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SKIKDA CITY DIMENSIONS OF URBAN DEVELOPMENT IN THE LAND OCCUPATION PLAN FOR THE SOUTH OF SKIKDA CITY (SECTION 2)

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ABSTRACT

The city of Skikda has been an attractive area for rural residents of the countryside and neighboring and distant communes, because of the job opportunities it offers due to the presence of the commercial port, especially when the industrial zone was established, which caused the emergence of several urban issues, the most important of which are: The lack of housing and equipment, the spread of unemployment, the rapid and chaotic expansion of the city center due to urban growth and rural migration, the saturation of the city area, and the need to search for areas for its expansion. The study area considers the future expansion of the city of Skikda in the southern part through the land occupation plan for the south of the city of Skikda city (section 2) as a tool for urban planning, as it programmed housing projects to cover the housing deficit in the city, equipment and technical networks to ensure social services and economic functions and to protect and improve the environment of buildings and the urban environment, all for the benefit of the population to improve their standard of living and maintain their stability, all within the framework of the urban development of Skikda city.

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I. INTRODUCTION.

The issue of urban development has imposed itself due to the urban phenomenon in developed countries that led to the demographic and spatial shift from rural to urban, as they are interested in developing rural areas to transform them into urban centers, but it is actually the cities that have become suffering from many issues, the most important of which are: Increased pressure and demand for housing, equipment, services, potable water and technical networks due to the rapid increase in population growth, in light of the lack of land suitable for construction, chaotic and random urban expansion, and the deterioration of the environment through the spread of pollution of all kinds; which made the urban development strategy directed only to urban centers with the aim of developing them and finding solutions to their problems, and taking into account social, economic and environmental criteria when developing the development plan, which needs planning on several levels, the most important of which is urban planning that plays a major role in achieving urban development goals, as it depends on tools that.

In this context and to achieve this development, Algeria relies on technical plans for the adaptation and planning of its urban space, the most important of which is the Land occupation plan

(POS)⁽¹⁾. In our paper, we will examine the (POS) for the south of the city of Skikda (section 2) as a case study; as an urban planning tool to develop the city of Skikda, and make it adapt to the new conditions and changes that occur in its area.

Problematic.

The promotion of the city of Skikda to a wilaya headquarters in 1974, the settlement of the second largest industrial zone in Algeria dedicated to petrochemical industries in 1971, and the presence of the old commercial port established in 1890 gave it great importance, so a large number of rural residents and residents of all communes of the wilaya moved to the city of Skikda in search of job opportunities and improving their standard of living, making it exercise a spatial and economic influence in the wilaya of Skikda as a whole, and benefited within this framework from significant programs in the housing and equipment sectors, which contributed to the development and expansion of the city, on the one hand (PDAU, 2016), on the other hand, several issues have emerged, the most important of which are: The increased demand for housing and the spread of informal housing, the depletion of real estate, and the difficulty of providing land suitable for construction, due to the affected topography of the city; therefore, the Urbanization and Development Master Plan (PDAU)⁽²⁾ for the commune of Skikda approved in 1999 proposed areas for future expansion in the southwestern part of the city, the most important of which is the land occupation plan for the south of Skikda city (Section 2) with an area of 75 hectares which aims to define the legal and technical frameworks that can contribute to the development of this part of the city through: Improving the living conditions of the inhabitants, strengthening the functionality of the community, optimizing the use of available resources, upgrading the equipment and introducing new facilities according to the role that the main community of Skikda commune will play, and protecting the urban environment. On this basis, our research question is as follows: **What is the role of the land occupation plan for the south of Skikda city (section 2) in realizing the dimensions of urban development?**

II. The Concept of Development.

Development is centered on the basic element to achieve it, which is the human being to improve the quality of his life, and make the right decisions for that, providing his needs of food, housing, equipment, facilities, services and infrastructure, and he is the labor force to implement development projects, raise his

income and fight unemployment, while involving him in expressing his opinion freely in his own development paths (Saad Taha Allam, 2006).

“The concept of development includes a series of change-making processes aimed at moving society from one social and economic reality to another better one” (Talaat Mustafa Al-Sarogi et al., 2001, p. 22).

III. Definition of Urban Development.

Urban development is the process of developing urban areas through development projects programmed and applied by governments towards their urban areas within the framework of the proper utilization and management of all available natural, material and human resources, to achieve a radical change for the better in the standard of living of the urban population and the development of their urban area, these radical changes affect all components of the social structure of the urban community. The process of urban development is a social, economic, cultural and environmental development policy that involves the urban population in contributing to its implementation (Ayesh Hassiba, 2020).

III.1 Dimensions of Urban Development.

III.1.1 Social development.

Social development is the development strategy to invest in the social services sector, such as education, health, housing, and social welfare, with the aim of raising the standard of living of individuals and increasing the efficiency of their productivity; the main goal is to bring about a change in the social structure and its functions by the emergence of new relationships and new values through

⁽¹⁾ Land Occupation Plan (Plan D'occupation Du Sol).

⁽²⁾ Urbanization And Development Master Plan (Plan Directeur De L'aménagement Et D'urbanisme).

which individuals achieve the satisfaction of their demands and needs as much as possible (Talaat Mustafa Al-Sarouji et al., 2001).

III.1.2 Economic development.

It is the process by which the transition from the state of underdevelopment to the state of progress, this transition includes several changes in the economic structure in a radical way, meaning the structure of production and the type of goods and services produced, which achieves a continuous increase in both national income and the average per capita share of it, and per capita income, and thus the country reaches economic self-growth (Mohamed Abdulaziz Ajamiya et al., 2008).

III.1.3 The environmental dimension.

Conditions must be observed to protect its natural resources from overexploitation. Separating conflicting uses, as well as determining the permissible ratios for population densities, green areas, roads, and industrial areas (Antar Abdel-Al Abu-Green, 2020). All of this is part of protecting the urban environment.

