ministry of Tourism is the director and has at its disposal all tourism resources and how to invest them. This is what is adopted in developing countries that do not allow decisions to be made except by those with expertise and specialization centrally. While the decentralized approach is followed to deal with administrative problems in the fields of tourism investment, organization of human resources, and overcoming bureaucracy and reluctance to participate, which helps in a fair and beneficial distribution for sustainable tourism development. As for the most appropriate method for developing tourism resources, it requires a balance between (centralized and decentralized), which achieves cooperation and fills the gaps in the nature of tourism resource investment. This is done by studying the size of the facilities surrounding the resources with determining the priorities of tourism investment.

The private sector has the responsibility to advance the tourism sector and cooperate with the relevant state institutions to create the required climate to attract tourists, pay attention to the quality of establishments and tourism services, develop human competencies and their skills, open doors for investors and businessmen, and grant them sufficient opportunities to rehabilitate tourism services and facilities, in support of the national economy.

Most experts and those interested in the tourism sector do not see a repeat of the 2019 crisis if strict preventive measures are followed. Forecasts indicate that 43% of respondents to the tourism organization's survey believe that this sector will grow and not stop and that it is the most recovering of the other economic sectors, which will reflect good prospects for the emergence of new activities such as cultural tourism and electronic tourism. The closure period also helped in acquiring training skills and specialized lectures for workers in the tourism sector, through training specialized human resources, developing talents, and gaining the necessary experience in this field.

Reforming the tourism sector requires many necessary requirements to encourage travelers to visit tourist destinations, including maintaining the

Table 11-5: Environmental Analysis of the Tourism and Travel Sector (SWOT)

Internal Tourism Environment	
Strengths	Weaknesses
1. Diversity of human expertise and competencies in the tourism sector.	1. Lack of training courses for workers in the tourism sector, which would enhance the quality of tourism service.
2. Availability of many tourist and hotel establishments.	2. Unsuitability of urban structures to the requirements of modernity in construction and design according to planning standards.
3. Interest of commercial center owners in developing tourism services.	3. Lack of financial support for owners of tourism projects in terms of taxes and financial grants.
4. Availability of tourism destination elements, especially religious tourism elements.	4. Focus on religious tourism destination elements without relying on other types such as environmental, desert, cultural, medical, and sports tourism.
5. Development of modern technological and marketing systems and reliance on social media sites to disseminate tourism information.	5. Simple reliance on digital transformation sources in implementing marketing policies for the tourism sector.
External Tourism Environment	
Opportunities (O)	Threats (T)
1. Growth of domestic and foreign tourism demand.	1. High level of the prices of required equipment.
2. Security stability in most districts and sub-districts.	2. Low level of tourism and environmental awareness of local residents.
3. Increase in job opportunity rates in tourist establishments.	3. High levels of environmental pollution in all its forms and types.
4. Technological developments have led to an increased desire for travel and tourism.	4. Weakness of internet networks and lack of effective technical support.
5. Development of tourism services has led to a rise in the tourism classification level.	5. Multiplicity of continuous crises and disasters such as COVID-19.

exchange rate, providing banking services, and government financing initiatives such as the Central Bank's initiatives, equipping tourist hotels with trained human expertise, and controlling security stability, with attention to infrastructure and preserving archaeological and heritage sites. This requires developing a reform program by experts for an integrated restructuring, with the aim of achieving sustainable tourism development, in line with current and future developments.

Assuming this role is undertaken, tourism will represent one of the most important economic sectors, and will constitute an important source of hard currencies and achieve economic growth by creating job opportunities; the tourism sector can provide one job out of every four new jobs in the future.

The World Tourism Organization has predicted that the application of institutional reform for tourism organizations will have a positive impact on the growth of tourist nights by 10%, and studies have predicted a growth in tourism revenues of 30%.

This scenario depends on the analysis of the internal tourism environment in identifying strengths and weaknesses and the external environment in identifying opportunities and threats in order to determine future strategic directions. Table 11-5 shows the environmental analysis of the tourism and travel sector (SWOT), which helps decision-makers in diagnosing the problems that the tourism sector suffers from and finding appropriate solutions.

3. Pessimistic Scenario

Since the tourism sector has direct and indirect links with dozens of other economic activities, any pandemic like the Covid-19 pandemic or any upcoming political and economic crisis can affect the chain of tourism activities. According to the World Tourism Organization, about 80% of travel and tourism companies are small and medium-sized enterprises that do not have the financial resources to survive the disaster. In light of the above, the recession or crisis can be translated into the loss of millions of jobs and thus an increase in unemployment and poverty rates.

The occurrence of such crises prompts local and international organizations to initiate a series of preventive and proactive measures, including imposing restrictions on the movement of travelers in various forms, taking vaccines, screening, quarantine, medical examinations, not allowing tourists to enter and stay except in a specific percentage, and temporarily suspending flights, which puts the tourism sector in a critical situation.

As a result of the restrictions imposed on the tourism sector, some studies have suggested a total decrease in trips estimated at about 54%-70%, which reflects a decrease in the number of tourists by 20%-30%. According to the World Tourism Organization's forecast, the tourism sector will lose between 5-7 years of expected growth.

Not developing development strategies for the tourism sector with a 2050 vision will have a negative impact on it and on the financing of the state budget, assuming the neglect of rehabilitating tourist sites with infrastructure services, reducing financial allocations for archaeological sites, the decline of electricity services and road and international airport services, and not paying attention to other tourism activities such as environmental, desert, cultural, medical, heritage, sports, festivals, and entertainment tourism.

Challenges

- Lack of quality tourism service appropriate in light of modern developments.
- Absence of a suitable investment environment that provides opportunities for competent investors to offer the best deals and services.
- Lack of clear tourism legislation for tourists to be aware of in order to maintain public order.

- Absence of training centers that work to increase the efficiency of workers in the tourism sector, which contributes to enhancing the quality of the service provided.
- Reliance on religious tourism only, while al-Najaf al-Ashraf Governorate possesses many tourism potentials such as environmental, desert, cultural, and other types of tourism.
- Scarcity of financial support from the competent authorities, which has made the tourism sector suffer from many problems.
- Lack of attention to the affairs of museums, heritage houses, and tourism folklore, which represent the main gateways for tourists' interest.
- Weakness of tourism education, which does not meet the basic needs of the tourism labor market.
- Absence of specialized studies that shed light on the needs of the tourism market and its current and future requirements, to give decision-makers a clear vision in addressing weaknesses and fortifying strengths.
- Weak capacity in the city center to attract tourists, due to the lack of diversity in tourism activities, which negatively affects the tourism experience.

Responding to Challenges

- **Improve data and information availability for the tourism sector:** Its availability contributes to revealing the importance of analyzing the problems facing those interested in this field. When disasters occur and are confronted, detailed, integrated, and comprehensive data are required.
- **Electronic Alliances:** Reality has proven during the continuation of the pandemic that communication with people through electronic and technological means can be very useful in developing scientific and cultural expertise, and helps in direct communication with the tourism public without interruption, which enhances mutual trust between the public and the tourism labor market.
- **Addressing the public with new marketing methods:** The tourism and travel sector is one of the sectors most affected by health and security conditions, and this matter can be addressed by highlighting forms of cultural expression, as well as marketing videos from tourist destinations.
- **Training and innovative skills:** The travel and tourism sector needs a competent workforce that possesses innovative and technical tools in dealing with new travel procedures.
- **New tourism attraction:** The tourism labor market must maintain continuous communication with tourists through modern communication means to form a new tourism class that is easy to deal with in light of the current circumstances. Social and emotional ties have the ability to influence and attract tourists of different social levels. This will certainly

shift tourism demand from huge numbers (quantity) to a good quality of tourists, which will create a new tourism boom for the region.

- **Diversity of tourism offers:** The changes and developments that have prevailed in the travel and tourism market, especially during the pandemic period, have led to a transition from traditional offers to new offers, such as the shift from traditional services to smart digital services while preserving cultural and heritage identity. This will have an impact on changing tourism activities according to current requirements.
- **Participation of residents in decision-making:** Involving local residents in making tourism decisions contributes to improving the offers of travel and tourism companies, creating equal opportunities for males and females, gaining the continuous trust of travelers, linking tourism service with digital intelligence, and preserving the environment and biodiversity.

V. Conclusion

The study of the tourism sector in al-Najaf al-Ashraf Governorate and the review of the reality of the tourist services provided to incoming tourists are important and necessary priorities for envisioning the future of the governorate until 2050, and for knowing the supposed strengths and weaknesses, as it will help specialists in providing treatments that serve the tourism labor market and determine its current requirements and future trends in light of the new changes, and the economic, social, cultural, and health consequences and their impact on various aspects of human life.

al-Najaf al-Ashraf Governorate was characterized by a numerical expansion in tourism services, but the study's results tended to estimate the need of the tourism sector for development in quantity and quality, which was represented by the study of green hotels (eco-friendly hotels) with the advancement of tourist restaurant services and travel and tourism companies, in addition to determining the governorate's need for internal tourist transport services by proposing a tram system and its departure and stop stations and the external road network that included a set of main axes.

