

## Designing an Inclusive and Age-Friendly Parks in Egypt. Case Study at Aswan City.

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### Abstract:

Urban parks are essential places to build a sense of community pertinence. Age-friendly parks encourage safety, a sense of belonging, and increasing social participation. The study targets to achieve inclusive and senior-friendly parks. Also, the researcher's direct observation and the focused interviews were conducted with 80 park visitors. The checklist was prepared to fulfill the study's goal. The study's outcomes referred that the results of the evaluation of both the researcher and visitors were fairly close. Finally, Age-friendly parks achieve human diversity, well-being, and social inclusion. Further, an age-friendly community is welcoming to all people, not merely 'elders friendly'.

### Keywords:

Age-friendly parks,  
WHO, quality of life,  
Aswan Botanic Park;  
social participation and  
inclusion, human  
diversity, sustainability.

Paper received 24<sup>th</sup> March 2022<sup>†</sup>, Accepted 6<sup>th</sup> June 2022, Published 1<sup>st</sup> of July 2022

### 1- Introduction

The aging of population and urbanization are two world trends that form key factors in the 21st century together. Along with the growth of cities, their proportion of citizens 60 years of age and older grows. Elders are a fortune for their families and communities. An aging city fosters active aging by enhancing health, participation, and safety options so that achieving quality life as aging. Practically, a senior-friendly city conforms its services and structures to be universal and accessible by old people and the disabled (World Health Organization, 2007). The World Health Organization "WHO" estimates that by 2025, older people in the Eastern Mediterranean Region are expected to constitute approximately 8.7% of the population, and by 2050 they will constitute approximately 15% of the inhabitation (World Health Organization, n.d)

In Egypt, The "CAPMAS" Central Agency for Public Mobilization & Statistics, has shown that elderly people are approximately 7 million, representing 7.1% of the total population on January 1, 2020, and this percentage is expected to increase to 17.9% in 2052. Furthermore, on September 30, 2020, the census indicated in a statement on the occasion of the International Day for Older Persons (60 years and over), which was set by the United Nations at its meeting on December 14, 1990, that the number of male elderly reached 3.5 million, or 6.9% of the total male population, while the number of female elderly reached 3.5 million. 7.3% of the total female population (State Information Service, 2020).

In other respect, the outdoor spaces and parks have a major role in the community. Parks enable individuals to spend more time in the natural environment and participate in activities such as

walking, or meditation in nature. In the US for instance, unfortunately, Persons over 65 years old are a largely underserved group in terms of park access and enjoyment. Even though the practice is that activities for older people in parks are programmed instead of designed parks with the elderly in mind, a small number of parks provide programs for seniors or have community centers that provide educational or recreational applications (UCLA Luskin School of Public Affairs, 2014). The WHO and "APA" the American Planning Association attempt to comply with the demographic current change by grasping and accommodating "aging in place" and providing cities that are "senior-friendly". These endeavors include open spaces as a vital part of the urban shape to better meet older persons' needs (UCLA Luskin School of Public Affairs, 2014).

### 2- Statement of the problem:

The research issue lies in the actuality that societal exclusion of classes of people, such as older people, which leads to their hardship in dealing with the urban environment and parks as well. Thus, designing societies and parks with the standards of age-friendliness enables all society members to integrate and engaged considerably.

### 3- Importance of the research:

The importance of this study exemplifies in an "age-friendly" community can benefit all people of different ages and abilities. Also, by designing parks and communities in light of age-friendly guidelines that encourage older persons to socialize, thus achieving social sustainability. Age-friendly parks improve quality of life by providing healthy environments as well. Finally, Age-friendly parks achieve human diversity, well-being, and social inclusion. Further, an age-friendly community is welcoming to all people, not merely 'elders friendly'.

#### 4- Objectives of the research:

The study aims at examining the existence of Age-friendly parks' guidelines and design characteristics at Aswan Botanical Park "ABP" as a case study. Hence, determining the requirements and preferences of the elderly concerning the park under study as an open space for all in Aswan city. The research's goals are to spotlight the effective role of Age-Friendly Park in achieving social sustainability and supporting societal inclusion. This study also targeted to provide accessibility and achieve comfortable, inclusive, and age-friendly parks in Aswan city, also generalising the Age-friendly parks "AFP" concept in the whole of Egypt's parks. The study's scope centers on Aswan Botanical Park (ABP) in Aswan city, Egypt as a case study.

#### 5- Research methodology:

This study centralizes on Aswan Botanical Park (ABP) as a case study to be explored and assessed through Age-Friendly Parks' guidelines. Aswan Park was chosen according to its unique historical significance. In addition, it is a prime tourist destination at Aswan city for Arab and foreign

tourists. In addition, the great visitors' influx to the park.

The study used the analytical approach to describe the present status of the selected park. Furthermore, a case study method was utilized in gathering data about the case study. A quantitative data and qualitative description method were used to examine the selected park. Besides, direct observation of the author and the focused interviews were carried out with groups of the park's visitors as "park's users". 80 visitors of the park were selected to be interviewed. The age range of the selected visitors' was between 35 to 75 years old and over. The study conducted 10 focus groups with the park's visitors which contained around 8 participants in each one. The assessment process framework of this research is explained in (Figure 1). Throughout the summer of 2021 and 2022, several site visits to the park under consideration were scheduled to solicit visitor feedback. On-site participant observation was done. Focus groups with participants to decide their opinions as a quantitative survey.

