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Social Interaction Dynamics Exploration: The Case Study of El Sherouk City

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***Abstract*—**In Egypt, there is continuous housing demand as a result of rapid population growth. In 1979, this forced the government to establish new urban communities in order to decrease stress around delta. New Urban Communities Authority (NUCA) was formulated to take the responsibly of this new policy. These communities suffer from social life deficiency due to their typology, which is separated island with barriers. New urban communities' typology results from the influence of neoliberalism movement and modern city planning forms. The lack of social interaction in these communities at present should be enhanced in the future. On a global perspective, sustainable development calls for creating more sustainable communities which include social, economic and environmental aspects. From 1960, planners were highly focusing on the promotion of the social dimension in urban development plans. The research hypothesis states: "It is possible to promote social interaction in new urban communities through a set of socio-spatial recommended strategies that are tailored for Greater Cairo Region context". In order to test this hypothesis, the case of El-Sherouk city is selected, which represents the typical NUCA development plans. Social interaction indicators were derived from literature and used to explore different social dynamics in the selected case. The tools used for exploring case study are online questionnaires, face to face questionnaires, interviews, and observations. These investigations were analyzed, conclusions and recommendations were set to improve social interaction.

***Keywords*—**New urban communities, modern planning, social Interaction, Social life.

I. Introduction

ALL over the years, Egypt as a developing country suffers from rapid population growth, which leads to housing demand increase, therefore, the government adopted new policy to establish new urban communities in Egypt as shown in Fig. 1. These new urban communities have various typologies of housing and urban forms, which is owned by private and public sectors. Housing typology is divided into three types, which are individual land plots, compounds (large land plots) and housing units [1].

The variation of the urban form and housing typologies in new urban communities has social consequences. In new urban communities, these housing types are separated with physical barriers for instance walls and gates for security, privacy and ownership features, which identify it. These barriers limit the social connection between residents [3]-[5]. Social interaction concentrated only inside these isolated islands as previously stated in new urban communities' studies that includes also other environmental, economic and social consequences [6]-[9].

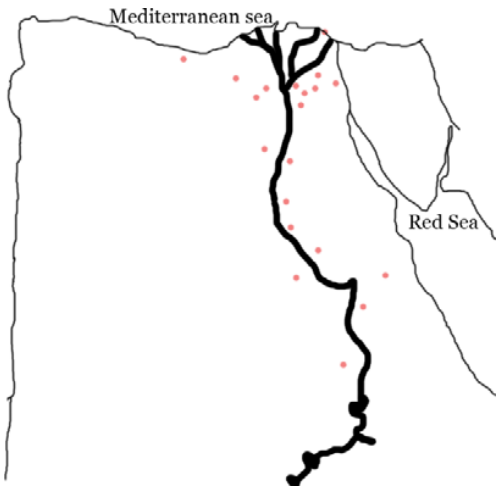

Fig. 1 New urban communities distribution diagram, Source: Author (derived from [2])

When discussing that topic from a global perspective, sustainable development and its approaches have attracted many scholar's attention. Sustainable development is defined in the "our common future" report as "*The development that meets the needs of the present without compromising the ability of future generations to meet their own needs*". Sustainable development incorporates three main pillars: Social, economic, and environmental sustainability [10]. That urged the planners to preach the social dimension of the city in the city urban development to foster a healthy life in the future. From the 1960s, Jacobs and Gehl have shown their high concern with the social dimension of the city after the great criticism that occurs for modern planning during the rebuilding of cities after World War II [11]-[13].

The research problem is the social life deficiency in new urban communities' development plans in the Greater Cairo Region (GCR) and its consequences. As mentioned before the housing typologies and urban forms are separated islands with barriers which lead to a lack of social interaction at present, therefore, there should be a way to improve it in the future. Therefore, the research hypothesis states that "It is possible to promote social interaction in new urban communities through

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a set of socio-spatial recommended strategies that are tailored for GCR context". This hypothesis answers the main research question "In what way the current social interaction problems in El-Sherouk City and other new urban communities in GCR can be enhanced?" in order to achieve the main research objective "the research attempt to promote social interaction in El Sherouk city and other new urban communities in GCR."

The research tests the hypothesis by investigating El-Sherouk city, which is one of the new urban communities in GCR. El Sherouk city located at the northeast of GCR with diverse urban forms occupied with different social classes. El Sherouk city is a clear sample that shows the isolation of various urban forms in the context. The research builds its knowledge from theoretical background to be interpreted in the case study as illustrated in Fig. 2.