As a result of the current and future data and the field surveys of the study, two areas for tourism attraction were proposed and provided with service facilities, namely Shaṭṭ al-Kūfah Corniche area and Baḥr al-Najaf depression area. The study also concluded with an estimate of the future need for the development of accommodation capacity for the target year 2050, which amounted to a total of 575 tourist hotels.

The study presented three scenarios. The first, the baseline, which included reliance on local tourism and ways to develop and invest it for the better but in a slow manner. The optimistic scenario focused on taking a set of measures that contribute to strengthening tourist destinations to achieve leaps towards Islamic and global tourism by 2050. In addition, the institutional reform of tourism establishments was one of the most prominent directions of this scenario. The pessi-

mistic scenario discussed the possibility of neglecting modern requirements and increasing travel restrictions due to the spread of a pandemic or crisis, which will directly affect the performance of tourism activities. The study came out with a set of challenges and suggestions to respond to current and future changes.

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12. Border Crossings

Dr. Ḥasan ‘Abd-Allāh Ḥusayn

Faculty of Administration and Economics, University of al-Kūfah.

I. Current State of Border Crossings in al-Najaf al-Ashraf Governorate

Border crossings, encompassing all land, air, and sea ports, are officially designated and internationally recognized zones utilized for transit, commercial exchange, and, in some instances, military operations. These portals are vital to a nation's economy and can significantly contribute to social development by facilitating the export of domestic products and enabling international travel for tourism, religious occasions, official functions, medical treatment, and educational pursuits. This section analyzes the present conditions and future prospects of border crossings within al-Najaf al-Ashraf Governorate, delving into their economic, social, and political significance for the city. This examination is particularly pertinent given Najaf's prominence as a major destination for religious tourism across Iraq and the broader Islamic world, and its strategic geographical position within Iraq.

The two primary crossings in the governorate—its international airport and the land transport route currently under construction—are regarded as significant, independent sources of revenue for the governorate.

al-Najaf al-Ashraf commands profound religious reverence among Muslims globally, drawing millions of visitors and tourists, especially during key religious observances. It has long been, and remains, a distinguished center for scholarship, jurisprudence, and literature. Its esteemed status is largely due to its sacred ground, which is the final resting place of Imām ‘Alī ibn Abī-Ṭālib. Consequently, the governorate's border crossings are of paramount importance to both the city and the Iraqi state. This analysis seeks to elucidate the current operational reality of these crossings, evaluate their status, identify the impediments to realizing their full potential, and outline prospective scenarios for a dynamic assessment.

It is crucial to note that the governorate features two principal crossings: one by land and one by air. These are the land transport route between Iraq and Saudi Arabia, historically known as the “Overland Ḥajj” route (currently under construction), and the air transport hub, al-Najaf International Airport.

1. The Land Transport Route (Najaf – Saudi Arabia)

On July 28, 2021, al-Najaf al-Ashraf Governorate submitted a formal request to the central government concerning the Overland Pilgrimage route project. In this official communication, the governor urged the Prime Minister to “direct the Ministries of Planning and of Construction, Housing, and Municipalities to initiate the Overland Pilgrimage route project connecting Najaf with the Kingdom of Saudi Arabia.” The governor emphasized the project’s strategic importance, noting its role in linking the governorate to Saudi Arabia and connecting the sub-districts of al-Nūr and al-Shabakah, along with numerous villages in the Bādiyah of al-Najaf and the industrial city. He also highlighted that significant portions of the road had been damaged by the rising water levels of Baḥr al-Najaf depression. This request initiated the project’s inclusion in national development plans and prompted engagement with the Ministry of Construction, Housing, and Public Municipalities to commence work (INA, 2021).

The Overland Pilgrimage route project was initially approved in 2011, with construction beginning in 2013. However, implementation was suspended due to a confluence of factors, including Iraq’s financial crisis, the war against the Islamic State (ISIS), and the Covid-19 pandemic. On November 6, 2021, the governor of al-Najaf al-Ashraf announced the resumption of the project, which he termed “the economic artery of al-Najaf.” The road spans 240 kilometers with a budget of 33 billion Iraqi dinars. A report from the Ministry of Construction and Housing affirmed that “the construction of the Overland Pilgrimage route is of strategic importance in developing and expanding the road network, in addition to traversing archaeological and historical areas. It is one of the shortest routes connecting Iraq with Saudi Arabia, which will facilitate religious tourism during the Ḥajj and ‘Umrah seasons, stimulate trade, and encourage investment in construction-related industries due to the availability of raw materials along the route.” (INN, 2013).

al-Najaf al-Ashraf Governorate has indicated that Iraqi and Saudi authorities have agreed to establish trade exchange zones on both sides of the border. These zones are expected to revitalize the governorate’s commercial and economic landscape and foster development in the agricultural, industrial, and residential areas along the route, particularly in the border sub-district of al-Shabakah. The land transport project is poised to have a positive impact on multiple sectors, revitalizing the economies of dozens of villages, strengthening Iraqi-Saudi relations, and charting a course for enhanced development in the governorate.

The researcher posits that the successful completion and operationalization of this road will yield substantial economic, social, and political benefits for the governorate and Iraq as a whole. There is a palpable desire on both the Iraqi and Saudi sides to expedite the revival of this route, which extends from the city of al-Najaf al-Ashraf to al-Madīnah al-Munawwarah. It represents the shortest path between the two holy cities, with the distance from al-Najaf to the Saudi border being approximately 250-300 km, and from the border to al-Madīnah another 900 km. The activation of this corridor is expected to stimulate economic activity,

tourism, and environmental, archaeological, and security aspects. These can be categorized as follows:

a. Economic Aspect

The establishment of the Overland Pilgrimage route, or what was formerly known as the Iraqi Pilgrimage route, and a corresponding free trade zone will generate significant economic returns for both Iraq and Saudi Arabia. This will have a ripple effect on related sectors such as tourism, industry, and agriculture. The Iraqi market is considered one of the most attractive in the Middle East region for the following factors:

- Substantial financial capacity derived from vast oil wealth.
- A large population of approximately 40 million consumers.
- A high demand for manufactured goods and raw materials for infrastructure development.
- Relatively strong purchasing power among the Iraqi populace, which is an encouraging consumption factor.

This is what prompts many to consider how to gain a foothold in this very attractive market. Consequently, Saudi Arabia has planned—in a project from which both it and Iraq stand to benefit—to revive the overland Pilgrimage route, establish a free zone on the border between the two countries, and select the shortest and most cost-effective routes for Saudi products to reach Iraqi markets.

Furthermore, the Saudi market is very large for many primary products used in primary industries and manufactured goods, and it is a massive market for import and export to all parts of the world. If all these enticing economic factors are activated correctly, the positive outcomes will be significant for both parties. It will also be a good opportunity to bring Iraqi products to the Saudi market, which in turn can be transported to other markets. This project will stimulate Iraqi industrialists to develop their products to compete with other products and assert their presence, in terms of both quantity and quality, in global markets.

b. Tourism Aspect

This sector holds great economic importance for relations between Iraq and Saudi Arabia, encompassing the Hajj and Umrah season for Iraqis and the visitation to the holy shrines of Āl al-Bayt for Saudis. al-Najaf al-Ashraf is ideally situated for the following reasons:

- The city of al-Najaf's central location between the north and south, as well as it being the site of the shrine of Imām 'Alī.
- The proximity of al-Najaf al-Ashraf to all holy shrines and the capital, Baghdād, gives it a distinct advantage over other Iraqi cities in terms of ease of access to all regions.

With the revitalization of the tourism sector, there will be a corresponding and beneficial commercial and economic revival for both the Iraqi and Saudi sides. Reviving the overland pilgrimage route, building the free zone, and providing all necessary amenities will also encourage visitors from countries neighboring

Iraq that do not share a border with Saudi Arabia—especially Türkiye, Syria, and Lebanon, and other nations—to take this route through Iraq (al-Najaf al-Ashraf). It is certain that this tourism opening will invigorate all other sectors, making the city of Najaf a very important tourist city, with the attendant fruitful cultural, political, and social benefits for both countries.

c. Environmental Aspect

The revival of the overland pilgrimage route will develop the small towns and villages it passes through (al-Ruḥbah, al-Ḥamām, al-Shabakah sub-district, Ashrāf, Wākṣah, Mughīthah, and Jumaymah), revitalizing them economically. If officials give it due attention, the results will be:

- They will be transformed into rest and recreation areas for tourists due to their location along the route, especially when high-quality amenities are available that attract tourists and arouse their curiosity to stop in these places.
- As a result of the previous point, this will encourage the cultivation and gardening of the areas adjacent to this road, as wells are present everywhere or can be easily established.
- Increased cultivation in this desert will change its climate and reduce the sandstorms that blow from Saudi Arabia towards Iraq.
- It will encourage people in al-Najaf al-Ashraf Governorate to settle in these areas, alleviating the population density from which the governorate already suffers. Therefore, there will be excellent environmental returns in terms of agricultural and animal production and the improvement of the region's environmental conditions should the overland pilgrimage route be revived.