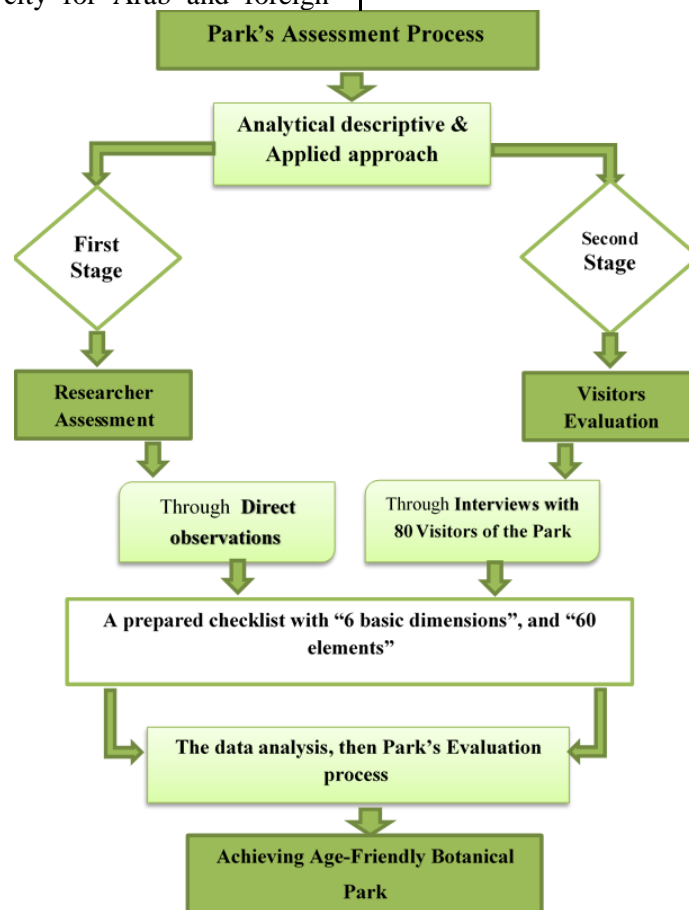


Figure 1. The flowchart of the Botanical Park's evaluation process framework

#### 6- Senior Population Background Globally

The world is speedily aging: people aged 60's number and over will multiply from 11% in 2006 up to 22% advent 2050. WHO also declared that developing countries are growing old much faster

than developed countries (World Health Organization, 2007). In 2019, 703 million people were aged sixty-five or over worldwide. The world's old population is predicted to double in the next three decades, reaching 1.5 billion by 2050.

Between 2019 and 2050, Every region will sight a rise in the number of elderly people (Department of Economic and Social Affairs, Population Division, 2019). Based on the Prospect of the World Population, in 2050, 1 in 6 persons worldwide is

over 65 years of age, compared to 1 in 11 in 2019. (Department of Economic and Social Affairs, Population Division, 2019). As shown in (Figure 2).

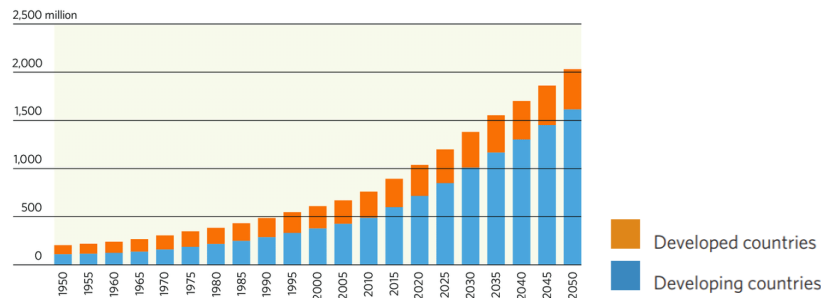


Figure 2. A world population of elders aged 60 and up, developing and developed countries, between 1950 to 2050

In 2019, more than 1/5 of the population in 17 countries worldwide would be old. By the end of this century, around 155 countries, covering a majority of the world's residents (61 percent) based on the estimate of "The United Nations Department of Economic and Social Affairs Population Division, 2019". Japan and China as major countries with great inhabitants have already got into the "aging society". In 2015, Japan reached 27 percent of the total world population, which exemplifies (34.2 million) people. Now, China has the largest inhabitation in the world. Also, in 2015, over 10 percent of China's total population is elder, and 17.2 percent become elders in 2030. Also, by 2050, the percentage of its total population will reach 26% (348.8 million) elders (MUZI, 2016). Consequently, it is required to pay more attention to designing communities and cities to be accessible, convenient, and usable for senior people.

## 7- Age-friendly communities and cities

Cities are essential places for adult and older people. They are living in and spending their vacations in a vibrant atmosphere. So, the senior-friendliness trend is seriously taken into consideration by cities (URBAN HUB, n.d).

### 7-1 Seniors Aging in Place

Independence has numerous levels such as aging in place, nursing homes, assisted and independent living. In 2007, WHO started a project of Global Age-Friendly Cities to evolve active aging in 35 worldwide. The project covers eight issues and examines the lineaments of the city's services, policies, structures, and environments that authorize the city to be age-friendly. (MUZI, 2016).

### 7-2 Age-friendly cities' Definition

An Age-Friendly city "AFC" is a suitable place to develop, grow, and get older comfortably. The city encourages healthy aging and qualifies well-being life. The purpose of this city is to help residents to stay independent for a long possible period, provide protection and care, and respect the dignity and autonomy of elders (World Health Organization, Regional Office for Europe, 2017).

Based on WHO, an age-friendly city promotes active aging (Hoof, et al, 2018) through participation, optimization of health, involvement, and security chances to improve quality of life with a person's age (Plouffe, & Kalache, 2010). The concept of being Age-friendly is equal with livable for all (URBAN HUB, n.d). Regarding to Caro and Fitzgerald, an age-friendly city is a place where elders are valued, efficiently involved, and supported with services and infrastructure which achieve their preferences and needs (Caro, & Fitzgerald, 2015). Lawton stated that the senior-friendly city has to be inclusive and present chances for all city's citizens and not older adults solely (Lawton, & Nahemow, 1973).

The creation of an age-friendly city is considered a multidisciplinary endeavor that needs the collaboration of multiple actors. (Rémillard-Boilard, 2019). The organization of AARP stated that "well-designed, and age-friendly communities and cities enhance economic growth and create satisfier, healthier and pleased inhabitants of all ages" (AARP, n.d). Also, a city that is "age-friendly" is welcoming to people of all ages, not only the elderly. An age-friendly city should include the following features: (WHO, Regional Office for the Eastern Mediterranean, n.d)

- Buildings and streets that are barrier-free improve the mobility and freedom of individuals with disabilities, both young and old.
- Children and younger ladies, elders as well, can feel safe venturing outside to engage in physically active leisure and social activities in secure neighborhoods.
- Health and community services.
- Older people's participation in volunteer or paid jobs.