IV. Urban planning as a tool for urban development.

Planning “is the determination of certain future goals with the development of methods, organizations and procedures to achieve these goals in the shortest possible time and at the lowest cost” (Antar Abdel-Al Abu-Green, 2020, p. 27).

And urban planning: It is “a broad science that combines several variables, natural, social, economic, and engineering in order to guide the growth of the city and address its issues in a way that serves its residents and provides them with the requirements of urban life” (Khalaf Hussein Ali Al-Dulaimi, 2002, p. 66).

It is the process of developing the urban environment with natural, social and economic characteristics, and therefore several disciplines intervene in the planning of the urban area, which is carried out by specialists, the most important of which are: Geographers, urbanists, architects, economists, sociologists and lawyers (Fouad Ben Ghadban et al., 2020).

IV.1 Urban planning tools in Algeria.

In Algeria, there are two technical tools for urban planning, namely two urban planning tools enacted by law no. 90-29 on development and Urbanization: the urbanization and development master plan (PDAU), a tool for spatial planning and urban management, and the land occupation plan (POS), a tool for planning and managing urban space.

IV.1.1 Definition of the land occupation plan.

“The land occupation plan (POS) is defined in detail, within the framework of the directives of the urbanization and development master plan (PDAU)” (article 31 of law no. 90-29 on Development and Urbanization). It organizes the land or area, by defining its uses and protecting it, without leaving a gap or vacant area without planning, and its directives should not be exceeded by all parties and bodies. (Bashir Tijani, 2000). It defines land use patterns and rights, creates a balance and harmony between urban functions, and regulates the legal and technical rules of construction, buildings and their external appearance, which determines the urban form of the area concerned (Article 31 of Law No. 90-29 on Planning and Urbanization, op. cit.). It helps the city to grow without explosion or rupture of the urban fabric, and to control the management of real estate. It also ensures the provision of technical networks, namely: roads, parking lots, drinking water, sewage, electricity and gas; public and green spaces; easements (natural and human obstacles to development); and protection of archaeological sites and agricultural lands.

V. Introducing the Position and Location of The City of Skikda.

The city of Skikda is located in the northeast of Algeria and is the headquarters of Skikda wilaya, with an area of 2225.50 hectares in 2022.

It is bordered to the north by the Mediterranean Sea, to the south by the communes of El Hadidik and Hammadi Kroma, to the east by the petrochemical industrial zone separated by Wadi Safsaf, and to the west by the commune of Ain Zouit and vacant lands. As shown in figure 1.

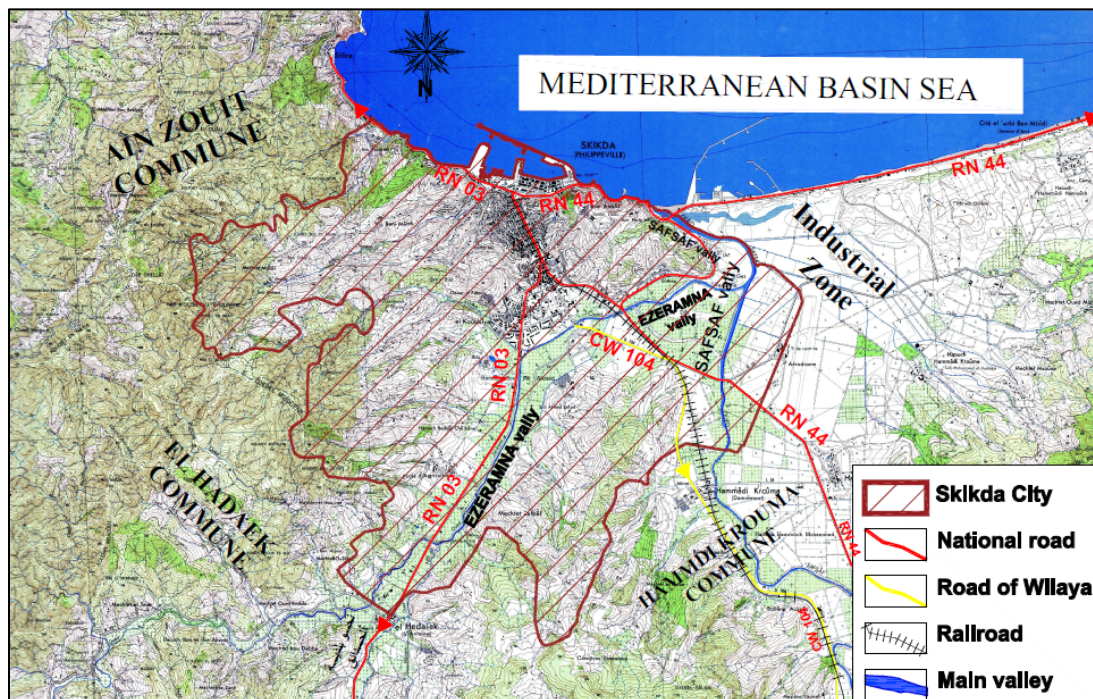


Figure 1. The city of Skikda: Position and location.

Source: topographic map of Philippe Ville in 1960 scale 1/25000 +Personal treatment, 1960).

VI. The importance of Skikda.

The city of Skikda is an ancient historical city (Tawfik Salhi, 2009). However, its history dates back to the prehistoric Neolithic period (9000-4500 Before dating) (Ghanem Mohamed Saghir, 2003, p. 141), and at the beginning of the historical era, the region was inhabited by the Amazigh tribe of Katama (Mubarak El-Mili, 1986).

