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# State of the City Food System Report

Tunis



AfriFOODlinks



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Fruit and Vegetable store in Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



Street vendor in Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



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# LINCS Value Framework



	<b>Learning</b> The project stresses the value of experiential learning and that multiple ways of knowing are welcomed, deemed of equal value, and can be connected to enhance understanding. <i>"NEA ONNIM NO SUA A, OHU" - "He who does not know can know from learning"</i>	<b>Inclusivity</b> and deliberate engagement and empowerment of communities will enhance their agency and participation in decision-making for a people-centred and informed research, policy and practice. <i>"FUNTUNFUNEFU-DENKYEMFUNEFU" - "Unity in diversity"</i>	<b>Novelty</b> represents the embracing of the new or unexpected, which necessarily requires diverse expertise, skills and perspectives. It includes the dismantling of inappropriate systems in favour of traditional or indigenous practices. <i>"UAC NKANEA" - "UAC lights" symbolises technological advancement.</i>	<b>Collaboration</b> To successfully ensure transdisciplinary work, societal actors must be continuously engaged to co-define the research objectives and questions, and to continuously contribute to meaning-making with the researcher as the research progresses. <i>"BOA ME NA ME MMOA WO" - "HELP ME AND LET ME HELP YOU".</i>	<b>Sustainability</b> is articulated both as the overarching global imperative to ensure economic, environmental and social wellbeing, and as the ethos that every project intervention must aim to become self-sustaining. <i>"SANKOFA": The backwards turning bird symbolises returning while looking forward</i>
<b>How does this deliverable contribute to each of the values?</b>	This has involved a deep learning process connecting food systems understanding to urban systems understandings	The report entailed less engagement and a surface review but consultations with diverse stakeholders will now take place	This is one of the first reviews to connect urban systems and food systems knowledge and to assess the food system of a city as embedded in both the urban, the policy and the infrastructural contexts	This work involved convening different food systems knowledge specialists. More collaborative work will commence with this report service as the site of conversation	This report serves a key sustainability position. The wealth (per a broad definition) of society is embedded how society functions and that is embedded in context and the environment. The intersections between these sphere also needs mediation and governance. This report seeks to understand this process as a primary entry point to ongoing food system engagement.
<b>How did you practice this value in this deliverable?</b>	Through the initial brief and active engagement through the development of the report.	This process built the foundation for more inclusive conversations with diverse actors who impact the food system across the city	This report is novel and pushed researchers to engage diverse systems at the urban scale – food, urban, governance, health, policy, politics, etc.	This report was collaborative in terms of how it brought researchers together. However, it is a key tool upon which collaborative processes are now built	This report sought to offer greater understanding about the intersections of the three spheres and how these are mediated through the sphere, who governs these processes and how these enable or constrain outcomes.



## 2. Abstract

This pioneering report presents a comprehensive analysis of the food system within Tunis, capital of Tunisia. While this report may encompass various aspects, it emphasizes the importance of re-centering the urban food system as a core consideration for the city's development. To achieve this, and aligning with the AfriFOODlinks project's goals, we propose an assessment of existing data, knowledge, and public awareness on this critical topic. It departs from traditional approaches that treat urban food systems as isolated entities. Instead, it integrates the food system with a multifaceted examination of the city itself, encompassing its demographics, climate, infrastructure, economy, and governance structure.

The report delves into the historical development of Tunis, highlighting its unique food culture. It analyzes the city's complex governance framework, exploring the impact of recent decentralization efforts on local food system management.

Moving forward, the report sheds light on the economic engine driving the food system, examining both formal and informal sectors. It assesses dietary equity, explores the "nutrition transition" phenomenon, and identifies potential areas for intervention.

Furthermore, the report delves into the core components of the food system, identifying key stakeholders, policy frameworks, and production environments. It explores the intricate world of multi-stakeholder food governance, assessing the viability and efficacy of current structures.

The report explores the burgeoning urban agri-food economy, analyzing its potential for growth and contribution to local food security. It examines the challenges faced by urban agriculture, while highlighting emerging trends and innovations that are shaping the future of the urban food system.

Finally, the report delves into lesser-known aspects of Tunis' food system, highlighting the importance of local governance and the informal food sector. While the municipality plays a significant role in managing the food system through promoting stakeholder engagement and ensuring food security, a key challenge lies in achieving decentralized decision-making for greater local autonomy.

The informal food market emerges as a crucial provider of affordable and culturally relevant food options, creating income opportunities and fostering diversity. However, its prevalence is accompanied by challenges related to legality, hygiene, and formalization.

Food waste management also takes center stage, with the city facing substantial waste generation and limited infrastructure. Initiatives to reduce waste and promote composting offer promise, but require further collaboration and infrastructure development to achieve a more sustainable food system. By adopting this holistic approach, the report aims to provide a comprehensive understanding of the intricate tapestry of the Tunis food system, paving the way for future research and informed interventions.



### 3. Introduction

This report, as detailed in the abstract, aligns with the objectives of the AfriFOODlinks project. It aims to take stock of existing data, knowledge, and perspectives while actively seeking out underutilized knowledge of urban food systems. To do this, it undertakes a landscape review and situational analyses of key urban systems (food, health, socio-economics, urban infrastructure services).

The objective is to begin to understand what is known about the urban system and the urban food system, but also what is not known about these two systems in the target cities.

Before viewing the city through the lens of food systems, it is necessary to understand the other urban systems.

For this reason, the explicit starting point of the report on the state of the urban food system was to collect data on the multiple urban systems that interact with the urban food system and, in most cases, play a fundamental role in shaping urban food systems.

The report also focuses on food and food system governance in the broader sense in the city of Tunis. It provides an overview of the city's political and administrative leadership and its evolution over time.

To understand the actions of local government, it is essential to know the evolution of mandates and responsibilities.

The report also examines the city's economy, the dominant economic sectors, and the interaction between the formal and informal sectors. The report focused on vulnerable populations. The benefits of the AMEN Social program, implemented by the Tunisian government in 2018, aims to reduce poverty and marginalization in Tunisia by providing social assistance and personalized support to the most disadvantaged households.

Finally, the report explores the urban agri-food system and the entrepreneurial activities associated with it, or not. It also attempts to capture the food environment of the city of Tunis and its potential impact on nutrition and health.

These different components of the report retain their specific focus and constitute separate chapters. This "State of the Food System" report is under construction and as the AfriFOODLinks project evolves, new lessons, mistakes, different knowledge and different reasoning will surface. We have wanted to avoid claiming to be able to synthesize such complex questions without the detailed engagement that will follow within the framework of AfriFOODLinks work.

The report instead proposes to capture the currently known information. In addition, without in-depth interviews, a process planned later in the project, data verification is not possible.

For these reasons, this report offers a state of the information collected from various sources. This information is intended to serve as a basis for existing knowledge on the urban system and the food system in order to capture, for further examination and analysis, the areas of intersection between the urban system, the urban food system, the food system and multi-scale governance systems.



## 4. Scope of the City Report

This report is made up of five sections. The opening section lays the groundwork for understanding Tunis' food system by providing a multifaceted portrait of the city itself. The first offers an overview of the city of Tunis, capital of Tunisia, introduced by delving into Tunis city rich history, exploring how its development has shaped its unique food culture. Understanding the decision-making framework that impacts the food system requires examining the city's governance structure, which is intricately linked to the national framework.

Tunisia's Tunis City operates within a complex national governance structure. This abstract explores how the city is governed, examining the historical context and recent reforms that impact its executive, legislative, and judicial branches. The analysis highlights the ongoing decentralization efforts, aiming to empower local authorities through a new three-tiered system. The abstract concludes by mentioning the key structures within Tunis' municipal administration

Moving beyond its past, the section will incorporate an overarching report on the city's economy, highlighting the role food plays within this larger system. Additionally, a city infrastructure report will shed light on the physical networks – transportation, storage facilities, etc. – that underpin the smooth operation of the food system. The first offers an overview of the city of Tunis, capital of Tunisia, describing the locality, demographics, climate, infrastructure and economy of the city.

Food and nutrition security are paramount concerns for any urban environment. This section will analyze the current state of food security in Tunis, along with the existing responses and initiatives aimed at bolstering it. We'll explore the ongoing "nutrition transition" – the shift in dietary patterns – and its potential impact on health outcomes. Examining data on nutritional deficiencies, particularly among vulnerable groups, will pinpoint areas where targeted interventions are needed.

Finally, the section explores the unique cultural tapestry of Tunis and how it intertwines with the food system. This analysis will reveal how traditions and preferences influence food choices and consumption patterns. By concluding with the key challenges faced by the city's food and nutrition system, we pave the way for a deeper exploration in subsequent sections.

Section 2. This section dives deep into the core components of the city's food system, establishing a crucial baseline for further analysis. We'll begin by identifying the key players – the stakeholders – whose roles range from production and distribution to consumption and policymaking. The section will then explore the policy and regulatory environment that shapes how food moves through the system. Understanding the local production environment, including available resources and agricultural practices, provides a foundation for analyzing food diversity and staple foods that underpin the city's diet. To assess dietary equity, we'll examine the typical food basket consumed by different income categories.

This section goes beyond production; it delves into the economic engine that drives the city's food system. We'll dissect both the formal and informal sectors, identifying major food processing firms, distribution channels, and retail outlets within the formal economy. Shedding light on the informal food sector, often a lifeline for low-income communities, is equally important. Here, we'll explore the strategies employed by households to access food, including reliance on informal markets or small-scale producers.

Section 3: This section delves into the intricate world of multi-stakeholder food governance within urban environments. We'll explore the various modes and practices employed to manage the complex urban food system. Identifying the key actors involved, both governmental and non-governmental, is crucial to understanding the governance dynamics. Analyzing historical shifts in food systems governance will shed light on past successes and failures, informing future approaches. Ultimately, the focus will be on assessing the viability and efficacy of current governance structures. By exploring both opportunities and threats





within the urban food system governance landscape, we can identify areas for improvement and pave the way for a more sustainable and equitable food system.

Section 4. This section explores the intersection of urban agriculture, food systems, and entrepreneurial ventures. We'll begin by examining the nature of the food systems economy, looking at its national landscape and zooming in on the specific dynamics within the city itself. This analysis will assess the viability of the urban agri-food economy, highlighting its potential for growth and contribution to the local economy.

Understanding the challenges faced by the urban agri-food system is crucial. We'll delve into the specific obstacles encountered within the city, such as limited land availability, access to resources, or regulatory hurdles. However, challenges often breed innovation. We'll explore the exciting trends and shifts shaping the agri-food system economy, both nationally and within the city. This will showcase emerging opportunities for entrepreneurs and stakeholders to address these challenges and create a more robust urban food system.

The urban agri-food system thrives on a network of interconnected actors. This section will identify the key players in this ecosystem, such as urban farmers, distributors, retailers, and community organizations, and explore their specific roles. But innovation thrives on fresh perspectives. We'll also examine the rise of alternative and emerging agri-food system players, such as vertical farms, aquaponic businesses, and tech-enabled delivery platforms. Highlighting the innovative trends these new entrants bring to the table will showcase the dynamic and evolving nature of urban agri-food entrepreneurship.

Section 5. This section delves into lesser-known aspects of Tunis City's food system. It highlights the crucial role of the municipality in shaping the urban food environment. The municipality, though lacking full autonomy, actively manages the food environment by facilitating stakeholder engagement and promoting economic growth within the food system. However, a critical challenge lies in decentralizing decision-making to empower local governance. Conversely, the informal food market thrives, offering affordable and culturally relevant food options while facing hurdles related to regulations and hygiene standards. Food waste management presents another challenge, with inadequate infrastructure and public awareness hindering progress. Nonetheless, initiatives to reduce waste and promote composting offer a glimmer of hope for a more sustainable urban food system in Tunis City.





Formal wholesale food market supplying Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



Informal market supplying Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)









**Figure 2.** Tunis, capital of Tunisia, was taken on October 26, 2018 by the Sentinel 2A satellite. It presents some geographical landmarks of the region. It is a natural color image with a resolution of 10m. © OPERNICUS SENTINEL 2018.

### Demographic

Tunis is a vibrant tapestry. With a population of around 693,000 within the city limits and a sprawling metropolitan area exceeding 2.7 million, it's the heart of Tunisia. The majority of residents are Arab, reflecting the region's history. However, Berber influences add a rich layer of cultural diversity. Arabic reigns supreme as the official language, while French, a legacy of French colonization, remains widely spoken. Berber dialects add another dimension to the city's linguistic landscape. Tunis boasts a relatively young population, making it a dynamic and energetic place. Its status as a major economic and cultural hub attracts people from across Tunisia and beyond, further enriching the demographic mix.

### Climate

The climate of Tunis is a classic example of the Mediterranean. Hot, dry summers with average July temperatures reaching 29°C (84°F) give way to mild, wet winters where temperatures average around 11°C (52°F) in January). Rainfall is infrequent, concentrated mostly in the winter and spring months, averaging around 510 millimetres (20 inches) annually. This seasonal rhythm shapes the city's lifestyle, with outdoor activities flourishing during the pleasant spring and fall months.

### Biodiversity

The city itself boasts limited natural biodiversity due to its urban environment. However, pockets of nature persist. Public parks like the belvedere and public gardens provide a haven for birds, insects, and small mammals. Nevertheless, the surrounding areas, particularly the Tunis Lagoon, provide habitat for a variety of plant and animal life. The lagoon is an important stopover point for migratory birds, with over 200 species recorded there. The lagoon is also home to a number of fish species, including sea bass, sea bream, and mullet. Efforts are underway to conserve and protect the remaining biodiversity in the Tunis area.

## 5.2. History of the City



Port de France, Tunis city (Source Wikipedia)

While the history of Tunis is long and distinguished, it does begin after that of Carthage, the famed Phoenician city founded in the 9th century BC. Evidence of Tunis' existence dates back to around the 4th century BC. Due to its strategic location on the Mediterranean coast, Tunis attracted the attention of various civilizations throughout history. Consequently, it has been ruled by the Berbers, Phoenicians, Greeks, Romans, Vandals, Arabs, Ottomans and French, before Tunisia gained independence in 1956. On the north-eastern coast of Tunisia, in the vicinity of the Gulf of Tunis and the historic city of Carthage, rests the vibrant city of Tunis. In 1229, it ascended to prominence as the capital of Tunisia during the Hafsid dynasty. Even after achieving independence in 1956, Tunis maintained its status as the capital of both the country and the newly established Tunis Governorate, cementing its enduring significance. Tunis was founded during ancient times at the intersection of naturally formed roads located between the vast lagoons of Lake Tunis and Sebkha Séjoumi. The isthmus separating these two bodies of water is known as the "dome of Tunis," consisting of limestone hills and sediments of various origins. This "natural bridge"



has been a significant transportation route since antiquity. Three important roads passed through this area: the coastal route connecting Berberia to Egypt, the road linking Vaga (modern-day Béja) to the Medjerda plains, and the road to Sicca connecting Numidia to Hadrumetus and the Emporia via Tunis. These roads were connected to Carthage, the dominant political and economic power in North Africa, and passed through the isthmus of Tunis due to the poor conditions of the Radès-La Goulette lido.

The traffic along these roads led to the creation and development of rest stops, including Tunis. Historical events later shaped Tunis' destiny. Initially, Tunis seemed to be primarily shaped by its proximity to the road network. To travellers, it resembled many Berber villages of the time, perched on a hill with eroded slopes, offering a welcoming refuge. Based on its etymology and position at a road junction, Tunis functioned more like a major stopover (*mansio* in Latin) for Libyans than just a simple relay point (*mutatio*).

The origins of Carthage can be compared to those of Tunis, as Carthage was linked to the maritime route connecting Tyre and Sidon to the Pillars of Hercules. Before the city's founding, Phoenician sailors frequented the coast of Libya, establishing relays and trading posts. The location where Carthage was eventually built initially served as a relay for Phoenician navigators, but its advantageous position on the edge of the Gulf of Tunis attracted the Tyrians to settle there.

The locations of Carthage and Tunis, both future capitals of Ifriqiya, were chosen due to their strategic advantages. Their proximity to the sea, healthy climate, and surrounding fertile regions, including the Medjerda plains, Wadi Miliane, and Cap Bon, made them ideal settlements. Similar to Carthage, Tunis is roughly equidistant from major Mediterranean ports. Additionally, its proximity to the Strait of Sicily, a crucial commercial and strategic passage connecting the eastern and western basins of the Mediterranean, further solidified its importance. Tunisia's location makes it a natural bridge between these regions.

The position of Carthage-Tunis aligned with political and economic factors crucial for regional dominance. Throughout history, attempts to establish a capital elsewhere faced failure, as exemplified by the establishment of Utica, Kairouan, Mahdia, and Al-Mansuriya.

In ancient times, Carthage, protected by its towering walls, engaged in Mediterranean activities during its early centuries. It established a vast maritime and colonial empire, bringing wealth, power, and prestige to its citizens. Around 480-450 BC, after successful wars against the Libyans, Carthage ceased paying the tribute it had been required to pay to the Maxitani (Berbers) at its inception. Seeking enhanced security and prosperity, Carthage annexed a significant portion of their territory, implementing rational agricultural practices for development.

Geographically close to Carthage and strategically positioned, Tunis was among the first Libyan cities to come under Carthaginian control. Its proximity to trade and military routes, coupled with its defensive fortifications, made it a valuable asset in protecting Carthage from attacks from the mainland. Initially, Tunis consisted of simple dry stone huts covered with branches, and its inhabitants likely engaged in bartering with passing travellers.

To bolster Tunisia's defences, the Punic strategists constructed walls and fortifications, ensuring its resilience. Polybius and Livy described Tunis as well-defended by nature and human intervention, but despite its defences, Tunis often fell to Carthage's enemies throughout its history.

The strategic importance of Tunis continued to be evident during the expedition of Agathocles of Syracuse in 310 BC. The Greeks captured Tunis and established their camp nearby to threaten Carthage. While Agathocles pursued the siege of Hadrumetus, the Carthaginians took control of the Greek camp and besieged Tunis, trapping the Greeks within. Agathocles returned swiftly upon learning of his troops' defeat, compelling the Carthaginians to lift the siege. Tunis remained a key Greek base of operations for nearly three years during their African campaign, enabling them to monitor Carthage. However, after setbacks, Agathocles left the city in the care of his two sons while seeking reinforcements in Sicily. He returned with fresh troops to continue the fight against Carthage but was ultimately defeated in a battle near Tunis.



Agathocles fled to Sicily, abandoning his sons and troops, who revolted and negotiated with Carthage to evacuate Tunis and other remaining cities.

During the First Punic War, the Romans, following Agathocles' example, carried hostilities into North Africa in 256 BC. Led by Marcus Atilius Regulus, the Romans landed at Clupea (present-day Kelibia), ravaging towns and the fertile countryside of Cape Bon. After their victory at Adyn (Oudna), they captured Tunis and established their camp there, threatening Carthage, which lacked capable generals to counter the Roman forces. The Carthaginian Senate entrusted command of the Punic army to a Spartan adventurer named Xanthippe, who inflicted a significant defeat on Regulus. Regulus was taken prisoner and brought back to Carthage with his senior officers, all released on parole. The war resumed in Sicily and ultimately resulted in the Carthaginians losing the island.

The Mercenary War began when a group of 20,000 mercenaries and their families were evacuated from Sicily, leaving behind several months' worth of unpaid wages owed to them by Carthage. Despite promises from the Senate to resolve the situation, the mercenaries grew increasingly frustrated and eventually transitioned from threats to open revolt, leading to a widespread insurrection known as "the inextinguishable war". Spendios, the leader of the rebel mercenaries, formed an alliance with Mathos, the leader of the Libyan army, who brought with him 70,000 native Libyans who had faced harsh treatment at the hands of the Carthaginians during the war with the Romans. Together, they demanded excessive taxes and forced labour from the Libyans.

The rebel leaders, Mathos, Spendios, and Autarite, seized Tunis and made it their base of operations, effectively isolating Carthage from the mainland. However, Carthage had prepared for a prolonged siege by stockpiling weapons and provisions. They entrusted command of their troops to Hamilcar Barca, a skilled general who had distinguished himself in previous wars.

Hamilcar inflicted a crushing defeat on the rebels near the Medjerda River, forcing them to retreat towards Tunis. He then lured the main rebel force, numbering 40,000, into the Saw gorge near Zaghuan, where he annihilated them, including their leaders Spendios and Autarite. Hamilcar subsequently marched on Tunis, where Mathos had taken refuge with a large number of Libyans. During the siege, Mathos made a daring breakout, attacking a lieutenant of Hamilcar north of Carthage, capturing and crucifying him along with thirty Carthaginian nobles. Ultimately, the resumption of hostilities became inevitable, and the truce was broken. The war ended with Hannibal's defeat at the Battle of Zama in 202 BC. Upon his return to Carthage, Hannibal advised the Senate to make peace without delay. A new delegation was sent to Scipio, who had joined Tunis after his victory at Zama. Scipio presented Carthage with new and more severe conditions, which they were forced to accept. After ratification by the Roman Senate, Carthage obtained peace by surrendering its possessions in Spain and parts of its African territories to Massinissa. Additionally, Carthage was prohibited from waging war without Roman authorization, required to surrender its fleet, and obligated to pay a substantial war indemnity.

During the Third Punic War (149-146 BCE), Carthage was besieged and destroyed, but there is no mention of Tunis in the historical accounts. However, it is believed that Scipio Africanus captured Tunis before conquering Carthage. Strabo's writings suggest that Tunis, along with other cities, faced resistance and was likely destroyed by the Romans.

After Carthage's destruction, Tunis gradually rose from the ashes over the next century and a half. Unlike Carthage, which faced an absolute ban on rebuilding, Tunis was not subject to such restrictions and may have been rebuilt before Carthage. However, there is limited evidence about Roman Tunis, with only a few mentions in historical sources.

Under Roman rule, Tunis remained a modest town, overshadowed by Carthage. However, it was likely repopulated by Neo-Punic elements, and the Punic population outside of Carthage, survived and thrived, preserving their language, customs, and beliefs.





Tunis benefited from the Pax Romana and experienced urban growth, along with other cities in the Roman province and surrounding indigenous kingdoms. Its geographical location made it a key relay point on the road connecting Utica, the provincial capital, to Hadrumeto and Emporia. Tunis potentially served as a temporary residence for Greek colonists brought by the Romans to cultivate the surroundings of Carthage, but this attempt failed due to opposition and assassinations.

During Julius Caesar's campaign in North Africa, his legions likely passed through Tunis. Caesar recognized the strategic importance of Carthage and ordered its reconstruction upon his return to Rome in 46 BCE. Augustus, Caesar's adopted son, completed the restoration and established Carthage as the administrative capital of Roman Africa. Tunis witnessed the construction of the new Carthage and hoped to benefit from the general prosperity brought by Roman rule.

During its prosperous period, Tunis initially occupied the kasbah hill's summit and gradually expanded down the eastern slopes toward the lake, whose waters once reached the outskirts of Bab El Bharat. In the early 6th century, a Vandal prince named Gibamond commissioned the construction of lavishly decorated public baths near the El Grana souk. Scholars believe that the city was fortified during the Byzantine period, as evidenced by the foundations and some remnants of the wall along the Sebkha Séjoumi, which is thought to be part of the ancient enclosure. Within Dar El Bey, three Roman arcades of the Doric order remain, likely remnants of a Roman theatre, strategically located to provide a panoramic view.

During the 7th century, Arab soldiers commanded by Hassan Ibn Numan seized control of the region. Carthage, which is exposed to the sea and was eventually demolished about 695-6987, could not be occupied by the Arabs, so in 699, they focused their efforts on ancient Tunes, establishing there a modest city. The city had a strategic position at the bay's bottom, where trade routes with Europe and its hinterland met. It was built on a hillside, sheltered from the east by a lake, from the north by the hills of Belvédère and Ras Tabia, from the west by the large sebkha Séjoumi and from the south by the rocky cliffs of Sidi Belhassen. Tunis quickly assumed the military role that the Arabs had intended for it. Yahia Ben Saïd El Ansari, a traditionalist, and jurisconsult, travelled to Ifriqiya during the time of caliph 'Umar II (717-720), stated that it was necessary to be "girdled with a saber" there because it is a "border place." Tunis was soon the only important city near the Strait of Sicily. Tunis's role as a district capital was fortified in the first years of the 8th century. It could obstruct an enemy from the sea from reaching Ifriqiya's capital, Kairouan, while also carrying out attacks on Christian governments by raiding their coasts and ships. Tunis's military importance increased significantly as it became the Arabs' naval base in the western Mediterranean.

During the reign of the Aghlabid dynasty, Ifriqiya thrived, achieving a remarkable level of prosperity. Tunis, the second-largest city in the kingdom, flourished immensely. The expansion of the Zitouna Mosque significantly enhanced its reputation beyond the city's borders. Tunis served as the nation's capital from the end of Ibrahim II's reign in 902 until 909, when Berber Shiites conquered Ifriqiya and established the Fatimid dynasty. However, Tunis eventually regained its status as the regional capital.

Nonetheless, the city encountered a significant setback during the Kharijist insurrection led by Abu Yazid, known as "the man with the donkey." In September 945, the insurgents invaded Tunis, causing widespread devastation and plundering the city's markets. Amidst this turmoil, the eminent *cadi* and jurisconsult Sidi Mahrez emerged as a guiding force, actively participating in the reconstruction of the city. He directed the rebuilding of the ramparts, reorganized the markets, established the small market of Bab Souika, and facilitated the settlement of Jews in the Hara district, contributing to the city's renewal.

The emergence of the Zirid dynasty in 983 led to the increased prominence of Tunis. Despite being a Sunni population, the people tolerated Shiite rule until the death of the first sovereign in 983, after which massacres against the Shiite community became more frequent. In response, the Ziride Al-Muizz ben Badis rejected Fatimid obedience in 1048 and restored the Sunni rite throughout Ifriqiya. This decision angered the Shiite Caliph Al-Mustansir Billah, who unleashed Arab tribes, including the Hilalians, as punishment on Ifriqiya. As a result, a large part of Ifriqiya was set ablaze, and the Zirid capital, Kairouan, was destroyed in 1057. Only a few coastal towns, such as Tunis and Mahdia, escaped destruction. Consequently, the



population of Tunis, no longer recognizing the authority of the Zirids who had retreated to Mahdia, sought refuge with the Hammadid prince El Nacer ibn Alennas in Bougie. He appointed Abdelhak ibn Abdelaziz ibn Khourassan as the governor of Tunis, who quickly took control of the country and established the independent Khurassanid dynasty, with Tunis as its capital.

The Khurassanid dynasty revived foreign trade and restored peace and prosperity to the region. It undertook significant construction projects in Tunis, including a fortified palace in the upper part of the city, and reinforced the city's defenses and port.

Originating from the early 12th century, the El Ksar mosque was constructed by the princes of the Khurassanid dynasty.

During its early centuries, Tunis had a diverse population. Gradually, thousands of immigrants from Europe, Asia, and the Maghreb joined the initial groups of Islamized Arabs and Berbers. However, it wasn't until the beginning of the 13th century that the city witnessed its most significant migration movement.