### 7-3 Fundamental Domains of The Age-friendly city

The extremely considerable model for Age-Friendly Communities and Cities (AFCC) is the

model of WHO's Age-Friendly City (AFC) that was initially published in 2007. The WHO global guide epitomized the eight domains of the AFCC and their basic features (World Health Organization, Regional Office for Europe, 2017). Depending on (Jackisch, et al, 2015) identified the major three clusters for the eight domains of the AFC in (Fig. 3). The first cluster is "Built environment" which includes (Outdoor spaces & buildings, Housing, and Transportation). Secondly, "Social environment" encompasses (Respect & social inclusion, Social participation, Civic participation & employment). The third cluster is "Community and Health Support" which contains (Community support, Communication & Information, and health services). The "AFC" model targets to supply a clear explanation about rising old in the city and urban

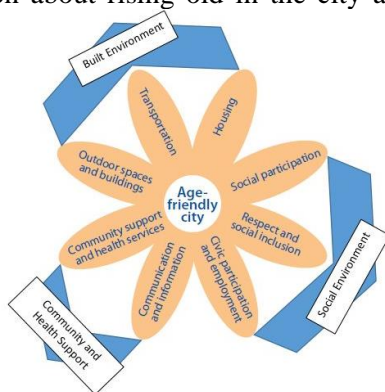


Figure 3. Model of (AFC) Age-friendly city (Black, et al, 2016)

Moreover, Marston et al. suggested a novel, inventive, and age-friendly model in (Figure 5) (Marston, et al, 2020). This model was Concept of Age-friendly Smart Ecologies (CASE) and is based on previous frameworks and addressed a perspective of ecology (Marston & Hoof, 2019). The framework of CASE is related to the factors of environment, sustainability, and accessibility. Besides, this model's correlation with the technology (Marston, et al, 2020).

Regarding the first domain of the whole AFC's models "Outdoor spaces and buildings", there can

aging. The activities' concept is to assist seniors to remain healthy and independent. Depending on Marston and Hoof, who suggested a novel extension to the present AFC model under the term of a Smart Age-Friendly Ecosystem (SAFE). This ecosystem model was established due to the original AFC one does not encompass the technology although the increasing usage of the internet, smartphone, and assistive technologies (Hoof, et al, 2021). Depending on Marston and van Hoof, who mentioned that the adoption of smart technologies should consider the characteristics of age and gender, also the personality traits (Marston & Hoof, 2019). Furthermore, Dikken et al. assured the technology's significance in the evaluation of age-friendliness, and technology has an obvious influence on all daily living domains (Hoof, et al, 2021). See (Figure 4).

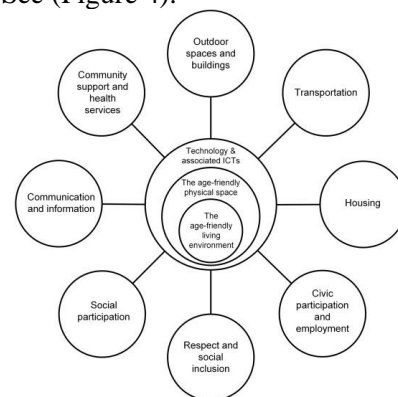


Figure 4. A framework of (SAFE) Smart Age-Friendly Ecosystem. (Marston & Hoof, 2019)

be some issues to be considered as: "The environment, Green spaces and parks which have pedestrian's paths and seats; Streets; Vehicle traffic; paths for cycles; Outdoor safety, buildings, and Toilets" (The Ageing Research Team: Deusto University, 2014). This study focuses on exploring the case study park as a significant element in the outdoor spaces concerning the concept of age-friendly parks.

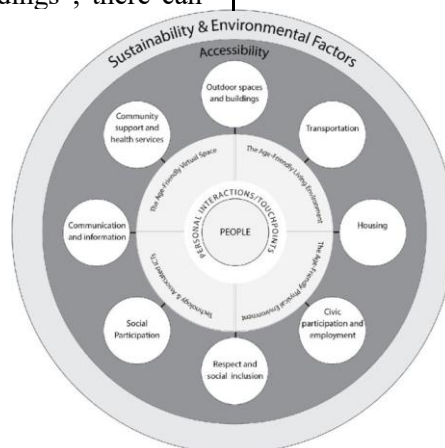


Figure 5. A novel and suggested Moodle (CASE) Age-friendly Smart Ecologies (Rémillard-Boilard, et al, 2020)



## 8- Parks and Livable communities

Public parks are significant places for constructing the feeling of community and social belonging. They are spaces that belong to everybody, no matter to age, ethnicity, income, or gender. Nevertheless, the parks' design and maintenance do not reflect their main purposes as public spaces (AARP, 2018). They provide great recreational chances and support social interaction. They are beneficial to protect older people from the hazard of social isolation and degrading of mental and physical health. Moreover, parks supply opportunities for generations' interaction, and provide a sense of attachment, and belonging to the place (UCLA Luskin School of Public Affairs, 2014).

Furthermore, parks help raise the physical activity levels of park users (AARP, 2018). Practicing exercises has proved that it reduces depression and prevents many age-related health problems (MUZI, 2016). Access to parks reduces stress and anger, lessens social isolation, enhances skills of relationships and connection (AARP, 2018). The sense of social connection with society is a prime benefit that parks can introduce to all users (MUZI, 2016). According to a 2007 study, emotional and social isolation, raised the risk of dementia in older persons by about 51%. (Wilson et al., 2007). Great parks and public places boost civic involvement and a sense of belonging through building and fostering community pride, and increasing social participation (AARP, 2018).

Based on Administration on Community Living (previously Administration on Aging), in 2015 there were 76,974 people aged 100 years or older (0.2% of the population over 65 years). With 26.7

million elderly women, also 21.1 million elderly men, older women exceed older men. In 2060, it is expected to reach 98 million people. Around 29% (13.6 million) of the elderly live alone (9.3 million women, and 4.3 million men). Approximately, half of all women over the age of 75 (46%) live alone (Administration on Aging, 2016). Finally, "Livable cities and communities should have locations for people to congregate, areas for sitting, resting and reflecting. It should also be the places in which older people have the chance to socialize" (UCLA Luskin School of Public Affairs, 2014).