Several civilizations, from Phoenician, Roman, Vandal, Byzantine, Arab-Islamic, then Ottoman, until the French occupation came between (1830 to 1962), established the colonial city on the ruins of the Roman Rusikada, and the city knew modern urban planning, and built many huge buildings that still exist to this day; then comes the period of Algerian independence in 1962, the city did not know from the year of independence until the 1970s an important urban spatial expansion, even in the late 1980s and early 1990s the policy of quotas appeared, and the urban expansion for the period between (1990 - 2000) was characterized by the development of sustainable solutions. was characterized by the development of urgent solutions in the housing sector, which was characterized by the absence of an urban appearance, and the emergence of inexpensive developmental housing, which increased the severity of urban asymmetry due to vertical and horizontal expansions that took chaotic forms that made the urban area in chaos. However, after the year 2000, the wilaya of Skikda, especially the city, began to follow the recently adopted national policy of improving the housing situation by making the participation of individuals in the financial structure of housing a priority, as new expansions were located on land free of geotechnical issues and close to the city's vital activity center.

VII. Introducing the field of study.

VII.1 Location.

The land occupation plan for the south of skikda city (section 2) is located within the future expansion area, in the southwestern part of the city of Skikda. Specifically in the southwestern part of Skikda city, it is bordered to the north by the brickyard housing estate, to the south by the land occupation

plan for the south of skikda city (section 1), to the east by the land occupation plan for the south of Brickyard West, and to the west by vacant land. It covers an area of 75 hectares. As shown in figure no. 2.

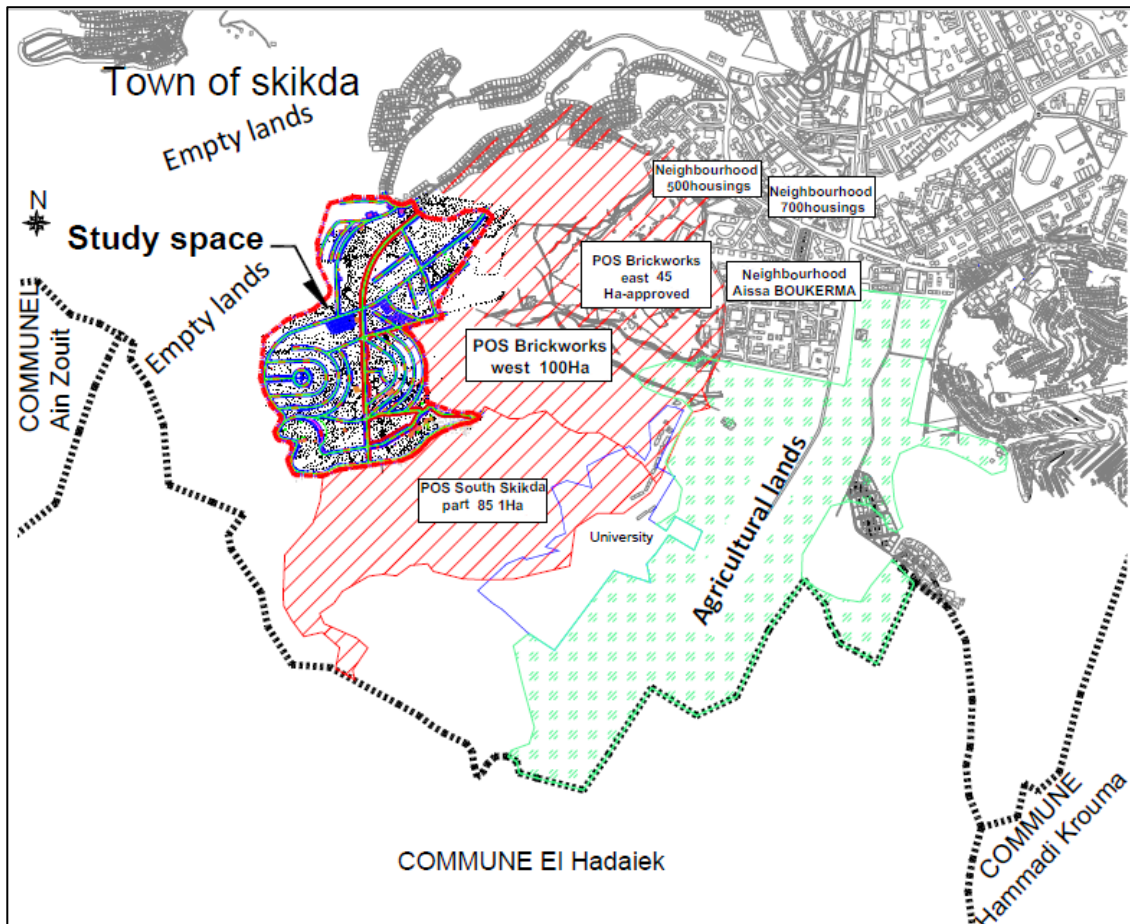


Figure 2. POS for the south of Skikda city (section 2): Location.
Source: POS for South Skikda City (Section 2), 2014.

VII.2 Land occupation of the study area.

The study area was proposed by the (PDAU) approved on 27 February 2014 to plan and organize the urban space, reduce unplanned growth and eliminate slum housing in Skikda city, and revive growth in its southwest.

It is a semi-vacant area, occupied by some establishments, as shown in Table 1.

Table 1. POS for the south of Skikda city (section 2): occupy the ground to the upright position.

Statement	Area (Hectares)	Percentage %
Built-up areas	0.66	0.88
Subsistence agriculture	11.96	15.95
dense bushes	16.92	22.56
forests	9.75	13
paths	2.66	3.54
Reefs and their banks exposed to floods	28.59	38.12
Vacant land	4.46	5.95
Total	75	100

Source: POS for South Skikda City (Section 2), 2014.

VIII. Dimensions of Urban Development in the (POS) For the South of Skikda City (Section 2).

The dimensions of urban development are studied through the case of the urban plan of the (POS) for the south of the city of Skikda (section 2), which divided the study area into three homogeneous areas, as shown in figure no. 3:

Homogeneous area no. 1, dedicated to low-density individual housing, distributed over two plots with an area of 19.86 hectares, the area of the first plot is 15.48 hectares, and the area of the second plot is 4.38 hectares.

