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ANALYSIS ON PUBLIC GREEN SPACES IN KOLFE KERANIYO SUBCITY, ADDIS ABABA, ETHIOPIA

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Abstract: The objective of the study was to analyze current situation of urban public green spaces in terms of availability, accessibility, present condition, conversion, use and activity, management and public participation in three woredas of Kolfe Keraniyo Sub city, Addis Ababa on the basis of commons concept. Multistage random sampling was employed to select 120 respondents from the study site. Snowball sampling was also used to select interviewees from the study area. Questionnaire, in-depth interview and direct observation were employed for the study. The study focused on urban green areas found in the study area. The severity index value revealed that availability and distribution of green areas were good. The severity index value of accessibility indicated 69.53% for the green areas which was found in easily accessible range. Green areas in the study area were found partially or totally converted for different purposes like car parking and waste dumping. Some were fenced without any function and some changed to shopping centre. Some of the green areas were means of social contention. Generally the study shows that urban open green areas were used for various purposes causing misuse. Therefore, Hardin's argument of the tragedy of the commons resonates in the case of Kolfe Keraniyo subcity when the rational individuals compete to maximize their individual gains out of public open green areas. The study reveals the deterioration of physical and aesthetic sides of green areas in the study site and recommends for the development of policy and implementation framework on how to access and use public green spaces without endangering their physical and aesthetic wellbeing.

Key words: Accessibility, Availability, Severity index, Urban green spaces

INTRODUCTION

Urban open space is a broad notion which encompasses parks, green spaces and other open areas. Urban open space can be natural or artificial. It is a vital part of urban landscape with its own specific set of function. As a result, it contributes to the quality of life in many ways (Burke and Ewan, 1999). Urban green areas have environmental and social significances. Open space provides socio-psychological services, which are critical for the livability of the city and well-being of urbanites (Chiesura, 2004). However, the evident problems that people of developing countries encountered, pertaining to this subject, has been completely neglected for long (Caruana, 2004). Yet, it is an undeniable fact that recent improvements in living conditions of metropolitans came through lots of hard work, which required industrious labors accompanied with formal and appropriate leisure.

Addis Ababa, the country capital of Ethiopia has been experiencing rapid urbanization. The growth of the city and the resulting customization with urban life styles are important social changes. The city has become the center of agglomeration. One of the many services which are provided by the city administration is provision of open green spaces; for recreation, social interaction and for balancing the ecosystem of the city. Urban open green spaces are crucial parts of urban land with its own specific set of function (Burke and Ewan, 1999). Besides, it has an important environmental payback (Chiesura, 2004). Open spaces in cities are places to celebrate cultural diversity, to engage with natural processes and to conserve memories.

Addis Ababa is one of the most inhabited, but still poorly designed and administered cities of Africa (Kumlachew, 2007). Over the past decades

of years, the rising population in Addis Ababa has led to destructive exploitation of diverse natural resources on a wide scale. The effects of this problem include degradation and pollution of environmental resources. The growth of the city has also resulted in conversion of public green spaces which should have been left vacant. Moreover, the prevalence of illegal settlements, which include illegal occupation of the reserved open spaces such as parks, green area, and unmanaged urban sprawl with high rates of waste materials generated from households, which are being dumped in prohibited public open spaces, has contributed much to the situation. On the contrary, weak management of urban environmental resources and lack of effective strategy, commitment and culture of participatory governance have become the main features to exhibit. Lack of awareness about the values of open urban areas also contributes for the mismanagement of the green public open spaces. Since the current meaning and scope of open space is very complex and broad, this study mainly focused on cooperative housing green areas.