### 8-1 Design Requirements of Senior-Friendly Parks

The guidelines of creating age-friendly parks' design are targets to provide beneficial information for building parks, also open spaces with consideration to the older persons. Besides, designers and planners should investigate the other characteristics of the context such as (surrounding land usage, topography, street network, size, microclimate, etc.). Older people are a diverse group in terms of lifetime, kind, physical, and cognitive abilities. Also, the social characteristics and the users' needs, socio-cultural features. Therefore, before creating a senior-friendly park, all the above-mentioned characteristics should be addressed and considered in the design process. Depending on the above-mentioned resources, there can be six essential design guidelines of age-friendly parks for all users: (Access to park; Opportunities for Participation; Safety & Security; Accessibility and design for all; Social support and inclusion; and Contact with nature). As shown in (Figure 6)

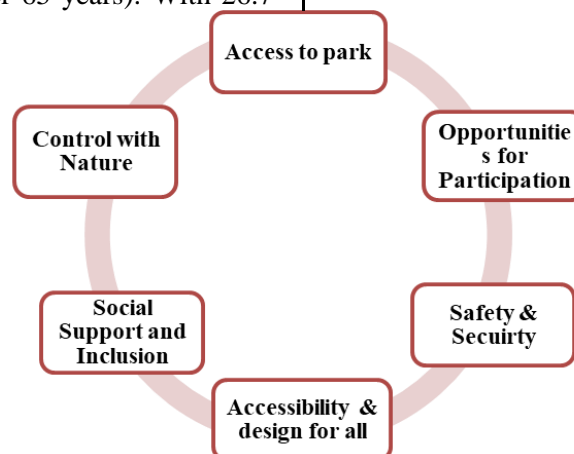


Figure 6. The Six fundamental design guidelines of age-friendly parks

#### ▪ Access to Park

The elderly, who may be losing some of their cognitive or physical faculties, need a sense of control more than anybody else. When park users have a perfect sense of clear orientation and grasp of the layout of the park and its various offerings, they have a sense of control. Orientation is

especially crucial for senior citizens who may have cognitive issues.

#### ▪ Opportunities for Participation

A park should provide visitors with a range of locations to explore, things to see, activities, events, and programs for quiet and active recreation and amusement. It makes sense to encourage park

design flexibility and to provide a variety of options for how to enjoy a park.

▪ **Safety and Security**

The requirement for security and safety is greater among senior park visitors. Indeed, elderly people may avoid parks and public settings due to concerns about their safety. Park design components and elements that improve the park's visibility are quite significant.

▪ **Accessibility and design for all**

Persons' decisions to visit a park are influenced by their ability to get there rapidly, safely, easily. The simplicity of getting to and from the park, as well as the ease of moving around and orienting themselves once there, becomes especially essential to them. There are physical and psychological aspects to accessibility. Certain aspects of the park's location and design will make it more welcoming to seniors while also improving its physical accessibility. Furthermore, the park's psychological accessibility is enhanced by the availability of supportive programs, events, and activities.

▪ **Social Support and Inclusion**

In parks and through the park activities, interaction between the Elderly can be encouraged and socialization can also occur among the elders and between the elders and other groups.

▪ **Contact with Nature**

Parks introduce nature to the city and allow their visitors the opportunity to enjoy positive "natural entertainment," which is defined as "environmental elements" which encourage an improved passionate state inside the perceiver, can block worrying thinking, and encourage positive changes (UCLA Luskin School of Public Affairs, 2014).

**9- Case Study**

**9-1 Aswan Botanical Park “ABP”**

ABP is located on a whole island in the center of the River Nile, and it was surrounded by water and faced Aswan City. The park is one of the oldest botanical parks in the world (Mohamed, et al, 2014). ABP has a prevalent name is “El-Nabatat Island” or “Geziret Al-Nabatat” which means “The Island on Plants”, also it is recognized as Kitchener's Island (Pinhopping, n.d). The Park is one of the Nile's two major islands of Aswan city (Kamel, 2020). “Elephantine Island” is located to the east of “El-Nabatat Island” (State Information Service, n.d). ABP is oval, and it is considered a natural museum with trees and exotic plants acquired from around the world (Ehgezmasr, 2016) (Kamel, 2020). See (Figure 7) clarified the unique location of Aswan Park at the River Nile and its oval shape, also (Figure 8) presented the park's site and gates.

The park has a total area of 17 acres, a maximum width of around 115 meters, and a total length of about 650 meters (Mohamed, et al, 2014). It is separated into 27 basins, each with a different species of tropical and subtropical perennials. ABP has three entrances to the Park. The main entrance is on the island's northern tip, and it is the best way to get to the southern tip, which requires a long trek (Ahmad & Belal, 1990). In addition, the park's main pathway is paved with pink granite and is shaded by two long rows of marble-white royal palms (Aswan-Individual, n.d). Furthermore, all of the pathways are paved with pink granite and are shaded by palm trees (Ehgezmasr, 2016). The various pathways of the park are presented in (Figure 9), also, (Figure 10) explains various seats and shaded wooden pergolas which encourage social interaction.



Figure 7. The maps and photos explore the distinguish location of ABP at the River Nile. (Open Street Map, 2021), (Kamel, 2020), (Yahia, n.d)

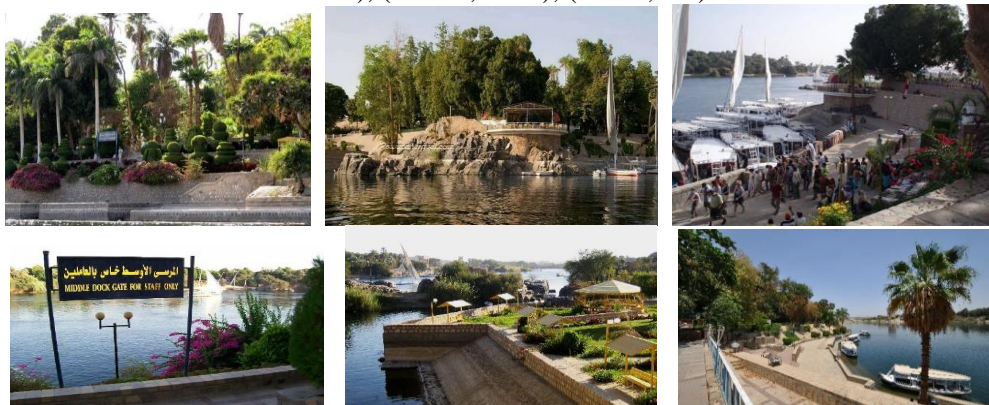


Figure 8. Explains the park's site and different gates for visitors and employees



