EXPLORING A NEW URBAN STRATEGY TO ORGANIZE THE INFORMAL SETTLEMENTS IN TRIPOLI

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Keywords: Urban Form, Urban Health, Eco-City, Informal Settlement, Infrastructure

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Abstract
A dynamic urban form can be defined as emerging in the planning, and development of urban centers as a city where there is a defined perimeter, inside which lies a population that is self-sufficient supporting by the technologies and economy within the city fully employs the population, the services, and cultural infrastructure within the city are sufficient to supply for the population in the cities. One of the most significant driving forces of change in any urban system is population development. This randomness in growth causes an imbalance in the civil system through environmental problems on the lif system that change year after year with the emergence of environmental, health, and economic problems. In addition to the revolutions in economic development and technology, rapid urban growth can be defined by the development of suburban expansion and city center regeneration. The main aim is to challenge the static nature of traditional urban planning processes and practices to look at the potential benefits of developing cities with a focus on technology, urban layout, ecology, sustainability in Lebanon-Tripoli Saki Al-Shemaly. This research approach to futuristic strategies design based on live problems, rearrangement urban city's zoning, design multi-function buildings, protecting occupant health and improving employee productivity to reach the Quality-of-Life Efficient Land-Use, Preservation Efficient, Transportation Management and Efficient Use of Resources to evolve and adapt to the changes, and demands of the future city. The city must grow upward or downward if the urban population swells.

Keywords
Urban Form, Urban Health, Eco-City, Informal Settlement, Infrastructure

This article is available in Architecture and Planning Journal (APJ): https://digitalcommons.bau.edu.lb/apj/vol27/iss2/7
1. INTRODUCTION

1.1 Research Approach:

Perhaps one of the most complex inventions of mankind, cities are never finished, it's like a road never-ending. Our creation is determined by its ascent or descent into greatness is down and the cities involve both order and disorder. They're past, present, and future. Beauty and hideousness, virtue, and vice reside in them. You can make people feel the best or the worst. They are the physical representation of history and culture, and incubators of technology, invention, and business. The cities are the materialization of the noblest ideals, desires, and hopes of humanity but maybe a storehouse of the ills of society when it is not properly built or governed. Towns drive domestic economies through wealth formation, social growth, and the provision of jobs, but they may also contribute to poverty, exclusion, and deterioration in the environment. In most of the continents, current planning methods have to change, and that a new urban position of sustainable development planning must be developed. The report argues that future urban planning must take place within the framework of the factors which form the cities of the 21st century. The environmental challenges presented by climate change, the demographic challenges of rapid urbanization, unpredictable economic growth, and the increasing social and spatial problems are the broad challenges facing the city. To grasp the problems, we must analyze objectively the future of cities which will enable us to mitigate the construction, planning which political concerns that need to be taken into account. Then there are the challenges to learn more about a city.

1.2 Problem Definition:

One of the problems facing cities in non-industrialized countries today is the fact that cities are growing at unparalleled rates sizes and densities. In these cities, growth patterns much is uncontrolled. These cities have changed at least in four main ways: the quality and delivery of public services their scale, spatial organization or morphs, and their center of employment infrastructure. This can be attributed to the global situation trends in urbanization, general lack of information about the growth and densification of these cities and the acquisition of such physical features has limited efficient urban management and planning. The widespread lack of knowledge has sometimes been linked to the lack of theory and concepts to explain spatial qualities, evolution, and development. But this has also been contributed by limited research in this area. The other issue facing the urbanization city is the continuing spread of externalities of insufficient provision of infrastructure and inefficient use of scarce resources in a particular land. Cities around the world face a variety of challenges that change rapidly. Cities today face a unique set of threats from climate to poverty, economic downturns, and demographic shifts. Their strategy requires innovation and flexibility, be it in policymakers, investment decisions, or everyday livelihoods. To face up these obstacles, the future of cities aims to reinvent the town in theory and practice. The dissertation on the future of towns here seeks to explain some of the issues facing the region.