Reserved Urban open public spaces, broadly defined as lands protected for urban developments, are important not only for being abode to some rare species of vegetations and ecosystems but also for the educational and recreational and social interaction opportunities they provide to urban residents (Miller and Hobbs, 2002). Urban open public spaces provide renewal, healthy living, social inclusion and culture, leading to an improved quality of urban life (Caruana, 2004). On the other hand, they are places of physical exercise, rest, relaxation for the community and places of civic engagement. Similarly, public spaces in Addis Ababa serve as forum spot for political demonstrations; and as a social space where by the community performs its historic, religious and other socio cultural activities which include: sport tournaments, music festivals, and recreation and ritual observances (Kumlachew, 2007). However, despite their significances and role in urban milieu, urban public green places in Addis Ababa are facing risks which are commonly faced by common resources. These include conversion, encroachment, weak preservation, and deterioration both in physical and aesthetic forms. In addition, they are also struggling with problem of management, organization and design. About 82% of the population of Addis Ababa lives in unplanned neighborhoods, which lack basic urban facilities and infrastructural networks such as open spaces and recreation areas. The study critically analyzes the existing situations of urban public green spaces in Kolfe Keraniyo sub-city.It gives special emphasis on the condition, availability, conversion, ways of management and the way the community or the society utilizes urban green areas.

MATERIALS AND METHODS

Description of study site

Addis Ababa is located at the geographical centre of Ethiopia, lies between 8°55′ and 9°5′ North latitude and 38°40′ and 38° 50′ East longitudes. Established in 1887 with few tents and scattered huts, Addis Ababa has shown a great geographical expansion to the area of about 530 km². It has an average temperature of 16° C and lies at 2400 meters above sea level. Currently, the city is a diplomatic capital for Africa. Based on the 2007 census results, Addis Ababa has a total population of 2,738,248. Addis Ababa contains 22.9% of all urban dwellers in Ethiopia. For administrative purpose currently the entire city is divided into 10 sub cities and 116 woredas of which Kolfe Keraniyo sub city is the one with a total population of 428,654 (Central Statistical Agency report of Ethiopia, 2007). Currently for administrative purpose the Kolfe Keraniyo sub city is divided into 10 woredas and providing basic public services at local level. The most common problems found in the sub city are unemployment, housing problem, poor quality of education, health problem, inadequate market infrastructure, waste disposal and shortage of recreational centers for the youth (Kolfe Keraniyo Strategic Plan, 2008). Kolfe Keraniyo sub city is located in the Western out boarder of Addis Ababa, where most migrants informally settle on the vacant and public spaces and engage on informal activities and construction of slum houses for sustenance. Fig. 1. shows the map of the study area.

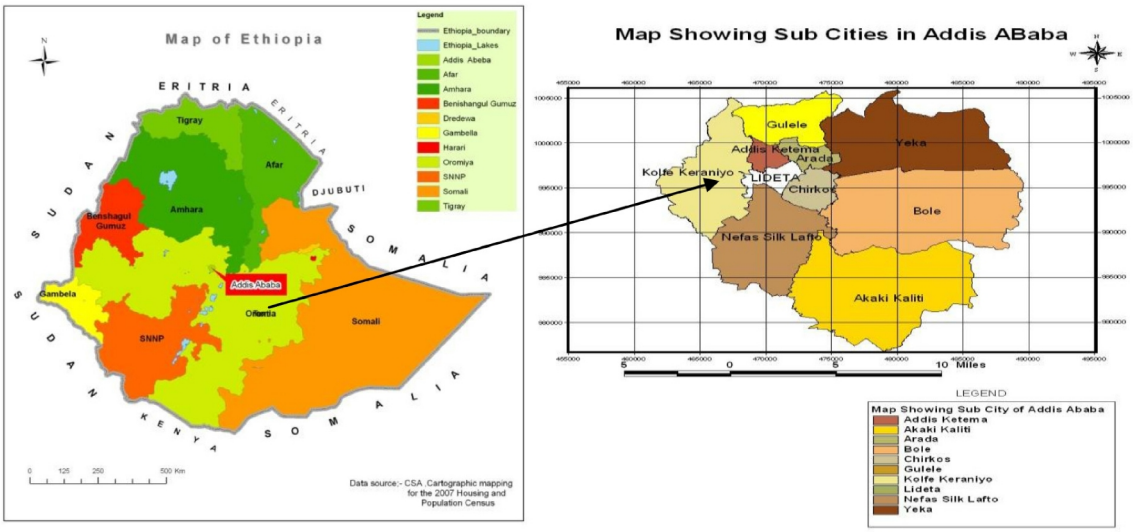

Fig. 1. Map of the Study Area (Source: Central Statistical Agency Report, Ethiopia 2007)

