
Destruction of urban green spaces: A problem beyond urbanization in Kumasi city (Ghana)

Collins Adjei Mensah^{1,2}

¹Department of Geography & Regional Planning, University of Cape Coast, Ghana

²Centre for Urban & Regional Studies, Sch. of Geography, Earth & Environmental Sciences, University of Birmingham, UK

Email address:

collinsadjeimensah@gmail.com (C. A. Mensah)

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Abstract: Urbanization remains a single predominant factor that is continuously linked to the destruction of urban green spaces. This has created a knowledge gap of limited attention to other critical factors that deplete urban green spaces in diverse ways. Using Kumasi city (Ghana) which is suffering from rapid deterioration of its green spaces as a study area, this paper sought to fill this gap by exploring other key factors aside urbanization that are responsible for the destruction of urban green spaces. The paper relied on a case study research approach and triangulated data collection techniques such as in-depth interview, focus group discussion, personal observation and retrieval of archival data. In all, 30 in-depth interviews, 10 focus group discussions and numerous personal observations were carried out. It was observed that apart from urbanization, laxity in the enforcement of development controls, problem of ownership of green space lands, low priority to green spaces, uncooperative attitudes of the general public, poor culture of maintenance and lack of coordination among the allied bodies on green spaces play a critical role in the destruction of urban green spaces. The paper therefore concludes that for a city to have a preserved and sustainable urban green space, a broader public policy or city development plans that take into consideration the factors highlighted by the paper in addition to urbanization is essential.

Keywords: Urban, Green Spaces, Destruction, Factors, Kumasi, Ghana

1. Introduction

Urban areas serve as dynamic and complex entities that harbour heterogeneous mixture of built environment, natural, semi-natural and modified habitats for the utilization of human beings, plants and animals [1-3]. Green spaces represent an important environmental asset of urban areas that covers all open spaces primarily covered by vegetation which are directly (e.g. active or passive recreation) or indirectly (e.g. positive influence on the urban environment) available for use [4]. They are often natural or semi-natural in nature and include parks, gardens, allotments, wetlands, trees, and forests. It has been well acknowledged that green spaces offer immense benefits to the development of urban areas and these benefits stem from social vitalities to environmental well-being. Notable among these benefits are creating avenue for recreational opportunities, enhancing physical and psychological well-being, ameliorating local climate, improving air quality, creating employment opportunities, and increasing the values of properties sited around them [5-8].

Over the past two decades studies shows that urban green spaces are fast disappearing or been destructed at an alarming rate in urban areas. Urbanization remains a single factor that has been predominantly linked to causing such destructions with many studies alluding to this [9-11]. The urbanization takes the form of either densification of urban core or spatial expansion of urban areas outwards (urban sprawl). Densification of urban core refers to high population density and increase in the built environment (building structures) in relation to open spaces [12]. The urban sprawl on the other hand relates to outward expansion of urban areas often taking place in the urban fringe, peri-urban lands and former agricultural lands [13]. Studies by Honu et al. [11] found out that rapid urbanization has resulted in the conversion of several urban lands into built up structures and excessive destruction of the natural ecosystem including green spaces. A study on 386 European cities found a decline in the coverage of green spaces and attributed urbanization as a major cause of this problem with many of the cities increasing in size (population and land area) to cover lands reserved for green spaces [14]. In USA, McDonald et al. [15]

