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THE DEVELOPMENT OF THE MASTER PLAN OF THE CITY OF SABHA AS A REFLECTION OF MODERNIZATION TRENDS IN THE URBAN DEVELOPMENT OF LIBYA IN THE 1970-2000

Reyad Aljad

Masrer of Town Construction and Economy

Department of Architecture and Environmental Design
National University of Water and Environmental Engineering
Rivne, Ukraine

ABSTRACT

The Master Plans of the city of Sabha (Libya) have been consistently developed and improved during the 1970s and early 2000s. At each of the stages, synchronized with the state program of spatial development of Libya, different tasks were solved for expanding the functions of the city, modernization of its planning structures, improving the quality of living, preserving cultural heritage.

Key words: Libya, Master Plan, Sabha, Spatial and urban planning.

1. INTRODUCTION

Since 1960s, urban planning has been actively developing in Libya. After gaining independence in 1951 and during the 1960s-2000s, a considerable amount of work was done, aimed at designing methodology of spatial and planning development of the regions of the state and regulation of the urban environment. The development of urban planning stimulated a significant increase in the population, due to the return of tens of thousands of Libyans after their emigration during the Italian rule (1911-1943), the development of the oil-extracting industry and the construction boom.

To solve these problems, three generations of National spatial planning systems (1968-1988 - 1st Generation, 1980-2000 - 2nd Generation, 2000-2025 - 3rd Generation [4, p.12]) were designed and implemented by the Urban Planning Agency of Libya (UPA) in partnership with the United Nations (UN) HABITAT and design companies from Greece, Great Britain, Denmark, Germany [3, p.12], Finland and Poland.

The projects of architectural and spatial development of cities - administrative centers of regions and sub-regions of the country were developed in the context of the implementation of these programs. One of such administrative centers is Sabha. This city is located in the southwestern part of modern Libya in the east of the Ubari Desert. It is the capital of the Fezzan region and the Sabha municipality.

The goal of the article is to determine the features and approaches to the functional, spatial development and modernisation of the environment of Sabha in Libya in the 1970s - early 2000s.

Objectives:

- to describe the development stages of the master plan in the context of three phases of the spatial planning in Libya;
- to identify methods of functional structuring of the city territory and city center in accordance with the socio-economic objectives of the country development;
- to identify methods of modernization of the urban environment.

While working on this article, the author relied on the research of Libyan scholars B.Azlitni, S.Kezeiri, S.Salhin, which described the stages of development and directions of the spatial planning in Libya in the second half of the 20th century. The article outlined the range of problems regarding the functional and planning restructuring of the environment of the Libyan cities, including the city of Sabha, in accordance with the principles of state urban planning policy. It was important to study the official publications of the Libya Urban Planning Agency, which published regional planning projects, as well as materials of the special UN HABITAT Conference on the development of human settlements and housing in Libya. For the first time, the article analyzes and publishes the parts of the Master Plan of Sabha from 2009.

2. THE MAIN STAGES AND PARTICULARITIES OF THE DEVELOPMENT OF SABHA'S MASTER PLANS

In the first period of the development of the National spatial planning system (The First Generation Plans (1968-1988)), works began on integrated assessment of the environment of all settlements in Libya: analysis of the current state of available natural and human resources, demographic situation, structure and nature of development, street network, land use etc. During this period, the company Whiting Associates International (Great Britain) completed the first Sabha master plan by 1970. Undoubtedly, the introduction of such a document was itself an extraordinary event. At the pre-project stage, the historical centre of the city was thoroughly investigated. The plan provided for broadening of the streets, the allocation of territories for public functions and new residential construction, protection and restoration of the historical core (medina) [3, p.12]. However,

the document did not provide for rapid development of the city, the possibility of adapting the traditional environment to modern requirements, the development of industrial production, agriculture, transport, health and education institutions [4, p.11].