Sampling methods

The study utilized both primary and secondary data sources. Questionnaire survey among 120 residents from 3 woredas of the sub city was selected. In-depth interview can only fetch in-depth insights into the management, condition, accessibility, availability, conversion and use and activity of the green spaces. To this end, separate interview questions were prepared for two groups of interviewees: for experts and officials of government; and residents adjacent to the green areas. Interview questions were structured in the form of check lists. This was done to make sure that the same questions were posed to members of the respective groups. The questions were framed to attract open responses in a flexible order to allow for a natural interaction between interviewer and interviewees. Key informants' interviews were carried out with different government officials and experts. The researcher carried out personal observation on green areas in the study area and planned to carry out both covert and overt non-participant observation, which was designed to generate data about the condition of green areas and their use at the time of the study period, and also enables to know how user's activity and behavior influence the green areas.

Sampling Techniques

The sub city is selected purposively and then three woredas were selected out of the ten woredas by random sampling. Multi stage random sampling was employed. From each woredas, eight housing blocks, which are adjacent to the public urban open spaces, was selected through systematic random sampling. Following this, five sample households from each selected housing blocks were chosen using systematic random sampling technique. For all cases, the sampling frame of the study, which is the housing units, can be obtained from the woredas and Census 2007. Consequently, using the aforementioned sampling procedure 120 sample respondents from three woredas were taken for the structured questionnaires distributed. Respondents for the in-depth interview were selected from residents who inhabited the area for long time. 'Snowball sampling' was employed for this purpose. To this end, the researcher first contacted the Woreda Park and Beautification experts and carried out interviews. Based on the information obtained from the experts, the researcher interviewed the community leaders. Following their suggestions, the researcher carried out interviewees with residents of the three sample woredas.

Data Analysis

All data was analyzed using statistical tools for simple percentages, frequency analysis and severity index calculations. Severity Index analysis method was used by calculating severity index (Longe and Ukpebor, 2009). In order to assess the respondent's perception towards, general condition of Green spaces management and maintenance, accessibility of the available green spaces related questions on the issue from the questionnaires were grouped as follows for ease of analysis. Group (1): The availability of public urban open green spaces, Group (2): Management and maintenance of urban open public spaces, Group (3): Assess the condition of public green areas. On the point scale, the ratings given to each group are as follows: (0) Strongly Disagree/ very hard /very dissatisfied (1) Disagree/ hard/dissatisfied (2) Neutral/ neither easy nor hard/ I do not know (3) Agree/ easy/satisfied (4) Strongly Agree/very easy/very satisfied. SPSS 15.0 was employed to analyze and describe the results of the study.

RESULTS AND DISCUSSION

Availability of Green Areas

In the study area out of the total 120 respondents, it was found out that 84.03% (100) of the respondents agreed that there was availability of green areas in their residential area. Kumlachew (2007) reported that the distributions of urban open public spaces are not even in Addis Ababa. It was also found out that the large amount of land was devoted for green areas in Woreda 01 while, the lowest was found in Woreda 05. Similarly largest green area was found in Woreda 12 having a total area of 3000 square meters. Table 1 shows the size of existing green areas in each woredas. Baycan et al. (2009) reported that the green spaces have a complex and multidimensional structure and contain important values that contribute to the overall quality of urban life.