Homogeneous area no. 2, dedicated to high-density collective housing, also distributed over two plots with an area of 38.88 hectares, the area of the first plot is 26.26 hectares, and the area of the second plot is 12.62 hectares.

Homogeneous area no. 3, dedicated to equipment on an area of 15.25 hectares.

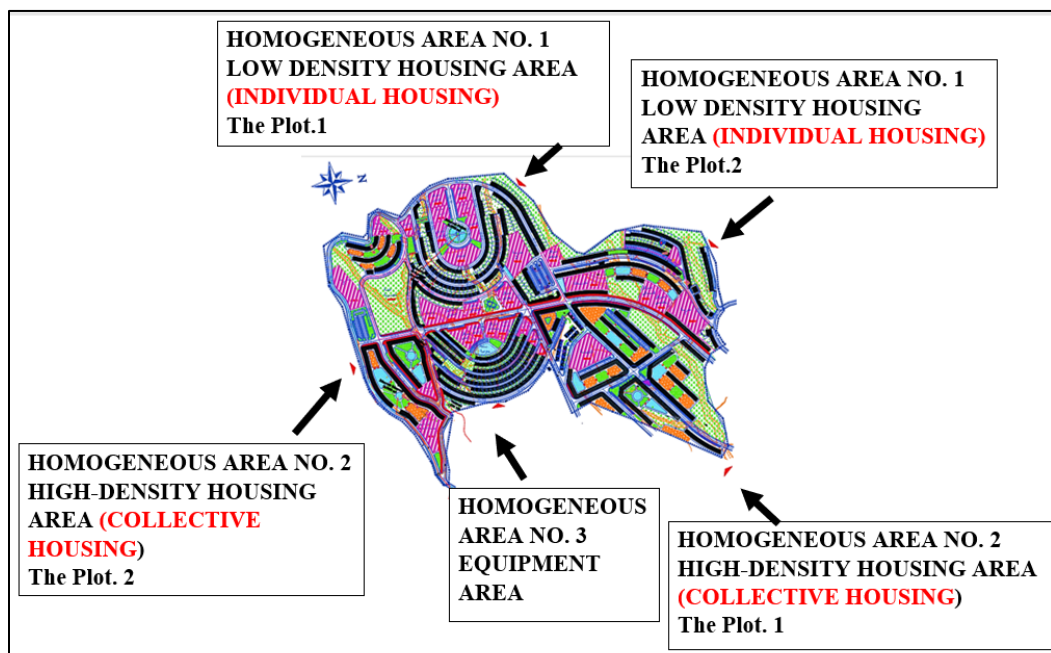


Figure 3. POS for the south of Skikda city (Section 2): Homogeneous zones.
Source: POS for South Skikda City (Section 2), 2014.

VIII.1 The social dimension.

The social dimensions of urban development appear through the study of the natural characteristics of the area and the determination of the suitability of the land for urbanization, and the number of population, housing, equipment and technical networks that meet the needs of the population and improve their standard of living, as follows:

VIII.1.2 Natural characteristics of the study area.

VIII.1.2.1 Climate: Warm and humid climate suitable for urban life.

Climate is an essential factor in the process of Land Use Planning, and the study of its elements is very important because it affects the planning of cities, the position and orientation of buildings and the degree of inclination of their roofs, as well as the design of roads and drinking water and sewage networks. In general, the Mediterranean climate in city of Skikda is characterized by mild and rainy winters and hot and dry summers.

VIII.1.2.2 Determining the buildability of land.

These are the decisive factors in guiding the forms of urbanization in the region.

A. Topography: the study area is characterized by a challenging topography.

B. Slopes: The predominance of steep slopes makes urbanization costly.

The slope factor influences the appropriate urban form, in terms of building style, type and method of construction, taking into account the costs of construction, building roads and extending various networks.

The study area includes four regression categories shown in figure no. 4, namely:

Category (5-8) %: Located in the south-central region, accounting for 1.21% of the study area, it is suitable for urbanization, especially for the establishment of drinking water and sewage networks, and the road network class (A).

Category (8-15) %: It occupies 5.91% of the study area. Located in the center, southeast, and northeast of the study area, the geomorphology of the ground must be taken into account when building, and in this case the construction of retaining walls is necessary to avoid slippage of the ground on which the project is built.

Category (15-25) %: Located along the southern and northern borders, representing 17.53% of the study area, with high construction and networking costs.

Category >25%: This is the predominant category with 69.45% of the study area, where projects are technically acceptable and very expensive. It also includes flow areas, deep valleys, reefs and slippery depressions that are unsuitable for Urbanization, accounting for 2.95% of the study area.

Reefs and slides: This is the dominant category with 2.21 hectares, or 2.95%, unsuitable for Urbanization.

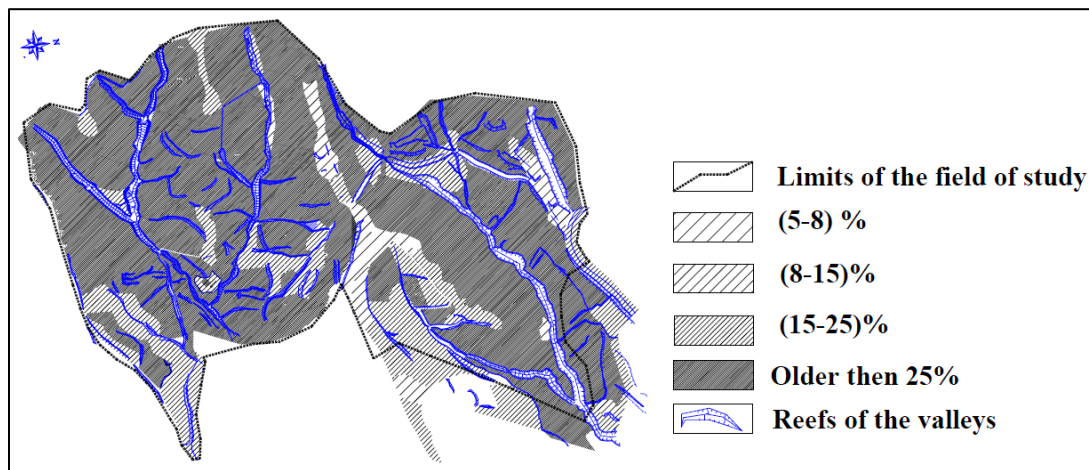


Figure 4. POS for the south of Skikda city (section 2): Regression classes.