![Fig.1: World’s greenhouse gas by source](World Resources Institute (WRI))
1.3 Aim of the Study:

“This research aims to propose new urban strategy“

This study makes a contribution by proposing a functional framework for successful sustainable urban planning development for societies that addresses the gaps and weaknesses of current models. This takes into account the core issues of urban communities including environmental, social, economic and planning perspectives.

1.4 Research Hypothesis:

This research assumes if we look to carry out the urban development process in the right way for new initiatives that will address the present problems. The research is basically to carry out field surveys and to formulate an urban transport plan for greater Tripoli and to formulate a long-term improvement plan, including further studies on high priority.

1.5 Research Methodology:

This study will rely on a scientific approach in the data collection process by providing a literature review listing several studies in the same field of research, then use the analytical method to analyze the information collected and the methods found. The analytical study will be assisted by site surveys that will explore the area.

2. LITERATURE REVIEW

2.1 Cities

Cities are complex human structures and act as a magnet for people, companies, and culture. They are rapidly growing in developing countries and becoming the engines for economic or growth development in the region. Most changes arise in the form of an urban expansion on the outskirts of the city, as well as a loss of fertile agricultural land. The urban areas have created many environmental and social problems. The big cities have many urban issues: urban sprawl; climate change and air pollution; urban waste management; water supply; lack of energy; public health issues Singh (2014) has said that the city is described as a catalyst for economic growth in the conventional term. In recent years, however, the problems facing towns and cities are not only based on economic growth but also expressed concern at unsustainable development and its negative impacts of rapid urban development such as urban development, declining city Centre, pollution, environmental harm, etc. Based on the United Nations (UN, 2014), a town with fewer than 200 meters of construction and a population of over 10,000 is described as a continuous urban. Cities only occupy 2% of the earth, but consume 75% of their energy and generate a similar proportion of their waste, they consume the majority of transport, industry, utilities, and everyday household operation fuel and electricity. Cities contribute significantly to climate change because they contribute about 75% of emissions of GHG (ADB, 2008; Singh, 2014). People contribute significantly to climate change. Excessive urban concentration in very large urban agglomerations followed quick urbanization in Asian developing countries. Asian developing countries have been scattered with urban development and have caused environmental degradations, increased energy use for transport, severe air, and water problems, congestion of traffic, and others. (ADB, 2008).
Regional and national violence have dominated Lebanon's urban spaces. Basic utilities, such as water supply, have long been harmed by poor urban planning and widespread informalization. Vulnerable city dwellers when state provision and camp-focused humanitarian responses fail to meet their needs, they turn to vendors, informal facilities, and markets. The arrival of Palestinian and 1.5 million Syrian refugees worsened the situation: according to UN-Habitat, national demand for water services has risen by 28% since the Syrian crisis started in 2011. Through a six-year period of water-based urban intervention in Lebanon, we identify approaches which can increase efficiency, flexibility and sustainability of responses: integrated inclusive planning; the recognition and disruptive capacity of the data; partnership between the government and non-state agencies in support of autonomous utilities and local institutions.

Urbanization refers to a rise in the percentage of a country's population living in unique urban centers. Mayhew (1997) noted that urbanization synonymous with the rise in city or town population due to social and economic change, the urbanization is measured from a demographic point of view by the proportion of the population. In certain cases, urbanization is directly related to economic growth in which industrialized countries are more urbanized than in developing countries. (Walnycki, 2017).