In 1159, Abd al-Mumin arrived in Ifriqiya and freed all the ports under Norman occupation, including Gabès, Sfax, Sousse, and Kélibia. He conquered Tunis, deposed the last Khurassanid ruler, and established an Almohad administration to govern all of Ifriqiya. This conquest marked a turning point in Tunis's history. Previously a secondary city behind Kairouan and Mahdia, Tunis was now elevated to the rank of the provincial capital. However, peace was short-lived as a new event disrupted the city's destiny. In the late 12th century, Almoravid princes Ali and Yahia ibn Ghania set out from the Balearic Islands and landed in Béjaïa, launching an attack on the towns of Ifriqiya, including Tunis, which they briefly occupied. In 1204, Almohad Caliph Muhammad an-Nasir liberated Ifriqiya and restored Almohad authority. He appointed Sheikh Abd al-Wâhid ibn Hafs as the governor of Tunis, which had been elevated to the capital of Ifriqiya. In 1228, Abû Zakariya Yahyâ, the son of Abd al-Wâhid ibn Hafs, seized power, and a year later, he declared independence from the Almohads, assumed the title of emir, and established the Hafsid dynasty.

The Hafsid dynasty brought significant prosperity and growth to Tunis, the capital of their kingdom. During their reign, the city expanded rapidly, with the population increasing substantially, and new suburbs added to the north and south. The Hafsid sultans also invested in public works, building mosques, madrassas, zaouïas, and residences, as well as reinforcing the city's defences with a new kasbah and ramparts.

The city also played a significant role in the Eighth Crusade, when Louis IX of France attempted to capture it. However, his army fell victim to an epidemic of dysentery, and Louis IX himself died outside the city's walls. Subsequently, the city received an influx of Andalusians driven out by the Spanish Reconquista, who contributed to the region's economic and intellectual growth.

Tunis faced a major challenge in 1534 when Ottoman troops led by Khayr ad-Din Barbarossa sacked the city. In response, Charles V of Spain intervened, retaking the city and re-establishing the Hafsid sovereign. During their partial occupation, the Spaniards built powerful citadels and abolished slavery, restoring freedom of trade and worship for Christians. However, the Hafsids struggled to maintain control, and in 1569, the regent of Algiers, Uludj Ali, captured Tunis. The Spanish regained control briefly after the Battle of Lepanto in 1571, but the city ultimately fell to the Ottomans under Sinan Pasha in 1574. Despite the destruction caused by the various conflicts, the Ottomans restored the city, rebuilding old monuments and constructing new ones, giving it a renewed splendour. Tunis retained much of the structure it had during the Hafsid caliphate, and it remained a significant centre of intellectual and economic activity in the Islamic world.

The Dar Othman façade is a notable example of early Ottoman architecture, dating back to the late 16th century. After becoming an Ottoman province governed by a pasha appointed by the sultan, Tunisia gained a degree of autonomy in 1591. Under the rule of the deys and later, the Mouradite beys, the capital experienced significant growth. The population grew through various ethnic contributions, including expelled Spanish Moors, while economic activities diversified.



In addition to traditional industries and distant trade, horse racing flourished during this period. Profits from the trading of Christian slaves enabled rulers to erect opulent structures, enhancing the monumental legacy inherited from the Middle Ages. Numerous mosques were built, including the Youssef Dey, Hammouda-Pacha, and Sidi Mahrez mosques, as well as new madrassahs such as the Andaloussiya and Mouradiyya medersas. With the Ottoman arrival, roughly 4,000 janissaries settled in Tunis from Asia Minor, primarily from Smyrna. Turks and Europeans converted to Islam also joined the population, largely engaging in naval and racing trades. Their integration led to the emergence of the Koulougli group, individuals born from marriages between Turks and local women. Koulougli members swiftly ascended to prominent military and political positions.

Despite diverse origins, these population groups lacked a shared language. Communication was facilitated by a dialect combining French, Italian, and Arabic words. Among themselves, they utilized their own languages, including dialectal Arabic, Spanish, Turkish, French, Sicilian, Calabrian, Judeo-Arabic, and others.

At the beginning of the 18th century, Tunisia entered a new era with the Husseinite dynasty. Tunis preserved its 17th-century structure, featuring terraced houses, a citadel, and two enclosures protecting the medina and its northern and southern suburbs. Various rulers and dignitaries made urban improvements, including mosques, zaouias, and fountains.

In 1724, Peyssonnel reported on the chéchia industry's development and the increased export of wheat, dates, leather, and wax. The city's population hovered around 100,000 in 1780 but declined to about 80,000 by 1830 due to three plague epidemics. Despite facing these challenges, Tunis flourished as a commercial and piracy centre until the 19th century, with its population estimated between 90,000 and 110,000. Taking advantage of internal conflicts, the Algerians seized Tunis in 1756, but Hammouda Pasha later repelled them and disbanded the Janissary militia in 1811.

The spatial organization of the city was affected by the demolitions of the ramparts, starting in 1860, and the opening of the gates from 1870. The city expanded beyond its walls, accommodating the new populations between the medina and the banks of the lake. Modern infrastructure was introduced, including water supply, gas lighting, roads, and waste removal. Communications with the inner suburbs and hinterland were also established.

Alongside traditional crafts and commerce, which were declining, the newcomers engaged in trade with Europe, introducing the first modern industries and adapting new urban lifestyles around the Arab city. For a long time, the capital's administration was based on customs. Sheikh El Medina, assisted by two sheikhs at the head of the suburbs, was responsible for serving the city's interests. They collected contributions from the population, maintained the streets, removed waste, cleaned sewers, and ensured security. During Mohammed Bey's reign, a significant reform was introduced. In 1858, a decree established the capital as a municipality with a Municipal Council comprising twelve members chosen by notables.

General Hussein was the architect of this institution. The old organization continued, with the three traditional leaders overseeing their sectors. In 1860, General Hussein became the capital's governor and president of the municipality.

In 1881, the establishment of the French protectorate marked a turning point in Tunis's history. The city experienced rapid change over the following decades. With the influx of French capital, the population grew rapidly, with European populations growing to almost equal the local population. The city expanded beyond its fortifications, splitting into an old city populated by Arabs and a new city populated by newcomers. The city underwent major infrastructure improvements, including the introduction of water, natural gas, electricity, and social facilities. The traditional economy was supplemented by a colonial-type capitalist economy.



One of the most significant transformations was the conquest of the lagoon by filling and sanitation, creating buildable areas while respecting the original city. In 1886, the Société Anonyme des Tramways de Tunis obtained the concession for the first horse-drawn tram lines, which went around the medina and connected Bab El Bhar to the Navy. Over the next few years, additional tram lines were added, and the network was eventually electrified. The port of Tunis was also built during this period, creating a direct connection to the sea and linking the city to other ports in Tunisia.

In 1885, during Ali III Bey's reign, Mohamed Asfour assumed the roles of Sheikh El Medina for all the residents of the capital and president of the municipality of Tunis. This merged customary and contemporary systems of governance. The First World War caused a hiatus in Tunis' history. Population growth resumed after the war, primarily through migration from the hinterland and a modest return of European immigration.

Following the establishment of the French protectorate in Tunisia, the indigenous Muslim and Jewish populations experienced negligible growth. Despite advances in public hygiene and the reduction of deadly epidemics, the mortality rate remained elevated for a considerable period. Due to a higher birth rate, the Jewish population had a modest excess of births over deaths, unlike the Muslim population, where deaths exceeded births, causing stagnation or even a decline in their numbers.

While the indigenous population remained relatively unchanged, the European population grew rapidly. French, Italians, and Maltese continuously migrated to the country to establish careers, start businesses, or find employment. In a short period, these migratory movements led to a rapid increase in Tunis' population and shifted the relative weights of the various ethnic groups.

In the early 20th century, the city of Tunis experienced significant transformations. The modern city grew in prominence, expanding its grid street network in all directions. Satellite cities emerged, further extending the boundaries of the urban area. Economically, activities diversified and developed: modern industries expanded their commercial operations, while traditional industry gradually declined. During this period, the city's public transport system was extended. The first two bus lines were inaugurated, connecting key areas. However, despite these developments, traditional cabs continued to operate on the city's streets. The CTT, the public transport authority, modernized the network by introducing trolleybuses on certain lines and opening new bus routes to the new working-class neighbourhoods surrounding the capital.

During World War II, Tunis faced repeated bombings by Allied aircraft, resulting in significant casualties and damage. The European city, home to military targets like the port, train station, and factories, was heavily affected, though bombs also struck the medina and its suburbs. After the war, the city's industrialization accelerated but could not keep pace with the growing population's needs. This period also witnessed the emergence of a belt of "spontaneous suburbs" known as gorbivilles, which rapidly surrounded the capital. In the postwar era, disparities within the city became more pronounced, with contrasts between the affluent areas and the expanding informal settlements. In late 1926, the French company Air Union, which already operated an Antibes-Ajaccio service, established a connection from Ajaccio to Tunis. This route was served by seaplanes with three weekly flights. In 1929, a second line was added, connecting Tunis with Ajaccio and Marignane, with six weekly flights. The same year, a Franco-Italian agreement led to the inauguration of a seaplane line from Tunis to Rome, via Cagliari or Palermo, also with six weekly connections. During this time, Tunis was connected to Bône by a regular line with three weekly flights.

The preference for seaplanes resulted in the development of the Khereddine base. Located twelve kilometres from Tunis, on the shores of Lake Tunis, this base offered a landing area of 9,600 hectares. Additionally, a civil airfield was built 8 kilometres from Tunis, at El Aouina, for the Tunis-Bône and Tunis-Paris connections. Throughout the 1930s, both bases experienced a steady increase in passenger numbers. However, it wasn't until the end of World War II that seaplane connections were discontinued and the Khereddine base was abandoned. During the war, passenger traffic fluctuated significantly, rising from 23.6 million in 1939 to 47.2 million in 1942 before plummeting to 4.3 million in 1943 due to the destruction of the La Goulette power station.





Growth since independence :After independence in 1956, Tunis consolidated its role as the capital, first with the establishment of a constitution stating that the Chamber of Deputies and the Presidency of the Republic must have their headquarters in Tunis and its suburbs. In a very short time, the colonial city transformed rapidly. As the city has grown and native Tunisians gradually began to replace the extensive European population, the conflict between the Arab city and the European city has gradually decreased with the Arabization of the population. Because of population pressure and the rate of migration to the capital, the city continued to grow, even with the creation of new districts in the suburbs. Old buildings have gradually been renovated and upgraded. New buildings have come to influence the urban landscape. At the same time, an active policy of industrialization is developing the municipal economy. The Arab League represents 22 Arab nations. It transferred its headquarters to Tunis in 1979 because of Egypt's peace with Israel. The Arab League returned to Egypt in 1990.

## 5.3. City's Governance Structure (embedded within national structures)

### 5.3.1. Overarching structure of government in Tunisia

Tunisia, with rich history and vibrant culture, has recently undergone significant political transformations. Understanding the current context and structure requires delving into the country's past, exploring its present political landscape, and considering its future trajectory.

#### 5.3.1.1. Historical Underpinnings of political structure:

**Independence and One-Party State (1956-2011):** After gaining independence, Tunisia became a one-party state under President Habib Bourguiba. While credited with modernization efforts, the regime faced criticism for its authoritarian nature.

**The Arab Spring and Revolution (2011):** Inspired by regional uprisings, Tunisians took to the streets in 2011, ousting President Zine El Abidine Ben Ali and sparking the Arab Spring. This period ushered in a new era of democratic aspirations.

**The Post-Revolution Landscape (2011-Present):**

**2014 Constitution:** Following a national dialogue, a new constitution was drafted in 2014. This document enshrined fundamental rights, established a mixed presidential-parliamentary system, and aimed to decentralize power.

**Electoral Politics:** Since 2011, Tunisia has held several democratic elections. While fostering political pluralism, the fragmented nature of the party system has posed challenges in forming stable governments.

**Rise of Islamist Party (Ennahda):** The moderate Islamist party, Ennahda, emerged as a major force in the post-revolution period. Despite initial concerns, Ennahda participated in coalition governments, demonstrating a commitment to democratic processes.

**Economic Challenges:** Tunisia's economic struggles, including high unemployment and regional disparities, have fueled social unrest and political instability.



**Current political state after the 2022 Reforms:** In July 2021, President suspended parliament, in 2022, further reforms were introduced, including a new electoral system and a weakened parliament, raising questions about the future of Tunisian democracy.

## Political Structure:

### Executive Branch:

**President:** Head of state, elected directly by the people. Holds significant power over foreign policy, defence, and domestic affairs (increased under Saied's reforms). Appoints the Prime Minister.

**Prime Minister:** Heads the government, responsible for domestic policy implementation. The government is made up of the head of government and the ministers and secretaries of state he appoints. After the election of the Assembly of People's Representatives, the President of the Republic designates the candidate of the leading party to form a new government. He must obtain the confidence of the Assembly before being appointed head of government. The head of government "determines the general policy of the State". He appoints the members of the government in consultation with the President of the Republic and assigns the different portfolios. He chairs the Council of Ministers, manages the state administration and appoints the senior civil service. The government is responsible to the Assembly of People's Representatives.

### Legislative Branch:

**Assembly of People's Representatives (unicameral):** In 2011, Tunisia experienced a revolution which led to the fall of the regime of the president Zine el-Abidine Ben Ali. This revolution was followed by a period of political transition, which led to the adoption of a new Constitution in 2014. This Constitution established a new parliament, the Assembly of People's Representatives (ARP), which replaced the former Chamber of Deputies. This new Assembly is elected by direct universal suffrage and has a more important role in the legislative process. She is also responsible for controlling the action of the government and representing the Tunisian people. Throughout its history, the Tunisian parliament has undergone significant changes. From the Single Independence Assembly to the current Assembly of People's Representatives, including the Assembly of People's Representatives of the 1960s and 1970s, the names and composition of parliament have evolved. The main functions of the Tunisian Parliament are as follows:

- The development and adoption of laws: The Tunisian Parliament has the power to propose, examine and adopt laws on all subjects that fall within its jurisdiction.
- Control of government action: The Tunisian Parliament has the power to monitor government action, debate its policies and ask it questions.
- Representation of citizens: Members of the Tunisian Parliament are elected to represent Tunisian citizens and to defend their interests. They are supposed to listen to their constituents and represent them fairly.
- Supervision of elections: The Tunisian Parliament is responsible for supervising elections and the electoral process in Tunisia.
- Control of public finances: The Tunisian Parliament is responsible for voting on the state budget and supervising the use of public funds.
- The Tunisian Parliament, as a legislative institution, has several mechanisms to control government action and ensure the representation of citizens.
- The right to ask questions: Members of the Tunisian Parliament have the right to ask questions of the government on all matters that fall within its competence. The government is required to answer these questions precisely and in detail.
- Parliamentary committees: The Tunisian Parliament has several specialized committees which are responsible for examining the policies and actions of the government in their own right.

### Judiciary:



- Independent judiciary with a court system based on French civil law principles.

### 5.3.2. Overarching structure of local Governance

Decentralization Efforts: The 2014 Constitution aimed to devolve power to local authorities through a three-tiered system:

- **Supreme Council of Regions and Districts:** given that these structures are newly created in accordance with the 2022 Constitution. For the first time, elections will create local councils which will then elect “regional councils” which will in turn choose “district councils”. The latter will form the “Supreme Council of Regions and Districts”, which will act as the second chamber of Parliament. **Tunisia's New Local Government Structure:** The 2022 Constitution indeed established a new decentralized governance framework. However, the supreme legislative body for regional and district representation is called the National Council of Regions and Districts. The Local Elections successfully held its first-ever local council elections in December 2023. These elections were historic as they filled positions in the newly created regional and district councils. It's important to distinguish between the national and local levels. The National Council, established in 2022, sits at the national level and exercises legislative power alongside the Assembly of People's Representatives (currently unicameral). The local councils, elected in December 2023, function at the regional and district levels. In essence, the local council elections in December 2023 were a crucial step in implementing the decentralized governance envisioned by the 2022 Constitution. These newly elected local councils will play a significant role in managing regional and district affairs. The National Council, already established, works on national legislation with a focus on regional and district development. Regional Councils hold significant power and responsibilities, including: i) Managing regional development plans and strategies. ii) Overseeing regional budgets and resource allocation. iii) Cooperating with national authorities on regional development initiatives. iv) Promoting economic development, social welfare, and environmental sustainability within the region. v) Implementing national laws and policies at the regional level. **The Challenges and Opportunities for Regional Governance** are capacity building, newly established regional councils may require capacity building to effectively exercise their newly granted power.
- **Financial Resources:** ensuring adequate financial resources for regional councils to full fill their responsibilities are crucial. This might involve a combination of national government allocations and regional revenue generation mechanisms. **Inter-regional Coordination:** Promoting collaboration and knowledge sharing between different regions can foster balanced development across Tunisia.
- **Citizen Participation:** Enhancing citizen engagement in regional governance through transparent processes and accessible communication channels will be essential.
- **Governorates:** Headed by centrally appointed governors, responsible for administration and implementing national policies.
- **Municipalities:** The Tunisian Constitution of 2014 provides, in article 14, that “The State undertakes to strengthen decentralization and to implement it throughout the national territory, within the framework of unity of State “. Chapter VII, which contains twelve articles (arts. 131-142), is dedicated to “local power”. The 2014 Constitution provides for three levels of local authorities throughout Tunisia: municipalities, regions and districts, which enjoy legal personality and financial and administrative autonomy. Their autonomy is reinforced by the recognition for their benefit of a principle of free administration.



- The Government Decree No. 2016-602 dated May 26, 2016 created 86 new municipalities, the total number of municipalities being 350, completing the full coverage of the territory. Tunisian, in accordance with the new constitutional provisions. Thus, all Tunisians, regardless of their place of residence, are part of a municipality and can participate in municipal elections.
- Mayors: Before the dissolution of municipal councils, the communes were under the supervision of the mayors.
- Municipal Council (Table 1) meets obligatorily, four times a year, in ordinary sessions (February, May, July and November sessions), each preceded by a preparatory meeting, at least one month in advance and in the presence of citizens. However, the council may meet in extraordinary session at the request of the Mayor. The municipal district councils meet every month in the presence of elected officials and representatives of the administrations concerned by the issues on the agenda. Municipal council meetings are public.

**Table1.** Committees of the Municipal Council

Committees of the Municipal Council
Committee of the administrative and financial affairs
Committee of the works
Committee of the urban planning and the traffic (circulation)
Committee of the hygiene
Committee of the cleanliness
Committee of social affairs
Committee of youth and childhood
Committee of sports
Committee of culture
Committee of the religious affairs
Committee of the information
Committee of the embellishment of the city
Committee of the green spaces
Committee of legal affairs and dispute
Committee of municipal holdings
Committee Of the revision of the tax on the rental value
Committee of the naming of streets
Committee of the relations between associations and organization

### 5.3.3. Tunis City commune local governance

Since its founding in 1858, the commune of Tunis has been administered by 31 mayors who have actively managed the affairs of the city, handled municipal interests and contributed to the social, economic and cultural promotion of the city of Tunis. Before 2011, unlike other mayors in Tunisia, the mayor of Tunis was appointed by decree of the President of the Republic from among the members of the City Council. Following the municipal elections of 6 May 2018, the main political parties on the one hand Ennahdha obtained 21 seats out of 60. And on the other Nidaa Tounes came second with 17 seats. On 3 July 2018,





the head of the Ennahdha list Souad Abderrahim was elected by the council as the new mayor of the capital for five years.

The composition and functioning of the Municipal Council of the city of Tunis were governed by law n°75-33 of May 14, 1975 relating to the organic law of municipalities modified several times and in particular by organic law n° 95-68 of July 24 1995 and organic law n°2006-48 of July 17, 2006. The municipal council of the town of Tunis is composed of 60 members including 20 assistants elected by the council after it taking off. However, the council can meet in extraordinary sessions at the request of the mayor. The councils of the municipal districts meet each month in the presence of the elected officials and of the representatives of the administrations concerned with the questions of the order of the day. seven years after the revolution.

The municipal councils elected in 2018 were considered as an achievement of the decentralization process initiated during the democratic transition. In March 2023, the President announced the dissolution of municipal councils, elected in 2018, according to Decree Law No. 2023-9 of March 8, 2023, dissolving municipal councils for the year 2023, the President announced the dissolution of municipal councils, elected in 2018. Therefore, Mrs. Souad Abderrahim was dismissed in April 2023 from her position as mayor of Tunis City by the president of the republic (as all the other mayors of Tunisia) while he ordered the dissolution of municipal councils.

With regard to the dissolution of municipal councils, special delegations composed of general secretaries and civil servants already present in the municipalities ensure their operation, pending the holding of new elections. Currently, the governor of the city of Tunis still exercises control responsibilities over the municipality but the latter has more autonomy in the management of local affairs. The specific distribution of powers and responsibilities is still being defined.

The ongoing decentralization process aims for a more collaborative and empowered local governance structure, with the Tunis Region Council playing a key role in regional development, including oversight of local authorities within the Tunis Region.

- **Services and missions of the municipality:** the flow chart of the Town hall of Tunis is a part one of the measures of application of the municipal upgrade plan aiming to better controlling and managing the municipal tasks for a better output and of a constant development of the city.
- **Legal framework:** deliberations of the municipal council of July 16th, 2003. Municipal decision, dated December 13th, 2004, ratified by the minister of interior affairs and local development and of the minister of Finances on December 29th, 2004. This flow chart inserts within the framework of measurements of application of the municipal plan of upgrade aiming to better controlling and managing the municipal tasks for a better output and of a constant development of the city.

The city of Tunis, whose size has increased significantly during the second half of the 20th century, extends beyond the Tunis Governorate into parts of the governorates of Ben Arous, Ariana and Manouba. The municipality of Tunis is divided into 15 municipal districts: These include El Bab Bhar, Bab Souika, Cité El Khadra, Jelloud Jebel El Kabaria, El Menzah, El Ouardia, Ettahrir, Ezzouhour, Hraïria, Medina, El Omrane, El Omrane Higher Séjoui and Sidi El-Bashir (Figure 3).

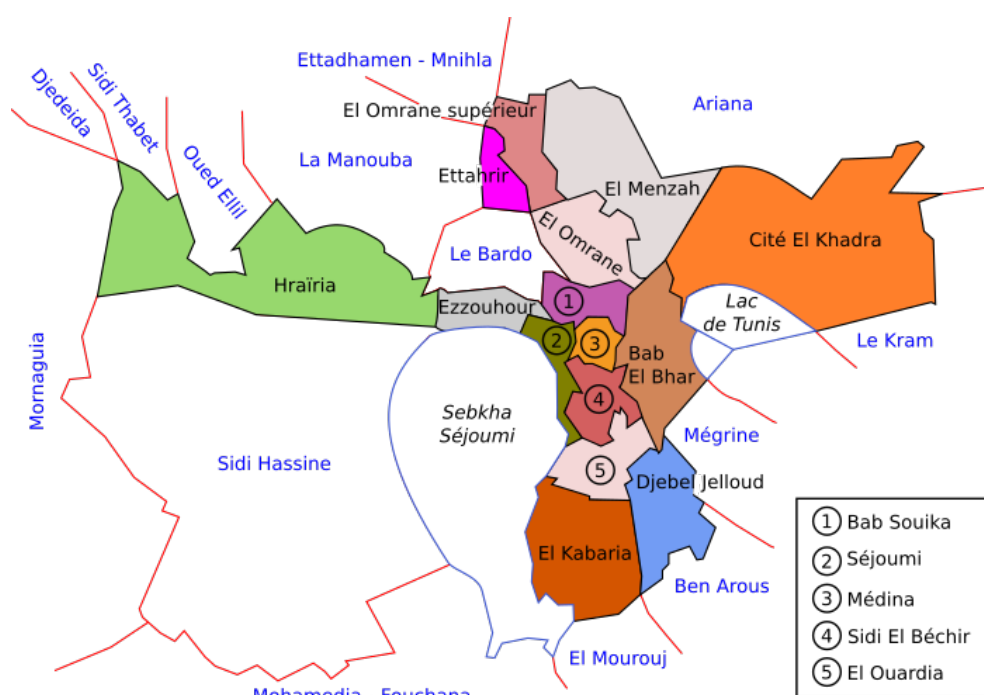
The municipal administration of Tunis is composed of administrative divisions:

- Cabinet of the Mayor;
- General secretary;
- The inspection;
- Head office of the engineering services;
- Direction of control;
- Direction of cleanliness;
- Direction of the administrative and financial business;



- Direction of the communal affairs;
- Direction of hygiene and environmental protection;
- Direction of the development;
- Direction of the resources.

Tunis municipality has Municipal agencies which are: The Association for the Protection of the Medina, the Municipal Management Agency and the Municipal Environmental Services. These Agencies are three municipal establishments responsible for the design and development of programs of the Town Hall of Tunis in matters of state civil, urban rehabilitation, traffic, management of municipal properties and the operation of controlled landfills and waste recovery centres.



**Figure 3.** Map of the arrondissements of Tunis

1, Médina; 2, Sidi El Béchir; 3, Sijoumi; 4, Bab Souika; 5, El Omrane; 6, Bab Bhar; 7, El Menzah; 8, El Omrane Supérieur; 9, Ettahrir; 10, Bardo; 11, Ezzouhour; 12, El Ouardia; 13, Jebel Jelloud; 14, Kabaria; 15, Cité El Khadra; 16, El Bouhaira; 17, La Marsa; 18, Carthage; 19, La Goulette; 20, Hraïria; 21, Sidi Hassine

## 5.4. Overarching report on economy of the City

### 5.4.1. Budget of the municipality of Tunis City

Revenues are the product of taxes on built buildings and undeveloped land, rental fees for municipal properties, income from the operation of public roads, advertising, the sale of municipal property and actions that the municipality holds a stake in the capital of certain companies. On the expenditure side, credits are provided for the consolidation of hygiene and cleanliness, the state of the environment and urban aesthetics, the maintenance of infrastructure, the rehabilitation and renovation of collective facilities, strengthening logistics and means of work and transport.

While there is limited data specifically for Tunis city's economy, we can explore national statistics with the understanding that Tunis, as the capital and major economic centre, likely outperforms national averages in some areas. According to the world bank statistics on Tunisia, the country's GDP in 2022 was estimated at \$46.3 billion with a 2.4% annual growth rate for the same year. The GDP per capita was \$3,747.42 in 2022, which might be higher in Tunis due to its concentration of businesses and higher-paying jobs.

### 5.4.2. Main economic sectors

The key economic sectors of Tunis can be categorized into three main pillars: services, tourism, and the public sector. The services sector dominates the city's economy, including financial services, telecommunications, transportation, retail and professional services. In fact, Tunis serves as a financial hub for Tunisia, hosting the headquarters of major banks, insurance companies, and financial institutions. These institutions offer various services like banking, investment, and insurance, all crucial to the financial stability and growth of the city and the country. Tunis is a major centre for telecommunications companies, providing mobile and internet services throughout the country. With the increasing importance of digital connectivity, this sector is experiencing growth and attracting investments.