Source: POS for South Skikda City (Section 2), 2014.

VIII.1.2.3 Geological characteristics: Moderately resistant geologic formations.

The territory of the study area is a complex geological formation with different origins, structures, and physico-mechanical properties, ranging from Precambrian to Quaternary. They are homogeneous, consisting of the base, which is medium-resistant schist, followed by mixed formations of schist and clay.

VIII.1.2.4 Geotechnology of the land: The majority of the land is reconstructable with conditions.

The geotechnical study of the study area is necessary to know the land suitable for urbanization, and its ability to withstand the types of construction. It is divided into four categories shown in Figure 5.

The first Category (A): Areas suitable for development.

Land with moderate to severe resistance, with a slope of no more than 12%, scattered, especially in the center and northeast and a few in the center west and center south, accounting for 20.06%.

The second category (B): Areas of medium suitability for urbanization.

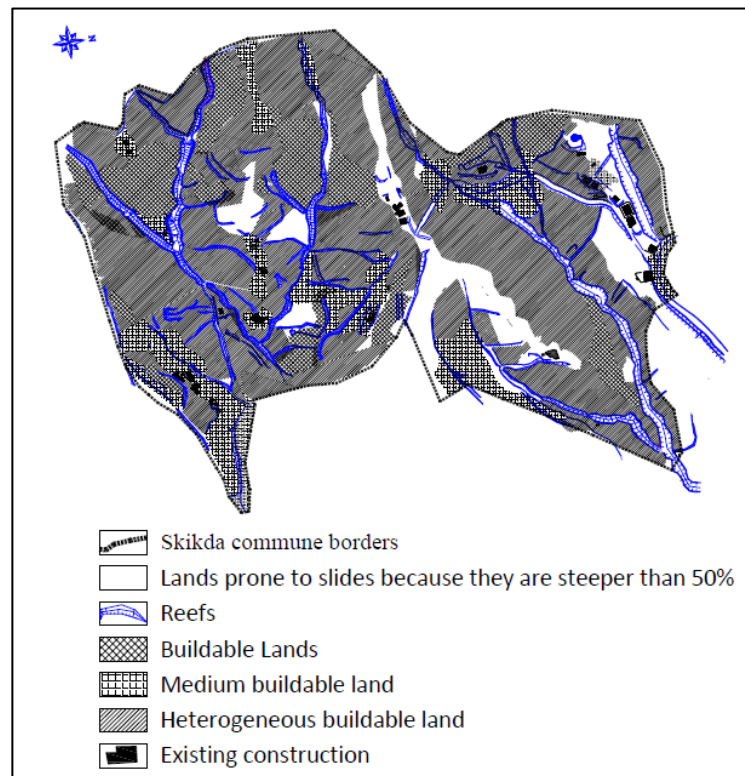
Their lands are the same as category (A) but less cohesive, and their slope ranges from 12% to 25%. They are generally found in the south of the study area, in the southeast and southwest, and to a lesser extent in the north-central and northwest, accounting for 16.39%.

The third category (C): Areas of variable to poor suitability for reconstruction.

Its terrain is the same as Classes A and B with a lower degree of cohesion, and its surface is unstable and prone to slippage in steep areas. Its slope is limited to between 25% and 50%. It covers most of the study area. 38.02%.

The fourth category (D): Areas unsuitable for development.

They are lowlands confined between valleys and reefs that can be flooded by running water, and between high-altitude areas with a slope of more than 50%. They are scattered in the study area, accounting for 12.86%.



*Figure 5: POS the south of Skikda city (section 02): Geotechnical land
Source: POS for South Skikda City (Section 2), 2014.*

VIII.1.2.5 Seismic effects.

It is of great importance in the selection of lands for urban expansion, and the extent of the resistance of urban structures. The study area belongs to the moderate earthquake zone, although security precautions must be taken when constructing important projects.

VIII.1.2.6 Hydrographic network: Important hydrographic network.

It is represented by Valley Messiou, El Wahsh, and Beni Malek, which flow directly into the sea, and are fed by many reefs and tributaries. There are several separate wells in several locations that indicate the presence of groundwater in the area.

VIII.1.3 Population estimation.

Residents are the beneficiaries of urban planning processes, but they are responsible for their behaviors towards all components of the urban space.

The study area is characterized by a sparse population. The population was estimated at 15,765 inhabitants occupying the proposed dwellings, where the population density is very high in the homogeneous area 2 at 344.65 inhabitants/hectare, and close in the individual housing and equipment areas with population densities respectively: 67.98 inhabitants/hectare and 66.56 inhabitants/hectare.

VIII.1.4 Housing Study.

“Housing is one of the most important necessities for an individual's life, and depriving him of it leads him to psychological and social frustration and makes him behave abnormally and may not be satisfied by virtue, human values, or decent morals” (Amrawi Salaheddin, 2009, p. 5).

Individual dwellings and collective dwellings are proposed with a total area of 28.81 hectares, with a maximum total number of 3912 dwellings, including 597 dwellings in homogeneous area 1, 2857 dwellings in homogeneous area 2, and 458 dwellings in homogeneous area 3.

The number of proposed dwellings is 3108, including 266 dwellings in homogeneous area 01, 2639 dwellings in homogeneous area 2, and 203 dwellings in homogeneous area 3.

The residential density of the study area was set at 46 dwellings/hectare, with an average of 30 dwellings/hectare in both homogeneous areas 1 and 3, and 70 dwellings/hectare in homogeneous area 2.