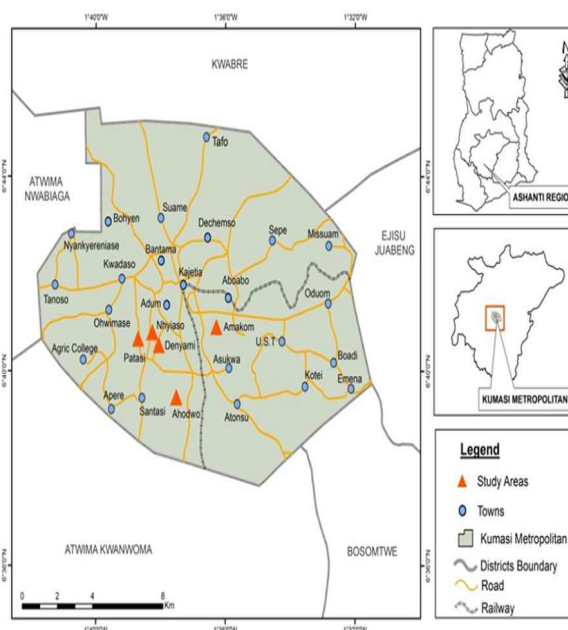
observed a loss of about 1.4 million hectares of green spaces due substantially to rapid urbanization taken place in most cities. Similar is the story in most developing countries and Africa in particular where the rate of urbanization has been identified to be high and expected to contain high rate of urbanization in future [16]. According to Fanan et al. [17], urbanization and its accompanying urban sprawl have caused Abuja (the capital city of Nigeria) to lose substantial part of its green spaces from about 21 percent of the total land area in 2001 to about 12 percent in 2006. The total land area of Kumasi (the second city of Ghana) in 1950 was 25km² but due to urbanization it increased to 182km² in 1963 and as at 2011 it was 254km² [18]. Such expansions have caused massive destruction to Kumasi's green belt and other essential green spaces. A study on some selected African cities such as Abidjan (Cote D'Ivoire), Lagos (Nigeria), Dakar (Senegal), Accra (Ghana) and Freetown (Sierra Leone) found rapid urbanization causing the conversion of many reserved green space lands for infrastructural development to meet the soaring urban population [13].

Although urbanization serves as an important factor in the destruction of green spaces, however, there are other equally important factors that also contribute greatly to the depletion of urban green spaces but they have not been given the necessary attention. Most of the literature on green spaces tend to over concentrate on urbanization as a factor but fails to touch or give much credence to other eminent factors. It was therefore to bridge this knowledge gap that this study was undertaken to explore other major factors apart from urbanization that are responsible for the loss of urban green spaces. The study concentrated on Kumasi (Ghana), once the garden city of West Africa but now experiencing excessive deterioration of its green spaces [18-20]. The paper gives a broader view on the losses of urban green spaces which is now a major problem in many cities and hence draws ones attention to other key factors (aside urbanization) that are militating against the rapid destruction of urban green spaces. This effort is expected to serve as a guide for policy makers, city authorities and environmental agencies in their decision making process to take broader measures that takes into account the factors highlighted by this paper in addition to urbanization to protect green spaces in the physical landscape of cities.

2. Study Area

Kumasi is the second city of Ghana and was founded in 1680 by the then Ashanti King, Osei Tutu I as the capital of the Ashanti Kingdom [21]. It is located between latitude 6.35°– 6.40° and longitude 1.30° – 1.35° and has a total land area of 254km². The 2010 Population and Housing Census of Ghana put the total population of Kumasi at 2,035, 064 making it the most populated city in Ghana [22]. The estimated annual population growth rate of the city is around 5.4 per cent [23]. Kumasi Metropolis falls within the moist semi-deciduous vegetation zone of Ghana which has favourable soil conditions that support farming and green

vegetation. The rich vegetation cover of the city led to the development of the Kumasi Zoological Gardens. Kumasi earned the accolade the Garden city of West Africa after the 1945 city plan of the area was implemented. This plan devoted substantial part of the city's landscape to green spaces [24, 25]. This condition made Kumasi to have a beautiful physical landscape with green spaces interspersing with physical developments. At the moment, studies show that many of the beautiful green spaces that the city have such as the Adehyeman gardens, Kumasi Children's Park, Kumasi Zoological Gardens (Kumasi Zoo), Parks & Gardens at Patasi, Abbey's Park, Fante Newtown Park, and lawns and shrubs at the city centre are either in precarious state or have substantial aspect been encroached upon [18-20]. In addition to this, Kumasi used to have green belts and these appeared on maps as nature reserves which passed through neighbourhoods such as Bantama, Kaasi, Atonsu Aboabo, and Subin but now most of these green belts have become vacant [20]. In consultation with the Department of Parks and Gardens, the official body in charge of green spaces in Kumasi five neighbourhoods (Amakom, Ahodwo, Nhyiaso, Patasi and Denyami) well noted for green spaces were selected as study sites (Figure 1). The Central Business District (CBD) and other key spots which have green spaces were also points of interest for the study.