In 1980 (before the completion of the 1st stage) the 2nd planning phase began (The Second Generation Plans). Its purpose was to form a unified National planning system, integrate a large number of plans on the basis of a holistic vision of the country's spatial and planning development, and address the new needs of socio-economic development. The National Physical Perspective Plan 1980-2000, developed by the Government of Libya and the United Nations Office in Tripoli, used the latest integrated planning methodology. The approach was based on the idea of the spatial planning at the regional, subregional and local levels (from general concepts to elaboration of detailed plans) [1, p.2].

According to the conceptual model of the spatial development of Libya, the city of Sabha became centre of the Fezzan region and the same subregion. Sabha is the largest city in this region located in the largest oasis of Libya. It was assumed that the city would enter the second group (after Tripoli and Benghazi) [6, p.172], and would become one of the main administrative and industrial centres of the medium scale in the south of the country in terms of economic value and growth rates [4, p.12]. The basis for such forecasts was the introduction of agricultural and petroleum projects (Fig.1).

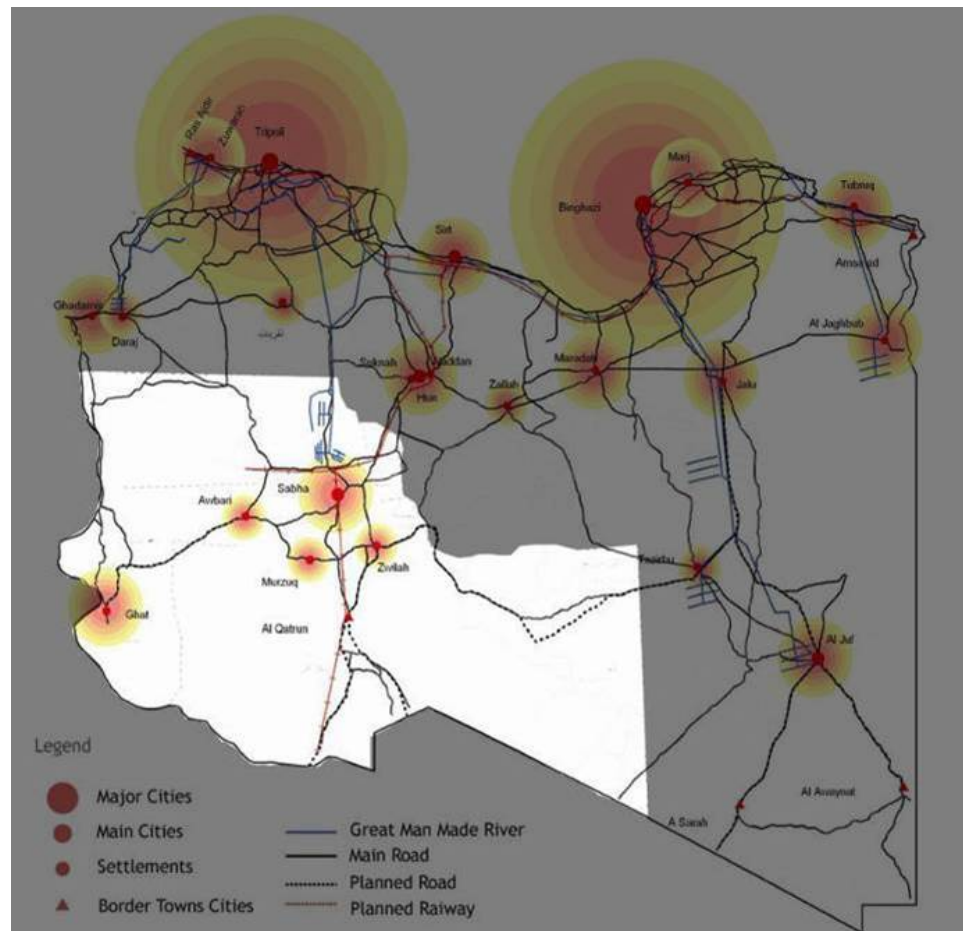


Fig.1. Sabha in Libya's settlement system. Source [10].