As for the height of buildings, all buildings are in accordance with the technical standards, all buildings are ground level plus one floor plus 50% with an exploited roof on the last floor, except for residences located along the activity axes, which are ground level plus 2 upper floors plus 50% with an exploited roof on the last floor, so that the ground floor is for commerce. The height of any building without commerce does not exceed 11.00 meters and the height of any building with commerce does not exceed 14.00 meters. However, in **the collective housing area**, all buildings intended for collective housing shall have a ground level plus three upper floors. Except for residences located along activity hubs, they shall have a ground floor plus four upper floors, with the ground floor dedicated to commerce. The height of any building without commerce should not exceed 13.50 meters and the height of any building with commerce should not exceed 16.50 meters.

VIII.1.5 Education.

Education is the foundation of development at all levels for every country and society, as it creates individuals who are aware enough to deal well with each other and with the components of the urban space.

The POS proposed educational facilities in the homogeneous areas 1 and 2, which are the areas mainly dedicated to the concentration of population and housing, consisting of three elementary schools, one middle school, and one high school, totaling 3.795 hectares, all with two floors (R+2) distributed in the two homogeneous areas as shown in Table 2.

Table 2. POS for the south of Skikda city (section 2): Proposed educational equipment.

Statement	Area (m2)				Number of floors
	Homogeneous area no. 1 individual housing area		Homogeneous area no. 2 collective housing area		
	Plot 1	Plot 2	Plot 1	Plot 2	
School	7017.64	-	-	-	R+2
School	-	8436.17	-	-	R+2
School	-	-	-	7556.17	R+2
Middle School	-	-	-	6601.1	R+2
Secondary school	-	-	-	8340.54	R+2
Total	37951.62				

Source: POS for South Skikda City (Section 2), 2014.

VIII.1.6 Health.

Planning health facilities is one of the most important foundations of social development in the urban area, as providing health treatment to individuals is an indicator of raising their standard of living, and preserving the physical and psychological safety of individuals, so all individuals must benefit from it, and planning health facilities sufficiently to meet the needs of individuals.

Two health facilities with an area of 0.96 hectares are proposed in homogeneous area 2 with high residential and residential density, both with two floors (R+2), namely, a psycho-pedagogical center with an area of 5995.98 m² in plot 1, and a multi-service health facility with an area of 9614.36 m² in plot 2.

VIII.1.7 Culture.

Cultural facilities contribute to the intellectual development of individuals and build their personality.

Cultural facilities are proposed with an area of 0.68 hectares, all with one floor (R+1), one (1) cultural facility in plot (1) with an area of 3336.76 m² in homogeneous area 2, one (1) cultural facility with an area of 2353.37 m² and a youth hostel with an area of 1143.22 m² in homogeneous area 3, and one (1) cultural facility with an area of 2353.37 m².

VIII.1.8 Sports and Recreation.

Sports and recreational facilities play a role in developing the physical and psychological capabilities of individuals, especially the youth, and reduce the psychological pressures accumulated by the complex and costly urban lifestyle.

A total of 1.12 hectares of sports and recreational facilities have been proposed, distributed as follows:

- In homogeneous area no. 1 in plot 01: 2427.45 m² of sports facilities and 2269.88 m² of swimming pool;
- In homogeneous area no. 2 in plot 01: a cultural facility with an area of 3336.72 m² and one floor (R+1);
- In homogeneous area no. 3: a multi-sports hall with an area of 3186.16 m² and one floor (R+1).

VIII.1.9 Religion.

Religious institutions are essential in urban planning processes, based on the presence of mosques where Algerian Muslim citizens practice their religious rituals.

Two mosques with an area of 0.27 hectares, each with an area of 1354.15 m², both with two floors (R+2), one mosque in homogeneous area no. 1 in plot 2, and one mosque in homogeneous area 2 in plot 2.

VIII.1.10 Commerce.

The urban sphere cannot do without commercial activity, and the provision of commercial equipment in urban planning processes is imposed by the continuous and increasing needs of individuals for consumables, so in the (POS), the ground floor of all proposed individual and collective housing is allocated for commerce, as required by Algerian law, and a covered market with an area of 557.37 m² and one floor (R+1) is proposed in homogeneous area 03. The commercial function in the urban environment increases the intensity of competition and the vitality of the urban space, because it creates a dynamic that goes beyond the boundaries of its area of presence.

VIII.1.11 Administration.

Administrative equipment is essential in the urban area, as it practices administrative dealings between the citizen and the government administration within the framework of organizational principles and laws, which facilitates the citizen's administrative procedures. It is characterized by the fact that it must be found in most other facilities and equipment, as administrative work is the basis of its mission is to organize and manage within a legal framework.

The land occupation plan proposed 0.84 hectares of administrative facilities, all of which are located in the homogeneous area 3, namely: An administrative facility of 2051.99 m² with two floors

(R+2), a municipal headquarters of 4177.34 m² with two floors (R+2), and a municipal headquarters of 4177.34 m² with two floors (R+2), Postal processing with an area of 2163.44 m² and one floor (R+1).

VIII.1.12 Security.

Security installations are anti-crime structures that provide security and reassurance to citizens and protect their physical property.

A security installation is proposed in homogeneous area no. 3 with an area of 3325.94 m² and one floor (R+1).

VIII.1.13 Other unspecified public service equipment:

Two unspecified facilities are proposed in Homogeneous Area 3 with an area of 0.43 hectares, both with two floors (R+2), a service facility with an area of 2814.07 m², and a public facility with an area of 1450.88 m².

VIII.1.14 Ports and roads.

Access: Access to the buildings must be facilitated by public roads under normal conditions for traffic and traffic, and in case of emergency such as fire.

Roads: The area of roads represents 25% and has an area of 12.43 hectares.

Table 3. POS for the south of Skikda city (section 2): Proposed Road network.