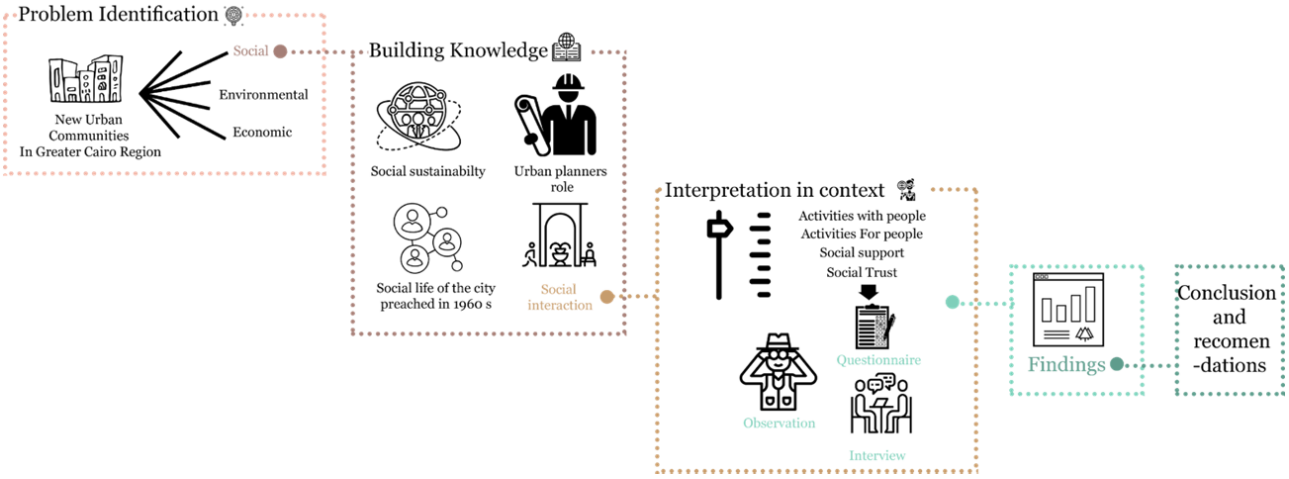

Fig. 2 Research methodology diagram

II. New Urban Communities in GCR

The largest metropolitan area of Egypt is GCR that consists of Giza, Kalyoubia, and Cairo [14]. GCR' population is in rapid growth. Its area equals 1502 km^2 and density 10,400 per km^2. GCR was continuously expanding across the Nile to cope with the housing demand increase as shown in Fig. 3. That expansion increases the encroachment over the agriculture lands; therefore, the government was urged to build four generations of new urban communities in Egypt. The total number of new urban communities equals to 27 across Egypt [1]. The government established the NUCA according to law 59 of 1979 to take the responsibility of these communities [1].

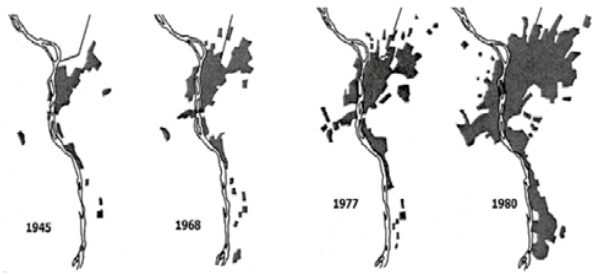

Fig. 3 GCR urban growth [5]

NUCA is responsible for achieving the five main aims of these communities. These aims are the formation of socially and economically stable urban centers; redistribution of the population away from the Nile; creating newly attractive places away from the city; decrease agglomeration on agriculture lands, and extend the axis of urban areas in the desert [1].

New urban communities in GCR are nine. These communities are 10th of Ramadan, 15th of May, El Sadat, 6th of October, Badr City, El Sherouk, New Cairo, Obour city, El Sheikh Zayed. Lately, New Cairo Capital is under construction as the fourth generation of new urban communities as shown in Fig. 4 [1].

Neoliberal economic policies were the focus of the government all over the last few decades; consequently, some investors owned some state resources. Of course, the main aim of investors is economic profit, which leads to focusing on a certain category of people [15]. Investors attract people by announcing the privileges of having security and better life promises beyond their gates [2], [8], [16]. The transformation of housing considered the main cause of the urban fabric and socio-economic fragmentation as a result of the formation of small isolated islands [8]. The research explores more social life in order to focus on a smaller aspect of it, which can be analyzed in El Sherouk city case study.

III. Social Interaction, Social Life of the City

When analyzing the topic from a global perspective, it is found that .there is a relation between social interaction and sustainable urban development. For more explanation see Fig. 5, which illustrates that social capital is a result of social interaction [17], which is one of the social cohesion parameters [18]. Social sustainability aspects consist of social cohesion [19], where social sustainability is the main pillar of

sustainability.