The city is a central hub for transportation networks in Tunisia, with a major international airport, a seaport, and well-connected road and rail networks. These transportation services facilitate trade, tourism, and the movement of goods and people within the country and across borders.

Tunis boasts a thriving retail sector, with numerous shopping centres, markets, and stores catering to both local residents and tourists. The retail industry generates significant revenue and employment opportunities in the city. Tunis is home to a growing number of professional services firms, such as consulting firms, law firms, and accounting firms. These firms offer specialized expertise and services to businesses and individuals, supporting economic development and growth.

The tourism sector in Tunis encompasses various services, including hotels, restaurants, tour operators, and travel agencies. These services play a vital role in accommodating and facilitating the needs of tourists, contributing to the growth of the tourism industry in Tunis.

As the capital city, Tunis is the centre of government administration, providing essential public services like education, healthcare, and public safety. These services contribute to the overall well-being of the population and create job opportunities. The economic structure of Tunis, as well as that of the country, is overpoweringly tertiary industry. The city is the largest financial centre in the country hosting the headquarters of 65% of financial companies – while the industrial sectors are gradually declining in importance. The secondary industry is still very represented and Tunis hosts 85% of industrial establishments in the four governorates, with a trend towards the spread of specialized industrial zones in the suburbs.



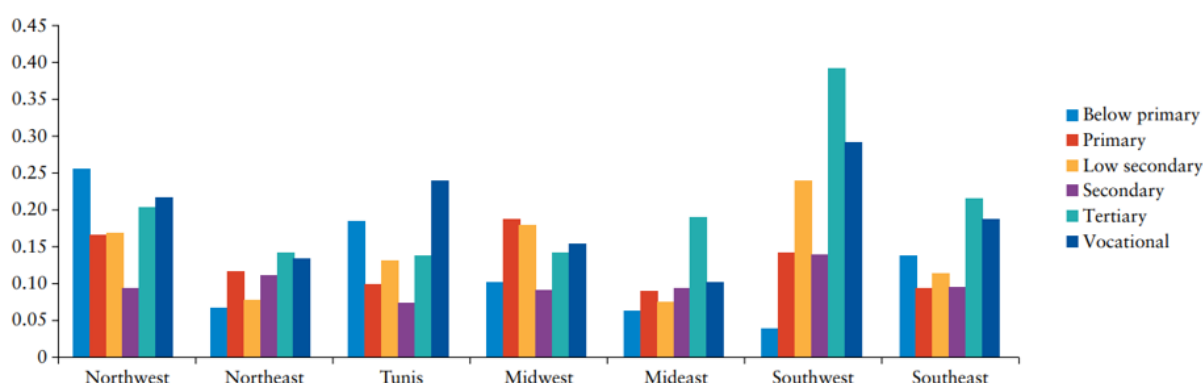
Primary industry such as agriculture, however, is active in specialized agricultural areas in the suburbs, particularly in the wine and olive oil industries. The generally flat terrain and the two main rivers in Tunisia, the Medjerda to the north and the Milian to the south, the soils are fertile. Tunis has several large plains, the most productive are in Ariana and La Soukra (north), the plain of Manouba (west) and the plain of Mornag (south).

Tunis city as the whole country Tunisia is experiencing water shortages increased by industrial pollution, agricultural overexploitation, infrastructure degradation and climate change. Irrigated agriculture which is threatened, represents 8% of useful agricultural areas, the rest being exploited by rain-fed agriculture. The soils contain limestone in the north but are lighter and sandy containing clay in the south. There is much diversification in the municipality of Tunis, with Durum grown in Manouba, Olives and olive oil in Ariana and Mornag, wine (Mornag), and fruit, vegetable and legumes are grown in all regions.

### 5.4.3. Economic Challenges

Youth unemployment is a particularly pressing issue in Tunis, with young people facing significant difficulties in finding employment due to a mismatch between their skills and available jobs. Although there are no city level statistics, the national statistics show a youth unemployment rate hovering around 40%, with 2023 figures at 40.46%. Tunis, though a major economic centre, is unlikely to be entirely immune to this trend.

According to the graph below (Figure 4) taken from the third chapter “Youth Inactivity and Unemployment” of the “Tunisia: Breaking the Barriers to Youth Inclusion” report, shows that the unemployment rate in 2013 was at the highest 25%, in Tunis city. A large portion of the workforce in Tunis is employed in the informal sector, which is characterized by unregulated activities and a lack of social protections. This informal sector contributes to significant tax evasion, depriving the government of revenue that could be used for public services and infrastructure development.



**Figure 4:** Unemployment rates by educational attainment, urban Tunisia  
(Source: World Bank, 2013)



#### 5.4.4. Economic Potential

Tunis has the potential to become a hub for the digital economy in the region. The government has initiated programs to promote start-ups and technological innovation.

In 2018, Tunisia introduced the start-up Act, a game-changer for the country's digital ambitions. This legislation fosters innovation by offering start-ups a special label with tax breaks, funding access, and simplified procedures. It also incentivizes investment and creates a supportive ecosystem for entrepreneurs, propelling Tunisia towards becoming a regional hub for the digital economy.

According to the figure taken from the "Start-up Act Annual Report 2021", 70,09% of the start-ups that benefited from the programs are from the Greater Tunis, among these 47% percent in Tunis. Moreover, according to the same report, 44,8MDT were raised by Tunisian Start-ups in 2021. This demonstrates the future potential that such a governmental driven initiative can hold for the future of Tunisia.

### 5.5. City Infrastructure report

Starting in the early 1980s, Tunisia experienced accelerated urbanization due to the adoption of a liberal economic model focused on services and manufacturing. This urbanization, reaching 67.7%, particularly affected large cities like Tunis and its suburbs, prompting significant infrastructure development projects, including the expansion of the public bus network and the establishment of a light rail system (Maddouri, 2020.)

Tunis, the capital of Tunisia, serves as a central transportation hub due to its extensive road and motorway networks and well-developed airport infrastructure. This central role stems from historical centralizing tendencies that concentrated governmental institutions and attracted international organizations to the capital. Tunis boasts a modern road network, comprising 375 km of classified roads within the governorate and 1,300 km of streets within the city. The city is also well-connected to other regions through an extensive motorway network. The railway system includes main lines serving the entire country and suburban lines connecting the capital with its surrounding areas.

Regarding port infrastructure, the port of La Goulette, handling 95% of Tunisia's maritime vehicle traffic, has been recently upgraded with a new passenger and cruise terminal. In terms of air transport, Tunis-Carthage International Airport, with a capacity of 4.5 million passengers per year, has also been expanded with a new charter terminal. Another notable mention is the Tunis-Goulette-Marsa (TGM) railway line, spanning 19 kilometres. It connects Tunis to the northern suburb of La Marsa via La Goulette.

Urban transportation in Tunis is primarily facilitated by buses, which are operated by various regional companies. Notably, Tunis is the sole city in Africa and the Arab world to feature a light metro system. Operational since 1985, the network has progressively expanded to include five main lines and two partial lines, spanning over 32 kilometres and encompassing 47 stations. The system is equipped with 136 trainsets, and further development is underway, with recent additions of new trains, line extensions, and network expansion to accommodate the growth of the Greater Tunis area.

"taxi jamai" is a prevalent shared taxi service in Tunisia. Utilizing minivans or minibuses, it provides an economical transportation option for city travel, operating on fixed routes and departing when full.



Tunis, the capital of Tunisia, boasts a diverse healthcare infrastructure encompassing both public and private hospitals and clinics. Public hospitals, such as the Charles Nicolle Hospital and the Rabta Hospital, provide essential healthcare services to a large portion of the population, but often face challenges related to resource constraints and outdated equipment. On the other hand, private healthcare facilities, including the Clinique Pasteur and the Polyclinique Taoufik, offer more specialized care and advanced technology, albeit at a higher cost, making them less accessible for many Tunisians. This duality in the healthcare landscape creates disparities in access and quality of care, as highlighted in a 2017 report by the Oxford Business Group. While efforts have been made to modernize public hospitals and increase access to healthcare for all, these disparities remain a challenge for the Tunisian healthcare system.

Despite the progress made, challenges remain, such as the need to maintain and expand existing infrastructure, while ensuring sustainable use of resources. Investments in workforce training and promoting innovation will be key to supporting continued growth.

In conclusion, the recent history of infrastructure developments in Tunisia is a success story, illustrating the country's commitment to modernization and sustainable development. Continued investments in key sectors will not only help strengthen the economy, but also improve the quality of life of the population. Tunisia, as a nation on the move, continues its journey towards a modern infrastructure, ready to meet the challenges of the future with determination.

## 5.6. Food and nutrition security

### 5.6.1. State of nutrition transition

#### 5.6.1.1. Non-Communicable Diseases

Due to the burden of disease that they entail, Non-communicable diseases (NCDs) represent a public health concern in Tunisia; they are assessed to be responsible for 86% of mortality (WHO, 2018) and for the major part of health expenditures (65% of the Ministry of Health budget is allocated for the therapeutic care) (SURVEN, NIH, CGGH, 2019). The convergence of socio-economic development, globalization, urbanization and major changes in food systems (including industrialization of agriculture and food production as well as changes in food retail) induced major changes in lifestyle (towards more sedentary behaviors as well as energy dense, micronutrient poor diets, with high content of saturated fat, salt and sugar and an increased consumption of ultra-processed foods) (Aounallah-Skhiri et al., 2011). Combined with ageing of the population and increased tobacco consumption and in interaction with genetic and developmental factors, these changes caused major changes at population level in the nutritional status and NCDs.

**Cardiovascular diseases** represent the most frequent NCD in Tunisia in 2016 and remain the leading causes of death and still causing the most premature deaths (IHME, 2020). Ischemic heart diseases are the leading cause of death and disability; in 2016 its age-standardized disability (DALYS) is assessed at 2,917.8 per 100,000. Cardiovascular diseases were much more prevalent in urban areas and in the more developed coastal areas respectively vs. the rural or inland regions where the prevalence were nevertheless of concern (detailed data not shown). There is also a strong economic patterning of these conditions, but which evolved (e.g., the prevalence of obesity was initially much higher among the more affluent but nowadays concerns all socio-economic strata).



**Diabetes** is increasing and the prevalence doubled during the last decades, from 7.5% in 1996 to 15.5% in 2016 (INN, 2020; Abassi et al., 2019; Aounallah-Skhri, 2011; Chaabane et al., 2020; Regaieg et al., 2015; Al-Hazaa and Musaiger, 2011; El Ati et al., 2005; MS, 2018).

**Cancer:** Based on Globocan assessments (IARC, 2018), the number of new cancer cases in 2018 was 15894; the Age-standardized incidence rate (World) was about 115.4 (per 100 000 persons), higher among men: 131.7 vs. 102.0 among women. The number of cancer deaths was 6 075 among men and 4 017 among women corresponding to respective age-standardized mortality rate 92.2 and 53.2 (per 100 000 persons). According to the Tunisian Northern Cancer register, the annual cancer incidence increased during 1994-2009 was 1.16% [1.16-1.31] for men and 0.74% [0.10-0.38] for women (ISA, 2017).

**NCD risk factors.** Over the past two decades the prevalence of *overweight*, *obesity* doubled (Table 2). So that according to the latest national survey in 2016 (MS, 2016), among Tunisians aged 15 years old and above, about two-thirds were overweight, about one out of four were obese; Women were twice more prone to obesity than men so that in 2016 a third were obese. Similar results were observed for *abdominal obesity* (women: 37,9%; men: 18,7%). On the other hand, the prevalence of thinness (BMI  $\leq$  18.5 kg/m<sup>2</sup>) was only 2.9% (men: 3.4%, women: 2.3%).

About one-quarter of Tunisians 15y and over, in 1996 and almost one-third in 2016 presented *high blood pressure*. Notwithstanding methodological differences, *hypertension* prevalence increased across the period 1996-2016.

**Table 2.** Prevalence of obesity, overweight, and diabetes by gender among adults aged 15 years and over

	National Survey					
	1996 (FAO, 2020)			2016 (Regaieg, 2015)		
	Men n=1600	Women n=3019	Total	Men n=4362	Women n=4850	Total
Obesity (%) (BMI $\geq$ 30 kg/m <sup>2</sup> )	5.7	19.7	13.9	17.6	34.6	26.2
Overweight (%) (BMI $\geq$ 25 kg/m <sup>2</sup> )	25.5	52.5	37.9	52.5	67.1	59.9
Diabetes (%)	6.0	8.7	7.5	16.1	14.8	15.5
Hypertension (%)	20.4	24.2	22.5	26.5	30.8	28.7

According to the latest published data by the Global Burden of Disease (GBD) workgroup, nutritional deficiencies regressed markedly (-31%) among Tunisian adults (15 – 49 y), from the 18<sup>th</sup> to the 19<sup>th</sup> cause of disability-adjusted life year (DALYs) between 1990 and 2019. However, the dietary risk factors of disability still high irrespective of the country's income level (including Tunisia). The nutrition transition experienced by the Tunisian population is inclusive of several behavior changes. Of the nutritional behaviors, excess of sodium intake has been recently documented to reach about 10 g per day among adults (WHO, 2015). Excess of sodium intake is proved to be one of the leading dietary risk factors for deaths and DALYs. Again, fat and saturated fatty acids intakes have increased by 5 g and 1.5 per 1000 kcal between 1996 and 2005. In a recently conducted study, high amounts of trans-fatty acids were found in fast-food and industrial products.

The increase in fat intake has been well documented as one of the correlates of obesity and cardiovascular diseases. Diet quality has an important impact on the emergence of non-communicable diseases, however, the changes that occurred during the last decades are more profound and affect different aspects of lifestyle behaviors. As for example, physical activity has declined while a sedentary lifestyle shapes the daily life of youth and adults (Al-Hazaa and Musaiger, 2011).

### 5.6.1.2. Special focus on infant and children under 5 years

The last Multiple Indicator Cluster Surveys (MICS) carried out during 2018 collected the breastfeeding practices information the day before the survey (UNICEF, 2018). Exclusive breastfeeding rate at 6 months of age was very low (only 14%). Exclusive breastfeeding rates were reported to fluctuate significantly according to regions (5% in the North West vs. 19% in the South West) and to gradually decline in parallel to the increase of mother instruction level (17%, primary education vs. 10% university education) (UNICEF, 2018). Predominant breastfeeding was reported only among 30.5% with higher practice in rural settings (35% vs. 28% in urban). Consistently, the predominant breastfeeding declined in parallel with the mother instruction level and the household economic level (40% for the poorest category vs. 24% for the rich category). The breastfeeding is relatively stable during the first year, from 44% for 0-5 months to 45% for the 12-15 months. Then, the practice declined dramatically to reach 18% for children aged 20-23 months. The cumulated percentage of infants receiving adequate breastfeeding within the age of 0-23 months is only about 34% (UNICEF, 2018).

At 6 to 23 months, the minimum diet diversification was reached among 63% of infants irrespective of their breastfeeding status (UNICEF, 2018). A net discrepancy was reported according to the living area (66% in urban vs. 58% in rural). The highest diversification rate was found in the North-East region (74%) and the lowest value was reported in the Centre-West region (56%). The percentage of infants that met the minimal diet diversification criteria (4 to 7 food groups) increased with the mother instruction level (35%, primary education vs. 77% university education) and the household economic level (54% for poorest category vs. 76% for the rich category). Minimum meal frequency was satisfactory among 86% of infants and was similar according to the regions and the living area. Almost, the frequency seems to not fluctuate according to the mother instruction level (UNICEF, 2018). The current situation does not differ significantly from the last MICS conducted in 2011-12 (UNICEF, 2012). For example, exclusive breastfeeding increased slightly (+5%) among 0-5 months and decreased by 4% for infants aged between 12-15 months. Interestingly, the minimum meal frequency meal doubled (48% in 2011-12) (UNICEF, 2012).

**Birthweight and nutritional status.** The prevalence of low birth weight (defined as a weight of less than 2,500 grams and predisposing to higher mortality during adolescence and to increased risk of chronic diseases such as obesity, diabetes, and cardiovascular diseases (Katz et al., 2013; PLOS Medecine staff, 2016), varied slightly from 5.0% in 2000 to 7.4% in 2018. Based on Demographic and Health Survey Tunisia 1988 and MICS surveys (WB, 2020), the prevalence of the three indicators of child nutritional status decreased globally across the last 50 years (1988-2018) with light trends difference (Table 3). Contrary to underweight prevalence which decreased continuously from 7.9 in 1988 to 1.5 in 2018, the decreasing trend of stunting (low height for age; according to WHO (WHO, 2020), it reflects a failure process to reach linear growth potential resulting of suboptimal nutritional conditions and/or health) and wasting (low weight for height, according to WHO, in most cases wasting is due to a recent and severe process of weight loss, which is often associated with acute undernourishment and/or severe disease or may also be the result of a chronic unfavorable condition) prevalence was reversed transitorily during 2006-2012 (Table 3).

**Table 3.** Trends of low birth weight, stunting and wasting among children under five years  
(Source: WB and UNICEF, 2020)

	1988 (EDS Tunisia)		2000 (MICS II)		2006 (MICS III)		2012 (MICS IV)		2018 (MICS VI)	
	n	%	n	%	n	%	n	%	n	%
<b>Stunting<sup>1</sup></b>	2015	18.5	10553	16.8	2842	9.0	2589	10.1	3302	8.4



Wasting <sup>2</sup>	2015	3.1	10553	2.9	2842	3.4	2677	2.8	3340	2.1
Underweight <sup>3</sup>	2015	7.9	10553	3.5	2842	3.3	2677	2.3	3340	1.6

<sup>1</sup>: Children under 5 who are below 2SD relative to the median height-for-age of the WHO reference population.

<sup>2</sup>: Children under 5 who are below 2SD relative to the median weight-for-height of the WHO reference population.

<sup>3</sup>: Children under 5 who are below 2SD relative to the median weight-for-age of the WHO reference population.

While underweight decreased considerably, overweight prevalence increased from 1.4% in 1997 to 8.8% in 2006 to 14.3% in 2012 (UNICEF et al., 2020), thus exposing to a higher risk of obesity, premature death and disability in adulthood and also to increased future risks; breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance, and psychological effects can be observed among obese children experience (WHO, 2020).

Tunisia is at an advanced stage of the nutritional transition with major shifts in lifestyle and diet resulting in increased consumption of dairy and meat products and generally of foods with high fat, sugar, and salt content. Nevertheless, intakes of fruit and vegetables remain rather high. Micronutrient related deficiencies are still an issue, e.g., a woman out of three had anemia. An increase in sedentary behavior is of concern. Among children, stunting and wasting are no more an issue but overweight is increasing. A fifth of the men and a third of the women are obese and one out of six Tunisians have diabetes as rates doubled in 20 years. Overall, about 90% of the mortality rate is attributable to NCDs. Most indicators feature a marked gender, socio-economic or regional patterning.

## 5.6.2. Nutritional deficiencies

### 5.6.2.1. Anaemia and iron deficiency

In the early 1970s, the 1<sup>st</sup> national nutrition survey conducted in Tunisia found that anaemia (Hb < 12 g/dL for women and 11 g/dL for children) was a public health problem, affecting 30% of preschool children and 31% of women of childbearing age with many potential consequences for health (INN, 1978)]. In 1996, the anaemia burden was high among the most vulnerable groups, i.e. women of childbearing age (26%) and children under five (23%). Overall, the more developed and urban Great Tunis region and the less developed South West region were the most affected (INNNTA, 1998). In 2000, a regional survey conducted in both the Greater Tunis and south-west regions showed that about a third of 15-49 y women and children <5 y suffered from anemia: in both populations, about 70% of anemia was due to iron deficiency. The fractions due to deficiency in *vitamin B12* and *folate* were insignificant. As discussed with Saskia, nuance the narrative here. Especially if wheat flour fortification will be linked to social protection schemes or will aim to be reaching poorer/more vulnerable segments of the populations. These groups would benefit immensely from micronutrients like folates and B12 through flour fortification Only 3% of women had chronic inflammation associated with their anemia, while anemia due to thalassemia or drepanocytosis was rare (about 5%) (El Ati et al., 2005; El Ati et al., 2008). In 2010 in the Greater Tunis region, among 20-49 y women, the prevalence of anemia was similarly high (38%) though it affected less than a tenth of adult men (Traissac et al., 2016). In 2016, the Tunisian Health Examination Survey reported that anemia affected 25.8% of the general population (INSP, 2018). The anemia was found to be unevenly distributed across regions. The Greater Tunis (28.7%) and the North East (North – East) were the most affected (INSP, 2018). Finally, dietary iron deficiency contributed to 0.39% of total disability-adjusted life years in 2019 (Healthcare, 2021). What survey does this come from? Is there no estimate of anaemia prevalence there?

### 5.6.2.2. Vitamin A deficiency

A cross-sectional study in the Central West region of Tunisia among school-age children (n=7407) for one decade found that vitamin A deficiency prevails among 2.3% only (Ayadi et al., 2016). Based on that, Tunisia was considered to be free from vitamin A deficiency. Are there any other studies conducted on other regions? I would say that concluding that Tunisia is considered to be free from Vitamin A based on one "regional" study would be unfair in my opinion.

### 5.6.2.3. Vitamin D

Limited studies provided evidence about vitamin D deficiency among different age groups. For example, a conducted survey among adults (n=389, women 67%) living in Ariana governorate revealed that hypovitaminosis prevalence was 47.6% (Meddeb et al., 2005). A more recent study conducted among athletes found that 14.7% of them have vitamin D deficiency (Ayadi et al., 2016). The deficiency was also reported among children aged between 7 and 15 years old (40.9%) (Bezrati et al., 2016). While a national representative population-based study was not available, other studies conducted in the Eastern Mediterranean region showed that vitamin D deficiency is frequent (Elrayah et al., 2020). Cumulatively, the available evidence indicates that the Tunisian population is more likely to be deficient in vitamin D. The evidence seems quite sparse to come to that conclusion as well.

*Sources.* Vitamin D is mainly obtained through synthesis in the skin under the influence of sunlight (80% of vitamin D supply) whereas intake by nutrition traditionally plays a relatively minor role (20%). Season/sun exposure, habits, latitude, nutrition/supplement intake or ethnicity influence vitamin D needs. Natural sources of vitamin D are animal sources such as fatty fish, cod liver oil, egg yolks.

*Recommended dietary reference.* The serum 25-hydroxyvitamin D concentrations are used to assess vitamin D status, with the recommended target concentrations ranging from  $\geq 25$  to  $\geq 50$  nmol/L ( $\geq 10$ – $\geq 20$  ng/mL), corresponding to a daily vitamin D intake of 10 to 20  $\mu$ g (400–800 IU). Most populations fail to meet these recommended dietary vitamin D requirements. In Europe, 25(OH)D concentrations  $< 30$  nmol/L (12 ng/mL) and  $< 50$  nmol/L (20 ng/mL) are present in 13.0 and 40.4% of the general population, respectively. The recommended daily amount of vitamin D is 400 IU (10  $\mu$ g/d) for children up to age 12 months, 600 IU (15  $\mu$ g/d) for people ages 1 to 70 years, and 800 IU (20  $\mu$ g/d) for people over 70 years.

## 5.6.3. Double burden of malnutrition

The high prevalence of excess adiposity and the still prevalent undernutrition mentioned above combine in a double burden of malnutrition which can be assessed: at national level (e.g. a third of childbearing age woman are anemic and a third are obese); - at household level (a study in 2010 in the Greater Tunis area showed that a quarter of the households featured both an anemic under five y child and overweight mother); - or even at individual level (in the Greater Tunis area one 20-49 y woman out of four was both anemic and overweight) [29, 30]. The significant prevalence of this paradoxical co-occurrence of under and over nutrition are a challenge for nutrition programs and politics.



## 5.6.4. Food security and food availability

### 5.6.4.1. Hunger and food insecurity

According to the FAO estimation (FAOSTAT, 2020), the prevalence of undernourished people in Tunisia has declined from 4.4% in 2000-2002 to 2.7% in 2013-2015. About 1 million individuals are currently severely food insecure, i.e., they have a caloric intake below the minimum energy requirements continuously.

### 5.6.4.2. Food availability, accessibility, and utilization

**Availability.** The average dietary energy supply adequacy increased from 136% in 2000-2002 to 145% in 2013-2015 (FAO, 2020). This means that the average dietary energy supply is over the average dietary energy requirement estimated for the Tunisian population. Analyzed together with the prevalence of undernourishment, it allows discerning that undernourishment is mainly due to bad distribution and not to insufficiency of the food supply. In general, food availability does not present a significant challenge in Tunisia: food is mostly available, either domestically produced or imported and agriculture has achieved self-sufficiency in certain products (milk, meat, fruit, and vegetables). Nevertheless, risks to availability exist and are particularly due to climate change and natural resources degradation (mainly lack of water) and the dependence on cereals imports (about 60%) (ITES, 2017).

Eating outside has become an everyday aspect of the lives of Tunisian urban dwellers. According to the 2015 national survey of household budgets, living standards, and food consumption, 5.2% of the average family budget is earmarked for food expenditure outside the home in Greater Tunis, out of total food expenditure of 26.1% (INS, 2015).

**Utilization.** The supply of foods estimated by weight has increased by 94% when expressed by g/capita/d (from 1132 to 2392) (Tables 4, 5 and Figure 5).