Statement	Length (meter)	Width (meter)	Acquisition (meter)	Status	Notes
Primary routes	233.72	8	12	Existing poor quality	Secondary activity hub
	5764.07	10	16	proposed	Secondary activity hub
Secondary routes	3087.93	9	13	proposed	Most of them have parking lots on one side
Tertiary methods	3577.13	7.60	11.60	proposed	Most of them have parking lots on two sides
Total	12429.13	8.9	13.5	-	-

Source: POS for South Skikda City (Section 2), 2014.

The distance between two pedestrian lanes should not exceed 150 meters.

Streets shall be configured at the junction in their final segment to allow vehicles to turn, with a minimum radius of 12 meters from the axis.

The length of any street shall not exceed 200 meters. Each junction shall be Initialized so that the driver of any vehicle located 07 meters behind the alignment can see any other vehicle approaching the junction at a distance of at least 40 meters from the point where the lanes axes paths. The distance between building entrances and the fire hydrant or track provided should not exceed 80 meters to facilitate the approach of civil protection trucks.

VIII.1.15 Parking lots.

Parking lots should be accomplished along the edge of the traffic route, adjacent to equipment, and located on secondary and tertiary roads.

VIII.1.16 Public Lighting.

250 lamp posts with a power of 5520 kV are proposed.

VIII.1.16.1 Potable water network.

All buildings are connected to the potable water network. The daily and annual needs of the population and all types of equipment, such as administrative, commercial, industrial, etc. as shown in Table no. 4, must be estimated in order to design the potable water supply network.

Table 4. POS for the south of Skikda city (section 2): drinking water needs of residents and equipment.

Statement		Daily consumption amount (liter/second)	Daily consumption quantity (m3/year)	Grid length (meter)
Population (inhabitants)	6579	41.19	1298967.84	9312.84
Equipment's Area (m ²)	131608.27	43.97	2685605.76	
Total	138187.27	85.16	3984573.6	

Source: POS for South Skikda City (Section 2), 2014.

A new potable water tank with a capacity of 30% of the daily maximum consumption of 1220.44 m³. The diameter of the water delivery pipe is 350 mm.

We conclude that:

Educational, sports, recreational, religious, and commercial equipment are concentrated in the homogeneous areas 1 and 2 designated for population concentration, because these equipments are frequented by the population on a daily basis, so they should be located adjacent to the residences.

As for the health facilities, they are concentrated in the homogeneous area 2, where collective housing is concentrated, where there is space for construction and is close to the population, and because its service radius is guaranteed to all residents of the study area.

The other equipment is mostly concentrated in the homogeneous area 3, which is designated for equipment, because its presence is necessary and is not necessarily very close to the population.

All the social dimension facilities planned by the land occupation plan create direct and indirect employment opportunities, thus contributing to the fight against unemployment and improving the standard of living of individuals.

VIII.2 Economic Dimension

For the field of study, there are three elements that have a dimension in economic development:

VIII.2.1 The legal nature of the land.

The legal nature of the land determines the applicability of the proposed development. Most of the land in the study area belongs to the state's public sector, but there are some plots that represent collective and private farming cooperatives.

VIII.2.2 Cost of construction of housing and equipment.

The government focuses a lot on assessing the cost of constructing facilities in order to enable it to make decisions regarding various planning processes in line with its financial capabilities, and to manage and control financial management.

Through Table no. 5, the cost of construction of housing was estimated at 7793803000.00 Algerian dinars and equipment at 5867001732.00 Algerian dinars, giving us a total cost of completion of 13660804732.00 Algerian dinars.

The cost of construction in homogeneous area 1 is 4.31% for housing and 7.05% for equipment, in homogeneous area 2, 36.10% for housing and 26.47% for equipment, and in homogeneous area 3 16.64% for housing and 9.40% for equipment.

Table 5. POS for the south of Skikda city (section 2): cost of construction of proposed housing and equipment.

Cost of one housing (Algerian Dinar)	Cost of proposed housings (Algerian Dinar)	Cost of proposed equipment (Algerian Dinar)	Total (Algerian Dinar)
Homogeneous Zone 1: Low-density housing (single-family housing) area			
1587000.00	588800000.00	963243408.00	3875043408.00
Homogeneous Zone 2: High Density Housing Area (Group Housing)			
61640000.00	4931200000.00	3616025780.00	8547225780.00
Homogeneous Zone 3: Proposed Equipment Zone			
11201000.00	2273803000.00	1287732544.00	3561535544.00
74428000.00	7793803000.00	5867001732.00	13660804732.00

Source: POS for South Skikda City (Section 2), 2014+Personalized processing.

All technical networks and hazard protection projects are costed for completion.

VIII.2.3 Commercial equipment.

They play a role in the economic development of individuals because they increase their incomes, and for the urban area because they increase its incomes by encouraging investment and creating job opportunities.

VIII.3. The environmental dimension.

It is manifested in the field of study by protecting the health of the population, protecting them from natural and technological hazards, and protecting the residential and urban environment:

VIII.3.1 Identifying obstacles and easements.

There are natural easements in the study area, namely: Reefs formed by floods, areas with steep slopes (more than 25%), rugged and unstable terrain covered by forest, and permanently or temporarily flooded areas. Human easements, which are easements associated with transportation infrastructure: Public gas pipeline, desert gas pipeline, petroleum pipeline, high-pressure electric line, medium-pressure electric line, roads, and railroad.

Leave safety spaces for each easement.

VIII.3.2 Protection against hazards.

The most important elements that can pose a natural or technological risk to the study area and that are taken into account in urban planning to protect the population and housing are:

- Slip-prone areas;
- Branching reefs present a risk of flooding and slides;
- Flat lands that are immediately after a steep slope are prone to the collection of sloping water and pose a risk of flooding;
- The risk of fires in forested areas;

VIII.3.3 The harmony of the design of the external form of the buildings through their positioning and relative height.