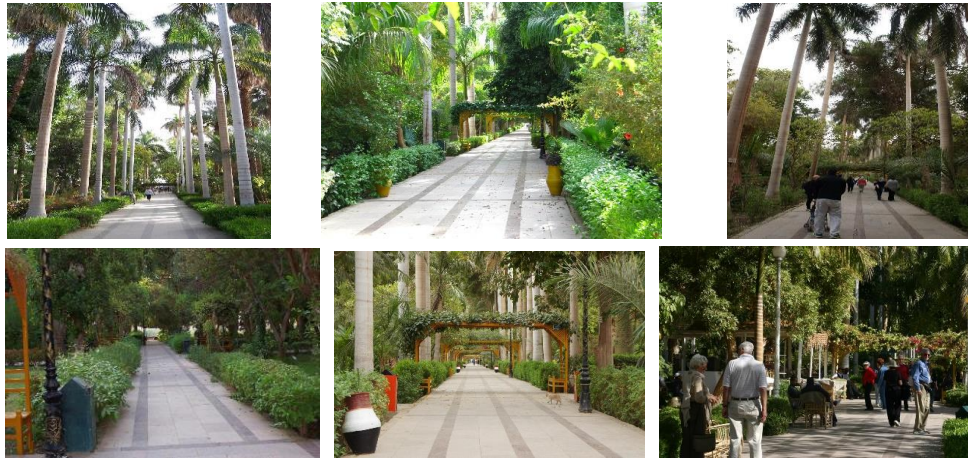


Figure 9. Explores the different pathways of the park which are paved with granite and shaded by two rows of royal palms



Figure 10. Various types of seating, benches, and shaded wooden pergolas support social inclusion

Aswan Park is more than just a pretty place to stroll in (Nile Holiday, n.d). It is regarded as one of Egypt's most important research institutes. The park is one of the world's most unique botanical gardens (State Information Service, n.d). It has a diverse range of tropical and subtropical plant species, making it one of the most important botanic study institutions in the world (Aswan-Individual, n.d).

According to Egyptian Weather, the Park assesses the viability and fitness of plant species. A variety of species, including doves, sparrows, peacocks, and crows, live in the park. In the off-season, it also attracts a large number of migrating birds (Kamel, 2020). See (Figure 11), (Figure 12), and (Figure 13).

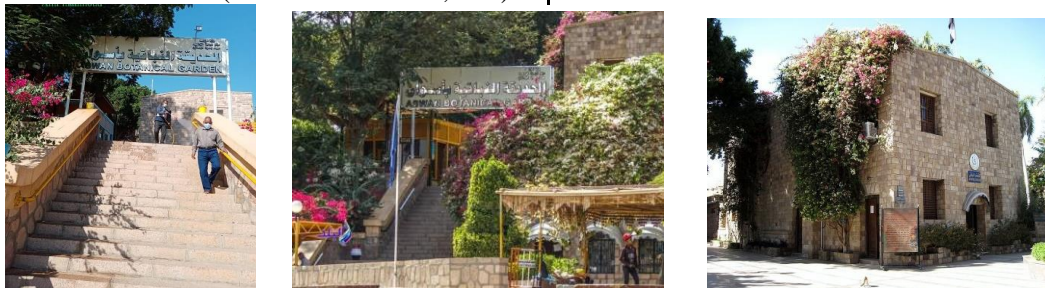


Figure 11. The entrance of the park and The botanical museum



Figure 12. Aswan park is a pleasant place for strolling and social



Figure 13. Informational signs and maps at ABP (TripAdvisor, 2019), (Kamel, 2020)



In the Aswan Botanical Park, there are seven basic groups of plants and trees to be found: (Ebony, mahogany, and sandalwood are examples of woody trees); (Medicinal and aromatic plants, such as clove, rosemary, basil, and mint); (Spice plants, such as cinnamon, chili, and ginger); (Tropical fruits trees, such as avocado, papaya, and mango); (Jasmine, tulip, and petunia are examples of

Ornamental Plants); (Oleaginous Plants, such as palms, coconut and olive trees); and palms, such as Dates and Roystonea regia "Royal palm") (Kamel, 2020). As shown in (Fig. 14). Eventually, Aswan Park is considered as one of the city's major promenades and tourist attractions for both locals and visitors (State Information Service, n.d).



Figure 14. Various groups of plants and trees at Aswan Botanical Park. (Researcher, 2021)

**10- The Checklist of the study**

The adapted checklist of this study was designed depending on the design's guidelines of age-friendly parks from a group of sources such as the following:

(Anastasia, et al, 2014), (Philadelphia Corporation for Aging, 2011), and (Miami-Dad County, 2015).

**6-1 Park's Assessment Process**

Direct observations were done besides, visitors' interviews at the park in light of the design guidelines of the senior-friendly parks. The Botanical Park was assessed by using the prepared checklist which was composed of 60 items through 6 main dimensions.

The results of the evaluation were extracted by using an ordinal scale called the "Three-point

Likert Scale" which gives the variables grades as follows: (entirely available = 3, partially available = 2, Not available = 1), As seen in **Table 1**.

**Table 1.** Distribution of park evaluation

Opinion	weight
Not Available	1
Partially Available	2
Entirely Available	3

Thereafter, the Arithmetic Average (Mean) is calculated by the length of the period, by dividing 2 by 3 which is equal to 0.66, Where 2 represents the number of spaces (1 to 2 first space, 2 to 3 second space), and 3 represents the number of options. The distribution and percentages as shown in **Table 2**.

**Table 2.** The arithmetic average "Mean" and its percentage according to the Likert scale (Likert, 1932)

Weighted Mean		Percentage of the Arithmetic Average	Evaluation/ Attitude
From 1	To 1,66	0 - 55.3%	Not Available
From 1,67	To 2,33	55.6 % - 77,6%	Partially Available
From 2,34	To 3,00	78,0 % - 100%	Entirely Available

For instance, the calculation of the arithmetic average "Mean" of "Access to park" element by the following equation: The Arithmetic average "Mean" = sum (frequency \* estimated grade) / total number of questions (number of checklist questions for each item)

Percentage = (arithmetic average / total number of options 3) %

Furthermore, (Tables 5, 6, 7, 8 and 9) which are attached in Annex (A) explain the precise researcher's results of each element from the selected six ones from the guidelines of age-friendly parks.

**11- Results and Discussion**

The results contained two phases. The first phase was the assessment of the researcher to ABP.



Secondly, the evaluation of the visitors as "participants" while their visit to the park is under-study. The results also were debriefed by the "Three-Point Likert Scale", and the Arithmetical Average "Mean" and Percentage were prepared. On the one hand, the overall result of the researcher's assessment in **Table 3**, pointed out that Aswan Botanical Park (ABP) complies with 68.5% to the

design guidelines of the age-friendliness. On the other hand, the participants' evaluation in **Table 4**, showed that ABP obtained 62.2% compliance with the requirements of age-friendly parks which is referred "Partially Available". The clarification of the overall result of both participants and the researcher was appeared in (Figure 15).