The Master Plan provided for an increase in the territory of the city along the perimeter of the diamond-shaped city core, where new residential blocks were formed. The largest territorial growth should have taken place in the eastern direction - along the highway to the Sirte region, the least - in the northern and southwestern directions, where agricultural lands were located. The spatial development of the city was planned in the direction of the external transport area, which made it possible to connect Sabha with the airport, which was the second largest in the country after the Tripoli airport.

At this stage, the development of Sabha Master Plan envisaged the formation of a business and administrative centre along the main streets (October 5 and Abdel Nasser Streets) according to the historically formed planning structure. There were stand-alone buildings of offices, institutes, shopping centers and shops. The residential zone in the center of the city was built up with multi-apartment sectional houses for settlers from the countryside, villas, 4-block two-storey buildings, forming a closed courtyard, and private condominiums. Small compact houses were built for leasing. However, the problem of many residential quarters was the illegal extension of already existing buildings, the use of cheap building materials, which in general reduced the quality of the urban environment (Fig.2).

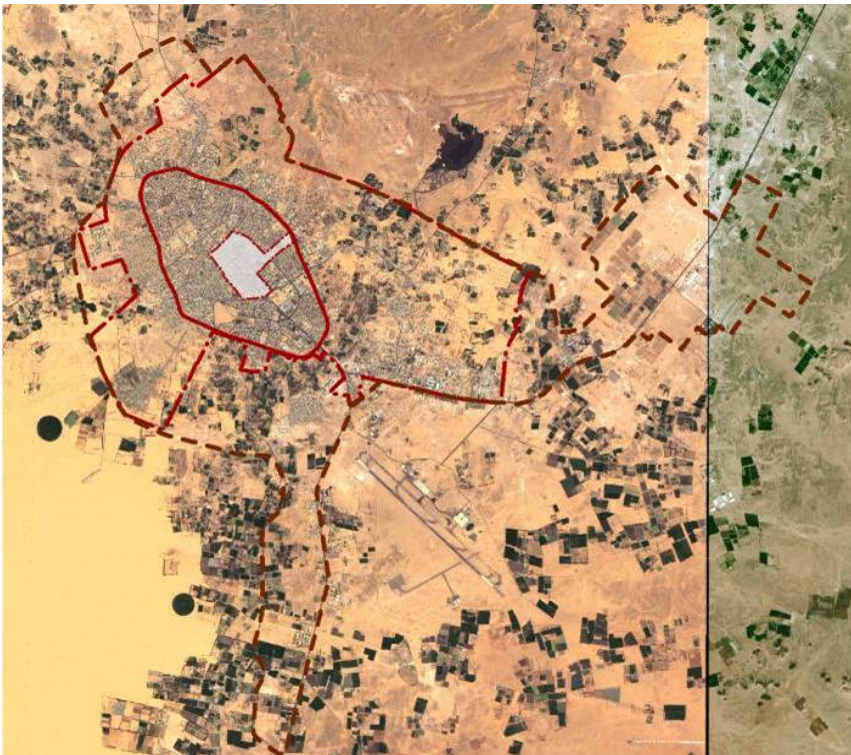


Fig.2. Spatial and territorial development of Sabha. Boundaries of the 2nd Generation Plans, 3rd Generation Planning Project, City Center Perimeter. Source [10].

The change in socio-economic circumstances (substitution of the socialist economy by the free market, extension of the economic basis of urban development through education and tourism, uncontrolled pace of urbanization in the largest cities of Libya, etc.) triggered the start of the Third Generation Planning Project (3GPP) designed for 2000-2025. In 2006, the current plan was revised and extended; a new national spatial planning strategy for 2006-2030 was developed. The document provided for the balanced development of all the cities of Libya as well as support of two cities in the south Countries and cities located along the border [5, p.2].