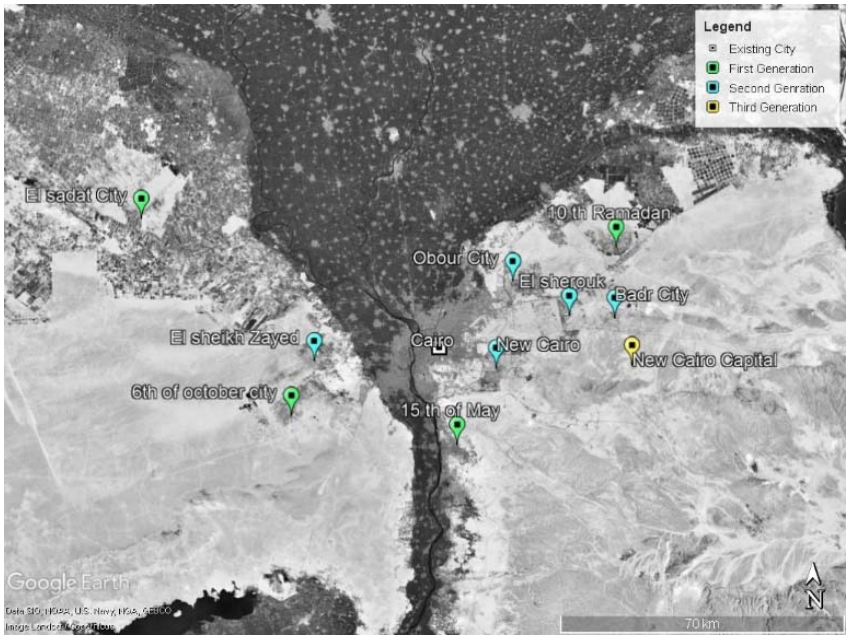

Fig. 4 New urban communities' generations in GCR

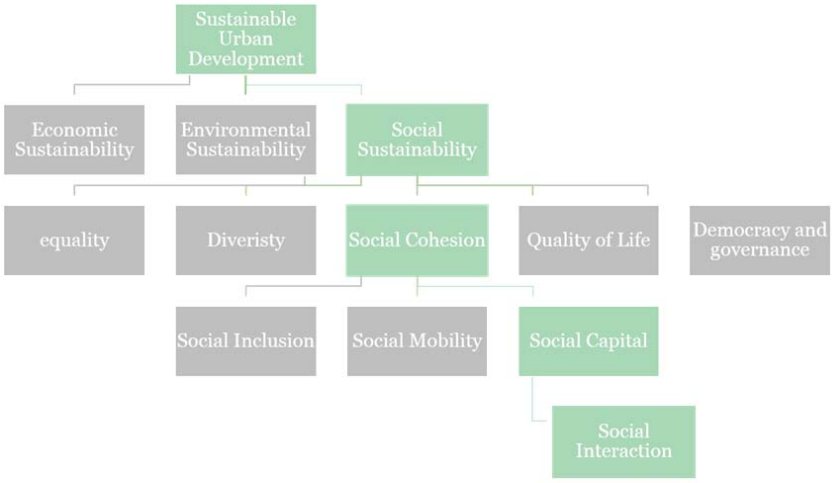

Fig. 5 The relation between sustainable development and social interaction

After technology and industrialization evolution, the modernism concept upraised by Le-Corbusier, also, it was selected as a solution to rebuild World War II destruction. The main idea of modern movement is to form a car-oriented city, dealing with the city as a factory. Single-use district is planned instead of mixed-use district with vertical growth to cope with the high housing demand [20].

Modern planning suffers from great criticism that cities become rational and transferred as a machine. Consequently scholars upraised some movements to tackle those critiques, Jane Jacob (1961) and Jan Gehl (1987) are the pioneers of socio-spatial perspective, of course there are some other scholars who follow that concept such as Lynch and Rodwin (1958), Gorden Collen (1960), William H. Whynte (1980), Bill Hiller (1986), Fran Toniks (2013) and Benjamin (2018) as shown in Fig. 6 [21]–[23]. For better understanding the next part focuses on social life of the city.

> "Public social life denotes the movements, activities, meetings and random shared contacts that occur between people in the public realm" [22].

Since it is clear from the definition that social life needs a space to be formed, therefore, the features and benefits are investigated to focus on the most important aspect of it. The features of space are sociability, uses and activities, access and linkage, comfort and image; each one of these features has a certain role as shown in Fig. 7. Sociability is the main element

of the space which is social interaction. "Uses and activities" is the second feature and the main source of people attraction to space that is defined by the physical features of the space. The third feature is “access and linkage”, which influences the visibility and attraction of the space. The last feature is “Image and comfort” that causes the psychological comfort of the space [21], [24], [25]. In addition to that space has ten benefits as shown Fig. 7, where social interaction is the main benefit of the space [26], [27].

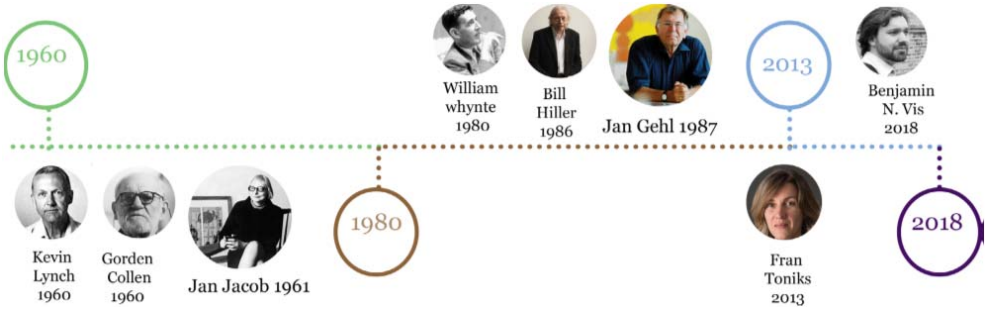

Fig. 6 Socio-spatial scholars’ timeline

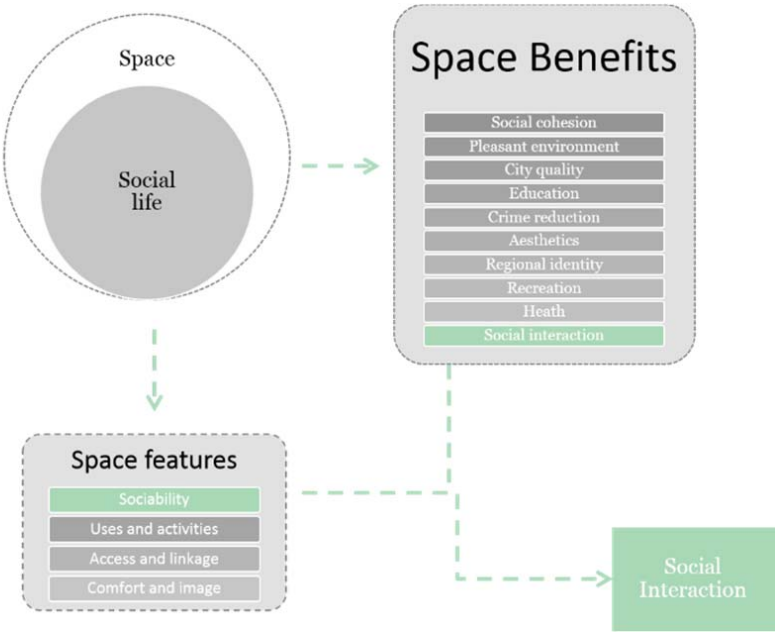

Fig. 7 The relation between social life, space, and social interaction, derived from [21], [24], [25]

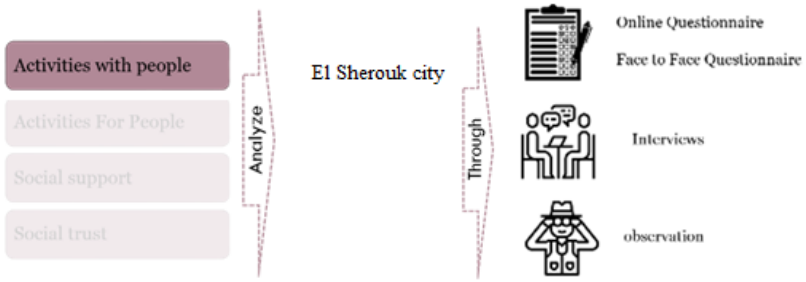

Fig. 8 Case study methodology diagram

Since social interaction is one of the main features and benefits of social life, therefore it has an important role in the social life of the city. Social interaction is selected as an initial step towards the promotion of the social life of the city. Social interaction changed from traditional way to virtual way all over the years through the evolution of industrialization and

technology [21], [22], [28]. Social interaction has two main key elements: proximity and activity [29], [30]. Furthermore, lately scholars are highly concentrating in fostering social interaction for instance cultural activities and interactive objects [22].