The WHO describes health as 'the state of full physical, mental, and social good rather than simply the lack of disease or illness' (WHO, 1946). Personal and population health are affected by both environmental and social determinants. Today, there is growing recognition (WHO 2013b, Fouad et al., 2017, Badland et al., 2014) that health and health disparities must be addressed taking into account the broader societal context, including the characteristics of the local environment to which individuals are exposed. Social and environmental factors affecting public wellbeing include schooling, employment, working conditions, income levels, the physical and built environment, and the relationship with risk factors such as tobacco, alcohol, and unhealthy diet, all of which influence urban environments in a very bad way. Towns have higher density and densities of facilities, which leads to higher levels of noise and air pollution, and more tension. There is therefore a greater risk to personal physical and mental well-being in urban areas. At the same time, the provision of health care has a simple economical scale, with the efficiency of precautionary measures for treatment and illness such as vaccination or screening in urban areas growing. The WHO had already recognized in the 1980s that it was an important priority at both collective and individual levels to consider how an urban environment influences health outcome. More recently, it was endorsed by a growing body of scientific evidence and an increasing array of policies articulated at local levels of government, in the Current Urban Agenda (United Nations, 2016).
2.4 **Informal Settlements**

Urban cities have always been a way to enhance the quality of life and the atmosphere for millions of poor people in developing areas of the globe as well as to improve employment and incomes. This has led to a significant influx of migrants to urban areas, especially over the last three decades, in contrast to worsening conditions in rural areas. Urban migrants’ goals change over time due to their different circumstances. But along time-consuming, sufficient, and well-planned house is one of the first dilemmas facing them. The dramatic alternative of illegally occupying a vacant land to create a primitive shelter is often the only available one, with minimal capital, financial or otherwise, skills or accessing it. This is what the informal settlements are called. This is what the informal settlements are called. There are locations developed outside the formal planning system, which encourage access to land through the operation of customary or quasi-customary land markets, and are generally developed in the interests of property owners because the planning authorities seldom exercise controls on development. An informal settlement is often known as a living spot in an urban area occupied by the very poor who do not have access to their own tenured land and therefore squat on vacant lands, whether public or private. (Kudus, 2020)

![Citadel of Raymond de Saint-Gilles on a hilltop in Tripoli, urban community Al-Fayhaa. (UN Habitat, 2020)](https://digitalcommons.bau.edu.lb/apj/vol27/iss2/7)

2.5 **A Case Study of the Informal Construction in Colombia**

Colombia's capital, Bogotá, has a population of 7.2 million. During the late 1940s to the mid-1950s, in the mid-1950s, in the context of Bogotá's industrialization and the rise of armed conflict, rapid migration from rural to urban regions led to informal divisions. The urban fringe of marginalized communities was affected by rapid urbanization and high land prices. The country not only distanced cheap land from operating centers but also was marked by steep slopes that could lead to landslides. Through the start of the Ciudad Bolívar project, which housed 700,000 inhabitants, citizens living on the outskirts of Bogotá have low access to services, a minimum municipal infrastructure, and limited transportation options. These benefits have been taken into account in the fast town of Bogotá. Among those who live in extreme poverty, 90% are considered to be poor income, and over 10% live on under $120 a day. (Front Public Health. 2020)
Fig. 4: Picture shows the city of Medellin uses cable cars to make local transport more efficient. (Front Public Health. 2020).

The purpose of the project is to upgrade Medellín infrastructure, make it greener and more socially acceptable. Scale: six cable car lines: three already constructed and another three under construction.

Fig. 5: Intervention area in Ciudad Bolívar (A, left) and control group in San Cristóbal (B, right) (Front Public Health. 2020)

Many city citizens need busy diesel busses and popular taxis, which take narrow hilly highways for a long and hard journey to the center of the city. The authorities in Medellín, however, come to an innovative solution: six cableways connecting the city's suburbs to the center. Approximately 20000 passengers a day are transported by the trans-mixable system to south Ciudad Bolivar with two solar panels in less than 15 minutes and less than $1 a day in tops of each cable car. (Front Public Health. 2020)

2.6 An Example of the Informal Construction in Tripoli-Lebanon

Tripoli's population growth led to the old city being expanded into the Bassatine area and Al-Raml along the left bank of the river Abu Ali and into al-Kobbeh and al-Tell as well as the region of Abu Samra on the right bank of the river.