Table 1. Size of Existing Green Areas in each woredas

Sl. No	Woreda	Total area (M^2)
1	01	2961
2	05	1272
3	12	3000
	Total	7233

Accessibility

Accessibility can be defined as simplicity with which activities in the society can be reached. Table 2 shows the calculated value of severity indices of the accessibility of the green areas. It was found out that the severity indices of green areas is 69.53% and this value ranges between 62.5<SI<87.5. Hence according to adopted rating classification, it is possible to conclude that accessibility of green area is 'easy'. It indicates that the green area is located within the easy reach and daily movement of residents. Accessibility, regardless if it is measured in time, cost, distance, or population, is the most important variable that one must consider in the study of green areas. Accessible green areas will be more frequently visited and used. They will also better known because they are located in more legible places and at the same time they exist within the people's daily movement thus this can best be expressed in terms of their accessibility (Stahle, 2005).

Inclusiveness

Out of the total respondents in the study area, it was found out that 53.33% (64) of the respondents indicated that the green areas which are found in the study area are 'inclusive', while, 27.50% (33) of the respondents indicated that the green areas in the housing cooperative as 'not inclusive'. The remaining 19.17% (23) of the respondents responded that they 'do not know' anything about the inclusiveness of the study area green areas. Figure 2 shows the

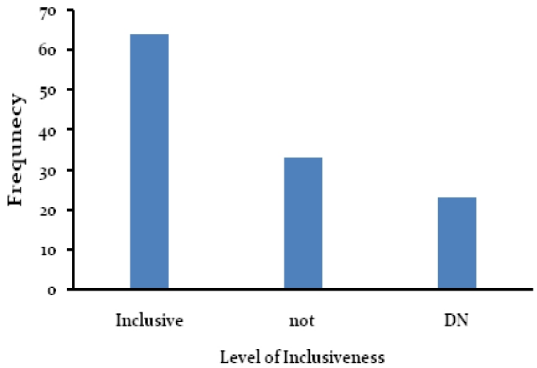

Fig. 2. The inclusiveness of the green areas in the study site.

Table 2. The Accessibility of existing available urban open public spaces in terms of easiness to reach

Types of urban open public spaces		Availability of green areas						
		4 VE	3 E	2 N	1 H	0 VH	Total	SI
Green Areas	NR	46	38	12	10	14	120	69.53
	PR	38.66	31.93	10.08	7.56	11.76		

(SI): Severity index, (NR): Number of respondents, (PR): Percentage of respondents: (VH): very hard, (H): hard, (N): neither easy nor hard (E): easy, (VE): very easy

inclusiveness of the green areas in the study site. According to Bell et al., (2008) research on urban green spaces and human health and wellbeing has steadily expanded beyond its original focus on landscape preference, and social scientists and public health researchers have been studying how various aspects of human health and well-being are affected by exposure to rich green spaces.

Condition of Green Areas

Table 3 shows the current conditions of green areas in the study site. At woreda 12 there are 18 green areas which are registered and identified by the woreda beautification park administration and development office. However, except one green area which is developed, the rest all green areas are serving the purpose they are not meant for. As a result, some are converted; others were left open. In this woreda majority of the green areas were fenced, vacant without serving purpose and used for car parking purpose. Simultaneously, their social and psychological significance were found to be forgotten while serving unintended activities. It has only been observed that children were playing in certain open and derelict green areas. Except those green areas, almost all were not used for recreation purpose during the study period. Consequence was that green areas have lost their social significance and physically deteriorated in the urban milieu.

All the green areas which are found in the three woreda share same feature. However, in woreda 01 majority of green areas have no clear distinction between the green areas and the roads. As a result, the green areas were found to be overlapping with roads and used by pedestrians and cars of residents. Hence, it is easily observed that the green areas have a clear design problem. It was also observed that none of these green areas were fenced. They are openly accessed by every social group. Almost

Table 3. Current condition of green areas in the study area

Current Condition	Woreda 01	Woreda 05	Woreda 12
Undeveloped Open Green Areas Vacant	3	8	5
Substandard Green Area	1	-	3
Waste Dumping and Construction Material Storing	1	4	-
Empty undeveloped and fenced with metal sheet and plants	3	1	3
Used for housing partly and fenced	3		2
Fenced and used for development committee office	4	-	1
Work shop/ consumers association super market	-	2	1
Car parking	3	-	-
Basket ball court/ playing Ground for children	2	-	1
Encroached partially by the nearest house	-	4	2
Total	20	19	18

all the green areas in this woreda were abandoned, used for toilet purpose and also some were clearly encroached by adjacent houses. It was found out that there was no committee who controls these green areas. The consequence was that they were left open to everybody.