Source: Department of Geography and Regional Planning, University of Cape Coast (2013)

Figure 1. Map of Kumasi showing selected sites for the study

3. Materials and Methods

The study employed a case study research strategy which is oriented towards having empirical enquiry that investigates a contemporary phenomenon within its real-life context in order to have a broader understanding

about the phenomenon in question [26, 27]. The study was qualitative in nature. This was as a result of the focus of the study which was directed towards informing public policy and as such getting broader and detailed information through qualitative research was crucial. Theoretical/purposive sampling technique was utilized and this was employed to select individuals who concerned themselves to the topic under study. Four categories of people were involved in the study; Kumasi city authorities, officials of allied bodies on green spaces, opinion leaders and residents of Kumasi. In accordance with Yin's [27] recommendation of using a variety of data in case studies so as to enrich the findings of such studies, four data collection techniques were utilized. In-depth interviews, focus group discussions, personal observations and archival data in a form of the 2010-2013 development plan of Kumasi and the layouts of the five shortlisted neighbourhoods were used.

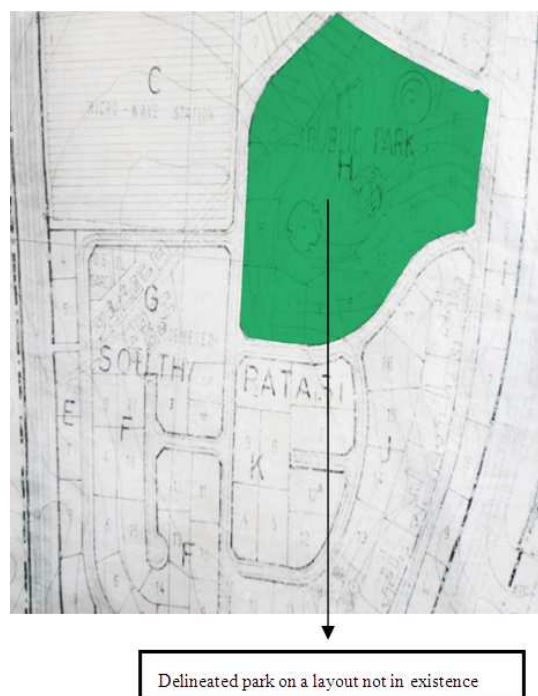
In all, 30 in-depth interviews were conducted for the Kumasi city authorities, opinion leaders and officials from cognate agencies on green spaces which included the Department of Parks and Gardens, Wildlife Division, Forest Service Division, Town and Country Planning Department, Environmental Protection Agency (EPA), Department of Urban Roads and the Development Control Unit. Ten (10) focus group discussions (FGDs) were organized for the five shortlisted neighbourhoods with two FGDs taken place in each of the neighbourhoods. Numerous personal observations sessions were also undertaken on the physical environment of Kumasi to get first-hand information on the current state of green spaces.

4. Results and Discussion

Six broad factors were found as the principal factors affecting the rapid destruction of green spaces in Kumasi aside urbanization. These came out through thorough and rigorous analysis of some secondary materials, personal observations and interviews with a variety of stakeholders on green spaces in Kumasi. These factors have been discussed into detail below.

Laxity in the enforcement of development controls was the predominant factor that came out from the analysis of the study to deplete green spaces in Kumasi. Development controls are tools or mechanisms used in town planning to guide the growth of cities and improve the quality of life of the residents [28]. Planning schemes/layouts or master plans that were used as a guide to control physical developments of Kumasi by the city authorities contained many provisions on green spaces that were not in existence on the ground. This was exposed through a careful cross examination of the layouts of the study neighbourhoods and the actual physical developments that have taken place in the neighbourhoods in question. Areas demarcated on the layouts as parks, nature reserves, wetlands, and forest reserves were either not in existence or were substantially encroached upon for

different land uses. This problem was apparent in all the study neighbourhoods and came up strongly in the focus group discussions. For example, at the Patasi Neighbourhood, a large proportion of land delineated on the layout as a public park was nowhere to be found (Figure 2).