The lower-income of citizens in the city and other agricultural migrants were displaced as the Tripolitan bourgeoisie migrated from the inner city to the new quarters. Almost 80%
of the population of Tripoli is concentrated in the old town and lives there have for at least thirty years, according to the Tripoli municipality. The city experienced more population shifts and displacements that changed the demographic profile of the city. The civil war was also responsible for stopping the oil refinery and the rail train. This isolated the town from its hinterland geographically and economically. This led to an increase in poverty in the region. Also, the illegally constructed and poor enclaves in the city were increased by the worsening economic conditions.

![Fig.6: View of Tripoli, Lebanon from the Citadel which lies high above the old town. (James Holme, 2006)](image)

3. METHODOLOGY

The paper uses various types of research methodology. These can be summarized into four types. First, the inductive method is used through gathering data around the chosen case study; Tripoli Saki el Shemali, recognizing its different changes ala history. Second, the field method, the authors visited certain sites in "Tripoli saki el shemali, taking live photographs, sketching, and undertaking interviews with a sample of people living near the district. Besides the interviews, a written questionnaire was distributed to this sample to recognize their point of view on the urban planning existing problems in Tripoli and the possible ways to develop it. Third, the analytical method, the paper analyzes the results of the interviews and the questionnaire. Finally, the deductive method, the paper deducts a new urban strategy by rearranging urban by challenging the static nature of traditional urban designing and reshaping the infrastructure ecologically. The four research methodologies are presented through the research as follows. The urban challenges shared across Lebanon are found in abundance in Tripoli. What is unique however is the unrivaled concentration of impoverishment and the steepness of its descent from a pre-civil war regional hub. Tripoli, Lebanon’s second city, is indeed a city at risk, traveling along a self-reinforcing.

3.1 Introducing the case study of ‘The Tripoli urban informal settlement’

Tripoli is an eastern mediterranean urban agglomeration 85km north of Beirut. It occupies a competitive geographical position as the commercial center of a large rural area. Tripoli metropolitan area (henceforth ‘Tripoli’) defined by its continuous built-up extent covers 24.7km. There are 17 cadasters distributed over the three municipalities of Tripoli, Mina, and Beddaoui. 58 sub-cadastral neighborhoods have so far been identified. The metropolitan area is 32% built up. Industrial/commercial uses comprise about 7% of the land use by area. The urban core is defined by an inner ring of high population density.
It is surrounded by industrial and harbor functions with four informal areas and an official Palestinian camp near the metropolitan margins as shown in (Fig 5). (un-habitat,2016)

Fig.7: Location of Tripoli city in Lebanon  
(un-habitat,2016)  

Fig.8: Population density of Tripoli.  
(un-habitat,2016)  

A large increase in rural poverty and substantial rural-urban migration to Tripoli and Beirut have led to government neglect of the area. Recently, low education levels, high domestic and political turnover of refugees and migrants, a shortage of public and private investment, conflict, regional political instability, and economic crisis, have led to a range of grades of urban poverty. This is primarily visible in the city center and around it.

3.2 Urban Analysis of Tripoli-Lebanon

The urban border of Tripoli covers eighteen cadasters (Fig 6) of which sixteen are all included. For the rest, the excluded portion, comprising land/farm/unbuilt, comprises about half of the Tripoli cadastral to the South. A 0.3km2 margin is also part of the metropolitan region at the eastern urban frontier of the cadastral Mejdelaya. The data aggregated in this profile from the cadastral level is drawn from seventeen cadasters, excluding the minor portion of Mejdelaya. The town of Tripoli, which contains a modern urban center, has twelve cadasters, allowing spatial analysis through cadastral data of a relatively granular nature. The town of Mina is divided into four cadasters and includes the peninsula and neighboring inland areas. While city wider than Mina, the municipality of Beddaoui is only one cadaster to the north-east of the urban area (Fig 6).