During this planning phase for the Fezzan region, general plans have been developed for 57 cities, including the city of Sabha [9].

In order to improve accessibility of the city and include it into the socioeconomic context of the state, a perspective plan for the development of the Sabha sub-region as a major transport hub has been elaborated in detail. The hub should have consisted of a railroad connecting Libya with Central Africa and a highway between the regions of Fezzan and Sirt. The same document also defined other strategic objectives: the cessation of agricultural land expansion, given the limited capacity to supply water and increase of its consumption by farms; development of the food industry; containment of spontaneous territorial growth of Sabha, etc. [7, p.4].

The work on the Sabha Master Plan was completed in 2009. During its implementation the latest technologies were used, including Geographic Information Systems (GIS), remote sensing and aerial photography of the area.

The explanatory note to the Master Plan stated that the design decisions were aimed at improving the existing environment, taking into consideration local socio-cultural, natural and climatic conditions, and preserving the environment and natural resources. The basic tasks of the new Master Plan of Sabha were: creation of a holistic architecturally expressive city centre, development and improvement of the concept of urbanization, recreation, preservation of the city identity [10]. The environmental management component was added to the spatial development strategy.



Fig. 3. Morphological structure of urban fabric and spaces of the central part of Sabha. Source [10].

At the stage of pre-project analysis, the structure and character of urban fabric and spaces were investigated. The developers of the master plan took into account the fact that with the growth of the economic significance of Sabha, its population also increased (from 5 thousand inhabitants in 1954 to 130 thousand in 2006) [6, p.130, 286]. The analysis of the planning and morphological system of the historic centre of the city showed that its building development is unsystematic with numerous vacuums; there is no modern street network adapted for motor transport; the land use system is uncontrolled (Fig. 3).

The residential zone is chaotically developed because of the migrants: most residential quarters emerged by seizure of territories and illegal construction. The result was a different scale, a vague stylistic and morphological structure of the building system, the lack of roads and streets with hard surface. The historical-architectural and archaeological heritage of the city needed considerable attention for its protection and exhibit. It should be noted that the unique Sabha Castle (also known as Fort Elena, Fortezza Margherita), built during the period of Italian colonization, has been also extant on the territory of the city.



Fig. 4. Concept plan of the spatial development of Sabha. Source [10].



Fig. 5. Proposed landuse. Source [10].

There was also a need to correlate Sabha's specialization and the use of water resources. In the previous period of active implementation of industrial (construction of a pipeline system, which supplied the northern part of Libya with water (Great Man Made River 1972-84 [8, p.541])) and agricultural development projects, over 70% of groundwater reserves were used, resulting in a sharp decline in aquifer underground horizons. The lack of a system for purification and reuse of water was one of the main barriers to the development of the city as a favourable environment for human life and activity.

It should be noted that later on, in 2010, the importance of the environmental factor in the design of Sabha was also emphasized by the French architects, who contributed to the development of the city's spatial development strategy. The experts stated: *The project was part of a cooperative effort between the Libyan and French governments to address strategies for the future urbanization of Libya. With a finite amount of water available in a non-renewable water table, the cities in the Libyan desert faced a critical question of survival. The urbanization of Sabha, capital of Fezzan and the northern desert, was the result of a conscious decision to concentrate the limited resources of water on one city while programming the future disappearance of other towns. Water itself became the primary dimensioning measure of a new form of reverse urban planning [2].*

Returning to the Master Plan of 2009, we can state that these problems defined ways of improvement and development of the urban environment. On the city planning level, the main objective was functional typology extension of the city to develop the transport and pedestrian infrastructure, form a hierarchical system of streets, and improve the planning framework by homogenization of the road network. The city area expanded along the highways (oriented to the south and the east), with the Sabha airport in between. The eastern highway served as the planning axis for a new business district with a public center, administrative buildings, and a complex of infrastructure objects: trade institutions, medical institutions, utilities. In accordance with the scheme of functional zoning, city-planners intended to build a new campus of the university as well as locate industrial enterprises, sports and recreation facilities. Therefore, new city-forming functions were transferred to the suburbs. The construction of the railway was planned for their development. It had to be laid parallel to the planning axis of the district (Fig. 4, 5). Convenient connection between residential neighborhoods of the city had to be ensured by a second bypass ring road, and the center should be linked with residential neighborhoods by several highways, oriented perpendicular to its axis (Fig. 6, 7).