Source: Department of Town and Country Planning, 1978

Figure 2. Layout of Patasi Neighbourhood showing a demarcated park which is not implemented



Source: Department of Town and Country Planning (1993)

Figure 3. Layout of Danyame Neighbourhood showing green spaces which have not been implemented

Similarly, a public park and nature reserve which were visible on the layout of Danyame Neighbourhood were not implemented in the area (Figure 3). The park was just on paper, it was not in existence whilst the nature reserve was seriously encroached upon. This observation corroborate Saporiti's [29] finding on developing countries where many public parks were found to only exist on paper but not implemented on the ground.

Representatives from the Kumasi city authorities engaged in the study admitted poor enforcement of development controls by their outfits as the cause of this problem and attributed that to many reasons. One reason that was found to contribute to this problem was insufficient resources base of the city authorities. The various bodies that constitute the planning body of Kumasi which were engaged in the study voiced out extensively the poor nature of resources of their outfits especially poor finances and lack of logistics. For example, the Town and Country Planning Department, Development Control Unit (Works Department), and the Development Planning Unit lamented on the poor capacities of their outfits to control the physical development of Kumasi due to lack of resources. A similar finding came out in a study by Okpala [30] which found planning organizations or agencies in many African countries such as Nigeria, Zimbabwe, Kenya, and Ghana to be weak in enforcing planning regulations due to limited finances, logistics and labour force. Issues of political interference, nepotism and favouritism were other possible reasons for the poor enforcement of development controls as pointed out by many of the respondents. Such issues have disrupted the Kumasi city authorities from strictly enforcing development controls because projects that have to be halted for intruding into green spaces or destructing these spaces were still allowed to progress. This was all because the owners of those projects have political or social ties with top government officials or the leadership of the city authorities. This finding conforms to the observations of Muderere [31] in Harare (Zimbabwe) where association of some high personalities with officials of planning organizations was uncovered as a major problem militating against the enforcement of development controls by the local planning authorities to protect the natural environment. This manifestation is very crucial as it put the integrity and credibility of the city authorities on the line and causes the general public to lose confidence in them. This has ended up in massive destruction of green spaces in Kumasi as there is no protection for these spaces.

Another factor that was very pervasive in Kumasi was the problem of ownership of green space lands. Who has absolute control over green spaces lands was a big problem. Three forms of land ownerships were found to operate in Kumasi [32, 33]. The first one deals with "vested lands" which are lands owned by the government of Ghana. All lands that fall within one mile radius from the Kumasi Fort come under this category. The remaining lands which cover greater part of Kumasi's land area are called "stool lands" and are held in trust by chiefs (traditional authorities) for the

Ashanti King who is the custodian of the land. There is yet a third category of land designated as "public lands" which are parcels of land allocated in the vested and stool lands that are acquired by the government of Ghana for public interests. Examples of such lands are public school lands, right of ways, sanitary sites, open spaces (grey and green spaces) and railway reservation [33].

The green spaces falls under the public lands and the constitution of Ghana delegates a body called Lands Commission to control and manage such lands together with other allied state lands agencies. However, interview with a representative from the Lands Commission in Kumasi showed that they do not have much control over green spaces in Kumasi. The representative from the Lands Commission remarked as follows:

The constitution of Ghana and the law establishing my outfit gives us the legal backing to manage all public lands including green spaces but this is not the reality on the ground. The traditional authorities (chiefs) also claim ownership of green space lands since most of these spaces fall within their area of authority. As a result of this, most of the green space lands such as nature reserves and wetlands have been sold out to private developers by the chiefs without our knowledge (Mr. Y, Lands Commission, 07/02/2013).