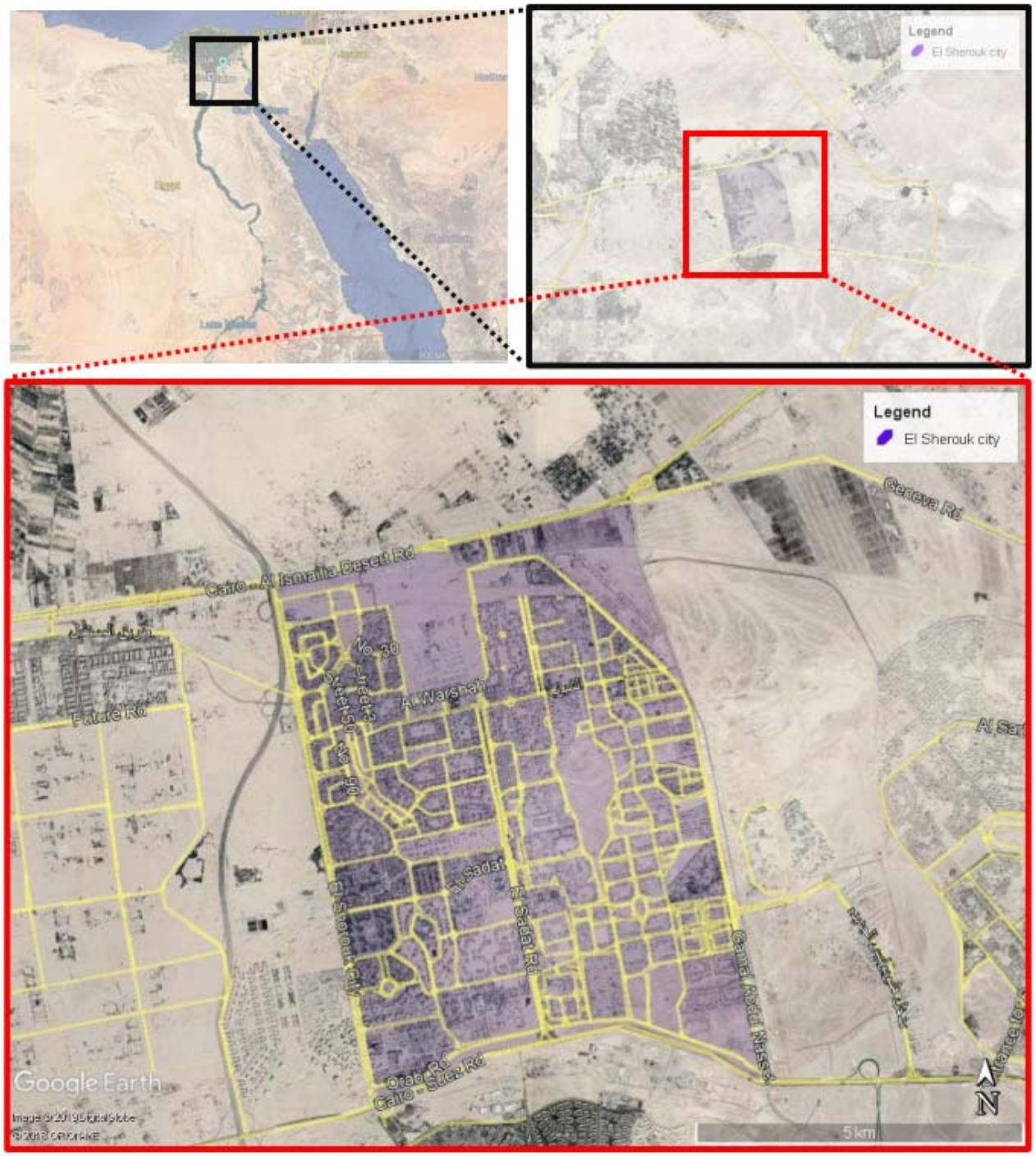

Fig. 9 El Sherouk city location

After all previously mentioned investigations of city social life and social interaction, more analysis is done in El Sherouk city as detailed contextualized social interaction dynamics analysis with the four indicators of social interaction that were derived from literature. The indicators are activities with people, activities for people, social trust and social support.

The research focuses on “activities with people” as it is the main controller of other activities. It is analyzed by questionnaire, interview, and observations as illustrated in Fig. 8.

El Sherouk city case study represents an urban community sample with diverse housing typologies and has the highest vacancy rate, which is 79%. It is the most fragmented residential community [1], [16]

IV. El Sherouk City

El Sherouk city located in the North-east of GCR as shown in Fig. 9 is one of the second-generation new urban communities. It was established under law 326 of 1995 with area equal to 10,808 Fadden [1].

El Sherouk city is positioned between two main roads from outside Cairo-Suez road and Cairo-Ismailia road. It has three main internal roads: Mubarak Road, El Sadat Road, and Gamal Abd El Nasser Road; El Shabab road cuts them perpendicularly.

The research divides the surrounding of El Sherouk city into four zones from the nearest to farthest according to distance. The first zone includes new urban communities inside the range 0-20 km such as Madinaty, Badr city, Heliopolis. The second zone contains rest of new urban communities that range from 20-40 km, for instance, El Obour, 10th of Ramadan. The next two zones are inside the existing city: the third zone is Nasr city and Masr El Gdeida, which is 40-50 km away and last zone is the city centre which is approximately 60 km away as shown in Fig. 10.