Such as the placement of buildings in relation to public roads. Create a gradient in their height and variety, and coordinate between full and empty, light and dark, to give a harmonious and beautiful overall.

VIII.3.4 Improving the exterior appearance.

Fence: it is in harmony with the main buildings, not found in collective residences.

Colors: the choice of building colors is left up to the architect and must be coordinated with what is available.

Building materials: the choice of building materials is left to the promoter and the architectural designer, taking into account simplicity in size, unity in appearance, and materials in line with the correct economy of construction.

VIII.3.5 Planning green spaces.

Green spaces improve the urban environment, as they reduce pollution, cool the atmosphere, increase the aesthetics of the urban environment, and are a place for people to socialize and create cohesive social bonds.

In the study area, green spaces should be left outside the built-up areas and roads by 12.5% with an area of 11.34 hectares, distributed over all homogeneous areas, as shown in Table 6.

Table 6. POS for the south of Skikda city (section 2): proposed green spaces.

Area (hectares)	Homogeneous area 1		Homogeneous area 2		Homogeneous area 3	Total (hectares)
	plot 1	plot 2	plot 1	plot 2		
Areas green area	1.55	0.44	6.57	3.16	1.52	11.34
Percentage (%)	10		10		17.5	100 %
Two public squares	-	-	-	-	0.46	2.70
Urban forest	-	-	-	-	2.24	
Total	1.99		7.33		4.22	13.54

Source: POS for South Skikda City (Section 2), 2014+Personalized processing.

VIII.3.6 Sewerage network.

The sewage network plays an important role in protecting the health of individuals and the environment from surface and groundwater pollution. All homes and buildings must be connected to the network, which transports used water to treatment plants that purify it for reuse for drinking or irrigation.

In POS, a mono-modal disinfection and drainage complex has been proposed, discharging both wastewater and rainwater. The amount of wastewater is 1421 liters/second, the length of the drainage network is 9179.41 meters, and the amount of rainwater is 53038.83 liters/second: 53038.83 liters/second and 65068.04 meters long.

IX. The Intersection of Urban Development Dimensions in The Land Occupation Plan for The South of Skikda (Section 2).

The dimensions intersect with each other because some installations have multiple impacts on individuals, their surroundings, and the city as a whole, as shown in figure no. 6:

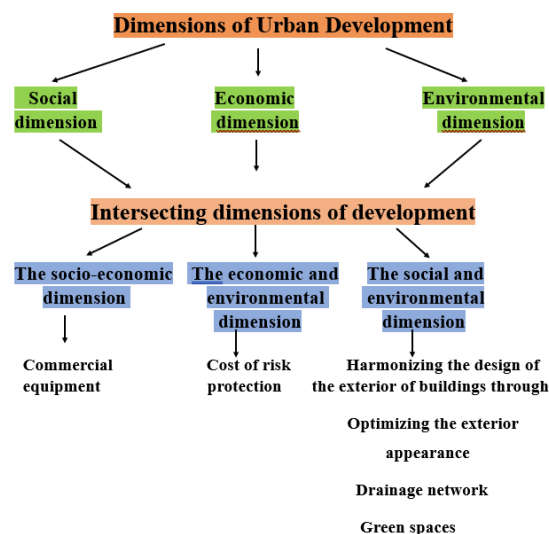


Figure 6. The intersection of urban development dimensions in the POS South of Skikda City (section 2).

Source: POS for South Skikda City (Section 2), 2014+Personalized processing.

IX.1 The socio-economic dimension.

It is represented by commercial equipment, as commerce provides the population with their needs for basic and luxury consumer items, and contributes to improving the standard of living of traders and their families as a result of their high income, and improving the economy of Skikda city.

IX.2 The economic and environmental dimension.

It is represented by the cost of protection from the previously mentioned hazards.

IX.3 The social and environmental dimension.

It is represented in the design of the location and height of buildings in harmony and the improvement of their external appearance that gives a beautiful and distinctive urban appearance, and increases the happiness and comfort of individuals; the connection to the sewage network that collects the water used by residents and discharges it outside their urban environment to avoid pollution and preserve their health; and the provision of green spaces that keep the atmosphere pure and beautify the urban environment and create opportunities for people to meet.

X. Urban Development Objectives Within the Framework of The Land Use Plan South of Skikda City (Section 2).

- Creating a central nucleus to reach dynamism and activity, and meet the needs of the residents of all areas of the plan;
- Creating a primary activity axis linking the study area with the neighboring land occupation plans and the western brickyard housing estate;
- Creating the necessary administrative, cultural, recreational and sports equipment for the communities;
- Creating children's playgrounds between the collective buildings, in the axes of their easements;
- Creating organized roads to facilitate traffic flow and prevent congestion;
- Creating wide and covered sidewalks as pedestrian walkways next to facilities and shops;
- Creating parking lots in front of public equipment to encourage pedestrian traffic;
- Creating different networks and optimizing the studied area as a whole;
- Creating green spaces, public squares and public parks in easements to ventilate the urban fabric and encourage population gatherings.
- Afforestation of areas prone to slides, to support and preserve them;
- Protecting the urban environment.

Conclusion.

It is clear from the above that the land occupation plan for the south of Skikda city (section 2), as a case study, is a semi-vacant area that facilitates urban planning, but its urbanization requires the use of all technical means to overcome the many obstacles in it to protect the population from dangers, on the one hand, and on the other hand the use of its lands will be costly due to its difficult topography, which prevents reaching a coherent and organized urban structure. Due to its distance from the city center, it must have a certain level of autonomy in terms of equipment and services, and play a functional and residential role at the same time.

It also works within the framework of urban development in its social, economic and environmental dimensions according to the characteristics of the study area, and through programmed projects, providing all the needs of the population in terms of housing, equipment, services and infrastructure, and valuing the presence of green spaces to preserve the environment and the beauty of the urban environment, which contributes to making appropriate decisions for the management and administration of the urban area.

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