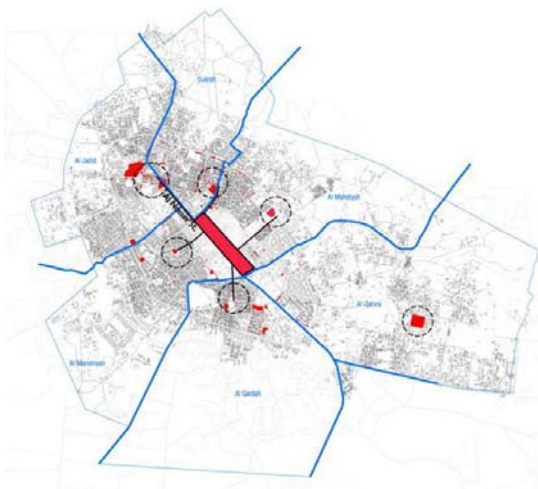


Fig. 6. Connection between the center and the city districts. Source [10].

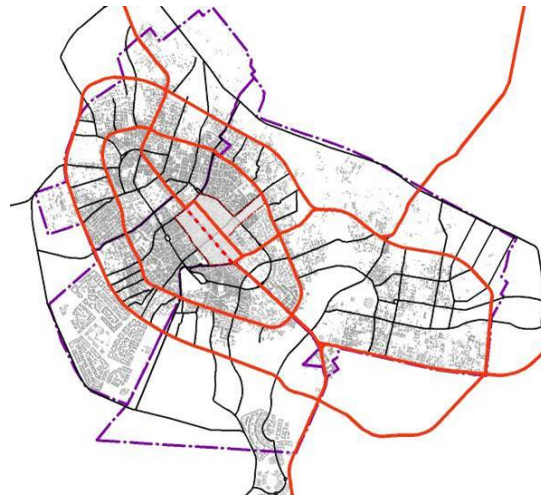


Fig. 7. Project of the street network structure. Source [10].

After the implementation of the second generation master plan of the city, the problems of functional zoning of the centre of Sabha as well as uneven transport and pedestrian load on the two main city streets (Gamal Abdel Nasser Street and October 5 Street) had to be solved. On the first of them the traffic was intense, spontaneous parking places were located along the road, there were high risks for pedestrians when crossing the street. At the same time, the October 5 Street was practically not involved in urban traffic and had significant potential for functional development as a duplicator of the main street of Sabha.

In the project of 2009, developed by Engineering Consulting Office For Utilities (ECOUI is one of the main engineering consulting offices in Libyan Arab Jamahiriya, which is involved in the design works of major projects), the existing situation was analyzed and it was proposed to delimitate the functions of quarters adjacent to the main streets and to disperse important administrative, public, religious, cultural objects.

In the project, it was proposed to make a clear distinction of the functions. The following zones were concentrated on the area of 104 hectares: administrative - with the building

of the city council, the police department, the university buildings; commercial - with the market, shopping malls, shops, restaurants and cafes; cultural and religious - with the main mosque, museum and cultural centre; transport - with a bus station and parking lots; recreational and a small residential quarter (Fig. 8).