**Table 4.** Trends in food group consumption by g/capita/d from 1967 to 2015  
(from aggregated national data, source FAOSTAT)

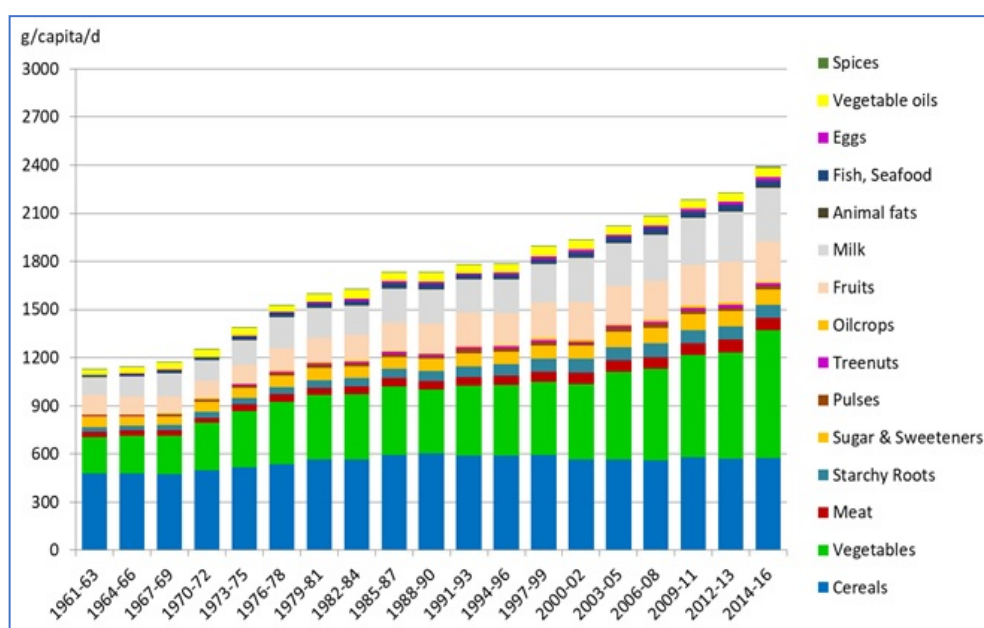
	1967	1975	1980	1985	1990	1995	2000	2005	2010	2015
Cereals	395.61	413.68	432.58	541.54	512.79	488.15	330.27	391.26	335.26	392.71
Wheat and products	364.13	393.43	418.89	518.54	497.46	476.63	321.15	380.20	325.54	380.20
Rice	1.37	1.09	1.91	2.73	3.83	3.28	4.11	7.40	5.71	7.40
Barley and products	30.11	19.16	11.77	20.26	11.49	7.93	4.27	3.97	2.81	3.97
Maize and products	—	—	—	—	—	—	0.09	0.19	0.11	0.19
Starchy roots	23.96	45.72	52.57	51.47	52.84	49.71	48.87	48.26	49.61	58.89
Treenuts	3.56	3.83	3.56	4.11	4.02	4.11	2.62	3.85	3.97	3.36
Pulses	9.86	8.49	8.76	8.76	8.76	7.12	8.36	8.92	9.95	9.75
Sugar & sweeteners	34.22	34.22	39.43	38.33	35.32	44.35	45.64	88.71	88.04	101.04
Sugar	33.68	33.68	38.60	37.23	33.68	34.08	34.30	38.01	38.56	36.90
Honey	—	—	—	—	—	—	0.29	0.27	0.27	0.28
Other sweeteners	—	—	—	—	—	—	11.24	50.43	49.21	79.96
Oils crops	—	—	—	—	—	—	1.57	1.23	1.68	1.95
Sunflower seed	—	—	—	—	—	—	0.08	0.25	0.46	0.18
Sesame seed	—	—	—	—	—	—	0.01	0.01	0.01	0.01
Olives	—	—	—	—	—	—	1.18	0.98	1.23	1.35
Vegetables oils	52.02	60.78	55.03	53.94	58.04	69.12	70.71	71.81	72.59	73.96
Soyabean oil	41.07	46.00	42.71	41.34	45.17	52.42	50.43	50.80	52.18	51.33
Olive oil	10.95	14.78	12.32	12.59	12.87	16.70	20.28	21.01	20.41	22.63

Vegetables	310.40	323.87	326.75	340.08	366.06	343.31	358.74	379.94	381.02	408.21
Fruits	93.63	90.62	101.57	106.23	138.26	118.54	167.84	218.63	180.63	227.76
Meat	10.40	7.12	17.80	15.06	21.08	22.45	52.56	57.89	67.47	95.85
Meat (beef, mutton, offals and other)	6.30	1.92	2.19	3.01	3.29	3.56	27.95	25.69	29.77	42.88
Poultry meat	4.11	5.20	15.61	12.05	17.80	18.89	24.60	32.20	37.70	52.97
Eggs	4.19	4.19	8.87	9.61	11.95	12.07	14.42	16.01	21.68	28.19
Animal fats	1.05	1.37	1.92	0.82	1.64	—	1.89	3.42	2.53	2.51
Milk	68.45	88.71	113.35	103.76	107.60	162.63	114.87	177.56	184.05	240.13
Fish and seafood	12.05	13.96	14.78	16.70	17.44	15.88	14.31	17.63	13.36	18.61

**Table 5:** Food group intakes by gender consumed of adults in 1996-97 and 2005 (g/d) and differences in the amount of nutrient densities (per 1000 kcal of energy intake)

	Food group intakes of adults (g/d)				<sup>1</sup> Difference of intake (g/d) 2005 vs. 1996		P-value <sup>2</sup>
	1996/97 (n=2294)		2005 (n=7209)				
Cereals	401.53	4.04	412.9	3.3	11.4	4.7	0.015
Wheat and products	390.9	4.1	404.0	3.3	13.0	4.7	0.006
Rice	3.61	0.52	3.80	0.13	0.18	0.52	0.856
Barley and products	6.05	0.48	4.71	0.22	-1.33	0.49	0.007
Other Cereals	0.90	0.15	0.41	0.04	-0.49	0.13	<0.001
Starchy roots	71.6	1.4	84.7	1.2	13.09	1.80	<0.001
Tree nuts	0.90	0.17	0.31	0.03	-0.59	0.17	0.001
Pulses	20.3	0.6	26.0	0.5	5.75	0.69	<0.001
Sugar and sweeteners	59.7	2.3	92.7	1.4	33.0	2.7	<0.001
Oil crops	3.59	0.24	9.16	0.24	5.57	0.33	<0.001
Other Oil crops	0.48	0.12	1.27	0.07	0.80	0.14	<0.001
Sesame seeds (mg/day)	2.61	0.52	2.55	0.21	-0.06	0.57	0.918
Olives (including preserved)	3.11	0.21	7.89	0.22	4.77	0.30	<0.001
Vegetable oils	42.4	0.6	58.3	0.6	15.9	0.8	<0.001
Soybean oil	29.3	0.3	29.5	0.7	0.23	0.75	0.758
Olive oil	13.1	0.6	28.8	0.6	15.7	0.7	<0.001
Vegetables	320.0	4.0	355.4	4.8	35.4	6.1	<0.001
Fruits	174.3	8.7	223.8	5.3	49.5	8.2	<0.001
Meat	53.5	1.6	66.9	1.1	13.3	1.9	<0.001
Red meat	28.6	1.3	23.2	0.6	-5.37	1.42	<0.001
Poultry meat	25.0	1.1	43.7	0.8	18.7	1.3	<0.001
Eggs	17.6	0.7	40.1	0.6	22.5	1.0	<0.001
Animal fats	3.1	0.2	9.36	0.28	6.21	0.36	<0.001
Milk	133.6	4.4	171.3	3.0	37.7	5.2	<0.001
Fish and seafoods	15.6	1.1	25.5	0.7	9.88	1.32	<0.001





**Figure 5.** Trends in total food weight supply (g/capita/d) between 1961-03 and 2014-16.

The increase is due to the increase in vegetables, fish and seafood, fruits, eggs, meat, and starchy roots. In addition, the supply of vegetable oils increased by 95% from about 30 to 58 g/capita/d, mostly due to an increase in the availability of imported soybean and rapeseed seed oils while the availability of olive oil decreased (Tables 4, 5 and Figure 5).

**Accessibility.** Physical access is guaranteed at a national level: The public sector controls the distribution of agricultural production and fisheries while the private sector manages poultry products distribution. The road network provides almost all of the people's mobility and accounts for about 80% of domestic freight transport.

The “Food Diversification Index”, measuring the share of non-starchy foods (all foods other than cereals, roots, and tubers) in total dietary energy consumption 20, increased by +11.7 points showing a decline in the starchy food supply and higher availability of more nutritious foods (dairy, fruits, vegetables, meat). Thus, dietary profiles are changing with an increase in products of animal origin, in particular milk and dairy products, but cereals still account for almost 50% of energy intake.

Food waste constitutes a serious problem and bread (which is subsidized) is the most wasted product (16%). In food retailing, food waste reaches 1.2 million USD per year, and in households an average of 25 USD/person/month, which represents about 18% of total food expenditure (INC, 2016).

#### 5.6.4.3. Current food and nutrition security responses

Tunisia is at an advanced stage of the nutritional transition with major shifts in lifestyle and diet resulting in increased consumption of dairy and meat products and generally of foods with high fat, sugar, and salt content. Nevertheless, intakes of fruit and vegetables remain rather high. Micronutrient related deficiencies are still an issue, e.g., a woman out of three had anemia. An increase in sedentary behavior is of concern. Among children, stunting and wasting are no more an issue but overweight is increasing. A fifth of the men and a third of the women are obese and one out of six Tunisians have diabetes as rates doubled in

20 years. Overall, about 90% of the mortality rate is attributable to NCDs. Most indicators feature a marked gender, socio-economic or regional patterning.

Generally, factors that impact diet, nutrition, and health encompass different levels of causes. So that solutions cannot be envisioned outside the sustainability framework and policies and interventions should take into account all dimensions of sustainability (health, economic, social, and environment) for the promotion of food systems that can provide healthy and sustainable diets to all (e.g., “fork to farm” approaches (Verger et al., 2018).

This implies that developing and implementing nutrition interventions as part of primary prevention should be multisectoral with the involvement of a variety of stakeholders at all levels. Sustainability also implies that for reasons of equity and social justice, policies and interventions should also monitor and tackle the major observed inequalities in nutrition-related health outcomes, in particular gender, socio-economic regional inequalities which are especially acute in Tunisia. Moreover, Tunisia is characterized by a double or even triple burden of nutrition-related health issues, so that sustainable policies and interventions will have to monitor and address these contradictory issues at the same time (double-duty actions). For example, improving the nutritional quality of agri-food products and reducing their content of salt, added sugar and saturated and trans fatty acids remain one of the Government's priorities for the next years: it should be a good opportunity to put into practice all the above principles.

Finally, the pandemic of the COVID-19 engulfs the planet, a last and major recommendation would be that preventing all forms of malnutrition and NCDs while improving the environmental issues still be kept on top of the prevention agenda. Being optimistic, the current crisis may even offer opportunities to shift lifestyles and food systems towards more sustainability including better nutrition and health.

### 5.6.5. Vulnerable groups

#### In country as a whole.

Tunisia faces significant challenges concerning its vulnerable populations. According the last report on the State of food security and nutrition in the world 2023, 4.3% of the total population in 2020-2022 were undernourished (i.e. 0.4 million out of 12 million), 12.6% were affected by severe food insecurity (i.e. 3.5 million out of 12 million), 28.5% suffered from moderate food insecurity (i.e. 3.5 million out of 12 million) (FAO/IFAD/UNICEF/WFP/WHO, 2023).

#### For the entire city.

Tunis City, the capital of Tunisia, exhibits a diverse socio-demographic landscape, yet certain populations remain particularly vulnerable due to a combination of economic, social, and environmental factors. This analysis aims to identify and elucidate the main vulnerable groups within the urban milieu of Tunis, focusing on their challenges and the underlying determinants of their vulnerability.

- *Socioeconomic disparities*: a significant portion of the population in Tunis City lives below the poverty line. Economic disparities are pronounced, with substantial income inequality exacerbating social stratification. Vulnerable groups predominantly include low-income families, who face inadequate access to basic services such as healthcare, education, and housing. The limited availability of affordable housing forces many families to reside in informal settlements or substandard living conditions, further perpetuating the cycle of poverty.
- *Unemployment*: unemployment rates in Tunis City are high, particularly among the youth and women. The labor market is characterized by a mismatch between the skills of job seekers and the demands of employers, leading to high rates of underemployment. Young graduates often



encounter barriers to entering the workforce, resulting in prolonged periods of joblessness or engagement in precarious, low-paying jobs. Women, especially those from marginalized communities, face additional obstacles including gender discrimination and lack of supportive infrastructure such as childcare services.

- *Migrants and refugees*: migrants and refugees constitute another vulnerable group within Tunis City. These individuals often experience marginalization and limited access to social services. Language barriers, legal restrictions, and socio-cultural differences further hinder their integration into the urban fabric. Refugees, in particular, are at a heightened risk of exploitation and abuse, with many relying on informal networks and precarious employment to sustain their livelihoods.
- *Elderly population*: the elderly population in Tunis City faces unique challenges that render them vulnerable. Social isolation, coupled with inadequate pension schemes and insufficient healthcare services, exacerbates their vulnerability. Many elderly individuals rely on family support; however, shifting family dynamics and urbanization.

Addressing the needs of vulnerable groups in Tunisia requires a multi-faceted approach that encompasses economic reforms, social protection measures, and inclusive policies. Ensuring equitable access to education, healthcare, and employment opportunities is crucial for reducing disparities and promoting social cohesion. Here below main assistance programs for vulnerable groups:

- **Social Amen program**, a social welfare Since 2021 including healthcare, empowerment, housing and other programs geared towards assisting the poor, unemployed and marginalized in society. Poor or low-income families or individuals can be assigned the Social Amen program card allowing them to benefit from free or low-cost care (depending on whether the insured person has no income or their income does not exceed 2/3 of the SMIG, 1 SMIG for 2 people and 1.5 SMIG for 3 to 4 people);
- **Social assistance granted to poor families**. Needy families can, subject to income conditions, benefit from social assistance in the form of a financial subsidy of 200 TND paid each month;
- **Family support for children under 6 years old**. Needy families with children under 6 years old can benefit, subject to means testing, from a monthly allowance of 30 TND per child;
- **Help in the context of social action in schools**. This financial assistance aims to provide the support, supervision and necessary needs for school children from poor and low-income families who find themselves in vulnerable financial and health conditions. The amount of aid varies between 30 and 100 TND, depending on the level of family law. This assistance is offered mainly for the purchase of school supplies, deduction of school transportation subscriptions, participation in the purchase of clothing, food, certain medications necessary for students with chronic illnesses, etc.;
- **Back-to-school and university scholarship**. School-going children from poor and low-income families benefiting from the AMEN program can benefit from a back-to-school or university scholarship. Paid once a year, to cover the costs of returning to school or university, its amount is: 50 TND for each child enrolled at the basic, preparatory and secondary levels, vocational training, 120 TND for each student pursuing higher education. 50 TND for each child enrolled at the basic, preparatory and secondary levels, vocational training, 120 TND for each student pursuing higher education;
- **Occasional help**: This is financial assistance for families benefiting from the AMEN program, poor and low-income who find themselves in critical financial and health conditions. This assistance is offered mainly for the purchase of medicines, diapers, the provision of infant food, blankets, simple



household equipment, carrying out tests, covering transport costs and care. The amount of aid varies between 30 and 100 TND, depending on the level of family law.

## 5.7. Culture of the City and relationship with its food system

Traditional Tunis cuisine is a reflection of the country's rich cultural history and culinary heritage that blends Berber, Arab, Turkish, and French influences. This fusion has resulted in a unique gastronomic tradition that emphasizes the use of locally sourced ingredients and intricate preparation methods. Traditional cooking techniques involve slow-cooking methods such as stewing and braising, which help to enhance the flavours of the dishes. The use of earthenware pots, known as "tagines," is also widespread, allowing for the gradual blending of spices and ingredients. Some iconic dishes are detailed in the following chapters.

### Couscous with sausage (*Couscous Bel Osbane*)



The couscous name comes from Tamazight (Berber) (alkaskasa is the pounding of dry bread). Numerous different names and pronunciations for couscous exist around the world. In Tunisia the used name is kuskusi (which comes from Al-Kuskusi).

The other North African countries people say kuskusi and other Berber regions like Kabylia people say "Seksu" which is the original name of Couscous. In Morocco and Algeria people also call couscous taâm, which means in Arabic food.

The couscous is often considered as the national dish. Tunisian couscous is typically served with a stew of meat, vegetables, and a rich, aromatic broth. Variations include seafood couscous, which features fish and shellfish.

One way of presenting the couscous is to place it in large bowl or platter and make a well in the center for a mixture of *osbane* and vegetable. The couscous and stew portions can again be placed in a separate bowls for assembly. The couscous *bil osbane* is traditionally prepared in *Aid El Idha* and served with fresh *leben* or *rayeb* (curd).

Couscous is one of the healthiest grain-based products around. Its glycaemic load for every gram is 25% lower than that of pasta. The couscous *Bil osbane* is a very good source of carbohydrates since it has 12.1 grams in every 100 calories. It is also a good source of protein with 4.1 grams by 100 calories. However, couscous *bil osbane* is rich in lipids (3.6 g/100 kcal) and cholesterol (23.2 mg/100 kcal). So it is recommended to not consume frequently this kind of dish.

### Salted fish with marinade (*Hout & Charmoula*)





*Charmoula* (Arabic: شرمولة) or *cherroula* is a marinade used in Algerian, Moroccan and Tunisian cooking. It is usually used to flavour fish or seafood, but it can be used on other meats or vegetables. There are many different recipes that use different spices, and the proportions vary widely. *Charmoula* is a sauce prepared in Sfax region (south of Tunisia) and traditionally served with salted fish (grilled or boiled) the day of Aid El Fitr. This preparation method allows long conservation of the dish put in a sealed glass jar in the fridge. The official dinner will be enjoyed at breakfast the day of Aid

One way of presenting the *charmoula* is to put the dish crumbled in ceramic bowl, the cooked fish in another and to serve hot. Arabic bread can be consumed with *charmoula*. This dish is often made of a mixture of herbs, oil, lemon juice, garlic, cumin, and salt. It may also include onion, fresh coriander, black pepper, or saffron.

### Soup with Chickpeas (*Lablabi*)



In Tunisia, *lablabi* stands are ubiquitous and they stay open all hours. This Tunisian chickpea and bread stew makes a restorative meal most any time of day or night. *Lablabi* is also one of those rare examples of street food that is just as good - if not better - when made at home.

The base of *lablabi* is little more than a pot of chickpeas served in their lightly seasoned cooking liquid. The condiments and the method of serving are what make *lablabi* important. The combination of pulses and cereals enhances protein quality. *Lablabi* is one of the healthiest traditional dishes. It is a very good source of carbohydrates, protein, dietary fiber, group vitamin B and minerals.

To serve *lablabi*, prepare all the condiments and arrange them in small dishes alongside day-old bread. If you want to be even more authentic, invite your guests to tear the bread themselves. Then fill in the bowls with bread, ladle on the chickpeas and broth and let everyone garnish as they desire. Adding an egg is entirely optional.

### Salted fish with marinade (*Hout & Charmoula*)



The name of *slata mechouia* refers to the way it is cooked. This salad consists of a variety of vegetables that are grilled and then combined together. The main ingredients are tomatoes, green peppers, garlic, and olive oil. Tuna is an additional ingredient often used as a garnish on the dish. *Slata Mechouia* (grilled salad) is one of the many Tunisian salads that Tunisians rely on during breaking the fast. The appeal of the *slata Mechouia* goes beyond the period of Ramadan as a national favourite with its spicy flavour and delicious scent often ordered by Tunisians in restaurants.

Wherever you go, restaurants will always offer you some *slata Mechouia* with your meal. The spiciness can be adjusted by playing with the number of chilies added to the mix. We can also use a traditional mortar and pestle to pound the peppers instead cutters.

### Pudding with Aleppo pine seeds (*Assidat Zgougou*)



As the vast majority of the people leaving in the Maghreb are of Muslim faith, the "Al-mawlid al-nabaoui al-sharif" is the celebration of the day of the birth the prophet. That particular day is served the assida.

Traditionally, the Tunisians exchange bowls of assida between neighbours and family members, making the decoration of assidat zgougou bowls as important as the taste of the recipe. Many use all kinds of dried fruit to vary the decorative shapes and colours (pistachios, walnuts, hazelnuts...).

## 5.8. Food and nutrition system challenges faced in the City

Over the last ten years, the city of Tunis has experienced several crises. Changes in climate are recurrent and local authorities and citizens are used to them. Today's food system is based on the constraints related to the 2011 revolution, which led to ongoing political and economic instability, followed by the COVID-19 health crisis and the Russo-Ukrainian war. While the health crisis has temporarily destabilized the food system, the latter has been severely impacted by the war, and the food security of citizens is now an acute issue. Looking at recent developments through this diagnosis and the responses to the various shocks- are they sufficient? How can we make them more effective?

Tunis City boasts many restaurants, hotels and fast-food restaurants which mainly source their supplies from the Bir El Kassaa wholesale market. The driving force behind its food system remains; the agri-food industry and commercial services. Tunis is characterized by its relatively higher quality of life compared to other cities and its socio-economic variability. However, a proportion of the population is vulnerable, with a high unemployment rate (18.5 percent compared to 15.3 percent nationally) and the poverty rate representing 5.3 percent of the population. This situation reflects inequalities in access to quality food according to income, with some exposure to junk food.

The challenges faced by the Tunis food system highlight the need for a more robust and resilient approach. Despite, Tunis city signed the Milan Urban Food Policy Pact (MUFPP) and The Municipality of Tunis developed the "Urban food governance model for Tunis city" in 2021 built on the national program of consultations for the Food Systems Summit 2021. There is a lack of an effective Food System Governance at Municipal Level.

While some innovative projects, like using treated wastewater for irrigation, await funding, existing food system actors scrambled to respond to recent shocks like COVID-19 and the Ukraine war, climate change and Political and economic instability maintaining the status quo with minor adjustments. The implemented measures fell into three categories:

- *Production Support:* This involved providing farmers with inputs, animal feed, and limited technical advice focused on adapting existing methods, not transformative change.
- *Regulation of Strategic Sectors:* Price adjustments were used to stabilize markets. For example, milk production, collection, processing, and storage received increased premiums to handle excess unsold milk. Price freezes were implemented on animal feed to curb production cost increases, while intervention prices were set for essential products like onions, tomatoes, and potatoes to control speculation and protect consumer affordability. Additionally, rising grain prices due to the war incentivized local production.
- 
- *Protection Measures:* These aimed solely at absorbing the shocks. Financial support was provided to small and medium businesses to prevent closures and job losses. Loan repayments were postponed for all actors, and cash transfers were distributed to vulnerable populations. Notably, civil society initiatives were relatively absent in this response.

The implemented policies and plans allowed minor and temporary adaptation, across the food system challenges.

Informal channels during crises weakens the system's overall stability. Secondly, small-scale farmers, the most vulnerable, lack access to credit and haven't received specific support. The recent war-induced shocks exposed the limitations of these measures, contributing to the current fragility of previously self-sufficient sectors like meat and milk production. Similarly, the freeze on livestock feed prices is seen as a superficial solution, failing to address the underlying monopoly held by production units and raw material importers. Finally, climate change remains a significant concern for everyone, further hampered by the slow implementation of preventive measures due to insufficient investment.

The concept of food system resilience, focuses on the long-term capacity of a food system to deliver sufficient, appropriate, and accessible food for everyone, even when faced with unexpected disruptions. Food system resilience considers all levels of a food system, from production and processing to distribution and consumption.

- *Adaptability:* It highlights the importance of a food system's ability to adapt and adjust to unforeseen challenges.
- *Inclusiveness:* Food security extends beyond just having enough food; it also ensures everyone has access to the right kinds of food for a healthy diet.



- *Investing in infrastructure:* Strengthening storage, transportation, and distribution networks can reduce food waste and improve access to nutritious food, especially in remote areas.
- *Empowering communities:* Supporting local food production and promoting sustainable agricultural practices can increase community resilience and improve access to healthy food.

By integrating food systems and resilience into development strategies, we can work towards a more secure and sustainable future where everyone has access to the food they need to thrive.

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Formal market supplying Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



Formal market supplying Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



## 6. Section 2: AfriFOODlinks City food system baseline information

### 6.1. Policy and regulatory environment

In order to reach the Sustainable Development Goals (SDGs), Tunisia has implemented new policies and legislation that bolster sustainable agricultural practices and food systems. These initiatives target issues like nutrition and food security by encouraging eco-friendly farming methods, supporting local production, and prioritizing biodiversity. Food policies are primarily established at the national level, reflecting each country's needs and priorities.

The action plan and pilot experimentation are done at regional levels. Tunisia's food system is governed by a complex policies and strategies mainly supported by a strong international cooperation. Evolving International Organisations like the FAO, WFP, UNHABITAT, World Bank, GIZ, who are Catalysts for Collaboration carrying technical and financial support at local and regional level facilitating collaboration between countries and leading to harmonized approaches and efficient resource utilization.

#### 6.1.1. Food policies in Tunisia

##### 6.1.1.1. Efficient use of natural resources to Achieve the Sustainable Development Goals

- Supporting sustainable production and consumption.
- Implementing the 2030 Agenda for addressing climate change and its impact on local production.
- Supporting the agriculture sector for sustainable resilient and inclusive development.
- Supporting small-scale farmers.

##### 6.1.1.2. Nutritional policies and strategies to fight against malnutrition

- National strategy for prevention and fight against obesity (2013-2017).
- National multisectoral strategy to prevent and control non-communicable diseases (2018-2025)

##### 6.1.1.3. Policy for improving food environment in cities

- Improve the nutritional quality of agri-food products and reduce their content of salt, added sugar, and saturated and trans fats by: i) affixing clear labelling about the nutritional composition on all packaged products; ii) enacting legislation and regulations favourable to health, such as the bread standard, the draft Decree of the Ministers of Industry, Commerce and Health on the provision of food information to consumers; iii) affixing the distinctive logo, developed in the context of the national obesity prevention and control strategy, on the packaging of healthy food products.
- Improve the economic and physical accessibility of fruit and vegetables and fish in order to increase their consumption by: i) increasing the “producer to consumer” outlets; ii) providing



logistical and financial support for artisanal seafood processing start-ups (salting, drying, smoking and marinating) to ensure the availability of these products throughout the year. In particular, this action would involve the recruitment of skilled workers and the launch of start-ups for unemployed young graduates; iii) promoting the sale of fruit and vegetables by grocery stores by motivating grocers through specific measures, such as reduced taxes on the sale of these products.

- Optimization of the nutritional quality of the fast-food or traditional catering menus by: i) improving the raw materials (less fatty meat in a prepared dish; reduced fat salt content, increased fibre content; ii) optimizing manufacturing processes, for example by extending the soaking time of pickled products, which reduces the amount of salt in the final product.

#### 6.1.1.4. National food security policies

- **Subsidies.** The government provides subsidies on staple foods like bread and wheat flour to ensure affordability for low-income populations.
- **Import regulations.** Tunisia relies on imports for some food items, particularly meat, dairy products, and certain fruits. Import tariffs and quotas are used to manage prices and protect domestic producers.
- **Strategic reserves.** The government maintains reserves of essential food commodities to mitigate potential shortages or price fluctuations.
- 

### 6.1.2. Regulations and laws

#### 6.1.2.1. Food safety regulations

- **Food and feed safety law.** This law sets standards for food safety throughout the supply chain, from production to consumption. The laws prioritize food safety and consumer health. They establish principles, responsibilities, Amendments strengthen regulations and penalties. The laws address veterinary health control and approval for handling animal products, to be detailed in decrees and orders.
- **Regulatory agencies.** The National Agency for Sanitary and Veterinary Control of Food and the National Institute of Standardization and Industrial Property are responsible for enforcing food safety regulations.
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#### 6.1.2.2. Legislation governing the retail and wholesale trade sectors

This legislation heavily involves state intervention, regulating and overseeing state-owned market entities. The goal is an organized market, but it significantly hampers competition and market entry. Tunisian laws impose controls on prices, subsidies, pricing practices, vertical integration, and import/export of goods. They also restrict new retailers and foreign investment. Tunisia enforces varied restrictions to aid local producers and consumer access to essentials, but this can lead to speculation and inflation. Price controls are used to make staple products affordable, with subsidies often accompanying these regulations. Import/export of specific products requires government approval, and some State-Owned Enterprises have import monopolies. An alternative approach to ensure access to staples involves direct cash transfers to low-income households, promoting choice and poverty reduction in purchasing essential goods

#### 6.1.2.3. Legislation for fruits, vegetables and red meat





The assessment primarily examines legislation regarding two food product categories: fruit and vegetables, and red meat. The state maintains authority over the setup and positioning of wholesale markets and slaughterhouses, crucial elements in both markets. Wholesale markets and slaughterhouse management lack competition and transparency. Regulations favor fruit and vegetable distribution through wholesale markets. Protective perimeters shield main wholesale markets from competition. Restrictions limit red meat slaughterhouse numbers and locations. Legislation on red meat is fragmented and poorly enforced, necessitating clear classification and strict enforcement of identification, traceability, and sanitary measures.