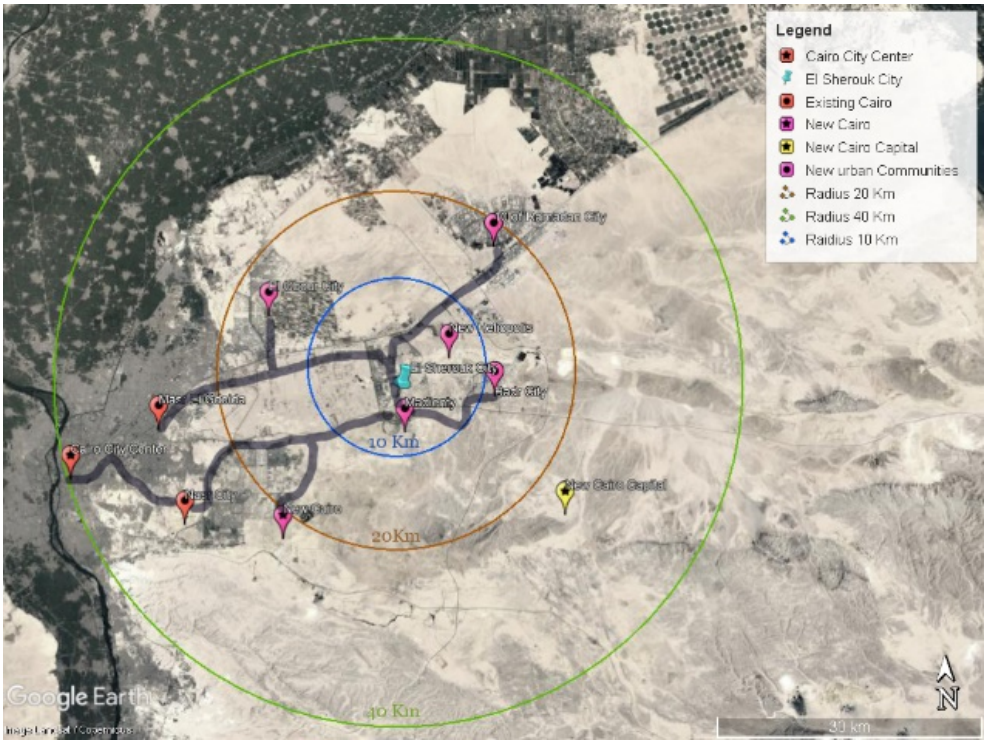

Fig. 10 Diverse main locations away From El Sherouk

El Sherouk city is a car-oriented city with five external bus lines; three of them in direction of El Asher bus stop and one for Madinat Nasr and last line for Badr City [1]. In May 2019, El Sherouk authority announced that in the futuristic plan there will be external bus lines for El Sherouk. The National Authority for Tunnels announced the kick-off for the light rail transit (LRT) between new Cairo capital and 10th of Ramadan within 3 years passing through El Sherouk city [31].

Internally, El Sherouk authority launched three internal bus lines. These lines pass by EL Sherouk 1,3 and Gamal Abd El Nasser Road as shown in Fig. 11.

El Sherouk city is mainly a residential area with no industrial zones as shown in Fig. 12. Residential areas are classified into three main typologies. The first type is residential apartments, where residents own one flat in a building. The second type is individual land plots, where residents form their own buildings. These buildings are confined according to the buildings’ regulation. The third type is private compounds, where investors construct several housings with similar designs allocated together and enclosed; later, it is offered for the community. Some commercial and educational facilities occur in between those residential areas [1].

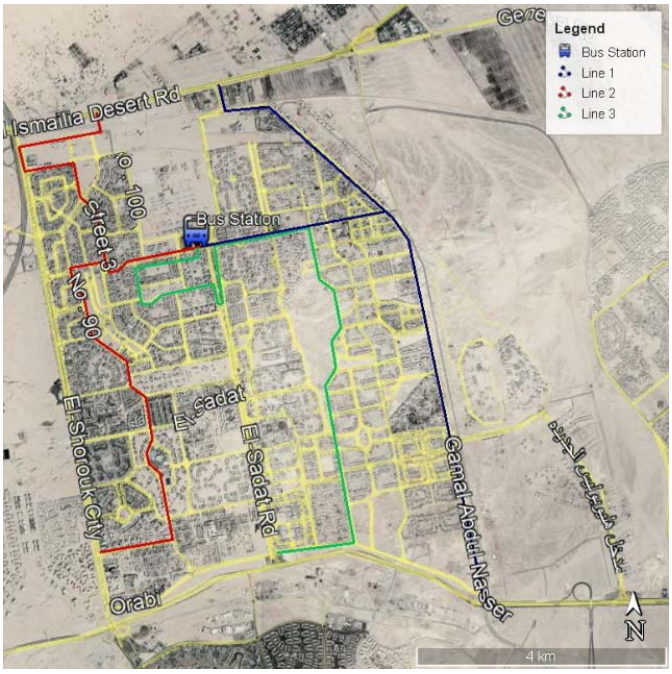

Fig. 11 Internal bus line of El Sherouk city, Source: Author based on El Sherouk Authority