d. Archaeological Aspect

Most of the areas through which the overland pilgrimage route will pass are archaeological sites, with histories dating back more than a thousand years to the eras of the Islamic Arab State, such as Manārat Zubaydah, al-Mughīthah, Umm al-Qurūn, Birkat Ḥamad, al-Shabakah, and many others yet to be discovered. By reviving these touristic archaeological areas, the entire region can be developed, attracting tourists, visitors, and archaeologists. This, in turn, will be an important factor in encouraging the revival and restoration of these ancient monuments, allowing them to become active and speak of their own history.

e. Security Aspect

When there is commercial and tourist activity, there will be a corresponding focus on the security aspect to protect these achievements, secure the borders, and prevent terrorists and smuggling, both of which cost the state and society a great deal in economic, security, and social losses.

f. Diplomacy

The success of the economic, tourism, and other sectors will stimulate the activation of diplomacy and dialogue between the two countries in order to preserve the gains reaped by the Iraqi and Saudi peoples. This, in turn, will positively reflect

on the development of relations between the two countries for the better over the long term.

g. Support for the General Authority for Customs

The significant and important role of the Customs department in supporting the national economy and supplying the state budget with financial revenues generated from customs duties collected on goods entering Iraq through the port of entry is well-known. Iraqi law mandates the imposition of customs duties on goods entering through border crossings. However, the duties vary according to the type of goods; some duties are as high as 5%, as is the case with chemical materials, while duties on some foodstuffs reach 15%, though this percentage varies from one food item to another. Some materials are occasionally exempt from customs duties. Thus, this crossing will support Iraq's budget through the goods and duties that accrue via al-Najaf al-Ashraf Governorate.

h. Supporting the Economy

The transport sector is the lifeline of the economy and the most important infrastructure sector, given the vital role it plays. Investment in transport projects is characterized by its significant, long-term benefits and important social repercussions. Furthermore, the overland transport route will contribute to development at the regional level by facilitating trade exchange between Iraq and the Gulf states, thereby achieving significant development in industrial, commercial, and agricultural activities, and realizing economic growth and supplementing the Iraqi national economy.

i. Job Creation

Land crossings have a major role in increasing employment opportunities, especially in light of the high unemployment suffered in the governorate. They contribute to employing large numbers of workers in various fields, including handling, shipping, and unloading, in addition to carrying out the administrative work customary at the crossing. The availability of labor also plays a major role in the overland transport process, especially the transport of commercial goods through the border crossing between Iraq and Saudi Arabia. The human element is the foundation upon which this process is built, given the human effort required for its success. The transport process is not limited to the vehicle driver but includes various and multiple aspects, from hosts, administrators, mechanics, and maintenance workers to project implementers and engineers of various specializations. The availability of sufficient human resources is necessary to meet the requirements of development in the transport sector, as an increase in this sector's tasks necessitates a corresponding increase in the human element. This means the availability of job opportunities for various specializations and the absorption of the labor surplus in the governorate, thereby achieving an important economic goal, which is the reduction of unemployment rates.

j. Supporting Religious Tourism

The overland route has an important role in supporting religious tourism in the governorate, given its global standing. This route will therefore enhance tourism opportunities and the influx of Muslims to the governorate, which in turn

supports the city's economic and social activity, particularly that of hotels and markets, thereby providing a significant financial resource to support the Iraq's budget in general and the financial resources of the governorate in particular.

Based on the foregoing, and because the route represents an economic and social gateway of great benefit to al-Najaf al-Ashraf Governorate in particular, it has received official attention for the revival of its agricultural and economic zones. Alongside this framework, the efforts of other parties must also be considered, including the work of the Ministry of Culture to include the archaeological sites near the border crossing on the World Heritage List. There is clear progress in this field, especially after a visit from a UNESCO delegation and the submission of reports to it by the governorate, which show that these sites are shared between Iraq and Saudi Arabia and can be invested in for tourism and economic purposes.

2. al-Najaf al-Ashraf International Airport

The airport is located southeast of the city of Najaf at an elevation of 32 meters above sea level. It consists of a single runway, a passenger terminal, and an aircraft parking apron with an initial capacity for four aircraft. It was inaugurated on September 11, 2008, with a group of companies contracted for its operation (al-Ṣā'igh, 2019, p. 440).

On average, the airport handles 19 flights per day, a number that multiplies during religious occasions to 100 or more flights daily. It deals with more than 35 international and domestic airlines (Jāsim et al, 2019, p. 389). Its location serves five principal cities in the Middle Euphrates region: Najaf, Karbalā', al-Ḥillah, al-Dīwāniyah, and al-Samāwah, taking into account the relatively short distances between these cities, as detailed in Table 12-1.

Development projects are underway at the airport to expand the capacity of its aprons. The aircraft parking apron underwent an expansion from 3,085 m² in 2013 to 49,786 m² to accommodate 10 aircraft. Subsequently, the airport saw a further expansion to 55,399 m² in 2016 to accommodate 14 aircraft, and in 2017 the apron was expanded to 173,900 m² to hold 26 aircraft.⁽¹⁾ This has created sufficient flexibility to receive a large number of aircraft simultaneously and increase the number of arrivals, especially for religious events each year, which positively impacts the touristic, economic, and social reality of the governorate.

Table 12-1: Distance Between the City of Najaf and the Middle Euphrates Governorates

Route	Distance (km)
Najaf – Karbalā'	78
Najaf – Bābil	60
Najaf – al-Dīwāniyah	65
Najaf – al-Samāwah	155

Source: al-Maryānī, 2008, p. 4.

(1) Field visit by the researcher to al-Najaf al-Ashraf International Airport, Department of Planning and Follow-up, on December 1, 2021.

The airport currently has one runway (3 km long and 45 meters wide). Its most distinguishing feature, attested to by several airlines in comparison with global airports, is its excellent and rapid ground services. This became clearly evident during the Arab Summit held in Baghdād on August 28-29, 2021, when airports were closed for two weeks, with the exception of al-Najaf and Erbil. Despite the high density of aircraft (diverted to al-Najaf due to the closure of other airports) and a reduced operational staff on the apron (who were transferred to support Baghdād airport), the airport successfully and impressively navigated that period.

One of the most prominent problems previously facing the airport was the small size of the aircraft parking apron relative to the high volume of airlines wishing to operate there. Now, however, a project to expand the apron to accommodate the largest possible number of aircraft has begun, as has the development of the passenger terminal to handle a greater number of arriving and departing passengers. The future expansion of the airport is essential due to its important geographical location and the demand from airlines to operate there, especially during religious seasons. It is an important border crossing due to the high traffic it receives. Likewise, developing the services within the airport and its transport links is necessary to elevate it to a level befitting its importance.

The significance of al-Najaf International Airport is reflected in the religious, economic, social, political, and military spheres. This can be illustrated by its impact on the following indicators:

a. Religious Tourism

The importance of al-Najaf al-Ashraf International Airport stems from the status of the city in which it is located. The movement of visitors to this city constitutes a fundamental axis in the airport's operations, which reflects its international and domestic importance. This is especially true given that it contains five religious shrines and is the seat of the religious authority (*marji'iyah*) for Shi'a Muslims in Iraq and some other Islamic countries. It is from here that religious edicts followed by millions are issued. It is also considered the cradle of scholarly and literary movements in Iraq. The arrival of many students of different nationalities to study in the seminary (*al-Ḥawzah al-'Ilmiyah*) and get to know the scholars is an important factor driving demand for religious tourism in the governorate. It also contains the great cemetery (*Wādī al-Salām*) as a site for religious tourism—a historical landmark that distinguishes Najaf's land as a general Islamic cemetery to which people come from Islamic countries. It is one of the largest cemeteries in the world and the burial place of many scholars, kings, ministers, princes, notables, and Muslims in general throughout history, as well as some prophets. Therefore, the religious shrines and the cemetery are demand drivers for tourism due to the large number of visitors. This rich history has endowed the city of Najaf and its airport with great importance.

b. Economic Aspect

The air transport sector is, as is well known, one of the important infrastructures for any geographical region. It is an important means of providing people

Table 12-2: Financial Fees Collected from Passengers at al-Najaf al-Ashraf International Airport (2008-2019)

Year	Number of Passengers	Fee Amount	Revenue Collected (\$)
2008	2,239	\$15	33,585
2009	107,842	\$15	1,617,630
2010	131,749	\$15	1,976,235
2011	186,280	\$15	2,794,200
2012	496,033	\$15	7,440,495
2013	787,146	\$15	11,807,190
2014	1,143,182	\$15	17,147,730
2015	1,406,726	\$15	21,100,890
2016	1,671,897	\$15	25,078,455
2017	1,611,694	\$15	24,175,410
2018	1,349,502	\$15	20,242,530
2019	1,420,530	\$15	21,307,950
Total	10,314,820	-	154,722,300

Source: Zāhir, 2018, p. 36; Ministry of Planning, 2019, p. 7.

with spatial mobility through rapid transport. Given the important role this sector plays in the economic and social development of societies, it is a basic requirement for ensuring development, and one of the criteria for measuring a country's development is the extent of this sector's advancement.