Fig.9: Cadasters by municipality and urban area boundary (un-habitat,2016)
3.2.1 Origin

The town was founded in the 14th century BC on the Mediterranean Sea. Tripoli was only founded in the Middle Ages as a two-pole town: the naval city (El-Mina), the original Tripoli site, and the medina, currently the historical center of Mamluk in 1289 the Mamluks conquered the crusader city on the peninsula which ransacked it and founded a city at the foot of the citadel and about three kilometers west of the river Abu Ali along the river. (Gulick, 1967). (Un-habitat, 2016).

Fig. 10: Tripoli, Lebanon, and different urban zones in the city (un-habitat, 2016).

Until the start of the 20th century, the two poles remained separated by citrus fields. From 1516, until the start of the French mandate in 1918, the Ottoman occupied the area. The urban extension beyond the city gates began only in the late Ottoman century. Urban construction began in the early 20th century on the roads developed between El-Mina and Medina during the Ottoman era and on the east side of the River Abu Ali to the north and east and the western bank to the south. By the end of the 20th century, the bulk of farmland was replaced by urban sprawl (Fig7). The city witnessed spectacular population growth in the second half of the 20th century under the influence of new urban developments and the rural exodus from neighboring northern regions.

3.3 Identifying Problems of Tripoli informal Settlement

Tripoli's restructuring was criticized as volatile in the absence of urban policies and regulations to direct large-scale constructions. The consequences were serious for the physical and natural environment of Tripoli and its infrastructure, all of which have a negative impact on the quality of life of its population for 2010-2020). Lebanon's towns are too small to support current constructions in the medium and long term (road, housing, trade, and redevelopment projects) without destroying their natural resources and ecosystems irreversibly. In modern architecture, Tripoli is now lost. Informal settlements become the only affordable option for low-income families due to the increased stress on housing markets in cities and metropolitan regions. Since the arrival of rural migrants in the '50s, and during the civil war (1975-1990), these under-served urban areas have been expanding. The creation of informal settlements on the outskirts of the cities, particularly in Beirut and Tripoli, has frequently contravened the building codes and planning regulations resulting in poorly designed districts and slum-like areas. Tripoli is at the center of an urban crisis, which needs...
careful study and monitoring by key stakeholders, given its dramatic immersion in the construction industry. The increase in populations in Tripoli led to the development of the old city into Bassatine areas and al-Raml on the left bank of the Abu Ali River and al-Kobbeh and al-Tell, and Abu Samra on the river right bank. Low-income inhabitants and other rural migrants replaced the local Tripolitan bourgeoisie from the heart of Tripoli. Almost 80% of people in the old city are locals and have lived there for the past 30 years, the municipality of Tripoli reports.

3.4 Selection of Specific Area in Informal Settlement in Tripoli

Tripoli is at the center of an urban crisis, which needs careful study and monitoring by key stakeholders, given its dramatic immersion in the construction industry. The increase in populations in Tripoli led to the development of the old city into Bassatine areas and Al-Raml on the left bank of the Abu Ali River and al-Kobbeh and al-Tell.

3.5 Different perspectives of public on informal urbanism in Tripoli

For credibility, this research preferred a sample of the public living and working in the select around Tripoli zones. This research aimed at greater contact with people. To describe the beliefs, dreams, needs, and memories of the sample, the study followed two basic field methods; interviews were performed and questionnaire type distributed as follows.