A further probe on the matter through interviews with selected chiefs provided further evidence on the problem of ownership of green space lands. The interaction with selected chiefs revealed that many lands preserved as nature reserves and public parks have been given out by the chiefs to private individuals for different land uses. For example, one of the chiefs said this:

Due to immense social problems that my community was facing I released some portions of the community's land (nature reserves) to private individuals to get funds to enhance the growth of my community (Chief of Community B., 13/03/2013).

It can be deduced from comments above that some chiefs in Kumasi recognize public lands such as nature reserves and wetlands as the property of their neighborhoods of which they are heads but not the property of the government of Ghana (controlled by Lands Commission and other government agencies). This conflict of ownership over green space lands is a peculiar problem in Kumasi and is having devastating effects on the development of green spaces. It has claimed the destruction of several green spaces in Kumasi. This problem departs from the situation in many cities across the world such as Paris (France), Curitiba (Brazil) and Tokyo (Japan) where the local city authorities (government) have much control over green space lands [34]. In Kumasi, much of the city's green space lands (about 60 percent) are in the hands of chiefs (traditional authorities). This problem has root in the traditional and cultural set up of Kumasi which in the olden days was entirely under the control of the Ashanti king. This monarchy system still operates in Kumasi alongside the authority of the government of Ghana. Another reason for the conflicting control over green space lands is insufficient

reclamation of such lands by the government of Ghana from the traditional authorities. Such lands are supposed to be acquired by the government of Ghana for public interests but it was found out that due diligence have not been made on many of such lands. This makes the traditional authorities to still claim control over green space lands and release those lands for their personal interests since the needed legal procedures have not been met by the government of Ghana on those lands.

The next factor that the study discovered was uncooperative attitudes of the general public towards the preservation of green spaces. In many parts of the world the good efforts shown by the general public to preserve green spaces cannot be over emphasized. For example, in Mexico, the enthusiasm and dedication shown by the general public in preserving public spaces such as green spaces in some towns has been acknowledged by Bonilla [35]. In Kumasi, a different thing was observed. The level of commitment of the public in preserving green spaces was poor. All the allied bodies on green spaces in Kumasi expressed great worries about the uncooperative behaviour of the residents on the preservation of green spaces. Some of the worries expressed by the study organizations included the following:

The general public does not care about green spaces in Kumasi. They have destroyed most of the lawns and shrubs created at the CDB to beautify the city. They use such places as walkways or spaces to sell their items (Mr. P., Town and Country Planning Department, 03/03/2013)

The general public makes our work difficult for us. They always leave their animals on free range to destroy many lawns, shrubs and other green environment in Kumasi (Mr. Y., Department of Parks and Gardens, 23/02/2013)

Uncooperative behaviour of the residents of Kumasi is causing serious threats to green spaces. They think the preservation of green spaces is the work of only the city authorities. Instead of them to help us to preserve the green spaces they are unconcerned and have destroyed many aspects of green spaces for commercial activities (Mr. A., KMA, 16/01/2013).

Personal observation on the physical environment of Kumasi found wide spread destruction of green spaces by the general public for their selfish interests. For example, substantial part of Fante Newtown Park was destroyed by the general public for commercial activities (Figure 4). What was even much worrying was the deplorable condition of many lawns at the Central Business District (CBD). Several lawns set out at the CBD to provide beautiful and healthy environment were observed to have been destroyed by the general public for commercial activities (Figure 5). Trees, lawns and shrubs in many neighborhoods were also destroyed by the general public.