During its years of its operation (2008-2021), the airport achieved high growth rates and steady development in the number of arriving and departing passengers, in addition to the transport of goods via air freight, with the exception of the years 2020-2021, which witnessed airport bans worldwide due to the risks of the Covid-19 pandemic. The airport achieved increasing financial revenues during the years 2008 to 2019; a fee of \$15 is imposed on passengers, collected by the airport administration. Therefore, the financial revenues of the airport during these years can be calculated from Table 12-2.

It is clear from the table that the revenue generated from passenger fees amounted to \$154,722,300 during the years 2008-2019. It should be noted that there are other revenues collected from fees on goods entering the airport, for which we were unable to obtain data, as well as other sums collected from kiosks and vehicles entering the airport. The airport has contributed to the economic development of the city by increasing the number of visitors, which is reflected in the city's development and economic revival, especially in hotel and restaurant services and market activity. It has also facilitated the entry of Arab and foreign investors and companies to participate in the reconstruction of Iraq through investment projects in al-Najaf al-Ashraf and nearby governorates.

c. Religious Tourism

Religious tourism is considered the most significant economic driver, as al-Najaf al-Ashraf is a major religious focal point. The airport can play a role in creating

favorable conditions for all visitors to the city, thereby boosting tourism in Iraq generally, and in al-Najaf al-Ashraf and Holy Karbalā' in particular. The growth in tourism and tourist attraction activity, especially religious tourism, indicates an increase in financial and economic revenues for the development process, to which the airport has made a major contribution by increasing the number of visitors.

d. Social Aspect

al-Najaf al-Ashraf International Airport has brought about significant development for the city of Najaf through the influx of visitors and their interaction with the local population, exposing them to diverse cultures and languages. It has become possible for religious students from all over the world, as well as scholars, thinkers, and all visitors, to come for religious occasions and to seek knowledge easily via Najaf's airport within a few hours. Accordingly, the airport has become a vital window that has contributed to opening up to the world, in addition to activating the intellectual movement, especially through conferences held in Najaf and attended by academics and international figures. Conversely, it has also facilitated the travel of intellectuals from the city of Najaf to participate easily in many exhibitions and conferences held outside Iraq. The airport has also provided travel opportunities for patients to seek treatment in countries around the world.

II. Estimating al-Najaf al-Ashraf's Need for Additional Border Crossings

al-Najaf al-Ashraf Governorate has no choice in the future but to expand its gateways to the outside world and proceed with the project of opening a new border crossing with Saudi Arabia. This would serve as a window for cooperation, increased trade, and facilitated movement of pilgrims between the two countries. Since Najaf borders Saudi Arabia, this crossing is considered vital—economically and socially—due to its many advantages.

This is in addition to Najaf's proximity to several governorates as mentioned in Table 12-1, namely Karbalā', Wāsiṭ, al-Dīwānīyah, and Bābil. Some of these are pressing forward with their own crossing projects. For example, Iraq announced on September 30, 2021, the opening of the al-Jumaymah crossing in al-Muthannā Governorate, and the opening of the 'Ar'ar crossing in Karbalā' Governorate on February 12, 2021, for trade between the two countries. Furthermore, Karbalā' International Airport project, launched by the Holy Shrine of Imam al-Ḥusayn, has achieved advanced completion rates. It is designed to accommodate 2.5 million passengers, with plans to increase its capacity to 20 million passengers over the next twenty years.

There will soon be three crossings close to Najaf with Saudi Arabia: the 'Ar'ar crossing and Karbalā' airport (in Karbalā' Governorate) and the al-Jumaymah crossing (in al-Samāwah). This presents a clear challenge in terms of economic viability as the number of crossings multiplies. Therefore, Najaf needs to expedite

the completion of the overland pilgrimage route connecting with Saudi Arabia and urge the Ministry of Construction and Housing to facilitate all procedures that would, in turn, accelerate the implementation of this project, given the commercial advantages and bilateral economic and social relations it offers. Likewise, the local government of Najaf must work on introducing development projects at its airport in terms of capacity and increasing the airport's area to respond to the growing number of flights and the need for more aircraft parking space.

It is also necessary to overcome the dilemma of the lack of sufficient financial allocations to open other crossings, especially given the financial circumstances Iraq is currently experiencing. However, as we have mentioned, there is a need to accelerate the implementation of the land route, as well as to introduce spatial and technical developments at al-Najaf al-Ashraf International Airport and increase its capacity in the coming period.

III. Challenges Facing Border Crossings in al-Najaf al-Ashraf

1. The Land Crossing

Despite more than a decade passing since the approval of Najaf's border crossing project with Saudi Arabia, formidable obstacles still stand in its way. Foremost among these are the financial crisis that Iraq has witnessed, as well as the destabilization of security in the country, especially with the war that Iraq entered into with the terrorist organization ISIS, the decline in global oil prices, and the Covid-19 crisis, all of which led to the suspension of this project.

Furthermore, Baḥr al-Najaf region and the desert, through which the overland pilgrimage route passes, face the danger of soil creep and torrential rains, as well as the risk of floods coming from Saudi Arabia, without any drainage channels for these floods. This complicates the construction of this road in the presence of such geographical hazards, especially since this area (Baḥr al-Najaf depression) has been outside the governorate's services for several years. This poses a major challenge in obstructing the overland pilgrimage route project unless the central government intervenes by developing absorption plans through which dams or drainage channels can be built to address this problem.

2. The Air Crossing (Airport)

- **Geographically:** al-Najaf al-Ashraf International Airport faces a set of environmental challenges such as dust storms and high temperatures in the summer, which technically affects the airport's operation, as well as the surrounding influences, whether natural or topographical, the region's location, and the nature of technological development in transportation. This may constitute a negative factor for the airport's operation.
- **Financially and Administratively:** The airport has faced multiple issues of corruption, including financial and administrative corruption. This

is indicated by several letters issued by the Integrity Commission and the Iraqi government for the arrest of some airport officials and their accusation on various charges. The airport has also witnessed protest campaigns by Najaf's citizens, its storming, delays in air navigation, the dismissal of the former airport director, and the prevalence of exploiting the airport for private projects and the control of political parties over its revenues at the expense of Najaf's citizens. These complications continue to this day, in addition to the multiplicity of entities controlling the airport and the waste of financial revenues.

- **Technically:** Despite the expansion the airport has seen in the aircraft parking apron, it is still unable to expand further and receive more flights, as it is constrained by residential areas towards which it cannot expand. The airport still has only one runway, which creates pressure on the number of flights. Also, the navigational system for monitoring aircraft is still operating under conventional systems. Although it provides safety for passengers, it still does not match global navigation systems.
- The airport has not witnessed a major expansion in its reception and departure halls, which creates pressure on its employees, especially during religious visitation periods, further obstructing and delaying flights, as there is not enough capacity and flexibility to receive a larger number of visitors.
- Contracting with airlines that do not use modern technology in their aircraft engines contributes to environmental pollution and noise, especially since the airport is surrounded by residential areas on three sides.
- Difficulty in obtaining a database on the airport's finances and management, and there has been no transparent and flexible dealing from the responsible authorities. Consequently, any researcher will face the challenge of a lack of data, and a study cannot be developed without it to develop the airport and reveal its economic and social importance and its impact on the governorate.
- Despite the airport's huge revenues going to the administration of al-Najaf al-Ashraf Governorate, this has not eliminated the deficit from which it has long suffered, nor has it addressed the decline in the city's economic and social situation, such as indicators of poverty, unemployment, and other economic indicators.
- Covid-19 pandemic had a significant impact on the cessation of flights between countries, which led to the cancellation of air transport for more than a year and a half. This hindered the generation of financial revenues for the governorate, caused a decline in the economic situation, and led to the stagnation of local markets.

IV. Scenarios for the Border Crossings in al-Najaf al-Ashraf

Awareness of the future, exploring its prospects, and identifying its challenges represent an opportunity for creating success in modern societies in general, and achieving development and growth in particular. Anyone who seeks success must have a clear vision of the future's features, especially in light of the growing interest in foresight as a result of the rapid developments and events in all walks of life. This has required everyone—individuals and institutions—to pay attention to identifying alternative paths and to track and keep pace with new variables (Aḥmad, 2021b, p. 154).

The political dimensions of future foresight include its application in predicting the future of international and political relations, defense, and security, and its application in various government sectors and services. The same applies to envisioning the future of infrastructure, forecasting demand, and planning for future expansions in this field (Maḥmūd, 2017, p. 67).