3.5.1 Holding Interviews

Face-to-face interviews were made 20 November 2020, with adult and elderly people that lived their life inside the districts, and they represented a lot of horrible memories and tragedies in the city. During interviews, three questions were asked: a. Are there things lost in the city from a socio-economic and recreational life? b. What problems are you facing in the city? c. How do you consider the standard of living under the current situation? Answers were mostly similar, samples of these answers can be presented through the following quotations

**Ali al-Samman 55 years old:**

*I remember the old life we lived from luxury and joy, we used to go to the popular markets. It was divided into branches of meat market, fish market and - handicraft market, vegetable market. unfortunately, the conflict in city separates us and divided people to regions, we were close to each other in joy and sorrow, missing these beautiful days. Pollution in the city suffocates us all because of the low green spaces and public gardens we suffer from the noise and traffic due to the lack of traffic regulation and lack of public continuity. The places and agricultural land are shrinking year after year. We need a thriving economy, joy and safety.*
Mohammed Mikati 47 years old:
Greater Tripoli’s transportation infrastructure is deficient in many respects because it is largely dependent on private vehicles, with shared taxis being the most common form of public transportation. With the exponential growth of population, urbanization, and motorization, traffic congestion has become a major problem for local governments. They agreed that a comprehensive master plan covering road network improvement, public transportation, and traffic management should be built with a 2020-time frame in order to solve the city’s transportation problems but the project stop.

Focusing on an ambitious project to develop social health in a special economic zone away from internal conflicts in north Lebanon. The goal is not only to diversify trade and the economy but also to achieve prosperity in the most economically stressed part of the country. Plans include agriculture programs in the region while allowing up to 50 percent of local workers and focusing on handcraft advanced workshops. The main challenges the Special economic zone faced include insufficient or outdated infrastructure, limited competitiveness in the labor market for residents, low investor confidence, as well as civil society concerns related to labor rights and environmental impact.

3.5.2 Questionnaire
23 qualified staff from engineers, architects, lawyers, physicians, politicians, and businessmen in the age group between 25 and 45 years have been fired and distributed with a closed questionnaire. In the three separate zones of Tripoli this questionnaire was also sent so that results were collected for each sector alone. Questions in this type have been answered, clear, and specific:

a. What is your opinion on the existing informal settlement in Tripoli?
b. What is your vision of new strategic environmental planning?
c. What is your vision on the changes will adapt to in the city?
d. What is your vision of transportation types between neighborhoods?

After achieving the field methodology, the paper analyzes results and findings of answers.

4. FINDINGS
Through using an analytical methodology, results of answers can be presented in form of charts.

4.1 Analysis of Interviews Results

![Fig.12: Chart showing percentage of variables things lost in the city from a socio-economic and recreational life](https://digitalcommons.bau.edu.lb/apj/vol27/iss2/7)
The ability of local and community security services is desperately required and these are connected to vulnerable people. Sustainable security communities, building on existing linkages between CSOs in the regions and municipal administrations.

![Pie chart showing percentage of problems people facing in the city](chart13)

**Fig. 13:** Chart showing percentage of problems people facing in the city

The disparity between healthcare facilities and pricing, on the one side, and the willingness of the Lebanese population to pay on the other one. This disconnection, which occurred before the Syrian crisis and now intensified by a small spending power inflow of refugees, has fundamental negative effects on the well-being of the resident population.

![Pie chart showing percentage of standard of living under the current situation](chart14)

**Fig. 14:** Chart showing percentage of standard of living under the current situation

Answers were mostly similar; samples of these answers can be presented through the following quotation.