#### 6.1.2.4. Laws for food wholesale markets and food retail outlets

- **Health rules governing the production and marketing market of sea products.** The laws regulate agricultural and fishery markets, including production, wholesale, retail, and storage. They establish a monitoring body, the national supply and price observatory, for market data. Professional obligations, health control, and penalties for offenses are outlined
- **Monitoring of the price trends, and fight against smuggling and parallel trade.** This decree establishes the national committee to monitor prices, supply regularity, combat smuggling, monopolization, parallel trade, illegal construction, and ensure food safety. Regional committees are also formed at the governorate level. The decree outlines their composition, roles, and operations. Additionally, efforts against smuggling and illegal speculation were bolstered through amendments addressing these issues.
- **Strategic sectors; milk, olive oil, dates and valorisation of organic local products by the creation of logo for Tunisian organic farming products.** This legislation aims to boost production and sales of key products like milk, olive oil, and dates in Tunisia. The "Bio-Tunisia" label enhances market positioning locally and globally
- **Investment in the food preservation industry.** These legislations aim to increase the value of agricultural products, reshape crops and livestock, and ensure product quality and food safety. They also seek to promote the growth of Small and Medium-Sized Enterprises in agriculture and agri-food businesses.
- **Agriculture sector and inclusion financing in the fields of agriculture and the social and solidarity economy.** The purpose of this law is to approve a memorandum of understanding between the government of the Republic of Tunisia and the government of the Italian Republic, to ensure sustainability of agricultural systems, Solidarity and social economy.
- **Urban development plans and their approval in order to promote urban agriculture and green spaces.** This decree outlines coordination procedures for urban development plans involving central administrations, external services, public establishments, enterprises, and municipalities. It is divided into four chapters.
- **Environmental impact, preserve natural resources and ecosystem and promote good health.** These decrees aim to protect consumer health and the environment by advocating for effective recycling programs. The goal is to manage non-hazardous waste through treatment, disposal, recycling, and recovery, ultimately reducing the burden on landfills and improving waste management practices.

## 6.2. Production environment





Tunis is facing urban sprawl driven by population growth and rural exodus a major concern, particularly for its impact on agricultural land (Soussan, 2016). During the peak of suburbanization (1970s-1980s), national development plans prioritized industrial development and tourism infrastructure over agriculture. While efforts to support the agricultural sector emerged in the 1980s, including legislation to protect agricultural land, controlling urban sprawl around major cities has proven challenging. Despite efforts to curb sprawl in Greater Tunis, the trend continues, leading to a decline in agricultural land and posing economic hardship for peri-urban farmers (fellahs) (Bouraoui & Houman, 2010)

## 6.3. Food diversity and staple foods

### 6.3.1. Food diversity

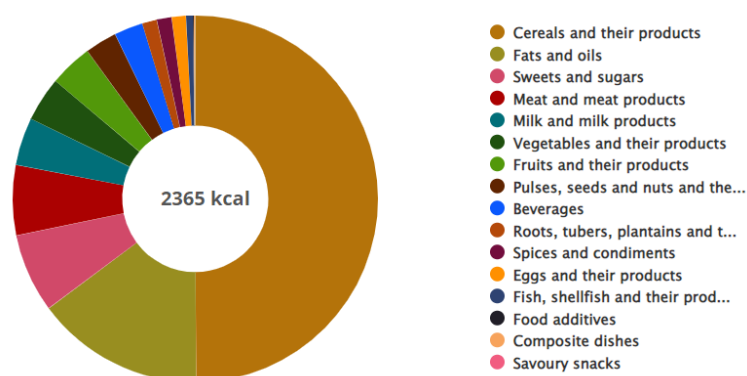
In Tunisia reflects the rich cultural tapestry and geographic diversity of the country. Tunisia's culinary heritage is a vibrant amalgamation of Mediterranean, Berber, Arab, Turkish and French influences, offering a wide variety of flavours and dishes that showcase the nation's agricultural bounty and historical traditions. From the ubiquitous olive oil and couscous to the distinctive spices and regional specialties, Tunisian cuisine offers a unique and flavourful culinary experience. Tunisia benefits from a Mediterranean climate, which supports the cultivation of a variety of crops. The fertile plains and coastal areas are ideal for growing olives, which are a cornerstone of Tunisian cuisine. Tunisia is one of the world's largest producers of olive oil, a staple ingredient in many traditional dishes. Additionally, the country produces a wide range of fruits and vegetables, including tomatoes, peppers, onions, and citrus fruits, which are integral to the local diet.

The following infographic (Figure 6) shows the average percentage contribution of different foods and food groups to the total consumption in the population. The calculation takes into account all individuals in the population: consumers and non-consumers. Consumers are those individuals who did consume the food of interest during the survey period, and non-consumers are those who did not.



**Figure 6.** Average percentage contribution of different foods to the total consumption (in g per 100 g)  
(Source: Data FAO/WHO GIFT/ <https://www.fao.org/gift-individual-food-consumption/data/en>)

The following infographic (Figure 7) shows the average energy intake from different foods and food groups expressed in kilocalories per person per day. The calculation takes into account all individuals in the population: consumers and non-consumers. Consumers are those individuals who did consume the food of interest during the survey period, and non-consumers are those who did not.



**Figure 7.** Average energy intake from different foods (in kilocalories per person per day)  
(Source: Data FAO/WHO GIFT/ <https://www.fao.org/gift-individual-food-consumption/data/en>)

### 6.3.2. Staple Foods and traditional recipes

**Wheat and Barley.** Wheat and barley are a fundamental component of Tunisian food culture, predominantly in the form of bread and couscous. A wide range of improved varieties of cereals is now available:

- **Durum wheat** (*Nasr, Khiair, karim, Razzak, Om Rabiaa*). *Karim* covers over 50% of the durum wheat area; local varieties are *Bidi* and *Hmira*; the oldest improved variety is *Mahmoudi*.
- **Soft wheat** (*Salambo, Byrsa, Vaga, Utique, Tébrica*). *Salambo* 70% of the soft wheat area; there is a lack of local varieties or forms. The first crosses were made in 1923. The most famous variety was *Florence Aurore* (1930).
- **Barley** (*Rihane, Manel*). *Rihane* covers about 40% of plantings; there are more than 450 ecotypes. The best known local varieties are *Souihli, Ardhaoui, Frigui* and *Beldi*.

The best and most famous *couscous* is made from durum wheat by mixing roughly 2 parts of semolina and 1 part of durum flour. The whole wheat is cooked, left out to dry and ground into various sizes.

The most commonly used size is medium *bulgur*. The durum wheat semolina is slightly mixed with water, manually shaped into dumplings, dried in open air under sun and stored in jar to be consumed during the year under the local name of *mhamess*. *Chorba frik* is a coarsely-ground wheat in small bowl and used as ingredient for soups.



**Olive oil.** All the Mediterranean civilizations that were part of the Tunisian history (Phoenicians, Greeks, Carthagians, Romans and Arabs) had contributed to the olive tree cultivation traditions, which date back to the VIII century AC, before the foundation of Carthage by Queen Didon. The Phoenicians were the leaders of the olive tree cultivation in North Africa. At the time of Carthagians, a genuine effort at olive oil cultivation started to spread on a wide scale. Then the Romans further developed the olive tree cultivation by improving the irrigation techniques in this land with moderate rainfalls. Not less important, they developed the oil extraction techniques as demonstrated the excavations in Sbeitla and El Jem (Centre of the country) as well as the varying Roman mosaics discovered in Sousse. The Andalusia Arabs who came later to Tunisia profited from the available facilities to acquire farms and cultivate olive trees. So, all the passing civilizations starting from the Phoenicians had made olive tree cultivation one of the cornerstones in the economy of the Tunisia.

*Chemleli* and *Chetoui* are the main varieties of cultivars in Tunisia. But a wide range of improved varieties of olive grove is available, e.g. *Oueslati, Zalmati, Besbessi, Tounsi, Toffehi*. The oils are marketed under names according to their specific physical, chemical and organoleptic specifications. The standards adopted by Tunisia are those established by the International Olive Oil Council and distinguishes categories of juice extracted by mechanical process:





- **extra virgin olive oil:** besides its organoleptic characteristics, its degree of acidity must not exceed 0.8 degree;
- **virgin olive oil:** in addition to its flavours, its acidity must not exceed 2 degrees;
- **ordinary virgin olive oil:** maximum acidity allowed is 3.3 degrees;
- **lampante olive oil:** not suitable as food with its acidity level higher than 3.3 degrees, this oil must be refined before consumption.

Extra virgin olive oil can be consumed natural with bread or rolls. It can be used in salad dressings and a variety of cooked foods. For extra flavour, garlic or any favourite spices or herbs can be added to the extra virgin olive oil. It is not recommending to cook with extra virgin olive oil because oxidation of nourishing substances found in extra virgin olive oil, as well as acrylamide formation, can occur at cooking temperatures very closer to the 300°F/148°C range. However, olive oil is the main cooking oil in countries surrounding the Mediterranean Sea. Some olive oil-based dishes are listed below.

- *Effeh slata (vinaigrette or salad dressing)*: a combination of extra virgin oil and vinegar or lemon juice. It can be used as salad dressing for a variety of salads, e.g. *Oumek Houria*, *slatet âdess*, *slata tounsia*.
- *Effeh slata bi thoum (Garlic herb vinaigrette)*: garlic and herbs (basil, oregano or thyme) are added to classic vinaigrette. This salad dressing can perfume grilled vegetable or meat.
- *Khubz bizzit*: Arabic bread is consumed with extra virgin olive oil and olives as breakfast or snack.
- *Harissa bizzit*: it is a traditional Tunisian hot chillies paste, which is mixed with olive oil and parsley. This recipe is prepared the day of *Aid El Adha* for flavoring cooked or grilled meats.
- *Slatet oumek houria*: salad with boiled carrots, cumin and extra virgin olive oil.

**Fruits and vegetables.** The Tunisian diet includes a diverse array of fruits and vegetables sources. A wide range of improved varieties of fruits is available, which the most cultivates are:

- **Melon and watermelon**: Dunna, Bari, Crédo, Pitra, Yassmine, Farouk, victoire...
- **Dates**: deglet Nour, Allig.
- **Citrus**: Thomson, Clémentine, mandarine, Citron and maltaise
- **Grapes**: Sultanine, Cardinal, Perlette, Red Globe and king's ruby.

			
Orange	Dates	Grapes	Melon and watermelon

A wide range of improved varieties of vegetables is now available:

- **Tomatoes** (*Riogrande*, *Romana*, *Sahel*, *Tilca*, *Maranca*, *Sartilia*). *Riogrande* is a seasonally variety, cultivated between June and August; *Romana*, *Sahel*, *Tilca*, *Maranca*, *Sartilia* are out seasonally varieties, cultivated between November and May.
- **Peppers** (Starter, Beldi, Baklouti, Chargui);
- **Artichoke** (Violet déhyeres ; Violet d'alger ; Annabi et Opal).

Vegetables can be consumed raw, boiled, dried, fried, panned, grilled, sprinkled or pickled.

**Sun-dried tomatoes:** fresh tomatoes were cut in half lengthwise and the seeds removed. The tomatoes slices were sprinkled with salt, arranged on plates, and dried under sunset during two days. When done, the dried tomatoes were placed in glass bottles and covered with olive oil. Sun-dried tomatoes, either in olive oil, seasoned, or plain, add a gourmet touch and great flavour to many dishes and salads.

**Pickled vegetables:** a variety of vegetables can be pickled in an acid solution, usually vinegar, to be preserved for months. This procedure gives the food a salty or sour taste. In Tunisia, bell peppers, carrots, turnips, cucumbers were usually pickled in salt water enriched with antimicrobial herbs and spices, such as mustard seed, garlic, cinnamon or cloves.



**Dried red peppers:** fresh peppers can be hung in the sunlight to dry. Once dried, they can be used to make freshly ground Chili powder. Dried peppers and Chili powders should be kept in a tightly sealed jar, away from sunlight. They are available throughout the year to add zest to flavourful dishes around the world and health to those brave enough to risk their fiery heat.

		
Sun-dried tomatoes	Pickled vegetables	Dried red peppers

**Spices and Flavours.** Spices are essential in Tunisian cooking, with harissa, a hot chili paste, being one of the most iconic. Harissa is used both as a condiment and an ingredient, adding a fiery kick to many dishes. Other frequently used spices include cumin, coriander, caraway, and cinnamon. The use of fresh herbs like parsley, cilantro, and mint further enhances the complexity of Tunisian cuisine.

				
Sheptia	Casse-croûte Harissa	Medames	Herous	Torchi

## 6.4. Typical food basket for different income categories

Fill the Nutrient Gap (FNG) survey conducted in Tunisia delves into the cost of nutritious food, access to a diverse diet and school feeding programs to address these concerns. The FNG analysis revealed a significant cost disparity between nutritious diets and staple-based diets meeting only energy requirements. A typical household's monthly expenditure for a nutritious diet ranged from TND 133 to 239, which is about 4.5 times higher than the cost of a staple-based diet (WFP, 2022). Furthermore, the analysis highlighted that over a third of households in central-western and north-western governorates lacked access to nutritious food, resulting in limitations to dietary diversity (WFP, 2022).

The national program for assistance to vulnerable families has the potential to partially offset the cost of nutritious food, it remains inadequate. The FNG analysis confirmed that households in the lowest food expenditure percentiles would only be able to cover 31% of the cost of a nutritious diet without additional cash transfers (WFP, 2022).

The difficulty for this vulnerable population to access healthy and affordable food means that they turn to highly processed foods, rich in energy, saturated fats, sugar and salt and which are often less expensive than fresh fruits and vegetables. Eating this type of food certainly helps to meet daily calorie needs, but it contributes to overweight and obesity.

These types of baskets are constructed on the general trends in food consumption based on income levels:

### 6.4.1. Lower income households

**Focus on staples:** diets tend to prioritize affordability and filling staples like:

- bread (staple source of carbohydrates);
- couscous (another common source of carbohydrates);
- canned fish (relatively inexpensive protein source);
- legumes (lentils, chickpeas) source of protein and fiber;
- eggs and few poultry (rarely);
- seasonal vegetables (availability and affordability fluctuate);
- limited variety of fruits (may be a seasonal luxury);
- vegetable oil (cooking fat);
- tea (common beverage).

### 6.4.2. Middle income households

**More diverse options:** while staples remain important, these households can incorporate a wider range of foods:

- more variety of fresh vegetables and fruits throughout the year;
- eggs and some poultry (more frequent protein sources);
- dairy products like yogurt and cheese (in moderation);
- limited red meat consumption (may be a special occasion treat);
- coffee may be consumed alongside tea.

### 6.4.3. Higher income households

**Greater flexibility and variety:** diets offer the most diversity and flexibility:

- wider selection of fresh fruits and vegetables year-round;
- more frequent consumption of red meat and seafood;
- imported or specialty food items;
- increased dairy product consumption;
- Greater access to processed foods (may not be the healthiest option).

## 6.5. Nature of the food economy

Tunis city, faces difficult economic situation, marked by a multifaceted crisis with health, geopolitical and food dimensions. This situation, exacerbated by the COVID-19 pandemic and the war in Ukraine, highlights the structural fragilities of the Tunisian economy and threatens the country's food security. The impact of the current crises on the Tunisian food economy takes place in a context marked by a low investment rate,



insufficient job creation and high unemployment (OECD, 2022). The war in Ukraine, in particular, risks worsening the situation due to the country's dependence on imported grain products (FAO, 2022)

### 6.5.1. Formal food economy

The formal food economy in Tunis City plays a crucial role in ensuring a steady supply of safe and reliable food for its residents. This sector operates within established regulations and contributes significantly to the city's food security and economic activity. Here's a closer look at its key components:

#### 6.5.1.1. Production

**Peri-urban agriculture:** Intensive farming zones surrounding Tunis City are the backbone of the formal food economy, supplying a significant portion of fresh fruits, vegetables, and some dairy products. These farms typically operate under regulations and quality control measures.

**National agriculture:** Formal farms and cooperatives in rural areas across Tunisia play a vital role in supplying Tunis city with staple foods like wheat, specific fruits (e.g., dates), and vegetables. Contract farming arrangements with processing companies and the wholesale market of Tunis city Bir El Kassaa are common.

**Urban agriculture.** It is an emerging form of agricultural practices carried out in the city. Community gardens, rooftop gardens and vertical farming are gaining traction. These contribute to fresh produce availability within the city limits.

#### 6.5.1.2. Processing and distribution

**Wholesale markets.** The large, established market Bir El Kassaa function as the central hubs for food distribution. It is the largest vegetable, fruit and fish market in Tunisia. It is located in the suburb of Bir El Kassaâ, near the town of El Mourouj south of Tunis. Its supply comes from producers in different regions of the country. This market is managed by the Tunisian Wholesale Markets Company (SOTUMAG), a public law company of a non-administrative nature. This market is listed on the stock exchange. Wholesalers licensed and adhering to food safety regulations trade with retailers, restaurants, and distributors.

**Food processing facilities.** Registered factories with proper sanitation and quality control processes transform raw food into packaged and processed food items like dairy products, pasta, canned goods, and beverages. These facilities contribute to food preservation, shelf-life extension, and product diversification.

**Formal supply chains.** Networks of licensed transporters and distributors move food products from wholesalers and processing facilities to retailers and restaurants. These companies ensure proper handling and storage conditions throughout the supply chain.

#### 6.5.1.3. Retail and Access

**Supermarkets:** Modern supermarkets represent a growing segment of the formal food economy. They offer a wide variety of food products, including imported items and national brands. Supermarkets adhere to specific hygiene and labelling regulations, ensuring consumer safety.



**Chain stores and specialty shops:** Formal chain stores specializing in specific food items like meat, poultry, or bakery products offer a convenient and regulated supply.

**Formal restaurants:** Licensed and inspected restaurants contribute to the food economy by offering prepared meals and employing formal food service staff.

#### 6.5.1.4. Regulation and Governance

The **Ministry of trade** in collaboration with the ministries concerned, develop and implement government policy relating to trade, quality control, legal metrology, consumer protection, advertising, small trades and services related to trade, competition, prices, economic surveys, exports and imports, economic and commercial cooperation, online commerce and the intangible economy.

**National authority for food safety,** enforces food safety regulations across the supply chain, conducting inspections and ensuring compliance with hygiene standards.

#### 6.5.1.5. Benefits of the formal food economy

**Food safety and quality control.** Formal regulations and inspections minimize the risk of foodborne illnesses and ensure a minimum level of quality in food products.

**Standardization and transparency.** Formal systems establish labelling standards, providing consumers with information about ingredients, origin, and nutritional value.

**Efficiency and reliability.** Formal supply chains typically operate with established logistics and transportation systems, ensuring a steady flow of food products to retailers and consumers.

**Economic contribution.** Formal businesses contribute to the city's economy through job creation, tax revenue, and fostering investment in infrastructure and technology.

#### 6.5.1.6. Challenges of the formal economy

**Accessibility.** High-quality food options from supermarkets or chain stores might be less affordable for low-income populations compared to informal markets.

**Competition with informal sector.** Formal businesses can face challenges competing with the lower prices often found in the informal sector, which may not always adhere to regulations.

**Food waste.** Waste generation can occur within the formal system at various stages, requiring improved waste management practices.

The formal food economy in Tunis city plays a crucial role in ensuring a safe and reliable food supply. Understanding its structure, governance, and challenges is essential for promoting a food system that is not only efficient but also equitable and sustainable. By fostering collaboration between formal and informal sectors, promoting responsible food production practices, and minimizing waste generation, Tunis can strive towards a stronger formal food economy that benefits all residents





## 6.5.2. Informal food economy

Tunis City's informal food economy thrives alongside its formal counterpart. The International Labour Office estimates that over half of Tunisian workers are employed informally, while some estimate that informal economic activity makes up almost 40% of the country's GDP (OCDE, 2019).

This dynamic sector, while lacking official regulations, plays a significant role in providing affordable food options and contributing to the city's unique culinary character. Let's delve into the world of informal food in Tunis. Their numbers have increased dramatically since the 2011 revolution, with a stagnant economy bringing hundreds from around the country to the streets of Tunis.

Street vendors are the most visible aspect of a large, untaxed informal economy operating in Tunisia. The World Bank estimated last year that Tunisia loses 1.2 billion dinars (\$700 million) of public revenue annually from goods traded illegally. Similarly, prices of certain food goods in Tunisia may be several times greater than in the Algerian market, meaning smugglers have an incentive to move items including, coffee, cheese, biscuits, and beverages over Tunisia's porous western border. (OCDE, 2019).

### 6.5.2.1. Key players

- **Street vendors.** A ubiquitous presence, street vendors offer a diverse range of ready meals, snacks, and fresh produce. From popular dishes savoury briks and flavourful lablabi (chickpea soup) to seasonal fruits, they cater to on-the-go consumption and tight budgets.
- **Souk stall owners.** Bustling souks are a sensory overload of sights, smells, and sounds. Vendors sell homemade products; dry pasta, spices, olives, and fresh produce, often sourced directly from local farmers, bypassing formal distribution channels.
- **Small bakeries.** Neighbourhood bakeries provide fresh bread, pastries, and traditional treats at affordable prices. These bakeries might not have formal licensing, but their long-standing presence and established customer base ensure a degree of quality control.
- **Home-based food businesses.** A growing trend involves individuals preparing and selling homemade food items like jams, pickles, or cooked dishes from their homes. Social media platforms often serve as their marketing tools.
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### 6.5.2.2. Benefits of the informal food economy

- **Affordability.** Informal food options are generally cheaper than those found in supermarkets or formal restaurants, ensuring access for low-income residents.
- **Cultural significance.** Street food and traditional dishes sold in souks are deeply ingrained in Tunisian culture, offering a taste of local flavours and culinary heritage.
- **Job creation.** The informal sector provides employment opportunities for many, particularly micro-entrepreneurs and small-scale producers.
- **Convenience.** Street vendors offer readily available food options for busy urban residents, catering to their daily needs.

### 6.5.2.3. Challenges of the informal food economy



- **Food safety concerns.** The lack of formal regulations and inspections raises concerns about hygiene and food safety standards.
- **Limited quality control.** Inconsistency in ingredient quality and preparation methods can be a concern for consumers.
- **Competition with formal sector.** Informal vendors might face pressure from formal businesses competing for customers, particularly in the area of affordability.
- **Waste management.** Informal food stalls and home-based businesses may lack proper waste disposal systems, contributing to sanitation issues.

The informal food economy of Tunis city is a complex component of the urban food system. Addressing its challenges through collaborative efforts can ensure its continued contribution to food security, cultural heritage, and economic activity. By finding ways to integrate the informal sector into a more comprehensive and regulated framework, Tunis can strive towards a food system that is inclusive, sustainable, and caters to the diverse needs of its residents. (OCDE,2019).

## 6.6. Food access strategies of households

Tunis City residents adopt various strategies to access food, with affordability and convenience playing key roles. By implementing strategies that address the specific needs of different socio-economic groups, promoting healthy eating habits, and fostering a more inclusive food system, Tunis can ensure that all residents have access to the nutritious food they need to thrive.

### 6.6.1.1. Utilizing different markets

- **Souks and traditional markets.** These vibrant markets offer a wide variety of fresh produce, meat, fish, and staples at competitive prices. Residents with limited budgets often rely heavily on souks for their daily needs.
- **Supermarkets.** While generally more expensive, supermarkets provide convenient access to a wider selection of food products, including imported options and pre-packaged goods. Some middle-class and higher-income households may utilize supermarkets more frequently.
- **Corner Shops and Street Vendors.** These smaller outlets cater to daily needs and offer convenient, affordable options. They are particularly valuable for residents in neighbourhoods lacking supermarkets or large markets.

### 6.6.1.2. Strategies by socioeconomic status

#### Low-income households

- **Reliance on subsidized staples.** Many families depend on government subsidies on bread, pasta, oil and other essential food items to ensure affordability.
- **Frequent shopping at souks and informal vendors.** Souks and street vendors often offer lower prices compared to supermarkets, making them a go-to option for stretching limited budgets.
- **Community support networks.** Informal networks of family, friends, and neighbours can play a crucial role in sharing food resources and providing support during times of hardship.

#### Middle-income households



- **Balancing affordability and quality.** This group prioritize affordability while seeking options with a perception of better quality compared to the informal sector. They might frequent smaller, family-run grocery stores or supermarkets with budget-friendly product lines.
- **Seasonal Shopping and Bulk Buying.** This group is taking advantage of seasonal price fluctuations and purchasing staple foods in bulk when on sale can be used to manage food costs.

#### High-income households

- **supermarkets and specialty stores.** This group has convenience and access to a wider variety of products, including imported and organic options. High-income households shop more at supermarkets and specialty stores.
- **Farmers' markets and direct sourcing.** Some might seek out fresh produce directly from farmers' markets or support initiatives promoting local and sustainable agriculture.

#### 6.6.1.3. Price sensitivity and budgeting

- **Seasonal shopping.** Tunisian households are often attuned to seasonal variations in prices. They might adjust their diets or purchase patterns to prioritize more affordable options during specific times of the year.
- **Bulk buying.** When possible, households may purchase staples like rice, flour, or lentils in bulk to benefit from economies of scale and reduce overall grocery costs.
- **Negotiation and haggling.** Haggling is a common practice in souks and traditional markets, allowing households to potentially lower food prices and stretch their budgets further.
- **Home production.** Households with access to small gardens might grow herbs, vegetables, or raise chickens for personal consumption, supplementing their purchased food.

#### 6.6.1.4. Informal support networks

- **Family and community sharing.** Tunisian society emphasizes sharing and social support. Households might share meals with extended family or neighbours, especially during times of hardship.
- **Charitable food distribution.** Charitable organizations often provide food assistance to low-income families, helping bridge gaps in food security.