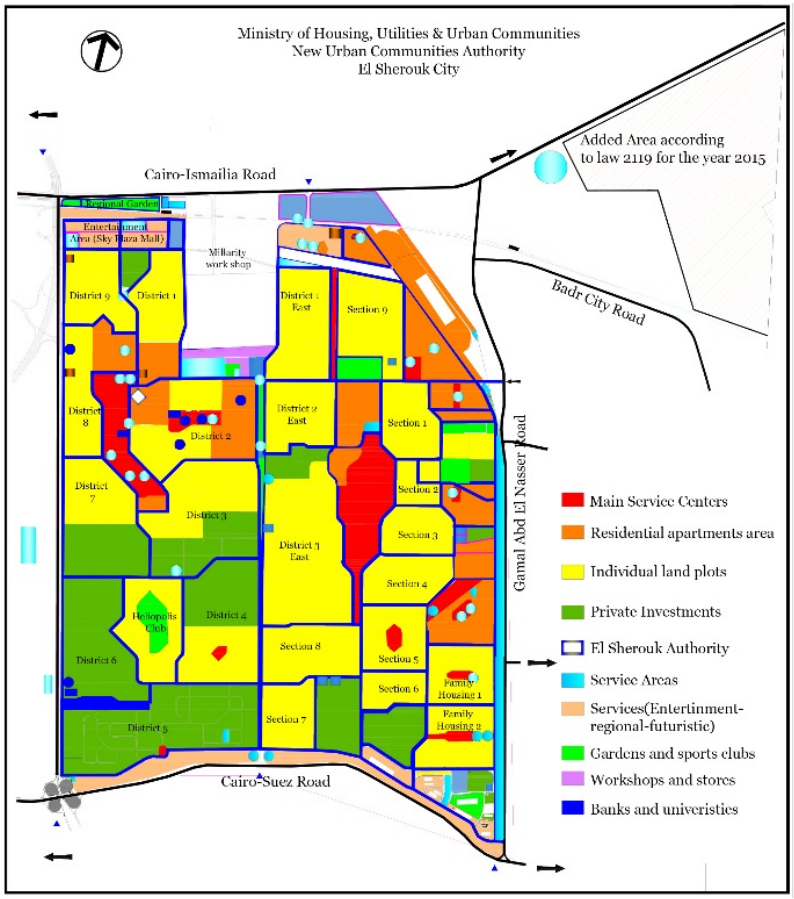

Fig. 12 Land use map, source: El Sherouk Authority and Edited by Author

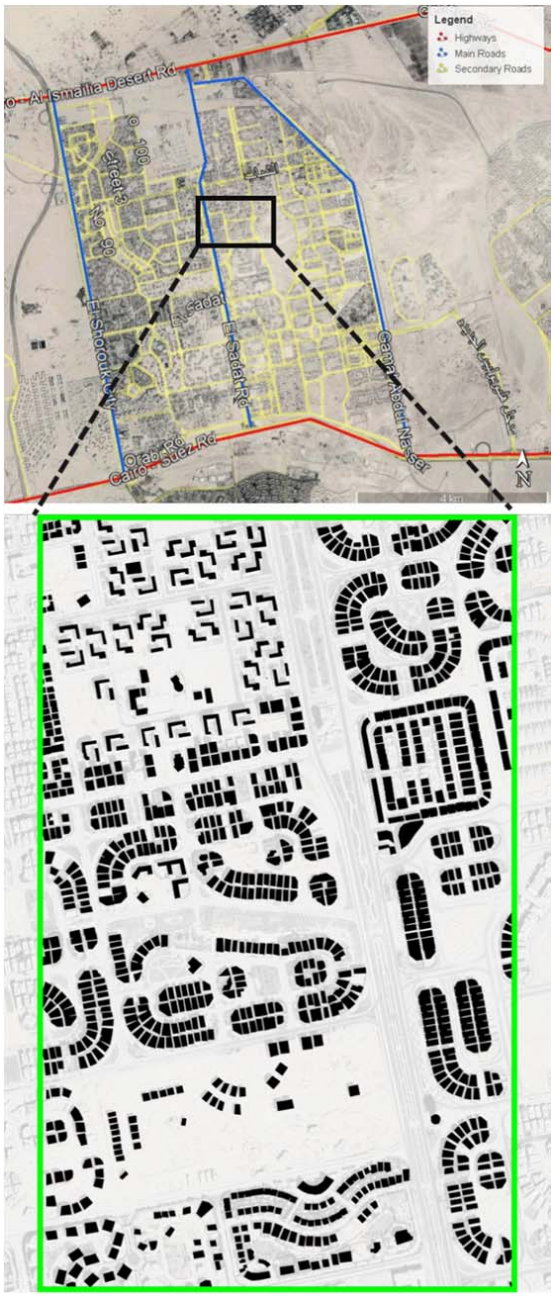

Fig. 13 Sample of El Sherouk Solid and void

The urban fabric of El Sherouk city can be analysed as a group of patches interlinked with streets, where each type has its housing pattern inside its square borders as shown in Fig. 13.

V. Discussion and Results

This part discusses results of interviews, questionnaire, and observation. The questionnaire was answered by 52 respondents. The number of resident respondents is 36 and the number of visitor respondents is 16. Two interviews conducted with El Sherouk city authority, Nation's Future Party. More than 50% of respondents are female, young adults with age range 18-35. 19 of 36 (52.8%) respondents live in residential apartments.

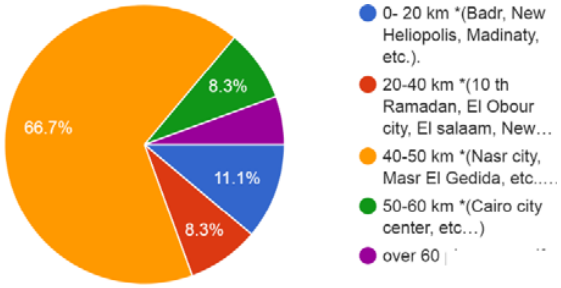

Fig. 14 Distance covered for optional activities away From El Sherouk city by residents' respondents

When discussing "Activities with people" conducted by respondents, the result shows that 66.7% of resident respondents conduct their optional activities at 40-50 km away from El Sherouk city as shown in Fig. 14. All refer to a higher level of optional outside El Sherouk city than inside. The results show that 75% is the average satisfaction rate of optional activities outside El Sherouk city as shown in Fig. 15, while 55.6% is the average satisfaction rate of optional activities inside El Sherouk city Fig. 16.