Of course, there are challenges to this type of study, represented by the extremely rapid changes in the economy, society, science, and technology, and the pressures of external variables that quickly push towards the abolition of borders and restrictions. Consequently, it has become imperative for countries to anticipate external reactions to any internal decision and the internal response to any external change, and to prepare accurate calculations of the mutual impact between the internal and the external, which is, in one way or another, the task of future studies (Aḥmad, 2021a, p. 3).

In order to examine the dimensions of future changes and their consequences for the reality of al-Najaf al-Ashraf through its border crossings (the international airport and the overland pilgrimage route), and the possibility of achieving economic, social, political, and other goals and fulfilling the plans adopted by the local government and the central government, three scenarios have been developed:

1. The Baseline Scenario: Continuation of the Current Situation

This scenario assumes that a set of indicators or variables—economic, social, institutional, political, and environmental—will remain as they are, and that the reflection of these indicators on the future of al-Najaf al-Ashraf will be through the border crossings continuing to operate on a single track without change or development. A set of assumptions was chosen according to the indicators set out above and studied to show the extent of change that the crossings will witness:

- **Assumption 1:** Regarding the overland pilgrimage route, the continued state of delay by the Ministry of Housing and Construction and the failure to achieve an acceptable completion rate will reflect on the importance of this route. That is, it will cause an economic waste of the time factor, considering that this road is an important economic resource, as well as on the political and social level, especially since al-Najaf al-Ashraf Gover-

norate has submitted several official letters to the ministry to speed up the implementation of this project, but its resumption has been relatively slow. According to this realistic assumption, delay and competition from others against Najaf will prevail.

- **Assumption 2:** It is known geographically that the Baḥr al-Najaf region, through which the overland pilgrimage route extends, is exposed to multiple climatic hazards. This area is subjected every year to heavy rains and severe floods coming from Saudi Arabia in the winter. These floods sweep away many of the areas through which the pilgrimage route passes. The governorate and the government have not intervened to control these critical situations, especially since the people there have submitted many complaints and requests to the local and central government to create flood drainage channels or build dams, but to no avail. This matter could obstruct the work of the pilgrimage route and cause economic and commercial problems between the two countries, as long as this issue remains as it is. Under Assumption 2, if the government completes the road, these climatic changes will hinder investment in building restaurants, hotels, rest houses, and so on. This makes the economic aspect very poor and without any feasibility, especially since the distance between Najaf and Saudi Arabia is relatively long and requires rest areas for departing and arriving passengers, equipped with hotels, restaurants, and other facilities.
- **Assumption 3:** Also regarding the overland pilgrimage route, the lack of seriousness on the part of the government, represented by the Ministry of Construction and Housing, in equipping the road shows a negative indicator.
- **Assumption 4:** Regarding the population, its growth rate in the governorate reached 2.6%, with 1,471,592 million people (al-Burayṭ, 2021, p. 102). Therefore, continuing at this rate leads to pressure on the currently available resources in it, as well as on the state's general resources. The construction of the overland pilgrimage route would enhance its economic situation and achieve a possible response to this increase, especially as it will provide multiple job opportunities through investment in the areas it extends through. Therefore, its construction is necessary from an economic and social point of view.
- **Assumption 5:** The areas through which the overland pilgrimage route passes (Manārat Zubaydah, al-Mughīthah, Umm al-qurūn, Birkat Ḥamad, al-Shabakah) still do not have services, although they represent a civilizational heritage for this region. No signs have been shown by the local and central government to provide services, care for them, and beautify them to make them tourist areas that generate future revenues for the state through the influx of visitors from outside Iraq, as well as making their appearance positive for the pilgrims. Likewise, regarding the internal services of the governorate, many main and service streets still suffer

from the neglect of the local government and lack of care. Since Najaf is on the verge of an important economic event, the government must provide all the services that present it in the best possible image to visitors from abroad.

- **Assumption 6:** Regarding al-Najaf al-Ashraf International Airport, accusations still revolve around its bureaucracy and the control of political parties over its financial resources, although it has witnessed several administrative changes through the government's arrest of general managers and the occurrence of opposing demonstrations. However, the matter still remains in the hands of the political parties that control it and its financial revenues, without the Najaf's community benefiting from it.
- **Assumption 7:** the airport continues to witness a decline in the number of daily flights and was suspended for a long time, as we mentioned, as a result of the Covid-19 pandemic that swept the world. If the world remains facing different waves of epidemics, the airport may witness a complete shutdown for longer periods, even if there is a safe global vaccine. This may reflect negatively on the airport's revenues and the governorate's budget, and increase the volume of work stoppage, thus causing economic and social problems such as unemployment, poverty, etc.
- **Assumption 8:** The decline in international air traffic under any circumstances will affect religious tourism in al-Najaf al-Ashraf and nearby governorates, leading to stagnation in markets and work and increasing the severity of economic and social problems. Therefore, it is necessary to work on developing religious tourism and providing services in this direction, as Najaf relies heavily on it.
- **Assumption 9:** The airport has not yet witnessed any developments or expansion at the structural level (runways, aircraft parking aprons, and reception halls). We notice during religious occasions (al-Arba'een and others) and the increase in the number of flights that there is a state of pressure and confusion inside the airport, as the design capacity does not respond to the number of arrivals or departures. It is worth noting that the airport is surrounded by many residential areas with high population density, and therefore the matter will lead to a state of pressure and confusion on the people of Najaf.
- **Assumption 10:** Continuing to contract with airline companies with limited technology will double the cases of environmental pollution and noise, which increases the volume of environmental risks in the areas near the airport.
- **Assumption 11:** The airport's lack of transparency in providing financial data to researchers and academics creates a state of suspicion towards its work, and thus the inability to bring about any environmental or economic developments that enhance the state of trust between the citizen and the central government.

2. The Optimistic Scenario (Development of Crossings)

This scenario assumes that if a set of indicators or variables are available, this will reflect positively on the progress in all aspects of life and the future of al-Najaf al-Ashraf in general. This will be through the revival of the border crossings and making changes for development. A set of assumptions was chosen according to the indicators set out above, and studied to show the extent of change that the future of the crossings in the governorate may witness:

- **Assumption 1:** If the government, through the Ministry of Housing and Construction and in cooperation with the local government, proceeds with the construction of the overland pilgrimage route with a serious step and achieves advanced completion rates, this will generate significant economic feasibility for Iraq and Najaf in particular, and will stimulate tourism, thus supporting the economic reality, enhancing its regional position, and paving the way for trade agreements that achieve development for it and the governorate.
- **Assumption 2:** Serious initiatives by the Ministry of Construction and Housing and the Civil Defense to control the climatic changes in the Baḥr al-Najaf depression through which the road extends, and the construction of many water drainage channels, dams, and reservoirs, especially since Iraq is in great need of diversifying its water sources. Consequently, the agricultural sector will grow in those areas, which consist of vast and fertile lands.
- **Assumption 3:** The government's seriousness in accelerating the implementation of the road will stimulate investment in those areas through the construction of hotels, restaurants, and rest houses, which creates abundant job opportunities for the governorate's residents, reduces the volume of social problems, enables control over the economic situation with advanced feasibility, and also encourages partnership between the private and public sectors to achieve economic development.
- **Assumption 4:** Providing important services to the areas through which the overland pilgrimage route passes and rehabilitating them will increase tourist interest in them, both from within and outside Iraq, increase the number of visitors to them, and achieve financial resources that promote sustainable development and create green development in them, making them important tourist areas that can be invested in to bring about regional development.
- **Assumption 5:** With firm management, serious oversight, and a genuine stand by the governorate, bureaucratic control over the airport's resources can be limited, and the intensity of control over it can be reduced, thus freeing it from many restrictions and enhancing the financial resources of the governorate. This makes it capable of creating great services and abundant opportunities to achieve economic and tourist prosperity, and reduces the volume of economic, social, and political problems.

- **Assumption 6:** If the volume of Coronavirus infections decreases and other waves are controlled, great prospects for international freedom of movement will open up, and the number of flights will increase, which will enhance the development of religious tourism and increase financial revenues by millions of dollars to the governorate. This will make it able to create development opportunities, increase the volume of domestic investment, absorb the unemployment surplus, and reduce the volume of social problems, which means the return of normal life to markets, businesses, and the movement of hotels and restaurants, and an end to the state of stagnation.
- **Assumption 7:** If the number of international flights increases as we mentioned, this matter requires a structural and design expansion of the airport, in a way that makes it able to respond to the numbers of arrivals, especially during religious occasions.
- **Assumption 8:** Stopping contracts with airlines that use old technology in their aircraft engines will certainly reduce the rates of environmental pollution and noise and limit the environmental risks to the surrounding areas.
- **Assumption 9:** Establishing a window of cooperation with researchers and academics by providing all the necessary data and design and structural studies, to prepare studies that contribute to bringing about a realistic and comprehensive development on the ground of the airport and its existing structure.