#### 6.6.1.5. Government Interventions

- **Food subsidies** The Tunisian government subsidizes staple foods like bread, wheat flour and oil, making them more affordable for low-income populations.
- **Food assistance programs.** Government Amen social programs provide monthly pension to particularly vulnerable populations

## 6.7. Food Systems Assets

### 6.7.1. Food processing firms



### 6.7.1.1. Tunisia country level

Tunisia boasts a thriving food processing sector, a crucial pillar of the national economy. This industry encompasses over 1020 companies employing at least 10 people, with a significant portion (around 198) actively contributing to exports. (APII & CEPI,2022). Further breakdown reveals 30 sub-sectors dedicated to food processing and 9 for beverage manufacturing, highlighting the sector's diverse nature (as per Tunisian National Activity Classification - NAT 2009).

The strategic importance of food processing stems from its contribution to added value, job creation, and strong integration with the agricultural sector. Interestingly, the industry has undergone a dynamic transformation. Initially, it focused on basic preservation and packaging of agricultural products. However, with advancements in technology and incorporation of services, the sector has evolved, giving rise to "second" and "third" transformation industries that engage in more complex processing methods. This ongoing modernization is driven by factors like limitations of the domestic market, distribution channel revamps, and increased global competition. The government also plays a key role by promoting partnerships between local and foreign firms, fostering growth in the domestic market, and ultimately, boosting export capabilities (APII & CEPI,2022).

### 6.7.1.2. Tunis city food processing firms

Tunis city food processing sector encompasses a diverse range of activities, each focusing on specific products and processes (APII and CEPI ,2022).

Vegetable oils and animal fats industries

- Refining, extracting, and processing vegetable oils (e.g., olive oil, sunflower oil).
- Manufacturing animal fats and shortening.
- Producing margarine and spreads.

Fruits and vegetables industries.

- Processing fruits and vegetables (e.g., canning, freezing, drying).
- Manufacturing jams, jellies, and preserves.
- Producing fruit juices and vegetable concentrates.
- Preparing ready-to-eat salads and vegetable mixes.

Cold storage

- Providing storage facilities for perishable food items.
- Offering temperature-controlled warehousing and transportation.
- Freezing and thawing food products.

Seafood industries

- Processing and packaging fish and shellfish.
- Producing canned seafood, smoked fish, and fishmeal.
- Manufacturing frozen seafood products and ready-to-eat seafood meals.

Cereals and derivatives Industries

- Flour milling and semolina milling.
- Manufacturing pasta, couscous, and breakfast cereals.
- Producing rice products and bakery mixes.

Beverages Industries

- Bottling and distributing soft drinks, carbonated beverages, and bottled water.





- Producing alcoholic beverages (e.g., beer, wine, spirits).
- Manufacturing fruit juices and vegetable drinks.

#### Milk and derivatives Industries

- Pasteurizing and processing milk.
- Manufacturing cheese, yogurt, and butter.
- Producing ice cream and other frozen dairy desserts.

#### Sugar and derivatives Industries

- Refining and processing sugar.
- Manufacturing confectionery products (e.g., candy, chocolate).
- Producing syrups, jams, and jellies.

#### Meat Industries

- Slaughtering and processing livestock (e.g., cattle, sheep, poultry).
- Manufacturing prepared meats (e.g., sausages, ham).
- Producing canned meat and frozen meat products.

#### Other Food Processing industries

- Processing and packaging nuts and seeds.
- Manufacturing snack foods and prepared meals.
- Producing bakery products (e.g., bread, cakes, pastries).
- Processing spices and condiments.

### 6.7.1.3. Tunisian processing firms a driver of employment

The Tunisian processing firms sector plays a significant role in driving employment within the country (APII & CEPI, 2022).

- **High Employment with diverse opportunities.** the sector employs a substantial number of people and offers a variety of employment opportunities across different skill levels. It encompasses activities like processing, packaging, storage, transportation, and administration. This diversification provides job options for both skilled and unskilled labour.
- **Rural employment.** Many agro-businesses operate in rural areas, providing much-needed employment opportunities outside major cities. This helps in reducing rural-urban migration and contributes to a more balanced development across the country.

However, there are also challenges that need to be addressed, e.g., the informal employment that leads to job insecurity and lack of benefits, seasonal fluctuation, which can lead to temporary layoffs or reduced work hours.





Fruit and Vegetable store in Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



Poultry store in Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



## 7. Section 3: Urban Agri-Food Systems entrepreneurial and trade context

### Agri-food systems address all dimensions of food security

Agri-food systems encompass all aspects of food security (Figure 8). They are intricate, consisting of three primary components: primary production, food distribution facilitated by supply chains and transport networks, and household consumption. Key stakeholders include primary producers, providers of inputs and services throughout post-harvest stages, transporters, processors, distributors, retailers, and ultimately households and individuals as end consumers (FAO, 2021).

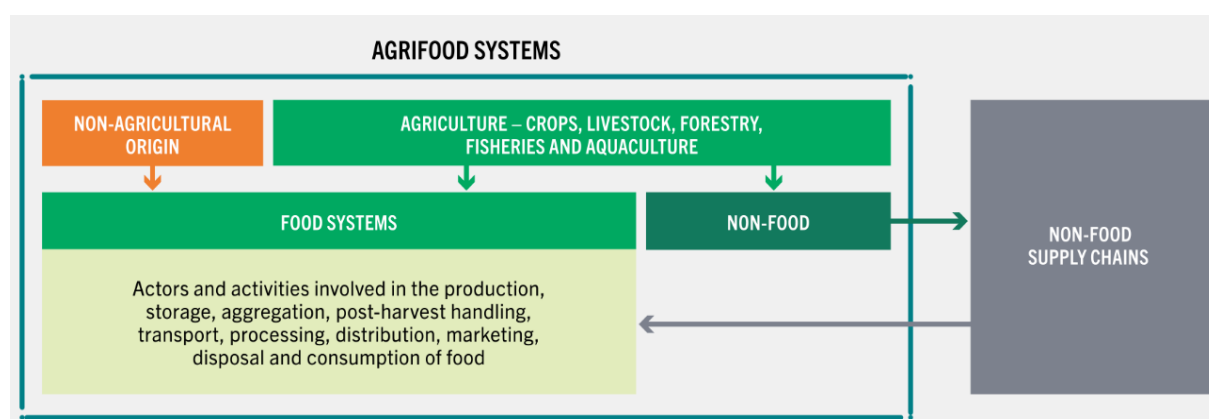


Figure 8. A conceptual framework for agri-food systems.  
(Source: FAO, 2021)

### Interaction agri-food systems and trade

The interaction between agri-food systems and trade is pivotal in ensuring global food supply. Trade supports worldwide access to sufficient, safe, diverse, and nutritious food, benefiting farmers, workers, and traders in agriculture and the food industry by generating higher incomes and employment opportunities (Avesani, 2021). Moreover, trade can aid in adapting to climate change and reducing greenhouse gas (GHG) emissions from agriculture (Zimmermann and Rapsomanikis, 2021). However, trade carries risks and negative externalities, such as violations of labor standards (e.g., child labor, forced labor, and gender discrimination), exacerbation of inequality within and between countries, and environmental impacts like increased GHG emissions, deforestation, and biodiversity loss (Zimmermann and Rapsomanikis, 2021).

### Agri-food systems and entrepreneurship

Agri-food systems intersect with entrepreneurship amid significant transformations driven by climate change, technological advances, and urbanization. These changes directly impact smallholder farmers, agribusinesses, and consumers globally. Smallholder farmers face the challenge of increasing food

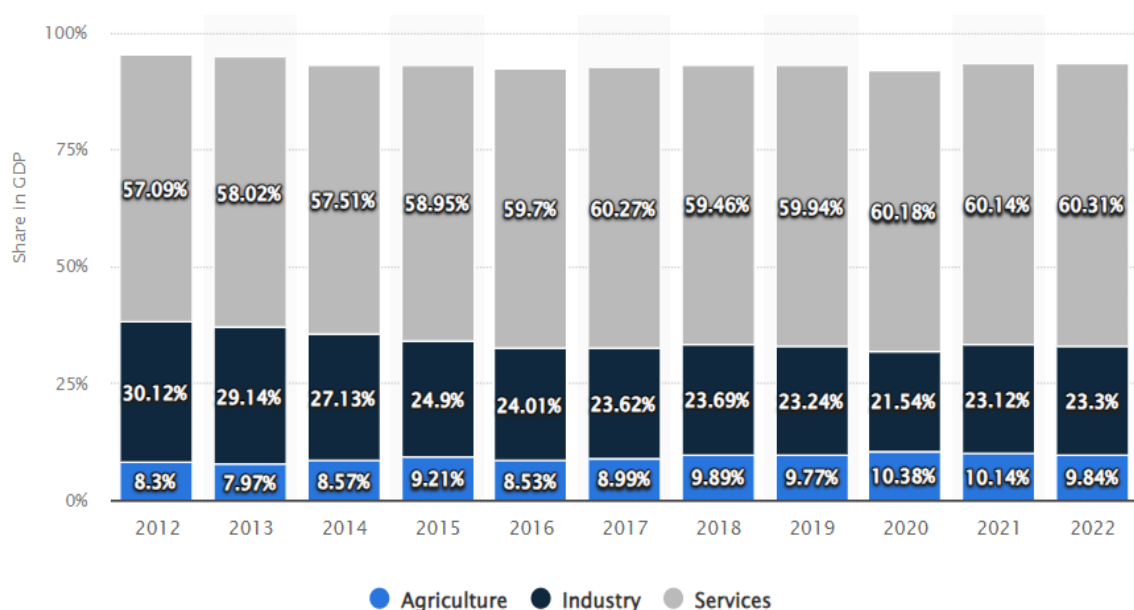


production amidst resource constraints and climate pressures while striving to reduce their carbon footprint. Food businesses are adopting sustainable and ethical practices to minimize environmental impact and ensure supply chain transparency. Technology companies are assisting farmers and firms with data analytics, cloud services, and artificial intelligence to optimize agricultural practices and supply chain efficiency (WIF, 2023).

*In conclusion*, the convergence of farming, agri-food businesses, and technology firms is creating new entrepreneurial opportunities that will shape the future of agri-food systems, impacting food security and rural development significantly.

## 7.1. Nature of food systems economy

### 7.1.1. In country as a whole



**Figure 9.** Trend of economic sectors in Gross Domestic Product between 2012 and 2022 in Tunisia. (Source: O'Neill, 2024)

In 2022, the share of agriculture in Tunisia's gross domestic product was 9.84%, industry contributed approximately 23.3% and the services sector contributed about 60.31% (O'Neill, 2024) (Figure 9).

### 7.1.1.1. Agriculture sector

Tunisia's agriculture industry is diverse and dynamic, encompassing crop production, livestock farming, fisheries, organic agriculture, and international trade. Its contributions to employment, exports, and food security underline its pivotal role in the nation's economy and social fabric.

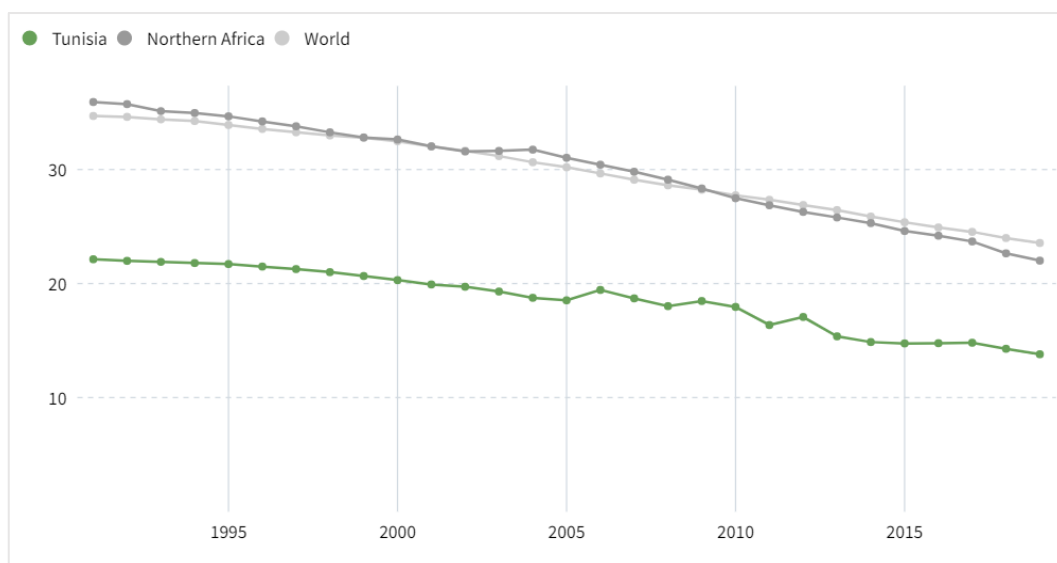
The agricultural sector is a cornerstone of Tunisia's economy, providing employment for a substantial portion of the workforce, especially in rural regions. It plays a critical role in ensuring food security, supplying raw materials for agro-processing industries, and supporting rural development. The sector's resilience and adaptability are essential for maintaining the country's economic stability amid global challenges.

- **Crop production:** Tunisia's crop diversity is notable, focusing on cereals, olives, fruits, and vegetables. The country is a major producer of wheat, barley, and durum wheat, which are staple foods in the Tunisian diet. Olive cultivation is central to Tunisian agriculture, with Tunisia ranking among the world's largest exporters of olive oil. Additionally, important crops include dates, citrus fruits, tomatoes, and potatoes.
- **Livestock farming:** Livestock farming is another critical aspect of Tunisia's agriculture, involving cattle, sheep, goats, and poultry. Livestock production significantly contributes to rural livelihoods and provides an essential source of protein for domestic consumption.
- **Fisheries:** Tunisia's fisheries industry thrives along its Mediterranean coastline, encompassing marine and inland fishing activities. The fisheries sector yields a variety of seafood, including sardines, tuna, and shrimp. Coastal fishing communities rely on this sector for income and sustenance.
- **Organic farming:** In recent years, Tunisia has experienced growth in organic farming practices driven by domestic and international demand for organic produce. Farmers are adopting sustainable agricultural methods, particularly for organic olive oil, dates, and citrus fruits, which are highly sought after in foreign markets.
- **Foreign trade:** Agricultural products form a substantial part of Tunisia's exports, with olive oil being a prominent export commodity, making Tunisia one of the largest global exporters. Other agricultural exports include dates, citrus fruits, seafood, and canned goods. The agricultural sector significantly contributes to Tunisia's trade balance, generating foreign exchange and enhancing economic stability.

The share of people employed in agriculture among the total employed population provides a measure of the relative importance of a country's agriculture sector for employment. Employment includes both paid labour (full or part-time) and self-employment.

As a country's income increases, this Indicator tends to decrease, also reflecting the availability of non-farm employment opportunities (Figure 10).





**Figure 10.** Share of employment in agriculture (%).  
(Source: Euromonitor International Limited, 2022)

### 7.1.1.2. Food trade balance in Tunisia

Tunisia is a net importer of agricultural products. The table 1 presents the food trade balance in Tunisia. At the end of 1<sup>st</sup> quarter of 2024, leading agricultural imports were wheat (709.2 kt), barley (268.7 kt) vegetable oils (51.1 kt), corn (261.2 kt), barley (210.2 kt), soybeans (50.1 kt), sugar (32.0 kt), meats (0.3 kt), soybeans (76.4 kt) and potatoes (8.5 kt) (ONAGRI, 2024). The import of cereals and dairy products has increased compared to the same period in 2023. However, it decreased for meats and potatoes.

During the same period, Tunisia exported 68.4 kt of olive oil, 60.8 kt of dates, 9.4 kt of tomatoes, 3.4 kt of citrus fruits and 7.2 kt of fish products (ONAGRI, 2024). The export showed an increase except for citrus fruits (Table 6).

**Table 6.** Trends of import and export of main products between the 1<sup>st</sup> quarter of 2023 and 2024. (Source: ONAGRI, 2024)

Import of main products during the 1 <sup>st</sup> quarter of 2023 and 2024				Export of main products during the 1 <sup>st</sup> quarter of 2023 and 2024			
Products	2023	2024	2023/2024	Products	2023	2024	2023/2024
	Quantity (1000 tons)		%		Quantity (1000 tons)		%
Durum wheat	227.8	252.0	10.6	Olive oil	61.1	68.4	11.8
Soft wheat	22.3	457.2	105.7	fish products	6.4	7.2	12.1
Barley	210.2	268.7	27.9	dates	53.5	60.8	13.6
Corn	274.7	261.2	-4.9	citrus fruits	7.4	3.4	-53.5
Potatoes	8.9	8.5	-5.0	tomatoes	8.6	9.7	13.2
Meats	0.5	0.3	-26.5				

Milk and dairy products	6.1	6.3	3.8
Sugar	146.1	32.0	-78.1
Vegetable oils	51.1	76.4	49.5
Soybeans	50.1	23.1	-54.0

### 7.1.1.3. Key sub-sectors of agri-food Systems

- **The food processing sector.** In 2022, the food processing sector comprised approximately 1,200 enterprises, each employing 10 or more individuals. Roughly 20% of these enterprises are solely dedicated to exports. This sector generates an estimated annual production value of \$12 billion, which continues to rise due to shifting dietary preferences favoring processed over fresh foods. Demand within the food processing sector for imported high-value ingredients is steadily increasing, particularly for more complex products licensed by multinational corporations. Cereals, cereal products, oilseeds, vegetable oils, and sugar derivatives constitute approximately 90% of Tunisia's food imports on average.
- **The food retail sector.** Over the past decade, significant advancements have been made in the modern retail sector, driven by the expansion of contemporary distribution outlets and supermarkets through partnerships with foreign investors, primarily from France. However, this sector experienced a loss of market share to specialized retail outlets and small-scale grocery stores during temporary closures of malls and hypermarkets due to the pandemic. Movement restrictions related to the pandemic also spurred the growth of online food purchasing.
- **The food service sector.** Apart from serving domestic customers, the food service sector caters to the substantial number of tourists who visit Tunisia annually. Most hotels and restaurants either procure their food through annual tenders or utilize the same distribution channels as households. High-end hotels import alcoholic beverages, wines, and specialty cheeses either directly or through import companies.
- **Opportunities.** The most promising market opportunities lie in products and services that support local agriculture and agro-processing, such as soybeans, crude vegetable oil, feed grains, additives, modified starches, enzymes, genetic materials, grain storage facilities, elevators, agricultural machinery (tractors, harvesters), irrigation systems, pesticides, and food processing/bottling machinery. The Tunisian government offers tax incentives of up to 50% under the 2016 Investment Law to encourage investment in agricultural equipment. From 2017-2019, the United States and Tunisia negotiated several health certificates to facilitate market access for various U.S. agricultural products, including bovine, caprine, ovine, and equine semen, day-old chicks and hatching eggs, breeding cattle, sheep and goats, beef, poultry, egg products exported to Tunisia. Consumer-oriented products expected to perform well in the Tunisian market include tree nuts, dried fruits, condiments, sauces, dairy products, cookies, crackers, chocolate, cocoa, and both alcoholic and non-alcoholic beverages.

## 7.1.2. In City

The city of Tunis, established in 1858, is the oldest municipality and one of the capital's eight districts (Figure 11). Located at the heart of Tunis, this municipality extends southeast ward into Greater Tunis. It serves as the largest consumer hub in the country, housing 638,845 residents (24% of Greater Tunis) with



a growth rate of 1.4%. The city features numerous restaurants, hotels, and fast-food establishments. The primary drivers of its food system are the agri-food industry and commercial services (FAO, 2022).



**Figure 11.** Map of the boundaries and districts of the Municipality of Tunis.  
(Source: Regional Commission for Agricultural Development)

Tunis is notable for its relatively higher quality of life compared to other cities, alongside socio-economic diversity. However, a segment of its population faces vulnerability, reflected in a high unemployment rate of 18.5% (compared to 15.3% nationally) and a poverty rate affecting 5.3% of the population. These circumstances highlight inequalities in accessing quality food based on income, with some individuals exposed to unhealthy food options (FAO, 2022).

Farming in Tunis city is predominantly family-based, characterized by small holdings that have become increasingly fragmented due to inheritance practices. Approximately 85% of farms are smaller than 10 hectares. Given their financial challenges and limited access to credit, farmers often engage in secondary activities to supplement their income. Rain fed crops, including cereals, tree crops, and forage, occupy 98% of the farmland. Agricultural practices in this sector are not highly innovative. The small-scale and undiversified nature of this agriculture, combined with limited land and water resources, results in a restricted capacity to adapt to climate change. This is why 50% of producers are more inclined towards off-farm dairy cattle rearing.

Despite these challenges, Tunis benefits from excellent road and port infrastructure, serving as a significant commercial hub. The city features a wholesale market, retail markets, livestock markets, slaughterhouses, and various agri-food industries, including large, integrated firms capable of consistently supplying diverse, quality products such as dairy, cereal, poultry, and canned goods. While supermarkets have developed, local small shops remain the preferred source of supplies.

However, despite a variety of available products, the food system is characterized by excessive consumption of cereals, accounting for up to 50% of energy intake for the poorest, which are heavily subsidized by the state and imported to meet 60% of demand, despite high levels of wastage. Additionally, value chains heavily rely on imported inputs like seeds, fertilizers, and animal feed.

*In conclusion*, the food system is governed centrally, with strategies formulated at the national level and limited participation from local authorities and civil society in decision-making. Municipalities lack mechanisms for planning, monitoring, evaluating food security, or anticipating shocks. Their role primarily



revolves around health and hygiene control, waste management, and maintaining green spaces, with limited visibility over all stakeholders involved in the food system.

## 7.2. Challenges faced by agri-food system economy

### 7.2.1. In country as a whole

Tunisia faces a complex interplay of political, economic, environmental, and global factors that have severely impacted its food security and overall stability. Addressing these challenges requires comprehensive strategies that tackle governance issues, promote sustainable agricultural practices, enhance resilience to climate change, and foster economic recovery and inclusivity.

Key stressors affect Tunisia's stability and food security (Table 7).

- **Political, social, and economic instability.** Beginning with the Tunisian Revolution of 2011, Tunisia has experienced persistent instability stemming from political transitions, social unrest, and economic challenges. This chronic instability has disrupted governance, decision-making, and economic progress, impacting the country's ability to address underlying issues like unemployment and corruption.
- **Climatic stresses.** Tunisia faces increasing climatic challenges such as drought (lack of rain), delayed precipitation, and prolonged high temperatures. These environmental stresses exacerbate existing issues like soil degradation, water scarcity, and biodiversity loss, which threaten agricultural productivity and food security.
- **COVID-19 Pandemic.** The COVID-19 pandemic further destabilized Tunisia's food system by disrupting distribution logistics and affecting global trade. Despite disruptions, local food supply was maintained through adaptive measures like utilizing storage facilities and integrating with global food networks.

**Table 7.** The main shocks over the past 5 years and their impact on the urban food system  
(Source: FAO, 2022)

Shocks and stress	Description	Impact on Food System
Climate change	Climate change is exacerbated by: increasingly frequent rainfall shortages (one year in 5 is favorable); leading to greater water deficits; delayed autumn and winter precipitation; prolonged and intense temperature rises.	Lower yields and loss of income, especially for small farmers; Reduced availability of dry crops (cereals, olives, pastures) and irrigated crops (fodder, fruit and vegetables); Lower herd numbers, higher feed and meat prices; Decrease in irrigated areas and delay in dryland cultivation; Unregulated construction of wells and excessive use of non-renewable groundwater; Loss of soil fertility and biodiversity (fisheries at Lake Tunis Nord) and increased risk of flooding for the environment; the population and road infrastructure (Sebkhet Sijoumi); Gradual abandonment of farming and sale of land.

Political and economic instability	January 14, 2011, date of departure of the former President of the Republic following the uprising of the population against the dictatorial regime.	Weak coordination of decision-making, discontinuity of programmes and slowdown of activities. Declining public finances. Rising unemployment. Proliferation of informal channels and border smuggling. Encroachment of anarchic construction on agricultural land
Covid-19	Spread of the pandemic towards the end of February 2020. Measures to implement the state of health emergency: General containment, with the exception of vital sectors (agri-food, wholesale, retail and health); Restricted movement of individuals; Closure of livestock markets, slaughterhouses, weekly markets, collective and non-collective catering; Gradual targeted decontamination (small trades, craftsmen and affected sectors); External constraints: Closure of border.	Spread of disease, deaths. Lack / shortage of manpower for agricultural activities. Loss of jobs in SMEs and craft businesses, slowdown of activities and loss of income. Increase in vulnerable rural and urban populations. Proliferation of informal channels. Low availability of inputs (fertilizers/pesticides) /services (veterinary, mechanization) and rising prices. Illegal slaughter of animals. Soaring food prices/scarcity of certain basic products. Low availability of inputs (fertilizers/pesticides)/services (veterinary, mechanization) and rising prices. Rising production costs/agricultural productivity. Difficult access to credit and low government support for small-scale producers. Consumer flight to home food storage (before confinement). Changing consumption patterns (home delivery, e-commerce) / eating habits (healthy products). Declining purchasing power or demand. Increasing stocks of staple products (milk, poultry products, potatoes) and high management costs. Unfavorable nutritional situation of vulnerable populations (decline in quantity and quality of products consumed).
Russo Ukrainian war	The war, an unpredictable shock, disrupted the international market of primary commodities and energy. Tunisia imports over 60% of cereal and livestock feed from the two countries	Disruption and irregularity of supplies on these markets. Increased production costs. Changes in production methods. Proliferation of informal circuits, multiplication of intermediaries. Shortages of basic products and inputs. Rising inflation and consumer prices and deteriorating purchasing power. Increased poverty and amount of vulnerable population; and Impact on food trade balance and budget for consumers' subsidies

- **Informal economy and food shortages.** The crisis spurred the proliferation of informal channels for food distribution, leading to higher prices and shortages of basic goods. This shift in distribution negatively impacted consumer purchasing power, especially affecting disadvantaged populations.
- **Russo-Ukrainian war impact.** The conflict disrupted Tunisia's import of cereals and other essential inputs, crucial for food production. This disruption in the supply chain contributed to rising food prices, exacerbating poverty and further weakening the economy.



- **Inflation and economic impact.** The combination of these shocks, including the war and pandemic, accelerated inflation and deepened economic challenges across Tunisia. The economy has suffered from decreased purchasing power and increased poverty due to rising food prices and disrupted supply chains.

*In conclusion*, the food system operates under a centralized governance structure characterized by a top-down approach. All strategic initiatives are formulated at the central level, with minimal to no involvement of local authorities and civil society in decision-making processes. Municipalities, including those within the country, lack mechanisms for effectively planning, monitoring, evaluating food security, and preempting potential shocks. Moreover, they have limited oversight of various stakeholders, as their responsibilities primarily revolve around health and hygiene regulation, waste management, and the maintenance and development of green areas.

### 7.2.2. In the City of Tunis

The agri-food system in Tunis city encounters a multitude of challenges that significantly impact its stability and functionality. These challenges encompass various aspects of production, distribution, and governance, contributing to complex issues within the local food economy.