**Table 3.** Arithmetical averages and percentage of Aswan Botanical Park by the Researcher assessment

No	Elements	Frequency			Total of checkpoints	No. of questions	Arithmetic Average (Mean)	Percentage %	Assessment
		Entirely Available (3)	Partially Available (2)	Not Available (1)					
1	Access to park	18	0	4	22	10	2.2	73.3%	Partially Available
2	Opportunities for Participation	18	2	2	22	9	2.4	81.4%	Entirely Available
3	Safety and Security	18	4	7	29	15	1.9	64.4%	Partially Available
4	Accessibility and design for all	6	0	7	13	9	1.4	48.1%	Not Available
5	Social Support and Inclusion	9	4	5	18	10	1.8	60%	Partially Available
6	Contact With Nature	15	4	0	19	7	2.71	90.5%	Entirely Available
Final result of the park		84	14	25	123	60	2.05	68.5%	Partially Available

**Table 4.** Arithmetical averages of the Visitors assessment

No	Elements	Frequency			Total of checkpoints	Average No. of total checkpoints	No. of questions	Arithmetic Average (Mean)	Percentage %	Assessment
		Entirely Available (3)	Partially Available (2)	Not Available (1)						
1	Access to park	400	350	610	1360 / 80 visitor	17	10	1.7	56.6%	Partially Available
2	Opportunities for Participation	700	550	590	1840	23	9	2.5	85.1	Entirely Available
3	Safety and Security	900	320	700	1920	24	15	1.6	53.3	Not Available
4	Accessibility and design for all	480	30	290	800	10	9	1.1	36.6	Not Available
5	Social Support and Inclusion	990	150	300	1440	18	10	1.8	60	Partially Available
6	Contact With Nature	900	650	50	1600	20	7	2.8	95.2	Entirely Available
The final result of the park		4370	2050	2540	8960	112	60	1.86	62.2%	Partially Available

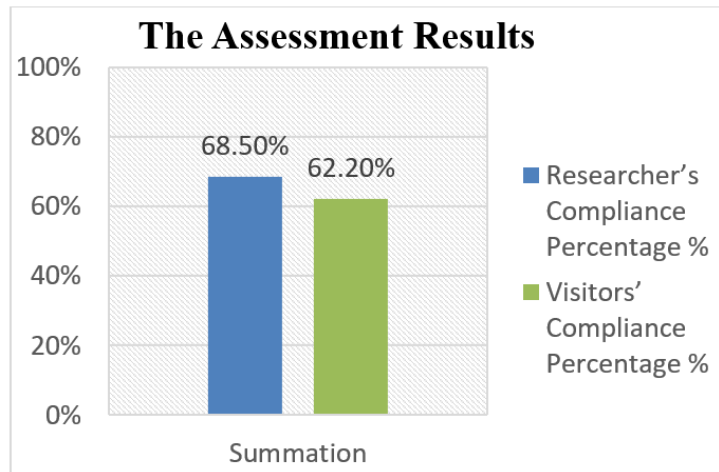


Figure 15. The overall outcomes of the Park's assessment.

In (Fig. 16), the detailed results were clarified for all elements of this research. The outcomes asserted that the element "Contact with Nature" is entirely Available at ABP, and it has attained the highest percentage from the whole study's elements regarding both parties, as 90.5%, and 95.2% respectively. Nevertheless, the lowest percentage was to the "Accessibility and Design for all" item which attained 36.6% by the visitors and 48.1% by the investigator evaluation, as shown in (Fig. 17) and (Fig. 18)

Regarding "Social support" the outcomes pointed

out that both the visitors and researcher obtained the same score of the assessment and equivalent percentage with 60% of the conformity to the parks which are senior-friendly. As clarified in (Fig. 19). Further, this study observed that the participants' evaluation results were slightly lower than the investigator ones in "Access to Park, accessibility, also safety and security) elements. Although, the visitors' outcomes were higher than the researcher's one in "Opportunities for Participation and contact with nature", as presented previously in (Fig. 16).

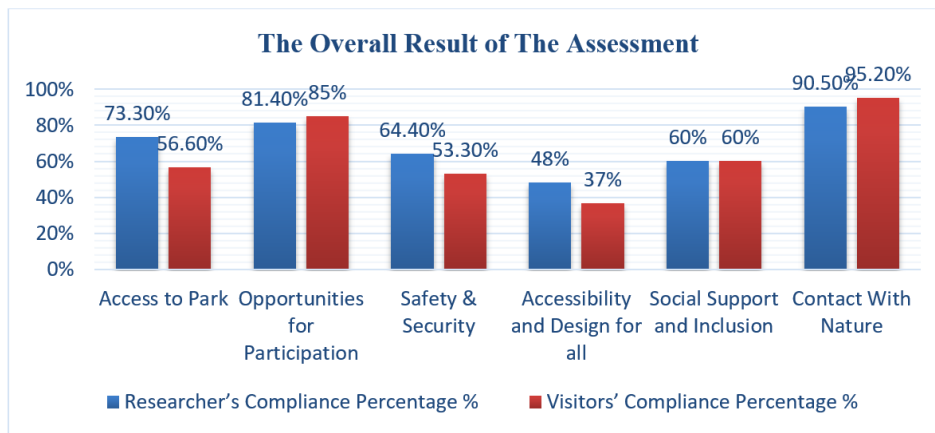


Figure 16. The detailed results of the evaluation of the park through six elements of the design guidelines of the AFP.

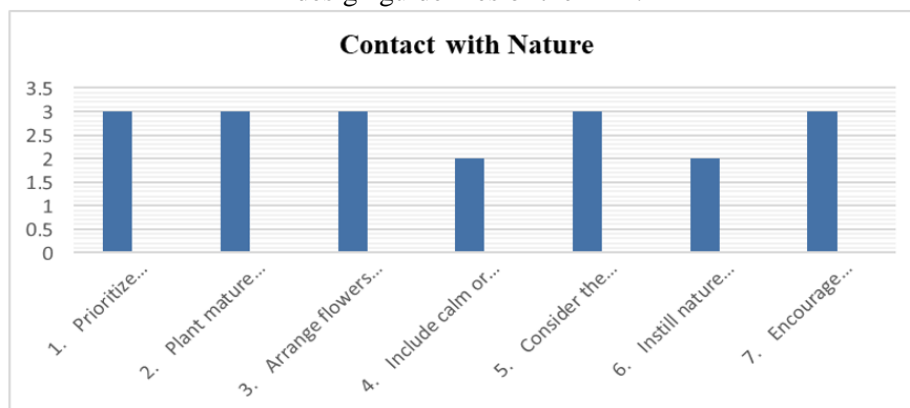


Figure 17. Explains the assessment result for the "Contact with Nature" element.