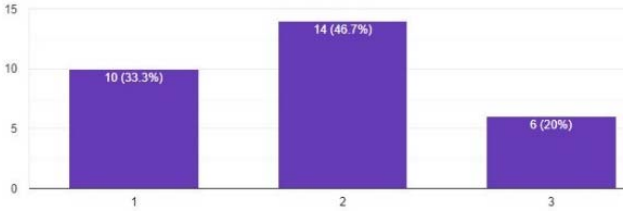

Fig. 15 Residents respondents' satisfaction of activities outside El Sherouk city

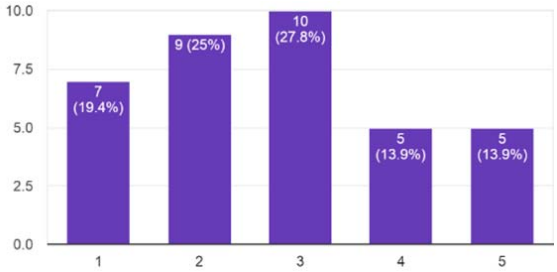

Fig. 16 Residents respondents' satisfaction of activities inside El Sherouk city

Although respondents are more satisfied with outside El Sherouk city' activities, they face some proximity issues. The results show that respondents complain about the connectivity of El Sherouk city, which urged more than half of respondents (54.4%) to use their private car as shown in Fig. 17. Moreover, the respondents' wiliness to have same activities inside El Sherouk highlights the importance of the availability of activities in terms of quality and quantity. So it is important to

analyse activities inside El Sherouk to find the gap.

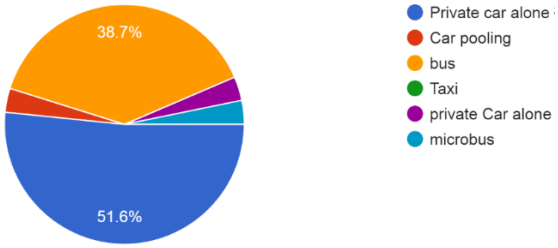

Fig. 17 Modes of transportation used outside El Sherouk city by resident respondents

When discussing "activities with people" inside El Sherouk city in terms of the activity, optional activities are relatively low. The results show that more than 50% of the respondents mainly conduct regular daily basic needs in El Sherouk city. Furthermore, 52.9% of respondents' optional activities inside the city are done with family members, Fig. 18. From observation of some activities, there are some drawbacks in design, implementation, and monitoring which cause some discomfort of activities.

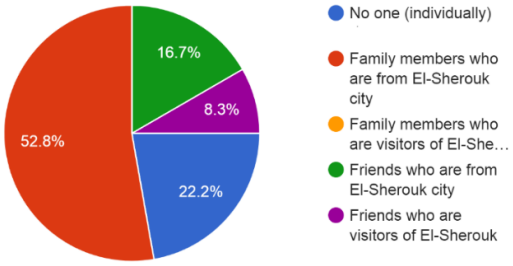

Fig.18 Companion inside el Sherouk city by residents' respondents

When conferring about mobility, there are still some deficiencies in the internal transportation system. Though the newly established bus lines, 80% of respondents still depend on their private car as shown in Fig. 19. The quality of transportation systems regarding its schedule and bus stop distribution is the main reason for the dissatisfaction of users.

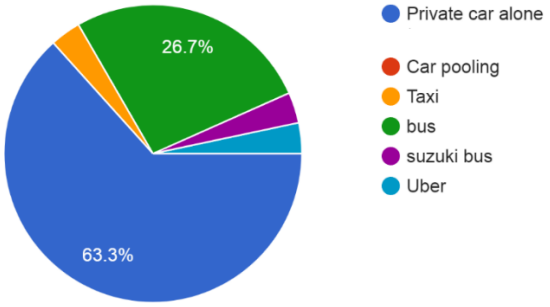

Fig. 19 Mode of transportation used inside El Sherouk city by resident respondents

VI. Conclusion

Concisely, El Sherouk city is a sample of new urban communities in the GCR. Social deficiency occurs in the city because of diverse reasons from global to local level.

Firstly, the city depends on the market and services that occur in the existing main city, so it is not a self-sufficient city. Secondly, gated communities are distributed all over the city, for instance, El Sherouk 200 compound, Loloat El Sherouk, May Fair, Spring Valley, etc. Thirdly, neoliberalism created free market (mixed of public and private market); thus some lands are owned compounds, malls, shops, small land plots, schools, etc. Fourthly, the city is affected by modern city planning, which is car-oriented design. Lastly, the analytical result shows some deficiencies in the social interaction of the city.

The social patterns and activities in the city are negatively affected by the economic planning of the city. It is preferable that El Sherouk city follows sustainable urban development guidelines as a global trend, where social interaction is a part of it. Scholars elevate the topic of social life in the city such as Jan Gehl, Jane Jacobs.

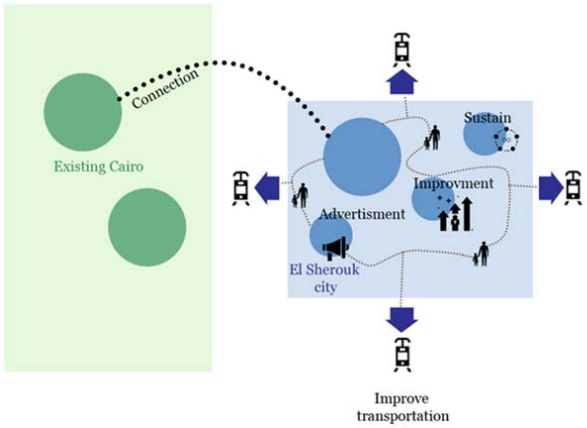

Fig. 20 Recommendations illustrative diagram

VII. Recommendations

In order to advocate social interaction, some strategies include redevelopment, investigation, and development of activities and mobility as shown in Fig. 20:

- First, the enhancement of interlink between El Sherouk city and outside through transportation system improvement which increases livability and vibrancy of the city [32].
- Second, the reformation of the existing design of the projects for better use and function with all human experience concerns following the approach of Jan Gehl.
- Third, the development of unique projects advertisements inside El Sherouk city for example the new recreational areas. These projects which have cultural theme and interactive objects attract more people.
- Fourth, the formation of a completely safe walkable network inside the city for the sake of easing the accessibility of activities spaces, following Jan Gehl approach for creating "cities for people". All previously mentioned recommendations attempt to be an initial step

towards promoting social interaction inside El Sherouk city.