3. The Pessimistic Scenario (Decline of Existing Crossings)

This scenario assumes that there is a set of indicators or variables that could lead to the decline of the border crossings and the state of change and development. A set of assumptions was chosen according to the indicators set out above and studied to show the expectations that the crossings will witness:

- **Assumption 1:** Negligence by the government and the Ministry of Construction and Housing in building the land route and backtracking on the decision in light of the crisis, meaning abandoning an important economic matter and an economic resource for Iraq and the governorate of al-Najaf al-Ashraf in particular. This would increase dissatisfaction with the government's work, creating social turmoil, threatening the country's economic development, and reducing the volume of financial revenues for the budget. It would also squander the opportunity for trade between Iraq and the Gulf countries, not just Saudi Arabia.
- **Assumption 2:** Failure by the Iraqi government to develop serious plans regarding the climatic and topographical conditions surrounding Baḥr al-Najaf region, represented by floods and rains. This would prevent the construction of the overland pilgrimage route, thereby giving up a vital economic and commercial resource, leaving it vulnerable to destruction, and making it impossible to invest in.

- **Assumption 3:** The government's reversal of the financial allocation decision in light of the financial crisis, declining oil revenues, and increased pressure on the general budget may discourage efforts to establish the project, creating a state of economic decline for Iraq as well as the governorate.
- **Assumption 4:** An increase in the population growth rate to 5%, hypothetically, would create pressure on available resources, which will increase the size of the economic, social, and political problems at the governorate and national levels, thereby leading to a decline in development.
- **Assumption 5:** In light of the decline in services provided to the areas through which the overland pilgrimage route passes, this will lead to the demise of these areas, the deterioration of their civilizational reality, and the creation of a state of discontent and security instability.
- **Assumption 6:** Increased control by political parties over the airport's financial resources and the failure of these revenues to return to the governorate. This will create a state of financial waste and increase the governorate's deficit in implementing any internal project, as well as a decline in services.
- **Assumption 7:** An increase in the severity of epidemic waves, leading to the closure of international airports. This will reflect on religious tourism in the governorate, which is an important resource in its economic activity, as well as the closure of hotels and restaurants, a decline in the volume of financial revenues, an increase in the severity of economic and social problems, and a greater stagnation of markets and work.
- **Assumption 8:** Increased economic stagnation in markets and businesses in light of the decline in religious tourism to the governorate, and the lack of visitors to the city.
- **Assumption 9:** Failure to make structural and design changes to the airport building, which creates a state of confusion for travelers. This may lead to a decline in the number of flights and the redirection of arrivals to other airports in Iraq, which would destabilize the airport's financial structure and harm the city's movement from a tourist and economic perspective.
- **Assumption 10:** Increased dealings with technologically backward airline companies, leading to environmental damage, increased noise, and the affliction of the population in areas near the airport with diseases such as cancer and others, and increases the government's inability to provide health services to patients.
- **Assumption 11:** Continued lack of cooperation with researchers and academics, which increases the airport's isolation and the public's lack of trust in it and its management.

V. Responding to the Challenges

In light of the scenarios mentioned above, the researcher proposes a set of measures that could achieve a genuine solution for the border crossings of the governorate, represented by the overland pilgrimage route and al-Najaf al-Ashraf International Airport. These measures include:

1. A serious governmental directive from the Ministry of Construction and Housing to accelerate the implementation of the overland pilgrimage route, achieve real completion rates, and facilitate the dedicated funding for this project, which creates numerous economic opportunities.
2. The necessity of joint cooperation between the Ministry of Construction and Housing and the Ministry of Water Resources to develop rescue plans for climatic phenomena and to work seriously on building drainage channels for rainwater and floods, and constructing water reservoirs and island dams to control these changes to facilitate the process of accelerating the road's construction.
3. Directing the governorate to provide services to the areas through which the overland pilgrimage route passes, rehabilitate the roads leading to it, and provide health and educational services to create a state of regional development.
4. Cooperation of the central government with the ministries working on road construction by providing the necessary technical assistance to implement the project, as well as cooperation with the Saudi side to facilitate the work.
5. Directing the governorate to provide security for the companies working on the construction of the road and the border crossing, taking into account that it is hundreds of kilometers away from the city center, and the fear of some cases of robbery, banditry, and other illegal matters.
6. There must be a real move by the governorate to end political interference in the airport's work, and there must also be strong and immediate financial oversight to address this problem.
7. Not allowing the establishment of residential communities or industrial facilities near the airport to give it an opportunity to expand and develop, and increasing the green areas surrounding its location. Taking advantage of the nearby slums, especially since they have a large area, and transferring them to the ownership of the airport for the purpose of expansion.
8. Expanding the airport in terms of parking aprons, runways, and halls in order to achieve greater comfort for arrivals, especially during religious occasions that witness an increase in the number of visitors to Iraq. And raising the level of service provided to departing and arriving passengers and organizing travel procedures to make them faster.
9. Working to provide a database by the airport administration about its work in a flexible and transparent manner to facilitate the work of researchers

and academics to provide innovative ideas that help achieve real development for the airport and the governorate.

10. Facilitating procedures for private sector investment (domestic and foreign) in the areas bordering the overland pilgrimage route, such as establishing restaurants, rest stops, hotels, and others.
11. Upgrading the level of services directed to the areas through which the overland pilgrimage route passes and making them important tourist areas that provide a significant financial resource for the general budget.
12. Including the archaeological sites located on the overland pilgrimage route on the World Heritage List to benefit from them touristically and economically.
13. The necessity of limiting contracts with companies that do not use modern technology in their engines to reduce cases of noise and environmental pollution.

VI. Conclusions

1. al-Najaf al-Ashraf is considered one of the most important religious tourism destinations in the world, as it is honored to contain the shrine of Imam 'Alī ibn Abī-Ṭālib and numerous other sanctified shrines, as well as the presence of al-Hawza (religious seminary), which is a destination for students of religious sciences.
2. The development of border crossings is of utmost importance for al-Najaf al-Ashraf Governorate, which witnesses an increase in the number of arrivals throughout the year for religious occasions, tourism, and other purposes. Furthermore, al-Najaf al-Ashraf International Airport provides services to the governorates of the Middle Euphrates region: Bābil, Karbalā', al-Dīwānīyah, and al-Samāwah.
3. The establishment of the land pilgrimage route linking Iraq and Saudi Arabia through the Governorate of al-Najaf is of economic, commercial, social, political, and religious importance.
4. The land pilgrimage route project continues to suffer from low completion rates and has experienced a stoppage for several years as a result of the financial crisis and Covid-19 pandemic.
5. al-Najaf al-Ashraf Airport contributes effectively to stimulating the religious tourism movement in Najaf and neighboring governorates, thereby enhancing the economic and social vitality of the governorate.

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al-Rafidain Center for Dialogue (RCD)

al-Rafidain Center for Dialogue RCD is an Iraqi independent think tank that works on encouraging dialogues in educational, political, cultural, and economic affairs, among all elites, in order to enhance the democratic experience, achieve societal peace and help governmental and societal institutions actualize their role and enhance their performance by providing them with experiences and strategic visions. RCD represents a free forum for dialogue characterized by objectivity and impartiality and it invests its outcomes to help decision-makers and guide public opinion towards establishing a state based on institutions.

al-Rafidain Center for Dialogue is considered one of the distinguished think tanks in Iraq that brings together on its platform the active political, economic, and academic elites who guide visions and influence decision-making and public opinion. The Center was established on February 2, 2014, in the city of al-Najaf al-Ashraf as a virtual group in the virtual world, comprising a number of academics, intellectuals, and politicians. The idea later evolved to acquire legal status by registering RCD in the NGO Affairs Directorate of the General Secretariat of the Iraqi Council of Ministers.

Vision

The center is a cultural hub where the opinions of elites and decision-makers from all their political, religious, and national spectrums converge. It provides a positive dialogic environment that enhances the creation of common ground among those opinions and contributes to building a prosperous country.

Mission

RCD's mission is to encourage and develop objective and serious dialogues between Iraqi elites and decision-makers in a manner that enhances the democratic experience and achieves societal peace and sustainable development in Iraq through the following objectives:

1. Enhancing societal peace through constructive dialogue among Iraqi elites.
2. Strengthening national responsibility, supporting the state's democratic experience, and building its institutions.
3. Assisting state institutions in solving problems by providing suggestions and consultations in various fields through its diverse publications and informed experts.

4. Expanding common ground between political and social entities through neutral dialogue that strengthens the relationship between the citizen and the state.

Means

1. Organizing seminars and panel discussions in the fields of RCD's concerns and following up on their outcomes with media coverage to promote them inside and outside Iraq.
2. Issuing books and strategic reports, conducting research and studies, and publishing them in print and electronically.
3. Forging partnerships with local and international research and academic institutions and think tanks with shared objectives.
4. Collaborating with esteemed universities to hold scholarly events and forums.
5. Establishing research departments and specialized committees to promote scientific research.
6. Holding dialogues between differing parties to promote social integration.