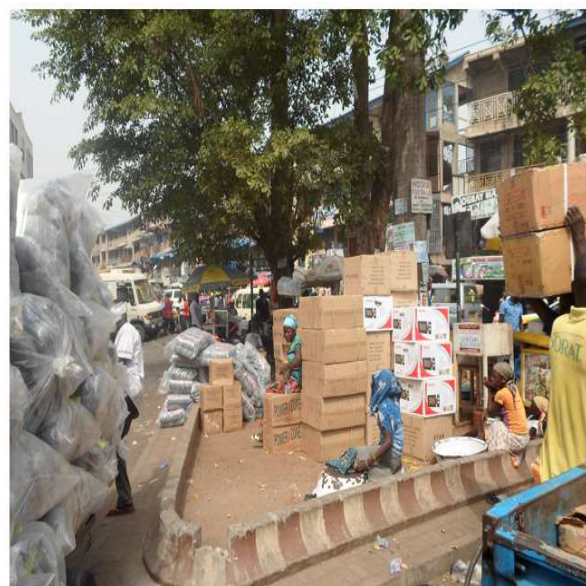
A similar finding came up in a study at Nairobi city in Kenya [36] where uncooperative attitudes of the general public resulted in the destruction of many of the city's public parks. Inadequate involvement of the general public in the management of green spaces is a probable cause for this problem in Kumasi. Other plausible cause is the poor

perception of the general public on green spaces since many of them perceive green spaces as resources that they are not responsible for their upkeep.



Source: Fieldwork, 2013

Figure 4. Parts of Fante Newtown Park destroyed for commercial activities



Source: Fieldwork, 2013

Figure 5. A lawn at Adum (CBD) destroyed by the general public for commercial activities

Low priority to green spaces by the Kumasi city authorities was another key factor that emerged from the study. Green spaces were found not be among the top

priorities of the Kumasi city authorities. Interaction with several departments or bodies that constitute the Kumasi city authorities confirmed this. For example, a representative from the Department of Parks and Gardens indicated that green spaces fall outside the top agenda of Kumasi. He stressed on the top priorities of Kumasi been poverty issues, education, health, and commercial activities with no budgetary allocation for green spaces. The Town and Country Planning Department, Wildlife Division, Forest Service Division and the EPA all stressed on poor attention given to green spaces and other environmental issues in Kumasi. The low priority was found to arise from the fact that green spaces are not considered as important resource that can offer many benefits to the city. That was not all, a further secondary analysis on the matter also confirmed limited attention to green spaces in Kumasi. There was no green plan or strategy to guide the development of green spaces as it is the case in many cities such as London, California, Paris and Copenhagen [37, 38]. The Kumasi city authorities rely substantially on a broad development plan (prepared in every 4 years) to address all the development needs of Kumasi. A closer look of the current development plan of Kumasi which span from 2010 to 2013 found no attention or concern for green spaces (KMA, 2010). Matters on education, health and housing were the major themes of the plan. This finding is contrary to the situation in many UK cities where maximum priorities are given by city authorities on the development of green spaces [38]. It also differs from Randrup and Persson's [39] study on green spaces in the Nordic countries (Sweden, Norway, Denmark etc.) which found much attention given to green spaces by city authorities. This problem has led to poor maintenance and complete alienation of many green spaces which have eventually caused the destruction of most of these spaces in Kumasi.

Poor culture of maintenance was also found as a major factor behind the deterioration of green spaces in Kumasi. Although the 2012 Global Garden Report attributed poor maintenance as a devastating problem that is undermining the growth of green spaces in many cities worldwide [40] and attributed financial constraints as a major cause, the situation in Kumasi was quite different. Apart from lack of proper financial arrangement to cater for damage facilities on green spaces such as parks and gardens, it came to the fore that the Kumasi city authorities have a habit of waiting for green spaces to completely get destroyed before taken measures to address the problem. Responses from the respondents revealed that minor maintenance problems on green spaces that could easily be corrected by the Kumasi city authorities are often left unattended to degenerate to a big problem which is difficult to handle. On many occasions some green spaces were observed to have been abandoned for many years without receiving any maintenance works. This has caused such green spaces to lose all the facilities on them. Notable examples were the Kumasi Children's Park and Abbey's Park (Figure 6).



Source: Fieldwork, 2013

Figure 6. Poor maintenance of Abbey's Park

Interviews with selected opinion leaders revealed wide spread poor maintenance of green spaces in Kumasi. Some of the opinion leaders remarked as follows:

Most of the facilities in Kumasi Zoo are very old and are not functioning properly. These facilities need to be repaired or replaced but nobody cares about it. Ridge Park and Fante Newtown park are losing their grasses because of poor maintenance (Participant, in-depth interview at Kumasi, 10/01/2013).