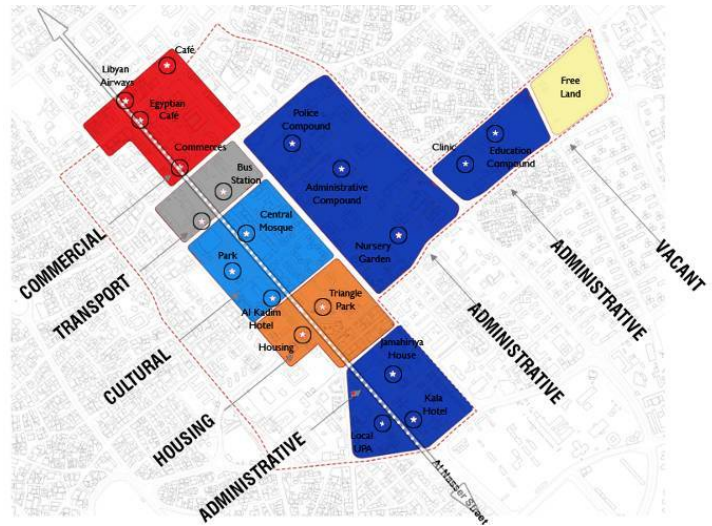


Fig. 8. Zoning of the Sabha center. Source [10].



Fig. 9a, b. Projects of the streets and public spaces transformations in Sabha. Source [10].

Moreover, each of the spaces was actively greened up in the context of reconstruction and expansion of the system of urban recreational facilities. It was planned to restore abandoned parks, to found new ones in the wastelands and to create a system of greened alleys along the streets (Fig. 9a, b).

In the context of the general concept, two variants of detail planning of the Sabha centre were proposed (Fig. 10a, b; 11a, b).