Structure

al-Rafidain Center for Dialogue RCD consists of an administrative structure formed in accordance with its internal regulations, which includes: the Board of Directors, consisting of the founder, Mr. Zayd al-Ṭālaqānī, as Chairman of the Board and eight members; a CEO and his deputy; a Board of Advisors; and a number of scientific and administrative departments, which are: the Department of Research and Development, the Department of Administrative, Legal, and Financial Affairs, and the Department of Protocols and Public Relations, in addition to an Advisor for Cultural Affairs and International Cooperation.

Like any giving and fruitful institution, al-Rafidain Center for Dialogue has been exposed to a considerable number of challenges, harassments, and targeting that have attempted to undermine it, yet it has insisted on continuing its triumphant march with sustained giving and strength of will.

RCD addresses several local, regional, and global issues through its diverse publications in the following fields:

1. Political Science and International Relations.
2. Economics and Development.
3. Sociology.
4. Intellectual Affairs and addressing social phenomena.
5. Strategic and Military Affairs.
6. Technology and Cybersecurity.
7. Constitutional, Social, and Legal Issues.

8. Geography.
9. State and Society.
10. Environment and Climate Change.
11. Artificial Intelligence and Digital Transformations.

RCD's Research and Scientific Connections Locally, Regionally, and Internationally

As a research center that works to promote dialogue with the other, al-Rafidain Center for Dialogue is keen to build bridges of cognitive and research cooperation by establishing connections with Arab and foreign research centers and institutions around the world. This is done through cooperation agreements signed with institutions and centers of significance at the Iraqi, Arab, regional, and global levels, including Foreign Service Institute of the Iraqi Ministry of Foreign Affairs, Center for Banking Studies of Central Bank of Iraq, Salahaddin University-Erbil, International Crisis Group ICG (Belgium), Geneva Institute for Water, Environment and Health GIWEH (Switzerland), French Institute for Research and Analysis of International Policy CFRP, China Institutes of Contemporary International Relations CICIR, Emirates Center for Strategic Studies and Research, Russian International Affairs Council RIAC, Governance and Policy Think Tank GPTT (Iran), The Arab Institute for Democracy (Tunisia), Center for Afghanistan, Middle East & Africa CAMEA at the Institute of Strategic Studies Islamabad ISSI (Pakistan), and other important institutions.

al-Rafidain Center for Dialogue RCD has managed to be a pioneer in holding forums through its largest annual forum (RCD Forum), an international forum held annually in the capital, Baghdad. It discusses the most prominent topics and developments at the local, regional, and global levels, provides a free space for discussing opinions in the fields on which it is based among elites of high importance at the local and international levels, and dedicates its outcomes to building the state and its institutions and promoting the culture of dialogue and coexistence at all levels.

RCD receives support and funding from its sponsoring institutions through public agreements and in accordance with applicable Iraqi laws and regulations, and it is keen to announce the sources of this support and funding with transparency and clarity. This support for the RCD's activities is represented by contributions from the administrative body (Board of Directors), internal and external donations, grants, endowments, and unconditional gifts, in addition to financial grants from international organizations, United Nations agencies, Iraqi and international donors, humanitarian and development bodies, and private companies such as Central Bank of Iraq CBI, the Iraqi Ministry of Oil, Communications and Media Commission, European Union Mission, British Petroleum BP, Trade Bank of Iraq TBI, Iraqi Economic Council IEC, Wādī al-Khayr Company for Agricultural Investments, al-Thiqah International Bank, al-Nāfidhah Company

for Internet Services and Information Technology, Iraqi Business Council, Wajh al-Qamar Company for Investments and Contracting, Madīnat al-Ma'ālī Company for Investments and Contracting, and Ta'lim Platform.

Additionally, RCD receives support from reputable, legally licensed Iraqi institutions, most notably al-Waṭanī by Earthlink, which is the first and leading company in Iraq specializing in fiber optic technology (FTTH) and the largest provider of internet services in Iraq, and Asiacell, the first telecommunications company in Iraq and the main provider of high-quality mobile communication and internet services, with a subscriber base that has reached 19.7 million. And Maṣrif al-Ālam al-Islāmī (Islamic World Bank), one of the most important Iraqi banks in the field of economic development, which is a private joint-stock company founded by an elite group of locally and regionally renowned businessmen.

Publications

I. Authored Books

No.	Book Title	Author	Year of Publication
1	The Iraqi Economy After 2003	Zayn-al-'Ābidīn M. 'Abd-al-Ḥusayn Ṣādiq 'A. Ḥasan	2018
2	The Iraqi Marshes: Regional Analysis Through Interdisciplinary Lenses	'Abd-'Alī Ḥ. al-Khaffāf Ḥusayn 'A. al-Zayyādī Khālīd G. al-Farṭūsī	2019
3	Lectures on the Iraqi Affair	Group of Authors	2019
4	Building Iraq: Reality, Foreign Relations, and the Dream of Democracy	Luqmān 'A. al-Faylī	2020
5	The Political Economy of Education in Iraq	Prof. Dr. Kāmil 'A. al-Fatlawī Prof. Dr. Ḥasan L. al-Zubaydī	2020
6	Between Two Generations: A Series of Dialogues Between a Young Iraqi and His Older Brother	Luqmān 'A. al-Faylī	2021
7	Central Bank of Iraq: Roles, Tasks, and Future Options	Group of Authors	2021
8	Iraq 2020: RCD's Strategic Report	Prof. Dr. Ḥasan L. al-Zubaydī (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.) Prof. Dr. Miqdām 'A. al-Fayyād (ed.)	2021
9	Summary on State Succession: A Legal Study in Light of the Provisions of International Agreements	Dr. Abū-Ṭālib H. al-Ṭāliqānī	2021

No.	Book Title	Author	Year of Publication
10	The Philosophy of the Frameworks of the Interrelationship between Ethics and Law: A Critical Legal Study of Reality and the Post-Secular World	Prof. Dr. Iyād M. Şayhūd	2021
11	The Social Contract According to Shaykh al-Nāʾīnī in Iraq	Prof. Emer. Dr. ʿAbd-al-Amīr Zāhid	2022
12	New Visions for Managing the Oil Extraction Industry in Iraq	Prof. Dr. Jawād K. al-Kaʿbī	2022
13	Contemporary Iraqi Problems	Prof. Dr. Walīd ʿA. Jabr	2022
14	Iraq 2021: RCD's Strategic Report	Prof. Dr. Ḥasan L. al-Zubaydī (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.) Prof. Dr. Miqdām ʿA. al-Fayyāḍ (ed.)	2022
15	China and Technology Companies: Arms of Espionage and Sources of Superiority and Digital Hegemony	Prof. Dr. Ḥasan L. al-Zubaydī Dr. Karrār A. al-Budayrī Dr. Aḥmad Amīn	2022
16	Financial and Administrative Corruption in Iraq: A Geopolitical Vision	Prof. Dr. Ḥusayn ʿA. al-Ziyādī	2023
17	ISIS's Violations of International Humanitarian Law	Dr. Fāḍil ʿA. al-Gharrāwī	2023
18	Energy Sources and the Future of Mankind	Dr. Ḥusayn al-Shahristānī	2023
19	Studies in Contemporary Islamic Movements in Iraq	Group of Authors	2023
20	Islamic Presence in Europe and Its Future: A Study in Light of Contemporary Orientalist Sources	Hibah Ḥ. al-Rumāḥī	2023
21	Najaf 2050: A Future Vision	Prof. Dr. Ḥasan L. al-Zubaydī (ed.) Prof. Dr. Miqdām ʿA. al-Fayyāḍ (ed.)	2023
22	Evaluation of the Iraqi Government's Work During a Full Year 2022-2023	Group of Authors	2023
23	Iraq's Two Inflamed Decades: The Proliferation of Crises and the Intractability of Solutions (5 Volumes)	Prof. Dr. Ḥasan L. al-Zubaydī (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.) Prof. Dr. Miqdām ʿA. al-Fayyāḍ (ed.) Asst. Lect. ʿAmmār K. Ḥamīd (ed.)	2024
24	Iraqi Kirkuk and the Conflict of Sub-Identities	Dr. Dahhām M. al-ʿAzzāwī	2024
25	The Economic Importance of the Grand Faw Port and Its Reflection on the Reality of Sustainable Development in Iraq	Prof. Dr. Ḥamīdah Sh. al-ʿIdāmī Asst. Prof. Dr. Amjad R. al-Zāhidī	2024

No.	Book Title	Author	Year of Publication
26	Iraq 2022: RCD's Strategic Report	Prof. Dr. Hasan L. al-Zubaydī (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.) Prof. Dr. As'ad K. Shabīb (ed.)	2024
27	Iraqi Military Establishment 2003-2020	Dr. 'Imād H. al-Rubayī	2024
28	Iraq 2023: RCD's Strategic Report	Prof. Dr. As'ad K. Shabīb (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.)	2025
29	1999 Popular Uprising in Iraq After the Martyrdom of Sayyid al-Ṣadr: Preludes, Trajectories, Results	Prof. Dr. As'ad K. Shabīb (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.)	2025
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32	Najaf in the Pre-Islamic Era: Excavations in the Memory of a Region	'Abd-al-Amīr al-Mu'min	2025
33	Iran's Role in defining the Parameters of Strategic Balance in the Middle East: The Case of the Nuclear Program	Prof. Dr. As'ad K. Shabīb (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.)	2025