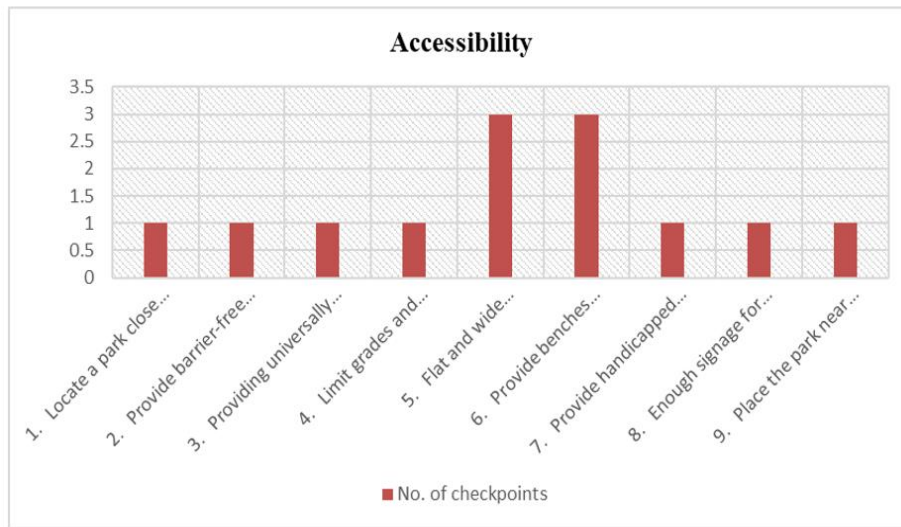


Figure 18. The evaluation outcome for the “Accessibility and Design for all” element.

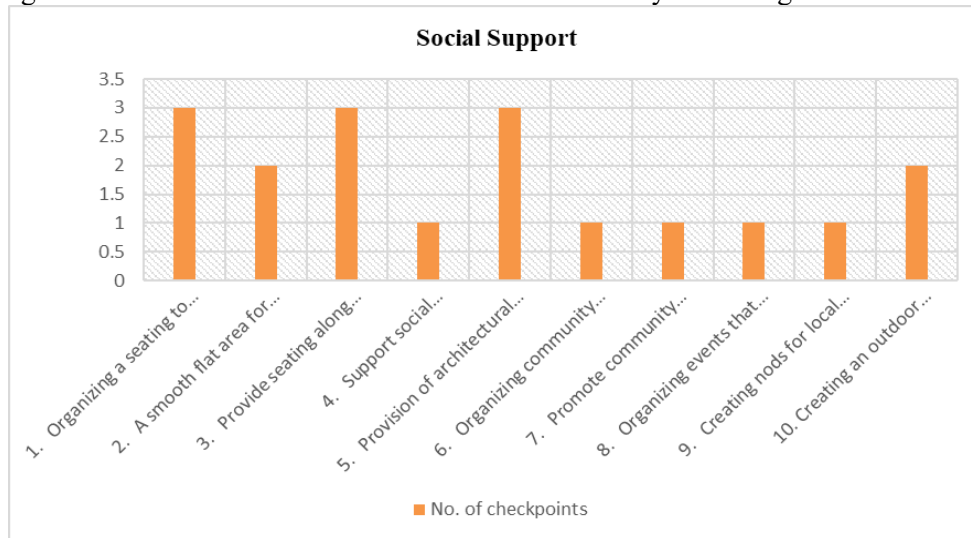


Figure 19. The outcome of the “Social Support and Inclusion” element

The percentage achieved by the researcher in the "Access to Park" item was 73.3%, while the ratio was 56.6% by the participants, and this result means the item is partially available at the park. Further, the "Opportunities for Participation" element achieved convergent results for both the

evaluators. The visitors' results were 85.1%, and the researcher's outcome was 85%. Concerning the "safety and security" element, the findings were 64.5% by the researcher, while were 53.3% by the participants of the current study. As shown in (Fig. 20), (Fig. 21), and (Fig. 22).

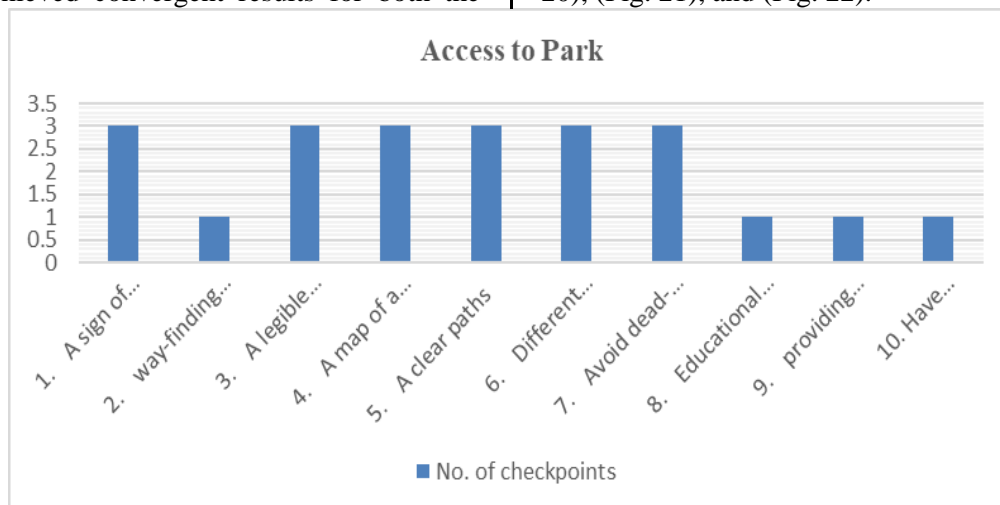


Figure 20. The result of the assessment of the “Access to Park” item.