5. **DISCUSSION**

Generally, Tripoli's diverse population development, informal urban expansion, and improved living standards have increased pressure on natural resources and infrastructure failure. Land resources and our natural environment are being impacted by major factors such as the loss of arable land and biodiversity, social and economic balance, increased emissions, and increasing infrastructure costs. Every year, urbanization will absorb an additional 10 km2 of natural space. In such a situation, the government's ability to efficiently handle environmental threats and risks is compromised by a variety of factors, including the dysfunctional political climate. The informal
economy hires immigrants, and their presence has intensified competition for low-wage employment. Syrians were initially accepted with open arms, but the country declined to accept them as refugees or provide them with formal employment opportunities. As a result, the vast majority of Syrian workers work in the informal sector, as they did prior to the Syrian war but on a larger scale, with little defense and minimal fiscal benefits for the government. Food prices and rents have risen, as has competition for jobs, and illegal urban expansion has increased, resulting in a spontaneous division of sectors due to inadequate organization and lack of land preservation. Urban underserved areas in and around the city have multifaceted traits, accommodation for people of various religions, nationalities and ethnicities. In addition to Lebanese, Palestinian refugees and migrant workers live in these areas, most of whom live in small, unfit buildings. The environment and living conditions are in general unstable and variable; some structures are temporary, while others are permanent structures. The majority of residents in these areas live in substandard housing, which includes high humidity, limited access to basic urban services and utilities, a lack of housing aeration, and a lack of natural lighting. The bulk of the buildings are old structures that have been left unmaintained and unrepaid.

5.1 Development Direction:

Under the Study, and in due consideration of existing problems and urban development policies, urban development scenario in order to establish a clear vision and social frame base for the future of the Study Area.

- Develop further the existing urban area into a sustainable city until its saturation.
- Follow natural Development trends at the planned development areas.
- Active development for newly planned development areas as self-sustainable communities.
- Strictly controlled development of existing urban areas, with the improvement of urban amenity and preservation of heritage and environment.
- Design zones with high population density and more compact vertically and not horizontally.
- Focusing on green architecture to improve productivity and the environment.
- Design mixed-use building to increase transportation distance.

a. For the purposes of mixed building growth and/or in conjunction with exploring regulatory and institutional models for piloting and increasing affordable housing initiatives, the proposed land use mix of the prime greenfield residential plots may be reexamined.

b. Design an elevated pedestrian path, this could for instance include the utilization and connection by mix used the building for youth training programs and vocational training, play days for school children, or artisanal and handicraft market.

Fig. 15: The left figure shows the concept of mixed-use building. The right picture shows a High Line-inspired elevated walkway over LaSalle Street from Wacker Drive to Jackson Street. (Design Credit: Frank Botello and Cushman & Wakefield)(Chicago Tribune, 2020)
c. Revisiting the regeneration and creation of public spaces with a view to regeneration that takes into account social activities. Focusing on green buildings, developmental, recreational, and agricultural space by establishing summer and winter farms. Exploiting neglected places inside the city and between buildings such as roofs, terraces, and others and building places for hydroponics to promote agriculture and industry and also building farms for the production of natural electrical energy through renewable energy.

![Diagram](https://via.placeholder.com/150)

**Fig. 16:** Picture shows what urban will be like in 2030. (world economy forum)

d. Establishment of an in-urban public transit network of high quality, open and sustainable. One scenario for exploration is a low-cost electric tram, fast transport system which reduces car use and decreases the pollution.

![Diagram](https://via.placeholder.com/150)

**Fig. 17:** Green infrastructure benefits

6. CONCLUSION

This paper concludes that the majority of Tripoli’s urban issues and challenges are related to the city’s existing unsustainable urban growth forms and trends. In order to solve city issues and make it more competitive to meet the expectations of green, eco, and livable cities, several systemic improvements should be made in these types and trends.

Toward sustainable a compact, high-density urban form is essential for achieving a sustainable urban form, as is ensuring that the city protects and enhances its green and open spaces. Additionally, the use of agriculture within the city, both vertically and horizontally, would support the labor force, resulting in a productive and spiritual life for the city, reducing misery and the
tendency among people and improving the economy. The city’s urban uses and economic activities must be in high demand and dispersed in a way that decreases distances and reduces reliance on automobiles.

Changes in building systems as mixed use to make it more sustainable and livable should not only give people the option of decrease the pollution of transportation automobile, but also reduces traffic congestion, protects the environment, and encourages physical activities.

Traditional water, waste, and energy technologies in use in the city should be replaced with modern and sustainable environmental technologies to optimize the city’s ability to fulfill its water and energy needs in a renewable manner, as well as to implement integrated waste management systems.

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