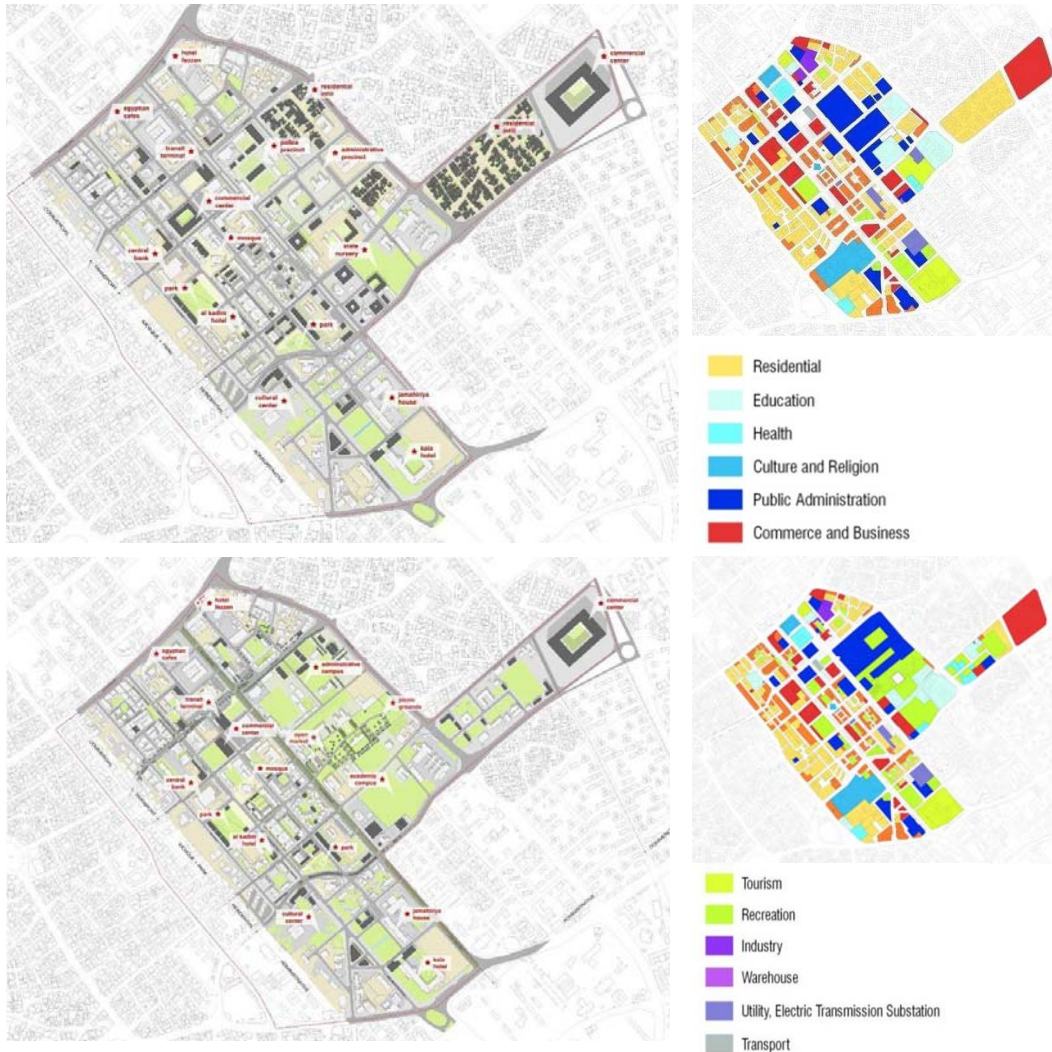


Fig. 10a, b. Detail planning of the Sabha center (project proposals). 2009. Source [10].

A significant difference in the projects resided in the approaches to solving the problem of landscaping and determining the degree of concentration of various functions. The first option included active greening of the neighborhoods, territorial development of the recreational facilities system, expansion of the main city streets, and introduction of tree lanes in their structure. It was planned to restore abandoned parks, plan new ones in the wastelands, and create a system of green alleys along the streets. The main recreational spaces of the center, located in its northern part, adjoined the territories of administrative and academic campuses. The second option showed a more conservative vision of modernization. The structure of the center integrated the traditional residential blocks, which had to occupy free territories. It had to consist of individual semi-detached residential houses. The authors of the project emphasized the importance of the integrity of the architectural image of residential development, taking into account local traditions and climatic conditions of the region, with special attention to the colorful decision of the facades. In the same proposal, the zone of administrative buildings formed the front

along the Gamal Abdel Nasser Street, and instead of a large city park (as discussed above) it was planned to locate university buildings.



Fig. 11a, b Overviews of the city center (project proposals). 2009. Source [9, 10].

As a result of the analysis and comparison of options, it was decided to synthesize the benefits of both. The priority was to create comfortable stay and living conditions in the

center through active greening of open spaces. At the same time, it was planned to build a new residential district here based on a traditional residential unit.

A city lighting system was designed to make the use of street spaces at night more active, to emphasize the identity of the environment (e.g. by illuminating architectural monuments), enhance its attractiveness, promote safe stay in the city centre, on the highways and pedestrian streets in residential areas.

However, most of the planned actions were not implemented due to the change of the socio-political situation in Libya after 2011.

3. CONCLUSIONS

To sum up, each Master Plan of Sabha extended and improved ideas for the development of the city, formulated at the previous design stages in the second half of the 20th century. Due to planned changes in the city functional structure and modernization of the general image of the city, it was planned to achieve the main goal - the formation and development of a new element in the network of urban settlements in Libya, which would balance the territorial and economic growth of the country. The architectural and planning strategy was dualistic: it was aimed at modernizing the urban environment in accordance with the universal standards of the second half of the 20th - early 21st centuries, as well as at the development of the local construction tradition, taking into account the natural and environmental conditions of the region to create proper living and working conditions.

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AUTHOR'S NOTE

PhD student of Department of Architecture and Environmental Design, National University of Water and Environmental Engineering (Rivne), Ukraine. Research interests: history of Libyan XXth century architecture and urban-planning, modern spatial and stylistic transformation in national architecture.

Contact | Kontakt: reyad.aljad@gmail.com