All green areas in woreda 05 serve purposes which were not meant at the planning stage. The green areas were completely misused except some green areas which are developed in few residents. In this woreda the unique thing was that the majority of the green areas were under the development committee of the woreda. The committee has a plan to develop its green areas. In sum, this woreda was found better organized than others in the study area.

When looking at the physical condition of the green areas, it is understood that green areas were highly deteriorated physically and aesthetically. Consequently, the social values of green areas were highly deteriorated. Due to this, the social significance of green areas in the urban matrix was found irrelevant to consider them as lost spaces.

Dena et al. (2008) reported that the decline of 'urban green space' has the potential to negatively impact the public health. In particular the study highlighted the increase in physical and mental health problems in the Australian population and the unequivocal benefits of urban green spaces in alleviating the symptoms associated with these health problems. The study showed that many institutions have successfully run either horticulture programs or implemented 'tranquillity gardens' as a means to treat patients with a broad range of problems from alcohol rehabilitation, depression, surgery recovery, brain injury and symptoms associated with an increasing aging population. These programs are evidence of the healing benefits of 'green space' and highlight the potential economic benefits to the health care system.

Means of Social contentions

According to interviews, formal and informal discussions revealed that majority of the green areas are controlled by some groups and used for their personal gains. Majority of the green areas were used as an income generating means. Consequently, this was one of the main reasons for contention among residents over the green areas in the study area. Similarly, the current activity which is done within the green areas doesn't allow all residents and some social groups to use green areas as they need. This is because some of them were used the areas for car parking. The need for securing and protecting parked cars inside green areas from any kind of theft, resulted entry to be strictly forbidden. As a result, access to the spaces is restricted. Hence residents get a feel of being neglected and excluded from using these spaces.

Awareness about the use of Green Areas

Result from the questionnaire 84% (100) of the respondents indicated that they know why the green areas are left in their neighborhoods while the remaining 16% (20) do not know why green areas are left on the neighborhood. This shows that majority of the respondents know well why these green areas are left.

Frequency of Use

In order to identify how and why people regularly visit green areas, respondents were asked related questions. Figure 3 Indicates 63.33% (76) of the respondents replied that they go to green areas frequently and the rest 36.67% (44) of respondents do not use the available green areas. The respondents' failure to go to green areas was either due to poor recreational facilities or for the reason that green areas were not meant for the intended purpose. The reason

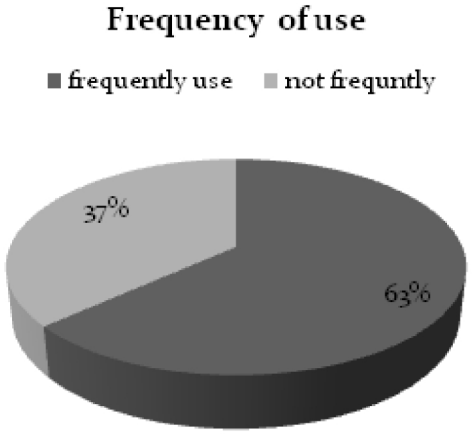

Fig. 3. Frequency of use of green areas

for the general poor utilization of the green areas was largely due to the absence of a legally administering body. Moreover, the land ownership tenure for the green areas was not clearly known and always debatable even for responsible government bodies.

Green Areas Management and Maintenance

The quality and nature of green areas are highly dependent upon the management and maintenance system. Supporting this, Dober (1969) stated that the urban environment management depends on the attitude, knowledge and financial resources of its various owners. In order to assess the condition of green space with regard to their operation and function, sample respondents were asked same. Hence, 84.87% (100) of them stated that green areas were not working properly while the rest 15.13% (20) of them said they were functioning well.