The Kumasi Children's Park has been abandoned for many years without receiving any maintenance work. None of the facilities on it is functioning. Its pavilion has been turned into a church premise for some churches whilst its library structure is used as a place of abode for the homeless and social deviants (Participant, in-depth interview at Kumasi, 5/02/2013).

Abbey's Park is not functioning properly because of poor maintenance. Due to poor maintenance it has lost all its grasses and trees that made the place lively. Similarly, irregular maintenance has caused Adehyeman Gardens to lose many facilities and green environment (Participant, in-depth interview at Kumasi, 27/01/2013)

The poor maintenance of green spaces in Kumasi were found to have given rise to encroachment of many green spaces as many developers and individuals see such lands as lying idle without serving any purpose and therefore encroached them for their personal interests.

The last major factor that served as setback to the destruction of green spaces in Kumasi was poor coordination among the government bodies on green spaces. The paper focused on horizontal coordination which deals with the level of coordination among sister agencies on green spaces. Good coordination of organizations/agencies on green spaces has been identified as a good tool to promote strong organizational alliance which provides better management of green spaces both at present and in future

[34, 41]. Several government organizations/agencies that were engaged in the study were not satisfied with the level of coordination that exists between them and their sister organization on green spaces in Kumasi. They rated the level of coordination between them and the other bodies as poor (Table 1) and attributed incoherence of responsibilities and poor recognition given to some of them as the cause of this problem. The incoherence of responsibilities in this context means responsibilities not well defined with some level of ambiguities associated with it whilst lack of recognition refers to the act of an entity not being recognized for the purpose it was created for.

Table 1. The level of coordination among allied bodies on green Spaces in Kumasi

Institution /body	Coordination with allied bodies	Reason
Dept. of Parks & Gardens	Poor	Lack of recognition
Wildlife Division	Poor	Incoherent responsibilities
Forest Service Division	Poor	Lack of recognition
Lands Commission	Poor	Lack of recognition
Dept. of Horticulture (KNUST)	Poor	Lack of recognition
Environmental Protection Agency	Fairly good	Incoherent responsibilities
Town and Country Planning Department	Fairly good	Incoherent responsibilities

Source: Fieldwork, 2013

This problem has led to disintegration and discontinuity of many projects on green spaces in Kumasi as there is little or no coordination among the allied bodies on those projects. The representatives from the cognate bodies on green spaces for example, linked the unsuccessful rehabilitation of Kumasi Children's Park for many years to uncoordinated activities of the allied bodies on green spaces. They also attributed unachieved beautification project of Kumasi, and many undeveloped parks and gardens to the same problem. Case studies in cities such as Hanover (Germany), Curitiba (Brazil) and Zurich (Switzerland) by Camorna et al. [34] produced results that were entirely different from the situation in Kumasi. Those studies found strong and healthy coordination among the cognate bodies on green spaces with the resultant effect being comprehensive development of green spaces. The poor coordination among the organizations on green spaces in Kumasi does not give the green spaces the necessary protection and support to withstand the changing urban development pattern that is confronting the city.

6. Conclusion

The above discussion has established that rapid destructions of green spaces in Kumasi is underpinned by a variety of human induced factors which include laxity in the enforcement of development controls, problem of ownership

of green space lands, low priority to green spaces, uncooperative attitudes of the general public, poor culture of maintenance and lack of coordination among the allied bodies on green spaces. It can therefore be concluded that the depletion of green spaces in Kumasi is not the remit of only rapid urbanization which has received a lot of concerns internationally but rather goes beyond that.

The implication of this finding is that a concerted effort by city authorities and policy makers on preserving green spaces should be directed towards addressing the destruction of green spaces from different angles but not on only urbanization since it serve as only one factor out of the a lot which operate in different ways to deplete green spaces. Therefore for a city to have a preserved and sustainable urban green space, a broader public policy or city development plans that takes into consideration the factors highlighted by the paper in addition to urbanization is essential.

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