- **Limited local planning and monitoring mechanisms.** Tunis city, like many other municipalities in the country, lacks adequate mechanisms for planning, monitoring, and evaluating food security. This absence hampers the city's ability to anticipate and respond effectively to shocks and disruptions within the food system.
- **Centralized governance and limited participation.** The agri-food system in Tunis operates under a predominantly centralized governance structure, characterized by top-down decision-making processes. Local authorities and civil society have limited involvement in shaping strategies and policies related to food production and distribution, leading to potential disconnects between central directives and local needs.
- **Environmental degradation and climate stresses.** Tunis faces environmental challenges, including soil degradation, water scarcity, and the increasing intensity of climatic stresses such as droughts and prolonged high temperatures. These factors pose significant threats to agricultural productivity and the overall resilience of the agri-food system.
- **Economic instability and global shocks.** The economy of Tunis city is susceptible to global economic shocks and disruptions. The Russo-Ukrainian war, for instance, has impacted regular imports of cereals and essential inputs, further contributing to rising food prices and economic challenges within the local food economy.
- **Informal sector proliferation and distribution issues.** The proliferation of informal food distribution channels in response to economic and social disruptions has led to price hikes and shortages of basic commodities. This informal sector expansion highlights gaps in formal governance and distribution systems, affecting consumer purchasing power and food accessibility.
- **Limited role and visibility of municipal authorities.** Municipalities like Tunis city primarily focus on health and hygiene control, waste management, and green space maintenance, with limited engagement in food system planning and oversight. This limited role restricts their ability to address food-related challenges comprehensively.

*In conclusion*, addressing the challenges facing the agri-food system economy in Tunis city requires integrated strategies that prioritize local participation, enhance environmental sustainability, strengthen governance mechanisms, and promote resilience to global and local shocks. Collaboration between central authorities, local stakeholders, and civil society is essential to foster a more robust and adaptive food system that can withstand and overcome these challenges effectively.



## 7.3. Viability of agri-food economy

### 7.3.1. In country as a whole

The agri-food economy in Tunisia plays a critical role in the country's socio-economic development, yet it faces several challenges and opportunities that impact its overall viability.

#### 7.3.1.1. Importance of agriculture and food production

Agriculture remains a fundamental pillar of Tunisia's economy, employing a significant portion of the population and contributing to both domestic food supply and export revenue. The country's diverse climate and fertile soils support the cultivation of a range of crops, including olives, grains, citrus fruits, and vegetables.

#### 7.3.1.2. Challenges in the agri-food sector

Despite its importance, the agri-food sector in Tunisia encounters challenges that affect its sustainability and growth. These challenges include water scarcity, soil degradation, climate variability, and limited access to modern agricultural practices and technologies. Additionally, the sector faces economic constraints, such as fluctuating global markets and trade disruptions, which impact exports and income generation.

#### 7.3.1.3. Opportunities for growth and innovation

Tunisia's agri-food sector has significant potential for growth and innovation. The country's strategic geographical location, proximity to European markets, and existing trade agreements provide opportunities for expanding exports and attracting investment. Moreover, initiatives promoting sustainable agriculture, value-added processing, and agri-tourism contribute to diversifying the sector and enhancing its competitiveness.

#### 7.3.1.4. Role of technology and research

Investments in agricultural research and technology adoption are critical for enhancing productivity and resilience in Tunisia's agri-food economy. Innovations such as drip irrigation, precision farming, and biotechnology offer solutions to address water scarcity and climate challenges, while improving yields and reducing environmental impacts.

#### 7.3.1.5. Government policies and support

Government policies and support play a crucial role in shaping the viability of the agri-food economy. Initiatives aimed at promoting agricultural development, improving rural infrastructure, enhancing market



access for smallholder farmers, and providing financial assistance contribute to strengthening the sector's resilience and competitiveness.

### 7.3.1.6. Sustainable Development Goals (SDGs)

The agri-food economy in Tunisia aligns with the United Nations Sustainable Development Goals (SDGs), particularly Goal 2 (Zero Hunger) and Goal 8 (Decent Work and Economic Growth). Sustainable agricultural practices, inclusive value chains, and equitable access to resources are essential for achieving these goals and ensuring the sector's long-term viability.

*In conclusion*, the agri-food economy in Tunisia holds significant potential for sustainable growth and development, despite facing various challenges. By leveraging opportunities for innovation, technology adoption, and supportive policies, Tunisia can strengthen its agri-food sector, improve food security, and contribute to overall economic prosperity and social well-being. Collaboration between government, private sector stakeholders, research institutions, and international partners is essential for realizing the full potential of the agri-food economy and achieving lasting impact.

## 7.3.2. In the City of Tunis

The agri-food economy in Tunis, the capital city of Tunisia, is a crucial component of the nation's economic landscape. Despite facing certain challenges, the sector demonstrates significant potential for growth and sustainability.

### 7.3.2.1. Diverse agri-food activities

Tunis benefits from a diverse range of agricultural activities due to its favorable Mediterranean climate and fertile soils. The region produces a variety of crops including olives, citrus fruits, vegetables, and grains. Additionally, livestock farming contributes to the local food supply. Food distribution is provided mainly by grocery stores, minimarkets, kiosks, supermarkets, patisseries/bakeries, weekly market, fruit and vegetable sellers, and other meat, fish and poultry sellers. Street vendors are rare, and are mostly found around the primary schools at their starting and finishing times (Table 8).

**Table 8.** Mapping of the markets in Tunis city  
(Source: Municipality of Tunis city)

District of the Municipality of Tunis	Number of Municipal market	Number of superstores	Number of butchers	Number of slaughterhouses cattle, <u>sheeps</u> and <u>equidae</u>
EL MENZAH	1	6	9	
BAB SOUIKA	2	1	5	
BAB BHAR	3	6	29	
OMRANE SUPERIEUR	2	5	25	
OMRANE	3	2	5	
SIJOUMI	2	3	7	
MEDINA	2	1	6	
KABARIA	1	4	24	
ETTAHRIR	1	2	6	
JEBEL JLOUD	1	2	6	
EZZOUHOUR	1	3	10	
OUARDIA	1	2	10	1
HRAÏRIA	2	1	13	
EL KHADHRA	1	3	4	
SIDI BECHIR	1	1	17	



### **7.3.2.2. Economic importance and employment**

Agriculture and the agri-food industry are significant contributors to the economy of Tunis. The sector provides employment opportunities for a considerable portion of the population, particularly in rural areas surrounding the city. Smallholder farmers play a vital role in sustaining local food production.

Challenges and resilience

The agri-food economy in Tunis faces challenges such as water scarcity, soil erosion, and climate variability. However, the sector has shown resilience through adaptive farming techniques and the adoption of sustainable agricultural practices. Innovations in irrigation technologies and crop diversification contribute to mitigating these challenges.

### **7.3.2.3. Market access and trade opportunities**

Tunis benefits from its strategic location and access to international markets, particularly in Europe. The city serves as a hub for agri-food trade and export, with opportunities for value-added processing and agri-tourism. Trade agreements and market integration support the growth of the sector.

### **7.3.2.4. Government support and policy initiatives**

The Tunisian government has implemented supportive policies and initiatives to strengthen the agri-food economy. These include investments in rural infrastructure, subsidies for inputs, and capacity-building programs for farmers. Efforts to enhance food security and promote sustainable agriculture contribute to the sector's viability.

### **7.3.2.5. Innovation and technology adoption**

Innovations in agriculture, such as precision farming, hydroponics, and renewable energy applications, are driving efficiency and productivity in Tunis' agri-food sector. Research institutions and agricultural extension services play a crucial role in disseminating knowledge and supporting farmers in adopting modern practices.

*In conclusion*, the agri-food economy in Tunis demonstrates considerable potential for sustainable growth and development. By addressing challenges through innovative solutions, leveraging market opportunities, and continuing to support farmers with enabling policies, Tunis can further strengthen its agri-food sector and contribute to overall economic prosperity and food security in the region. Collaboration among



stakeholders, including government, private sector, research institutions, and international partners, is essential for realizing this potential and ensuring the long-term viability of the agri-food economy in Tunis.

## **7.4. Trends and shifts in agri-food systems economy**

### **7.4.1. In country as a whole**

The agri-food systems economy in Tunisia is undergoing significant trends and shifts that are shaping the landscape of agriculture, food production, and consumption patterns across the country. Initially, these initiatives broadly focused on supporting (medium to large-scale) farmer leaders with a one-size-fits-all, technology transfer strategy. However, recent initiatives have shifted towards targeting a wider range of agri-food system actors – thereby attempting to address more structural constraints on behaviour change. In view of this broad evolution and of the success/failure factors identified above, key strategies for AE-I implementation in Tunisia include (Lestrelin, 2023).

#### **7.4.1.1. Diversification of agricultural production**

One notable trend is the diversification of agricultural production. Tunisian farmers are increasingly expanding beyond traditional crops like cereals and olives to include high-value crops such as fruits, vegetables, and herbs. This diversification responds to changing consumer preferences, market demands, and climate considerations.

#### **7.4.1.2. Adoption of sustainable agriculture practices**

There is a growing emphasis on sustainable agriculture practices in Tunisia's agri-food sector. Farmers are adopting techniques like organic farming, integrated pest management, and water-efficient irrigation methods to improve productivity while minimizing environmental impact. Sustainable agriculture aligns with global trends towards eco-friendly food systems.

#### **7.4.1.3. Technology integration and innovation**

Tunisia is witnessing increased adoption of agricultural technologies and innovations. This includes the use of precision farming tools, satellite imaging for crop monitoring, and mobile applications for market access and information sharing. Technology integration enhances efficiency, productivity, and connectivity within the agri-food value chain.

#### **7.4.1.4. Growth of agri-tourism and value-added processing**

Agri-tourism is emerging as a significant trend in Tunisia, where farmers open their doors to visitors, offering experiences like farm stays, culinary workshops, and tours. This diversification generates additional income for farmers and promotes rural development. Moreover, value-added processing of agricultural



products, such as olive oil and dates, creates opportunities for higher profitability and market differentiation.

#### **7.4.1.5. Market access and globalization**

Tunisian agri-food producers are increasingly looking beyond domestic markets to capitalize on international trade opportunities. The country's strategic location and trade agreements with Europe facilitate export-oriented agriculture. Globalization trends encourage market integration and competitiveness.

#### **7.4.1.6. Consumer preferences and health awareness**

Changing consumer preferences towards healthier and sustainably produced foods are influencing the agri-food sector in Tunisia. There is a growing demand for organic, local, and ethically sourced products. This trend is driving shifts in production practices and supply chain dynamics to meet consumer expectations.

#### **7.4.1.7. Policy reforms and investment incentives**

Government policy reforms and investment incentives play a crucial role in shaping the agri-food systems economy. Initiatives to support smallholder farmers, improve infrastructure, enhance access to finance, and promote research and development contribute to sectoral growth and resilience.

*In conclusion*, the agri-food systems economy in Tunisia is evolving in response to dynamic trends and shifts. Embracing sustainability, technology, market opportunities, and consumer demands will be essential for ensuring the sector's continued growth, competitiveness, and contribution to food security and economic development in Tunisia. Collaboration among stakeholders, including farmers, policymakers, researchers, and industry players, is vital for navigating these trends effectively and realizing the full potential of Tunisia's agri-food systems economy.

### **7.4.2. In the City of Tunis**

The agri-food systems economy in Tunis is experiencing notable trends and shifts that are reshaping the landscape of agriculture, food production, and consumption patterns in the capital city of Tunisia.

#### **7.4.2.1. Urban agriculture and vertical farming**

One emerging trend is the rise of urban agriculture and vertical farming initiatives in Tunis. With increasing urbanization, there is a growing interest in cultivating crops within the city limits. Rooftop gardens, hydroponic systems, and community gardens are becoming popular, allowing residents to access fresh produce locally (Republique Tunisienne, 2018).

#### **7.4.2.2. Sustainable practices and organic farming.**



Tunisian farmers are embracing sustainable agriculture practices and organic farming methods. There is a heightened awareness of environmental conservation and health considerations among consumers, leading to an increase in the production of organic fruits, vegetables, and herbs.

#### **7.4.2.3. Technological advancements and digital agriculture**

The adoption of agricultural technologies and digital solutions is on the rise in Tunis. Farmers are leveraging precision farming techniques, sensor-based monitoring, and mobile applications for crop management, irrigation optimization, and market access. These innovations enhance productivity and efficiency in food production.

#### **7.4.2.4. Market diversification and value-added products**

Tunisian producers are diversifying their market reach and focusing on value-added products. This includes processing and packaging agricultural goods such as olive oil, dates, and citrus fruits for export markets. Value addition creates opportunities for higher profitability and market differentiation.

#### **7.4.2.5. Agri-tourism and culinary experiences**

Agri-tourism is gaining traction in Tunis, attracting visitors interested in agrarian lifestyles and culinary experiences. Farm tours, cooking classes, and farm-to-table dining options showcase local agriculture and promote rural tourism, contributing to economic development in agricultural communities.

#### **7.4.2.6. Health-conscious consumer preferences**

Consumer preferences in Tunis are shifting towards healthier and sustainably produced foods. There is a demand for organic, locally sourced, and ethically produced products. This trend encourages farmers and food businesses to adopt practices that prioritize nutrition, quality, and environmental stewardship.

#### **7.4.2.7. Government support and policy initiatives**

Government support and policy initiatives play a crucial role in shaping the agri-food systems economy in Tunis. Investments in rural infrastructure, research and development, and market access programs contribute to sectoral growth and resilience. Policies promoting food safety, sustainable agriculture, and smallholder empowerment foster a conducive environment for agri-food development.

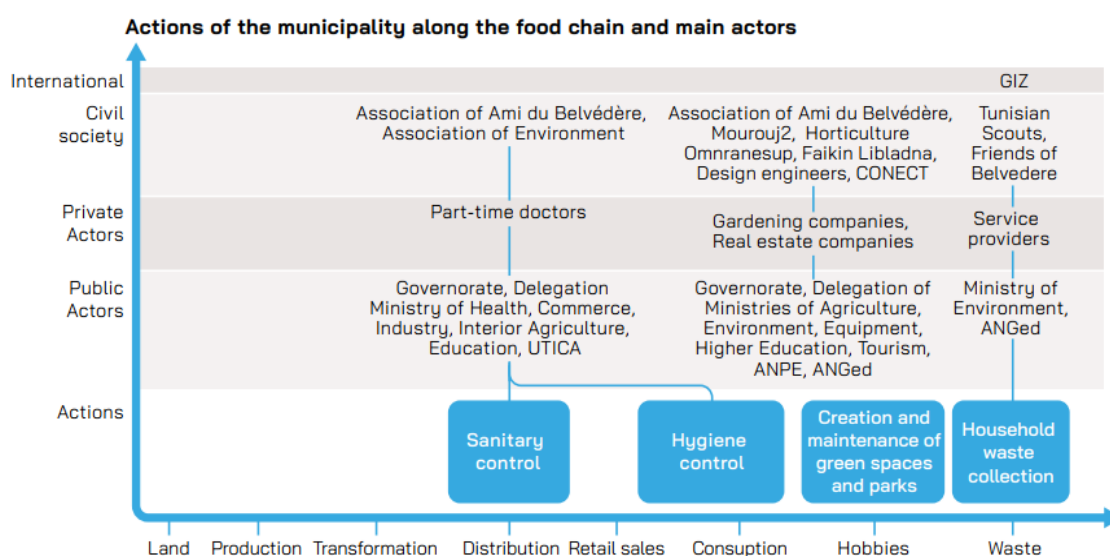
*In conclusion*, the agri-food systems economy in Tunis is evolving towards sustainability, innovation, and market diversification. Embracing technological advancements, consumer preferences, and supportive policies will be key to unlocking the sector's potential and ensuring its continued contribution to food security, economic prosperity, and cultural enrichment in Tunis and beyond. Collaboration among stakeholders, including farmers, policymakers, entrepreneurs, and consumers, is essential for driving positive change and achieving a thriving agri-food systems economy in Tunis.



## 7.5. Key agri-food systems actors and their roles

The municipality of Tunis city is not equipped with a mechanism for planning, monitoring and evaluating food security and anticipating shocks. It has little or no visibility over all the players, since its role is limited to health and hygiene control, waste collection, and maintenance and creation of green spaces (FAO and Municipality of Tunis city, 2022).

Figure 12 presents the main actions of the municipality and actors involved in the programme (Khaldi, 2019).



**Figure 12.** Actions, main actors and their roles in the Municipality of Tunis (Source: Khaldi, 2019)

To implement the actions set out in its development plan, key players have been identified using a participative approach. The establishment of a multi-sectoral network aimed at fostering synergies among local stakeholders and facilitating information exchanges is proposed. This initiative advocates for the development of a digital platform and a comprehensive guide tailored for participants within the food system. Essential contributors will encompass the governorate, municipality, communes, civil society, and private sector entities. Ministries responsible for agriculture, industry, commerce, environment, and health will provide supportive oversight and coordination. The table 9 presents the list of the stakeholders that could play an important role in the promotion of the agri-food system in Tunis city.



Table 9. Key stakeholders of the agri-food systems

Key Stakeholders	Roles
<b>Governmental Ministries and Agencies</b>	
Direction Générale d'Agriculture Biologique	It is established in 2010, oversees organic agriculture in Tunisia. It formulates policies, provides training to stakeholders, promotes organic farming, facilitates marketing, and ensures control and traceability to uphold the sector's credibility.
Agence de Promotion des Investissements Agricoles	It is established in 1983, promotes private investment in agriculture, fisheries, and related services, as well as in the integrated first processing of agricultural and fisheries projects.
Commissariat Régional au Développement Agricole	It constitutes the extension of the Ministry of Agriculture, Water Resources and Fisheries in the 24 governorates of Tunisia.
Institut National de la Consommation	It offers technical support for consumer-related organizations in training and awareness efforts.
Direction Générale de la Concurrence et des Enquêtes Economiques	It is responsible for the organization and control competition arrangements, prices and economic control.
Direction du Commerce Intérieur	It is responsible for monitoring the regular supply to all parts of the republic in various sectors and proposing the necessary procedures to face any shortage or defect that may occur in the supply material.
Direction Générale du Commerce Extérieur	It participates in the development of Tunisia's foreign exchanges and ensuring the protection of local products from illegal practices when importing.
Office du Commerce de la Tunisie	It manages essential and occasional product marketing. Its mission is to supply the domestic market with essential items and address occasional supply shortages through imports.
Société Tunisienne des Marchés de Gros	It is the entity that manages the country's main wholesale market in Bir-Kassâa, and is overseen by the Ministry of Trade.
Agence Nationale pour l'Emploi et le Travail Indépendant	It implements the government's employment policy, including the animation of the job market, youth promotion, support for small businesses, career guidance, and the reintegration of migrant workers.
Direction Régionale de la Santé de Tunis	The regional health administration oversees special coverage and manages administrative and financial matters. The regional director represents the Ministry of Public Health in the region and implements health policies in coordination with local authorities, overseeing public health activities and healthcare services.
Direction de l'Hygiène du Milieu et de la Protection de l'Environnement	It's key missions include water health control, public and hospital hygiene oversight, disease-carrying insect control, chemical import regulation, environmental health management (including pollution), and health education promotion.
Centre International des Technologies de l'Environnement de Tunis	It collaborates with public actors to promote Eco-innovations and support the creation of value through green jobs and the promotion of new innovative eco-enterprises.
Agence de Promotion de l'Industrie et de l'Innovation	It implements the government's policy regarding the promotion of the industrial sector and innovation as a support structure for businesses and promoters. It provides services and products in the form of information, guidance, assistance, partnerships, and studies.



Direction Générale du Transport Terrestre	It develops, co-ordinates and monitors the implementation of government policies and programs related to land transport, and proposes legislation and regulations in co-ordination with concerned governmental structures at central and local level, it is entitled to negotiate international conventions and bilateral agreements concerning land and road transport.
<b>Key Stakeholders</b>	<b>Roles</b>
Direction Générale du Transport Maritime et des Ports Maritimes de Commerce	It develops, co-ordinates, and monitors the implementation of government policies and programmes related to maritime transport, ports and maritime trade, maritime professions and related auxiliary activities (such as freight forwarders), it is entitled to develop, monitor and execute the related legislative and regulatory texts, and supervise their application.
Direction Générale de Coordination et Suivi d'Exécution des Projets Publics et Programmes Régionaux	It coordinates regional program evaluations, develops monitoring methods, and prepares evaluation reports for both regional and public programs.
Agence Municipale de Gestion de Tunis	It's main role is managing municipal assets and facilities for the Municipality of Tunis, including impound lots, parking areas, the "Moncef Bey" market, "Bab Alioua" transportation station, and mortuary services. They also maintain and secure sites like the Palais des Congrès, Tunis City Hall, and other municipal areas.
Ministère de l'intérieur et les affaires locales	It ensures the execution of government directives, protects civil security, supervises the regional administration, and controls local authorities and their associated public establishments.
Ministère de la femme, famille, enfance et personnes âgées	It shapes policy in women, family, and children's areas, devises action plans for family well-being and women's integration, oversees childhood matters, and evaluates government programs.
<b>National Non-Governmental Organizations and Union Chambers</b>	
UTAP (Unité des femmes agricultrices)	It is a trade union and citizen employers' organization that federates small and medium-sized Tunisian and foreign companies operating in agricultural sectors in all regions
Organisation de Défense du Consommateur	It is the national employers' association representing non-agricultural economic sectors like Industry, Trade, Services, Crafts, and Small Trades. It supports SMEs through advice and information.
Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat (UTICA)	It is a trade union and citizen employers' organization that federates small and medium-sized Tunisian and foreign companies operating in agri-food sectors and in all regions.
Confédération des Entreprises Citoyennes de Tunisie (CONNECT)	They are economic companies that operate in the field of services related to agriculture and fishing. The SMSAs are production co-operatives providing services to their members to help upgrade agricultural businesses and to improve production management.
Sociétés Mutuelles de Services Agricoles (SMSA)	It is an independent national professional organization, created to defend the material and moral rights of farmers.
Syndicat des Agriculteurs de Tunisie (SYNAGRI)	They are important in the agricultural sector in Tunisia. They have broad and significant missions and powers in the sector and from a competition perspective, significant implications. Overseen by the Ministry of Agriculture, inter-professional groups are legal persons of public economic interest, their members producers, processors, and exporters of agricultural products.



Groupelement Interprofessionnel des Fruits (GIF)	It is the national employers' association representing non-agricultural economic sectors like Industry, Trade, Services, Crafts, and Small Trades. It supports SMEs in <b>fruit sector</b> through advice and information.
Groupelement Interprofessionnel des Dattes (GIDattes)	It is the national employers' association representing non-agricultural economic sectors like Industry, Trade, Services, Crafts, and Small Trades. It supports SMEs in <b>date sector</b> through advice and information.
Groupelement Interprofessionnel des Légumes (GIL)	It is the national employers' association representing non-agricultural economic sectors like Industry, Trade, Services, Crafts, and Small Trades. It supports SMEs in <b>vegetable sector</b> through advice and information.
Groupelement Interprofessionnel des Viandes Rouges et du Lait (GIVLAIT)	It is the national employers' association representing non-agricultural economic sectors like Industry, Trade, Services, Crafts, and Small Trades. It supports SMEs in <b>milk sector</b> through advice and information.
<b>Key Stakeholders</b>	<b>Roles</b>
Groupelement Interprofessionnel des Produits Avicoles et Cunicoles (GIPAC)	It is the national employers' association representing non-agricultural economic sectors like Industry, Trade, Services, Crafts, and Small Trades. It supports SMEs in <b>poultry sector</b> through advice and information.
Groupelement Interprofessionnel des Produits de la Pêche (GIPP)	It is the national employers' association representing non-agricultural economic sectors like Industry, Trade, Services, Crafts, and Small Trades. It supports SMEs in <b>fish sector</b> through advice and information.
Groupelement Interprofessionnel des Conserves Alimentaires (GICA)	It is the national employers' association representing non-agricultural economic sectors like Industry, Trade, Services, Crafts, and Small Trades. It supports SMEs in <b>canned food sector</b> through advice and information.
<b>International Non-Governmental Organizations</b>	
GIZ	These international NGOs work in food, nutrition, agriculture, ecological, social and economic domains. Their mission is to bring about a positive change in these sectors and thus improve the living conditions of the populations
USAID	
FAO	
WFP	
UNDP	
Agence Italienne pour la Coopération au Développement	
Cellule d'encadrement des investisseurs (ministère du commerce)	
MedCities	
Ret réseau enfants de la terre	
Nomade 08	
L'ART RUE	







Spices, legumes and grains store in Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



Pickled vegetables store in Tunis city  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)





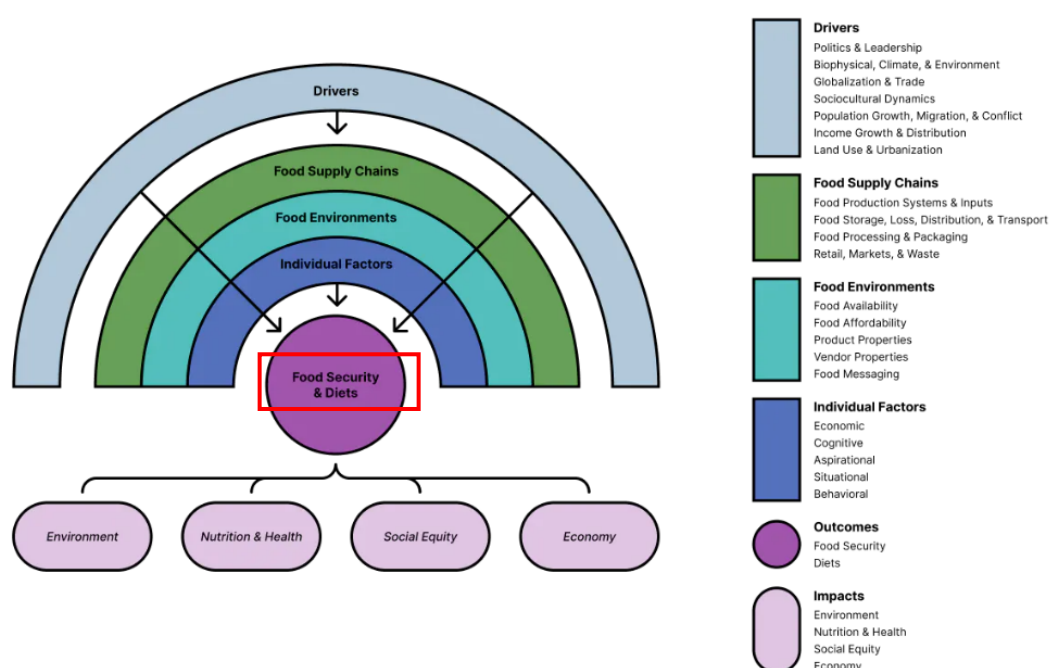


## 8. Section 4: Urban Food Environment

### 8.1. State of food environment

#### 8.1.1. Food systems framework

As shown in the framework above (Figure 13), the food systems comprise the entire process of food production, processing, retailing, consumption, and waste management. It encompasses all facets of the food supply chain, spanning from production and distribution to retail, consumption, and disposal. Food systems are a complex and dynamic network involving diverse actors and institutions, ranging from small-scale farmers and informal food vendors to large retailers and governmental bodies. The food systems influence diets by determining what kinds of foods are produced, which foods are accessible, both physically and economically, and peoples' food preferences. They are also critical for ensuring food and nutrition security, people's livelihoods, and environmental sustainability.