REFERENCES

[1] New urban communities Authority, "El Sherouk," 2019. (Online). Available: http://www.newcities.gov.eg/know_cities/shrouk/default.aspx. (Accessed: 03-Apr-2019).
[2] I. R. Hegazy and W. S. Moustafa, "Toward revitalization of new towns in Egypt case study: Sixth of October," *Int. J. Sustain. Built Environ.*, vol. 2, no. 1, pp. 10–18, 2013.
[3] D. J. Stewart, Z.-Y. Yin, S. M. Bullard, and J. T. MacLachlan, "Assessing the Spatial Structure of Urban and Population Growth in the Greater Cairo Area, Egypt: A GIS and Imagery Analysis Approach," *Urban Stud.*, vol. 41, no. 1, pp. 95–116, Jan. 2004.
[4] A. Mohamed, "Cairo's Metropolitan Landscape: Segregation Extreme." 2015.
[5] Ibrahim Hassan & Mohamed Soliman, "Greater Cairo Urban Growth (Managing & Controlling).," 2000.
[6] M. El Araby, "Urban growth and environmental degradation: The case of Cairo, Egypt," *Cities*, vol. 19, no. 6, pp. 389–400, Dec. 2002.
[7] Osama Naseer, Ahmed Saleh, and Ahmed Fathi, *Urban Sustainability and connectivity in gated communities in Cairo, Egypt*. Routledge, 2013.
[8] A. M. Y. Hala S. Mekawy, "Cairo: The Predicament of a Fragmented Metropolis," pp. 1–14, 2011.
[9] A. A. Mohamed and A. V. A. N. Nes, "Understanding Urban Segregation in Cairo The Social and Spatial Logic of a Fragmented City," *1st Int'l Conf. Smart, Sustain. Heal. Cities*, no. December, pp. 15–40, 2014.
[10] "IISD | The Knowledge to Act," 2019. (Online). Available: https://www.iisd.org/. (Accessed: 15-Sep-2019).
[11] J. Gehl, *Cities for people*. Island Press, 2010.
[12] A. N. N. Legeby, "Urban Segregation and Urban Form," pp. 1–185, 2010.
[13] J. Jacobs, "The Death and Life of Great American Cities," 1961.
[14] World population review, "Cairo Population 2019 (Demographics, Maps, Graphs)," 2019. (Online). Available: http://worldpopulationreview.com/world-cities/cairo-population/. (Accessed: 07-May-2019).
[15] M. Drozdz, "Spatial inequalities, 'neoliberal' urban policy and the geography of injustice in London."
[16] D. E. Sims and J. L. Abu-Lughod, *Understanding Cairo : the logic of a city out of control*. 2010.
[17] M. Jenks and C. Jones, "Dimensions of the Sustainable City (Future City)," 2010.
[18] OECD, "Perspectives on Global Development 2012 : Social Cohesion in a Shifting World Shifting wealth brings opportunities for social cohesion," 2012.
[19] T. H. Maurya R.K., Patel A.R., Sarkar P., Singh H., *Biorefining of Biomass to Biofuels*, no. November. 2018.
[20] D. Jeremiah, *Architecture and design for the family in twentieth-century Britain, 1900-1970*. Manchester University Press, 2000.
[21] L. M. Farahani and M. Lozanovska, "A framework for exploring the sense of community and social life in residential environments," *Archnet-IJAR*, vol. 8, no. 3, pp. 223–237, 2014.
[22] K. Bishop and N. Marshall, *Social Interactions and the Quality of Urban Public Space*, vol. 2, no. 2007. Elsevier, 2017.
[23] R. William H. Ittelson, Harold M. Proshansky, *The People, Place, and Space Reader*. 2014.
[24] V. B. Rad and I. Ngah, "The Role of Public Spaces in Promoting Social Interactions," *Int. J. Curr. Eng. Technol.*, vol. 3, no. 1, pp. 184–188, 2013.
[25] F. Soltanian and A. Mohammadi, "Study of characteristics of urban publc open spaces based on social interaction," *Eur. Online J. Nat. Soc.Sci.*, vol. 4, no. 3, pp. 553–564, 2015.
[26] I. Hanafi, M. EL Araby, K. S. Al-hagla, and S. EL Sayary, "Studies Human Social Behavior in Public Urban Spaces towards Higher Quality Cities," no. January 2016, 2013.
[27] M. Rakhshandehroo, O. M. Mohd Johari, and M. Y. M. Yunos, "The Social benefits of Urban Open Green Spaces: a Literature Review," *Manag. Res. Pract.*, vol. 7, no. 4, pp. 60–71, 2015.
[28] N. K. Mamaghani, A. P. Asadollahi, and S.-R. Mortezaei, "Designing for Improving Social Relationship with Interaction Design Approach," *Procedia - Soc. Behav. Sci.*, vol. 201, no. February, pp. 377–385, 2015.
[29] S. Salih and S. Ismail, "determining the factors affecting social interaction in the parks of Baghdad city, Iraq," vol. 12, no. 3, pp. 40–52, 2018.
[30] C. Holland, A. Clark, J. Katz, and S. Peace, "Social interactions in urban public places," *Water*, pp. 1–84, 2007.
[31] "The National Authority for Tunnels," 2019. (Online). Available: http://www.nat.org.eg/arabic/10thTrain.html. (Accessed: 11-May-2019).
[32] V. R. Vuchic, *Transportation for Livable Cities*. Routledge, 2017.

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