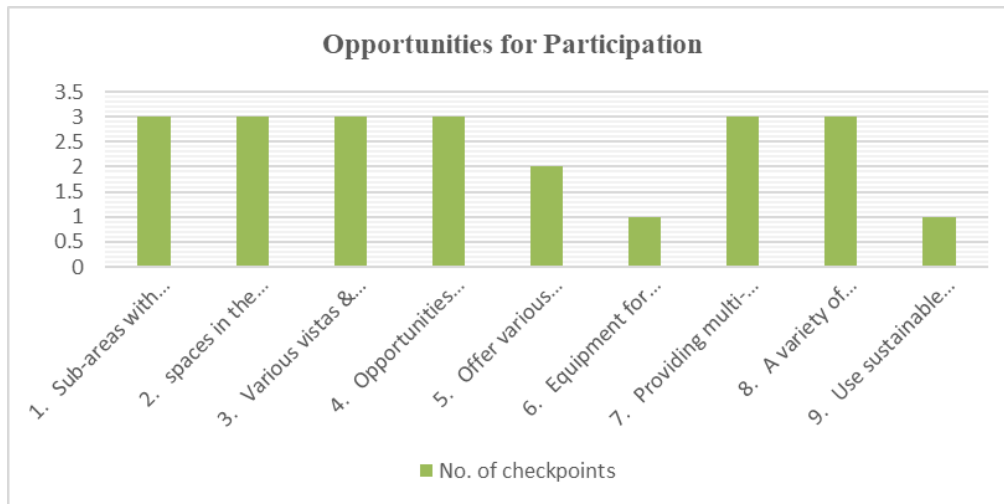


Figure 21. The outcome of the researcher's evaluation of the "Opportunities for Participation" element.



Figure 22. The result of the "Safety & Security" element

From the above-mentioned findings by both parties, it is obvious that the park understudy is acceptably complying with the criteria of senior-friendly parks. However, the general outcomes were not perfect enough for the age-friendly parks' guidelines. The overall result was ranged between 62.2% to 68.5% by participants and the researcher respectively. Depending on the outcomes of this research revealed that ABP has a prominent connection with nature due to the park's distinct location on the island in the middle of the River Nile at Aswan city. The highest percentage of the "connect with nature" element by both parties affirmed that connection.

The study findings asserted that Aswan Park requires further modifications, and improvements Concerning the aspects of "Accessibility, social support, Access to Park, Opportunities for Participation, safety, and security" to be qualified well according to the AFP design requirements. Accessibility is a crucial element when visiting the park. It extremely affects the ease or difficulty of reaching and mobility through the park. When there is trouble in the trip to the park that negatively affects the non-recurrence of the visit. The

difficulty of accessing the park also leads to the social exclusion of a group of society members who are elders and disabled people.

Further, "social support" is considered the most significant element in achieving social sustainability and ensuring social inclusion among the various members of the society, particularly older people. Safety and security require further improvements as well. The park's visitors need to feel more secure through their journey to the park which influences positively on the visitors' flow and recurring the visit. Concerning "Access to Park and Opportunities for Participation" elements, Aswan park needs to have way-finding signage and informational signs in different languages and a display style that is suitable for all users. Also, the park's furniture and types of equipment could be moved and changed.

## 12- Recommendations

The study recommended some general/ basic elements that contribute to achieving livable communities and senior-friendly parks.

- Endeavoring to establish a new Egyptian code and law to qualify and rehabilitate parks and urban open spaces to be age-friendly.



- Provide inclusive standards for age-friendly parks in Egypt.
- Ensure accessibility to the park for all visitors especially the elder people.
- Support inclusion and social participation among all members of the community.
- Highlight the significance of designing an inclusive and age-friendly city and society that promotes inclusiveness and social inclusion of elders and the rest of the community.
- Conducting more analytical studies related to the other domains of the age-friendly city such as "Housing, transportation, and social support, etc."
- Raising the efficiency of the Botanical Park of Aswan due to its great history and importance concerning age-friendly park's design guidelines to be accessible, usable, and preferable destination for all segments of the community particularly elders.
- Teaching landscape engineers, designers, and architects about the great significance of designing parks to be senior-friendly for all members of the society and elders as well.
- Involving the elderly as key partners in society.
- Preparing a group of programs that encourage older people to engage in social life and society.
- It is necessary to evolve the models of community change that intentionally engage all generations in collective endeavors drawn to avail numerous populations.
- The study also recommends focusing on modification of "accessibility, social support, opportunities for Participation, access to park, and safety & security" elements of the park under-study to achieve the concept and requirements of an inclusive, safe, and age-friendly park.
- Improve existing parks to be suitable for all which reflects on creating healthier, engaged, connected, and vibrant societies.
- Create new dynamic parks and green spaces in communities that gather all people, and practice different kinds of recreation.

Ultimately, this study contributes as a guidance tool in creating comfortable, safe, and inclusive Parks that have Well-placed seating for all. Also, providing amenities such as readable signage, water fountains, safe restrooms, parking, and supporting activities for all ages of users. Further, preparing pedestrian and walking paths that should be suitable and wide enough to provide accommodation for all visitors.

### 13- Conclusion

This research examines the compatibility of the Aswan Park understudy with the design requirements of senior-friendly parks. The finding of this study pointed out that Aswan Botanical Park acceptably meets the guidelines of designing age-friendly parks. However, some of the guidelines do not fulfill satisfactorily for some elements of Aswan Park given senior-friendliness. Many factors should be considered when designing parks in light of the age-friendly ones. Parks should be suitable, usable, comfortable, preferable, and safe spaces for all segments of society, especially older people. Some of those factors could be improved, while the other ones should be attention when designing new parks to be proper for elders.

In practice, age-friendly environments are those that are free of social and physical barriers and are reinforced by-laws, policies, procedures, technologies, and services. Parks that promote age-friendliness, also enhance a person's health and maintain mental and physical faculty throughout the life path. Also, age-friendly parks enable people especially elders to continue doing the things they prefer and appreciate. Landscape architects and designers need to start designing facilities and communities that are older-friendly to create a pleasing living context for elders. Ultimately, a senior-friendly city is friendly for people of all ages and abilities, not just "elderly-friendly". In addition, age-friendly parks ensure achieving social inclusion, well-being, reducing anxiety, negative thoughts, and social exclusion, thus, achieving social sustainability.

#### List of Abbreviations

**WHO:** World Health Organization, **APA:**

American Planning Association, **ABP:** Aswan Botanical Park

**AFP:** Age-Friendly Park, **AFC:** Age-Friendly City,

**AFCC:** Age-Friendly Cities and Communities

**SAFE:** Smart Age-Friendly Ecosystem, **CASE:**

Concept of Age-friendly Smart Ecologies.

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