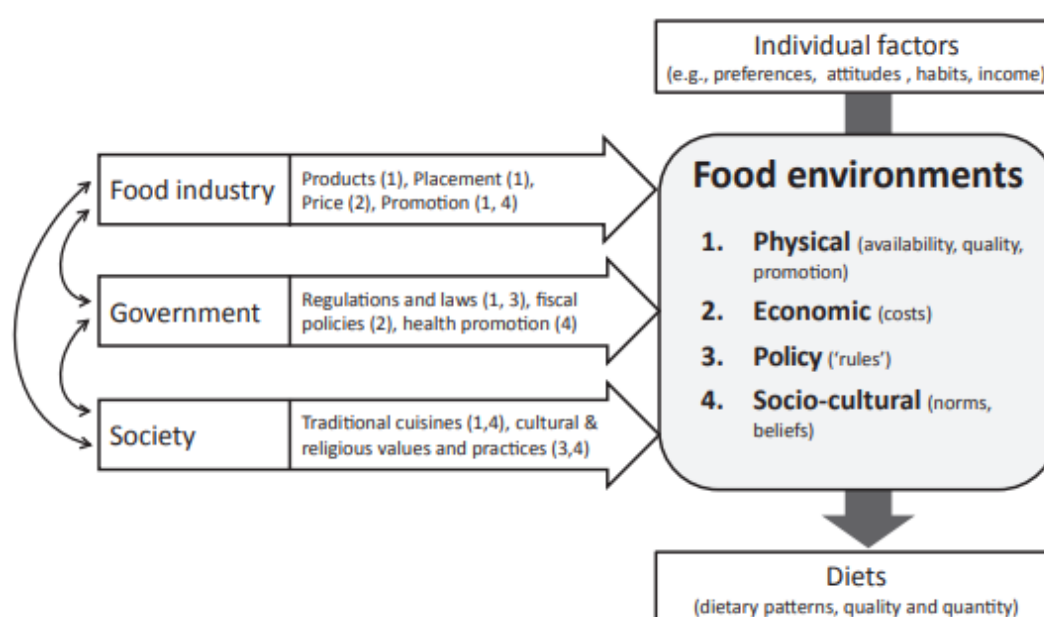


**Figure 13:** Different parts of the food system include food supply chains, food environments, and individual factors. (Source: Food Systems Dashboard, 2020).

#### 8.1.2. Food environment: a component of the food system

The food environment is where people interact with the food system for the purpose of acquiring and eating food. The main four components of the food environment within the food system include food industry, government, society and the interaction between individual factors and food environment to shape diets (Figure 14):

- **Food industry:** which predominantly creates the food supply (to a large extent determining food availability, quality and price), promotes the consumption of its food products (predominantly processed foods and fast food), and contributes to social norms and beliefs about food;
- **Governments:** at international, national and subnational levels, through their policies, laws and regulations, provide the rules within which the private sector must operate;
- **Society:** through its traditional, cultural and religious practices, predominantly establishes the cultural norms for food and cuisines;
- **Individuals:** with their personal factors such as habits, preferences, education and income, interact with the food environment to shape their diets. There are interactions between the food industry, governments and society – not only at the food environments interface, but also on many other levels, such as through policymaking, science funding, lobbying and agenda setting (Swinburn et al., 2013).



**Figure 14:** Food environments and their four main components (food industry, governments, society on food environments and the interaction between individual factors and food environments to shape diets). (Source: Swinburn et al., 2013)

### 8.1.3. State of urban food system in Tunis city

The urban food system in Tunis represents a multifaceted network encompassing the production, distribution, consumption, and waste management of food within the city. As the capital of Tunisia and a major urban centre, Tunis showcases unique characteristics and challenges within its food system that warrant scientific exploration.

- **Food production:** Tunis hosts a blend of urban and peri-urban agricultural activities. The city benefits from nearby fertile lands and green spaces that support agricultural production. Local

farmers, both conventional and small-scale, contribute to the city's food supply through the cultivation of fruits, vegetables, and herbs. Additionally, rooftop gardens and community gardens have emerged as innovative approaches to urban agriculture, enhancing food production within the city limits.

- **Food distribution:** The distribution of food in Tunis is facilitated through a diverse network of markets, retailers, and wholesalers. Traditional souks (markets) play a central role, offering fresh produce, spices, and other food items. Modern supermarkets and grocery stores have also proliferated, reflecting evolving consumer preferences and lifestyles. Informal food vendors contribute significantly to the distribution landscape, offering convenience and accessibility to urban residents.
- **Food consumption:** Urban dwellers in Tunis exhibit a diverse range of dietary preferences influenced by cultural heritage, economic factors, and globalization. Traditional Tunisian cuisine, characterized by couscous, tagine, and various seafood dishes, remains prominent. However, the city's food scene is evolving with the integration of international cuisines and fast food options. The consumption patterns of Tunisians reflect broader societal changes, including shifts towards convenience foods and processed items.
- **Food waste management:** The management of food waste poses a significant challenge in Tunis, as in many urban areas. Efforts are underway to improve waste collection and recycling systems to minimize the environmental impact of food disposal. Initiatives promoting composting and surplus food redistribution aim to reduce food waste and enhance sustainability within the urban food system.
- **Policy and governance:** Governmental agencies and municipal authorities play a critical role in shaping the urban food system through policy interventions and regulatory frameworks. Efforts to promote food security, sustainable agriculture, and equitable food access are guided by national strategies and local initiatives. Collaborative partnerships between public institutions, non-governmental organizations, and private stakeholders are instrumental in addressing food-related challenges and advancing urban food system resilience.

In summary, the urban food system in Tunis epitomizes the complexities and opportunities inherent in urban food environments. By examining the interconnected components of food production, distribution, consumption, and waste management, researchers and policymakers can gain valuable insights into enhancing food security, sustainability, and resilience within the urban context. Continued scientific inquiry and evidence-based interventions are essential for fostering a more equitable and sustainable urban food system in Tunis and beyond.

## 8.2. Nature of urban planning, design and spatial considerations and its role in food environment

Urban planning, design, and spatial considerations play integral roles in shaping the food environment of Tunis, influencing food access, availability, and consumption patterns within the city. This scientific overview delves into the interconnected nature of urban planning and the food environment in Tunis.

- **Spatial distribution of food outlets:** Urban planning and design significantly impact the spatial distribution of food outlets and markets across Tunis. Zoning regulations, land use policies, and transportation networks influence where supermarkets, local markets, and informal food vendors



are located within the city. The arrangement of food retail spaces can affect the accessibility of fresh and healthy food options for different neighborhoods and communities.

- **Food deserts and access to healthy foods:** Urban planning decisions can contribute to the emergence of food deserts—areas with limited access to affordable and nutritious food. The concentration of fast food outlets or the absence of grocery stores in certain districts can exacerbate food insecurity and impact public health outcomes. Addressing spatial inequalities in food access requires strategic urban planning interventions, such as incentivizing grocery store development in underserved areas and promoting alternative food retail models.
- **Integration of green spaces and urban agriculture:** Efforts to integrate green spaces and urban agriculture into urban planning frameworks can enhance the local food environment in Tunis. Parks, community gardens, and rooftop farms not only provide recreational opportunities but also support food production and contribute to food security. Urban design strategies that prioritize green infrastructure and sustainable landscaping can promote urban agriculture initiatives and foster connections between residents and locally grown produce.
- **Walkability and active transport:** Promoting walkable neighborhoods and active transportation modes through urban planning can positively influence food choices and dietary behaviors. Pedestrian-friendly streetscapes and cycling infrastructure encourage physical activity and facilitate access to neighborhood food markets. Designing mixed-use developments that incorporate food retail spaces within residential areas can reduce reliance on motorized transport for grocery shopping, promoting healthier and more sustainable lifestyles.
- **Policy integration and multi-sectoral collaboration:** Effective urban planning for a healthy food environment requires policy integration and collaboration across multiple sectors. Municipal governments in Tunis can collaborate with public health agencies, urban designers, food retailers, and community stakeholders to develop comprehensive strategies that prioritize food equity, environmental sustainability, and public health. Incorporating food system considerations into urban master plans and development policies can foster resilient and inclusive cities.

In conclusion, urban planning, design, and spatial considerations are instrumental in shaping the food environment of Tunis. By incorporating food-related objectives into urban development strategies, policymakers and planners can create more equitable, sustainable, and resilient cities. Addressing spatial disparities in food access, promoting urban agriculture, and fostering walkable neighbourhoods are key priorities for enhancing the food environment and improving overall well-being in Tunisian urban centers. Continued interdisciplinary research and evidence-based interventions are essential for advancing food systems planning and design practices in Tunis and other urban contexts.

### 8.3. Built environment plans that consider food environment

Urban planning in Tunisia is a dynamic field that is shaped by a combination of historical context, socio-economic factors, and contemporary challenges. The country's urban development is characterized by efforts to accommodate population growth, economic development, and sustainability goals.

Tunisia, like many middle income countries, has experienced rapid urbanization, particularly since gaining independence in 1956. This urban growth has been driven by factors such as rural-to-urban migration, natural population increase, and industrialization. As a result, cities have expanded, often leading to unplanned informal settlements and strains on infrastructure and services.



The Tunisian government has responded to these challenges with various urban planning initiatives. One notable strategy has been the promotion of sustainable urban development. This includes efforts to enhance public transportation networks, promote green spaces within cities, and improve access to basic services such as water, sanitation, and electricity.

Furthermore, urban planning in Tunisia seeks to preserve cultural heritage while accommodating modern needs. Historic cities like Tunis, Carthage, and Sousse are subject to conservation efforts aimed at maintaining their architectural and cultural significance.

In recent years, there has been a growing emphasis on participatory planning approaches. This involves engaging local communities, civil society organizations, and private sector stakeholders in the urban planning process. The aim is to ensure that urban development reflects the needs and aspirations of diverse urban populations.

Challenges persist, however, including issues related to land use management, spatial inequality, and environmental sustainability. Addressing these challenges requires integrated approaches that consider economic, social, and environmental dimensions of urban development.

*In summary*, urban planning in Tunisia is evolving to meet the demands of a rapidly urbanizing society. By embracing sustainability principles, preserving cultural heritage, and promoting participatory approaches, Tunisia aims to create liveable and inclusive cities for its growing population.

### 8.3.1. For the entire city

Tunis, the vibrant capital city of Tunisia, offers a unique and dynamic urban food environment shaped by its rich cultural heritage and diverse population. As a bustling metropolis, Tunis presents a fascinating blend of traditional markets, modern supermarkets, and emerging food trends, reflecting the city's evolving culinary landscape.

One of the defining features of Tunis' urban food scene is its lively souks or markets. The medina, a UNESCO World Heritage site, is home to the famous Tunisian markets like the Souk El Attarine and Souk El Berka, where locals and visitors alike gather to shop for fresh produce, spices, and local delicacies. These bustling markets not only serve as vital hubs for sourcing ingredients but also offer a glimpse into Tunisian daily life and culinary traditions.

In recent years, Tunis has witnessed a rise in modern supermarkets and grocery stores catering to diverse consumer preferences. Established chains like Carrefour, Monoprix, and Aziza have expanded across the city, providing convenient access to a wide range of domestic and international food products. This shift towards modern retail reflects changing consumer habits and preferences in Tunisian society. Moreover, the urban food landscape in Tunis is embracing sustainability and local food initiatives. There is growing interest in organic and locally sourced foods, with farmers' markets and organic stores gaining popularity. Initiatives promoting urban agriculture and community gardens are also emerging, encouraging residents to participate in local food production and foster a stronger connection to their food sources.

Tunis' urban food environment is not only about consumption but also about culinary diversity and innovation. The city boasts a vibrant restaurant scene, offering a fusion of traditional Tunisian cuisine with international influences. From cosy cafes serving mint tea and traditional pastries to trendy eateries experimenting with global flavours, Tunis offers a delightful culinary journey for food enthusiasts. However, challenges persist within Tunis' urban food environment, including issues of food accessibility, affordability, and sustainability. While affluent areas enjoy a plethora of food options, underserved neighbourhoods often face limited access to fresh and nutritious foods, contributing to disparities in food security.





*In conclusion*, the urban food environment in Tunis reflects a dynamic interplay between tradition and modernity, local and global influences, and challenges and opportunities. By embracing innovation, promoting local food initiatives, and addressing food accessibility issues, Tunis is poised to further enhance its urban food landscape and enrich the culinary experiences of its residents and visitors alike.

### 8.3.2. In different economic/income zones of the city

The integration of food environment considerations into built environment plans is crucial for promoting equitable access to healthy and sustainable food options across diverse economic zones within Tunis city. This scientific discourse explores the significance of such planning strategies in fostering food security and well-being.

- **Economic zone characteristics and food access:** Different economic zones within Tunis city exhibit varying characteristics that influence food access and availability. Urban planning initiatives tailored to each zone can address specific challenges related to food deserts, affordability, and dietary diversity. High-income areas may benefit from upscale supermarkets and specialty food stores, while low-income neighborhoods may require interventions to enhance access to fresh produce and staple foods.
- **Mixed-use developments and food retail integration:** Incorporating mixed-use developments into built environment plans can enhance the food environment in Tunis. By integrating food retail spaces within residential and commercial zones, planners can facilitate convenient access to grocery stores, farmers' markets, and neighborhood eateries. This approach promotes walkability and reduces reliance on motorized transport for food procurement, particularly in densely populated urban areas.
- **Green infrastructure and urban agriculture opportunities:** Building sustainable and resilient food systems involves leveraging green infrastructure and urban agriculture opportunities across economic zones. Planning for green spaces, community gardens, and rooftop farms can enhance food production and distribution networks while improving environmental quality and fostering community engagement. These initiatives are particularly impactful in economically diverse areas where residents may benefit from increased access to locally grown and culturally relevant foods.
- **Transportation networks and food distribution efficiency:** Efficient transportation networks are integral to ensuring equitable food distribution in Tunis city. Built environment plans should prioritize pedestrian-friendly streets, cycling lanes, and public transit routes that connect residents to food hubs and markets. Enhancing transportation options can mitigate food disparities between economic zones, promoting food security and reducing reliance on private vehicles for grocery shopping.
- **Policy alignment and stakeholder engagement:** Successful implementation of built environment plans that prioritize the food environment requires policy alignment and stakeholder engagement. Municipal governments, urban planners, public health agencies, and community organizations should collaborate to develop policies and regulations that support healthy food access and sustainable urban development. Engaging residents and businesses in the planning process ensures that interventions are responsive to local needs and aspirations.

In conclusion, incorporating food environment considerations into built environment plans is essential for creating inclusive, resilient, and liveable economic zones within Tunis city. By leveraging mixed-use developments, green infrastructure, and efficient transportation networks, planners can promote equitable access to healthy foods and enhance community well-being across diverse socioeconomic contexts.



Continued interdisciplinary collaboration and evidence-based planning practices are crucial for advancing food systems resilience and sustainability in Tunis and other urban settings.





Tunisian traditional dish “Ain Spaniouria” عين سبنيورية  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)



Tunisian traditional dish (bread, olive oil and “Rob” الرب)  
(Source: Stock photos of the National Institute of Nutrition and Food Technology)

## 9. Section 5: The city's food system, examining often unseen aspects

### 9.1. Urban food governance without local autonomy

An often overlooked aspect of the urban food system is the significant role played by the municipality of Tunis in shaping it. Despite decision-making being centralized, the municipality of Tunis is actively managing the city's food environment through several key actions:

- Facilitating the engagement of all stakeholders in the food system to reach consensus on necessary measures.
- Encouraging inclusive economic growth, entrepreneurship, and the creation of quality jobs, especially among small-scale and informal food system participants.
- Ensuring food security by promoting access to healthy and sufficient food, diverse food options, and reducing food waste across all levels of the supply chain.

The primary macro-level challenge impacting the agri-food system is the necessity for decentralized decision-making at the local level to achieve autonomy in operational and strategic decisions—a current deficiency within Tunis city. This is simply the implementation of the Local Government Code published in April 2018, which establishes a legal framework for the gradual transfer of powers from the central to the local level.

### 9.2. The informal food market in Tunis city plays a pivotal role in the urban food system

The informal food market plays a critical role in enhancing food accessibility and affordability for urban populations in Tunis. It provides livelihood opportunities for marginalized groups and contributes to local food diversity and cultural heritage.

The informal food market in Tunis City encompasses a range of unregulated food-related activities conducted outside formal economic structures. This sector includes food vendors and producers often operate without formal permits or licenses, utilizing public spaces such as streets, markets, and sidewalks. The market is highly adaptable and responsive to consumer demands, offering affordable and culturally relevant food options. Informal food businesses range from mobile street carts to small home-based enterprises, serving as important sources of income and sustenance for many urban residents.

Several factors drive the growth and persistence of the informal food market in Tunis City. Economic drivers include high unemployment rates, limited formal employment opportunities, and consumer demand for affordable and accessible food options. Social and cultural factors, such as culinary traditions and community ties, also influence the dynamics of the informal food market. Regulatory challenges, including bureaucratic hurdles and enforcement issues, shape the operating environment for informal food businesses.





The informal food market plays a critical role in enhancing food accessibility and affordability for urban populations in Tunis. It provides livelihood opportunities for marginalized groups and contributes to local food diversity and cultural heritage. Despite its prevalence and socio-economic significance, the informal food market often operates in legal grey areas and faces challenges related to hygiene standards, licensing, and integration with formal food systems. Informality in the food sector can also pose risks to public health and food safety, given the limited oversight and enforcement of hygiene standards. Moreover, informal food businesses often lack access to formal training, financial support, and market integration, hindering their long-term sustainability.

### 9.3. Food waste management strategies in Tunis city: challenges and initiatives

Evaluate the initiatives to reduce food waste, promote composting, and engage stakeholders in sustainable waste management practices in Tunis city is an interesting topic to investigate in more details. Understanding these strategies is essential for advancing sustainable practices and achieving urban resilience in the face of food waste challenges.

Tunis City faces significant challenges related to food waste generation, disposal, and environmental impact. Food waste is a pressing issue in Tunis City, with substantial quantities generated across the food supply chain, from production to consumption. Inadequate waste segregation, limited recycling infrastructure, and informal waste handling practices contribute to inefficiencies in food waste management. The environmental consequences of food waste, including greenhouse gas emissions and landfill pressure, underscore the urgency of effective management strategies.

Several challenges hinder efficient food waste management in Tunis City. These include lack of public awareness, insufficient waste infrastructure, regulatory gaps, and limited collaboration among stakeholders. Economic constraints and resource scarcity also impede the adoption of sustainable waste management practices.

The effectiveness of food waste management initiatives in Tunis City is evident in reduced landfill volumes, increased composting rates, and heightened public awareness. However, ongoing efforts are needed to strengthen waste infrastructure, enhance regulatory frameworks, and foster multi-stakeholder collaboration. Future directions include scaling up successful interventions, integrating technology-driven solutions, and mainstreaming circular economy practices across the food system.

Food waste management in Tunis City is a complex but pivotal endeavour for achieving sustainable urban development. By leveraging innovative strategies, community engagement, and policy interventions, Tunis City can mitigate food waste impacts, conserve resources, and advance towards a more resilient and sustainable urban food system. Continued research and collective action are essential to address food waste challenges and promote a circular economy approach in Tunis City and beyond.





## 10. Discussion

The report "State of City Food System Tunis City" provides a comprehensive analysis of the food system in the city of Tunis, highlighting the challenges and opportunities within the urban context. This discussion chapter focuses on key elements of the report, including governance structures, economic challenges, informal practices, and urban agriculture initiatives, while proposing potential solutions to enhance the resilience and sustainability of Tunis's food system.

**Food System Governance.** The governance of Tunis's food system is characterized by a centralized structure according to the Tunisian constitution of 2022, with decision-making primarily top-down. This approach limits the participation of local authorities and civil society in formulating strategies and policies related to food production and distribution. Such centralization presents a significant challenge as it can create disconnects between central directives and local needs. To improve this situation, it is crucial to integrate more local actors into the decision-making process to better address the specific realities and requirements of different communities in Tunis.

**Economic Challenges and Impact of Global Shocks.** Tunis's economy is vulnerable to global economic shocks, as evidenced by the impacts of the COVID-19 pandemic and the Russia-Ukraine war. These events have disrupted supply chains and increased production costs, leading to food price inflation and exacerbating poverty. Tunisia's dependence on imports of cereals and other essential inputs has aggravated these problems, underscoring the need to diversify supply sources and strengthen local production to improve food security.

**Informal Sector and Food Accessibility.** The informal sector plays a crucial role in Tunis's food system, providing affordable and culturally relevant food options. However, this sector faces challenges related to legality, hygiene, and formalization. The proliferation of informal food distribution circuits, in response to economic and social crises, has led to price increases and shortages of staple goods, particularly affecting disadvantaged populations. To improve food accessibility, it is essential to regulate and support the informal sector while promoting hygiene and safety standards.

**Urban Agriculture and Innovative Initiatives.** Integrating urban agriculture into Tunis's urban planning framework offers significant opportunities to enhance local food security. Green spaces, community gardens, and rooftop farms contribute not only to food production but also to the creation of recreational areas and the promotion of environmental sustainability. Innovations such as vertical farms, aquaponic enterprises, and technology-based delivery platforms show promising potential to transform the urban agri-food landscape. These initiatives can not only increase local food supply but also create economic opportunities for entrepreneurs and local communities. Integrating urban agriculture into the urban planning framework of Tunis presents significant opportunities to enhance local food security and sustainability. Urban agriculture encompasses various practices, including community gardens, rooftop farms, vertical farming, and aquaponics. These practices not only contribute to food production but also promote environmental sustainability, social cohesion, and economic development.

Community gardens are a vital component of urban agriculture. They provide residents with the opportunity to grow their own food, thus reducing dependence on imported produce and enhancing food sovereignty. These gardens also serve as communal spaces where people can engage in physical activity, socialize, and strengthen community ties. In addition to improving access to fresh produce, community gardens can have educational benefits, teaching participants about sustainable farming practices and nutrition.

Rooftop farms represent another innovative approach to urban agriculture. By utilizing unused rooftop spaces, these farms can produce a substantial amount of food without requiring additional land. Rooftop farms help mitigate urban heat island effects by providing insulation and reducing the need for air



conditioning. Furthermore, they can capture rainwater and reduce runoff, contributing to urban water management.

Vertical farming is an advanced urban agriculture technique that involves growing crops in stacked layers, often indoors or in controlled environments. This method maximizes space utilization and allows for year-round production, irrespective of external weather conditions. Vertical farms can be highly productive and resource-efficient, using less water and pesticides compared to traditional farming. They also reduce the need for transportation, as they can be located closer to urban consumers, thereby lowering the carbon footprint associated with food distribution.

Aquaponics, which combines aquaculture (raising fish) and hydroponics (growing plants in water), is another innovative system that can be implemented in urban settings. In an aquaponic system, fish waste provides nutrients for the plants, and the plants help filter and purify the water, creating a sustainable and symbiotic environment. Aquaponics can produce both vegetables and fish, offering a diverse range of food products. This system is particularly suitable for urban areas with limited space and resources.

The integration of technology into urban agriculture and food distribution has the potential to revolutionize the food system in Tunis. Smart farming techniques, such as the use of sensors, data analytics, and automation, can optimize crop management and increase yields. Additionally, technology-based delivery platforms can enhance the efficiency of food distribution, connecting urban farmers with consumers through online marketplaces.

Digital platforms can facilitate the direct sale of fresh produce from urban farms to residents, reducing intermediaries and ensuring fair prices for both producers and consumers. These platforms can also provide real-time information on food availability, prices, and nutritional content, helping consumers make informed choices. Moreover, mobile applications can promote urban agriculture initiatives by offering resources, tutorials, and community support to aspiring urban farmers.

Urban agriculture and innovative initiatives offer numerous economic and social benefits. They can create employment opportunities, particularly for youth and marginalized groups, by providing training and jobs in farming, food processing, and distribution. Urban agriculture can also stimulate local economies by supporting small businesses and fostering entrepreneurship.

Socially, urban agriculture initiatives can enhance community resilience by building networks of mutual support and cooperation. They can promote food literacy and environmental awareness, encouraging residents to adopt sustainable lifestyles. By transforming underutilized urban spaces into productive and green areas, urban agriculture can improve the quality of life and contribute to the overall well-being of the city's inhabitants.

Decentralization and Local Participation. One key solution to strengthening Tunis's food system lies in decentralizing governance and increasing local participation. By allowing municipalities to play a more active role in food system planning and management, it is possible to better address the specific needs of each neighbourhood and promote a more inclusive and equitable approach. Collaboration between central and local authorities, public health agencies, urban planners, food retailers, and community stakeholders is essential to develop comprehensive strategies that prioritize food equity, environmental sustainability, and public health.



## 11. Conclusion

In conclusion, the report on the food system of Tunis highlights the complex challenges and opportunities within the urban context. Governance centralization, vulnerability to global economic shocks, informal practices, and the importance of urban agriculture are all factors influencing Tunis's food system. To improve the resilience and sustainability of this system, several strategic actions are essential:

Promoting increased decentralization and strengthening local participation is crucial. By allowing municipalities to play a more active role in food system planning and management, it is possible to address the specific needs of each neighbourhood and promote a more inclusive and equitable approach. Local authorities, community organizations, and residents should be actively involved in decision-making processes to ensure that policies and strategies are responsive to the unique challenges and opportunities of each area.

Diversifying supply sources is another key strategy to enhance food security. Reducing dependence on imported food by supporting local production can mitigate the impact of global economic shocks and ensure a more stable and reliable food supply. Encouraging urban agriculture, supporting smallholder farmers, and investing in local food processing and distribution infrastructure are important steps in this direction.

Supporting innovative initiatives in urban agriculture and food distribution can significantly enhance the resilience and sustainability of Tunis's food system. Embracing technologies such as vertical farming, aquaponics, and digital platforms can optimize food production and distribution, making it more efficient and environmentally friendly. Providing training, resources, and financial support to urban farmers and entrepreneurs can foster innovation and drive economic growth.

An integrated and collaborative approach involving all stakeholders is essential to build a more robust and equitable food system for the residents of Tunis. This includes collaboration between central and local authorities, public health agencies, urban planners, food retailers, and community organizations. By working together, stakeholders can develop comprehensive strategies that prioritize food equity, environmental sustainability, and public health.

*In summary*, addressing the challenges and leveraging the opportunities within Tunis's food system requires a multifaceted and coordinated effort. By promoting decentralization, diversifying supply sources, supporting innovative initiatives, and fostering collaboration, it is possible to build a resilient and sustainable food system that meets the needs of all residents and contributes to the overall well-being of the city.



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