II. Translated Books

No.	Book Title	Author	Year of Publication
1	War Without End: The Iraq War in Context	Michael Schwartz	2019
2	Political Philosophy: An Introduction	Jason Brennan	2019
3	Resource Rents and Economic Growth	Peter Kaznacheev	2019
4	Iraq: A Political History from Independence to Occupation	Adeed Dawisha	2019
5	Patriotic Ayatollahs: Nationalism in Post-Saddam Iraq	Caroleen Marji Sayej	2020
6	Al Qaeda, the Islamic State, and the Global Jihadist Movement: What Everyone Needs to Know	Daniel Byman	2021
7	Illusions of Victory: The Anbar Awakening and the Rise of the Islamic State	Carter Malkasian	2021

No.	Book Title	Author	Year of Publication
8	Waging Insurgent Warfare: Lessons From the Vietcong to the Islamic State	Seth G. Jones	2021
9	The Iraqi Federation: Origin, Operation and Significance	Farah Shakir	2021
10	Global Trends 2040	US National Intelligence Council	2021
11	The Arab Shi'a: The Forgotten Muslims	Graham E. Fuller Rend Rahim Francke	2021
12	Rulers, Religion, and Riches: Why the West Got Rich and the Middle East Did Not	Jared Rubin	2021
13	Soldiers and Citizens: An Oral History of Operation Iraqi Freedom from the Battlefield to the Pentagon	Carl Mirra	2021
14	Security in the Persian Gulf Region	Fatemeh Shayan	2021
15	Between State and Non-State: Politics and Society in Kurdistan-Iraq and Palestine	Gülistan Gürbey (ed.) Sabine Hofmann (ed.) Ferhad Ibrahim Seyder (ed.)	2022
16	Shi'i Islam and Politics: Iran, Iraq, and Lebanon	Jon Armajani	2023
17	Understanding Religious Violence: Radicalism and Terrorism in Religion Explored via Six Case Studies	James Dingley (ed.) Marcello Mollica (ed.)	2023
18	The Political Economy of EU Ties with Iraq and Iran: An Assessment of the Trade-Peace Relationship	Amir M. Kamel	2023
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20	Stealth War: How China Took Over While America's Elite Slept	Robert Spalding Seth Kaufman	2023
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24	The Ambassadors: American Diplomats on the Front Lines	Paul Richter	2023

No.	Book Title	Author	Year of Publication
25	How the World Became Rich: The Historical Origins of Economic Growth	Mark Koyama Jared Rubin	2024
26	Institution Building in Weak States: The Primacy of Local Politics	Andrew Radin	2024
27	Information, Power, and Democracy: Liberty is a Daughter of Knowledge	Nico Stehr	2024
28	The Rise and Fall of OPEC in the Twentieth Century	Giuliano Garavini	2024
29	Iraq against the World: Saddam, America, and the Post-Cold War Order	Samuel Helfont	2025
30	Iraq: Power, Institutions, and Identities	Andrew J. Flibbert	2025
31	Earth for All: A Survival Guide for Humanity	Sandrine Dixon-Decleve et al.	2025

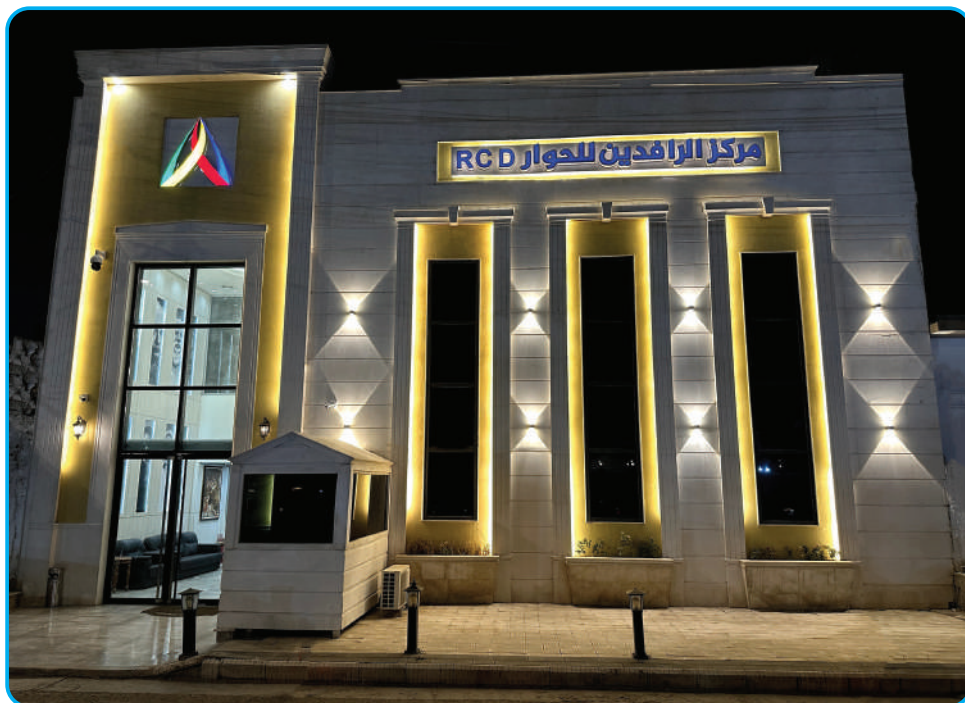
III. Dissertations Series

No.	Title	Researcher	Year of Publication
1	Iran's Position on the Iraqi Invasion of Kuwait 1990–1991: A Historical Study	Rimāḥ S. al-Ma'mūrī	2021
2	Consequence of Violating the Rules for Justifying Criminal Judgments in Iraqi Legislation: A Comparative Study	Asst. Lect. Yūsuf F. Ḥirz-al-Dīn	2021
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No.	Title	Researcher	Year of Publication
8	Financing Economic Development in Developing Countries: Iraq as a Model	Asst. Prof. Dr. Ibrāhīm J. al-Yāsirī	2022
9	Place and Its Organizational Impact on the Social and Economic Forces of al-Najaf al-Ashraf Governorate	Dr. 'Iṣām Ṣ. Ibrāhīm	2022
10	General Budget Deficit and Monetary Change in Iraq for the Period 1980 - 2015	Asst. Prof. Dr. Ḥusayn Sh. Majīd	2023
11	The Protest Movement in Iraq, The Dream of Democracy: From Regression to Resurgence	Dr. Sayf Ḥ. al-Ḥusaynī	2023
12	Regional Environment and Combating Terrorism in Iraq	Dr. Bāsim M. Yūnus	2025

IV. Publications in English

No.	Publication Title	Publication Category	Year of Publication
1	Najaf 2050: A Future Vision	Prof. Dr. Ḥasan L. al-Zubaydī (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.)	2025
2	The Iraqi Marshes: Regional Analysis Through Interdisciplinary Lenses	'Abd-'Alī Ḥ. al-Khaffāf Ḥusayn 'A. al-Zayyādī Khālīd G. al-Farṭūsī	Forthcoming
3	Iraq 2021: RCD's Strategic Report	Prof. Dr. Ḥasan L. al-Zubaydī (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.)	Forthcoming
4	Iraq 2022: RCD's Strategic Report	Prof. Dr. Ḥasan L. al-Zubaydī (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.) Prof. Dr. As'ad K. Shabīb (ed.)	Forthcoming
5	Iraq 2023: RCD's Strategic Report	Prof. Dr. As'ad K. Shabīb (ed.) Prof. Dr. Aḥmad S. al-Ma'mūrī (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.)	Forthcoming
6	Iraq 2024: RCD's Strategic Report	Prof. Dr. As'ad K. Shabīb (ed.) Prof. Dr. Miqdām 'A. al-Fayyāḍ (ed.) Asst. Lect. 'Ammār K. Ḥamīd (ed.)	Forthcoming





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alrafidaincent



info@alrafidaincenter.com



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النجف الاشرف - حي الحوار - امتداد شارع الاسكان
العاصمة بغداد - الجادرية - قرب تقاطع ساحة الحرية

The contributing researchers attempted to address multiple problematic issues that stem from the following question: How can al-Najaf al-Ashraf preserve its spiritual and historical status as a global religious center, while simultaneously confronting present and future challenges related to urban development, demographic shifts, and economic, social, and political pressures? In light of these problematic issues, a number of objectives were outlined, the most important of which are:

- To analyze the reality of Najaf in light of historical, political, and social approaches.
- To forecast the future of Najaf through multiple scenarios that take into account local, regional, and international transformations.
- To provide knowledge-based, practical recommendations that assist in formulating sustainable development policies which balance the spiritual dimension with the civil-urban dimension of the city.

ISBN: 978-9922-772-00-4



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www.alrafidaincenter.com



info@alrafidaincenter.com



+964 782 622 2246



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