Table 4 shows that the cleanliness of the green areas has a severity index value of 33.6% while appearance of the green areas has 30.25% which are found in the same dissatisfied range (12.7<SI<37.5). This indicates that the community was dissatisfied by both the clutter and poor appearance of the green areas.

The severity index values for the security of green areas and people's behavior are 57.35% and 46.84% respectively which are found in the same neutral range (37.5?SI<62.5). The value for distance from green spaces is 68.48% which falls in the satisfied range (62.5<SI<87.5). The finding shows that respondents were comfortable about the proximity of green areas but remained neutral about the security situation around the green areas and people's behavior.

Conversion of green areas

Respondents were asked whether they had green areas in the very beginning or not, and 78.1 % (93) of them replied that they had while the rest 21.9% (27) replied the opposite. Out of the total 57.5% (69) of them replied that they still possessed their green areas while the rest 42.50% (51) of the respondents indicated that their green areas converted to different purposes. Of the same respondents, 58.23% (22) of them said that these green areas were converted either 'partially' or 'totally' into other different activities like micro and small enterprise, private compound, housing (legal/ illegal), school, condominium, parking,

Table 4. Respondent's perception towards the green areas' cleanliness, appearance, security, distance and users behavior

		Availability of Green Areas						
		VS 4	S 3	I 2	D 1	VD 0	Total	SI
Cleanliness of green	NR	10	9	20	53	27	119	33.61
	PR	8.4	7.56	21	44.53	22.68	104.17	
Appearance of green spaces	NR	1	9	28	57	24	119	30.25
	PR	0.84	7.56	23.52	47.89	20.16	99.97	
Security of green spaces (crime)	NR	21	43	22	15	18	119	57.35
	PR	17.65	36.13	18.49	12.61	15.13	100.01	
Green areas in terms of distance	NR	26	54	23	14	2	119	68.48
	PR	21.85	45.38	19.33	11.76	1.68	100	
Users behavior	NR	11	14	53	31	10	119	46.84
	PR	9.24	11.76	44.54	26.05	8.4	99.99	

building built up on it, housing or to consumers association shop and store. The results indicated the relevance of the Tragedy of commons, the idea put forward by Hardin (1968).

Participation of the local community

Participation is essential for sustainable development. Community participation for the development and management of green areas is also undeniable. The participation becomes more realistic and applicable particularly at grass root level. Considering this, respondents were asked the extent of their participation in greening, cleaning and development of green areas. Out of the total 120 respondents, 47.06% (57) of them replied 'agreed' to express their participation while 52.94% (63) of the respondents expressed their absence of interest. The absence of interest of the participants is associated with the awareness they are having for the importance of green areas in urban environment.

CONCLUSIONS

Green areas in the study area are mostly used for unintended purposes and some are converted to other activities. It is found out that they were used as store and meeting place, as consumer's association shopping center and as car parking, and waste dumping sites and some were converted while other were means for social tension. Physical and operational activities and attributes could be causes for this. Some of the green areas were fenced where no activity was carried out inside. Other green areas were used for completely unintended purposes which included car parking, store for the construction of materials, meeting places, consumers' associations super markets and in few areas, as toilets. As it stood, it could be said that they were misused. The recently converted green areas into parking lots were considered as a good source for income generating activities. Some green areas were inaccessible for residents. This is particularly true for car parking areas where nobody was allowed to come in except car parking service users. Conflicts between neighbors over green areas were common as every resident claimed to colonize for his (her) own. In some instances, when such conflicts occurred, it was common to accuse each other of misusing green areas leaving their social issues aside. This was largely related to the absence of policy and clear definition of green spaces. Following the existing legal process, some green areas were legally converted into housing sites, workshops and school. Others were illegally converted into stores and housing units. Temporarily built rooms, which had flourished during constructions, were later converted into residential or commercial houses. The participation of the community was found to be limited to contributing money. Finally, some green areas are preserved only because they are not suitable for any kind of construction. The study recommends urgent need of reframing of the policies to overcome the bad effects of the issue.

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