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Environmental challenges of urbanization: A case study for open green space management

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The urbanization phenomenon in Ethiopia has been associated with environmental problems in most cities, including Addis Ababa. Among the problems are urban sprawl, solid and liquid waste management; water, air, and noise pollution; illegal settlements and the degradation of open green areas. Open green areas in particular have been placed under extreme pressure, thus threatening their ability to maintain basic ecological, social and economic functions. The objective of this study, therefore, was to evaluate the achievements and challenges of the Addis Ababa Sanitation, Beautification and Park Development Agency (SBPDA) in managing the City's open green spaces. The study utilized secondary data sources, interviews with the officials from the SBPDA, as well as personal observations. The study found that the Agency had managed to produce proclamations and manuals and established a platform for participation and partnerships in open space development and management. However, the study also found that the Agency was facing some challenges such as shortage of manpower, inefficient use of financial resources, lack of land rights, and inability to enforce rules and regulations, among others. Therefore, the study recommends that the City requires should put in place a broad policy framework to facilitate coordination and reduce overlaps, in addition to adequate and qualified manpower.

Key words: open spaces, recreation, aesthetics, ecological functions, green belt, watershed, green frame.

INTRODUCTION

The development of any nation is closely linked to its level of urbanization. It is estimated that, in future, about 80% of a country's economy and population is likely to occur in cities. This is because cities are magnets for population migration, engines of economic development, and centers of information and global connections. The more cities develop, the more countries prosper and vice versa.

However, the urbanization process is, among other causes, commonly associated with the movement of people from rural to urban areas. This results in high population densities relative to their surrounding areas (O'sullivan, 2007). On average, the world urban population growth rate is about 1.8% whereas that of Africa is about 4.4% (UN-Habitat, 2004/2005). Furthermore, Africa's proportion of urban population is 39% while that of the Sub-Saharan Africa is about 29%.

In Ethiopia, the urban population is about 11.7 million people or 16% of the total population of the country. The City of Addis-Ababa alone has an estimated population of

more than 3 million or 25% of the total urban population, and an annual growth rate of 8% [Plan of Action for the Sustainable Development to End Poverty (PASDEP), 2006; Yewoinishet, 2007]. The rapid urbanization of Addis-Ababa aggravates the natural environment, including the deterioration of urban open green areas. To counter-act the challenges of open green space deterioration, the City established the Addis Ababa Sanitation, Beautification and Park Development Agency to manage these areas. The purpose of this study, therefore, was to assess the achievements of this Agency and to highlight its constraints.

What are urban open spaces?

Miller (1986:173) described an urban open space as "any large, medium sized or small area of land or water in or near an urban area that can be used for recreational, aesthetical, or ecological functions". Enger and Smith

(2000) added that urban open space simply means not occupied or changed for development.

The California Government code defines open space as any land or water area which is essentially unimproved. It includes spaces that are devoted to:

- i. Preservation of natural resources for scientific studies;
- ii. Production of resources such as forests; and,
- iii. Protection of watershed integrity, water and air quality.

Thus, the California Government definition includes outdoor recreation areas, areas for historic and cultural values, areas suited for park and recreation purposes, banks of rivers and streams, road sides and highway corridors. Bereke (2006) has added that open spaces include areas devoted for the delineation, separation or buffer of developed land uses, to provide a green belt at the edge of an urbanized area and to ensure that land will be available for future specific urban uses.

The concept of open space is today not limited to urban parks and preserves, but also to non-park non-natural places. It includes public spaces such as streets, schoolyards, churchyards, outdoor sport complexes, cemeteries and public squares. Thus the term is wider in scope and encompasses all vacant or undeveloped proportions of urban land and is often commonly used by planners as a component or ingredient of future urban planning and development. The working definition in this paper, therefore, is all vacant lots found within an urban district that are preserved either for greenery purposes or for future development but open for the time being.

Why the urban green frame should be encouraged

Properly planned and managed urban green areas can provide and maintain a wide range of basic ecological, social and economic functions and values upon which human well-being depends.

Ecological function

Ecologically, green spaces are significant for nature conservation as they provide habitats for a wide range of flora and fauna. The very presence of plants in a city improves the visual appearance of the urban environment, contributes towards climate change prevention, creates lower densities of development and reduces levels of activity in an area. This contributes to a more peaceful and relaxed ambience, a benefit equally important in commercial and residential areas.

Plants can improve the atmosphere by absorbing atmospheric carbon and releasing oxygen to improve the quality of air. Vegetation can also act as a buffer by absorbing and reducing noise. Like air conditioners, plants transpire water that, in turn, reduces the temperature.

Well drained green areas can enable water to infiltrate the soil and reach the water table without causing too much run-off. This, in turn, can reduce urban flooding and the accumulation of stagnant water. Flooding can cause sewer systems to overflow, thereby bringing bacteria-rich waste to the surface, while stagnant water may provide breeding grounds for malaria and dengue fever-carrying mosquitoes. Bamboo, water reeds or willow can help prevent soil erosion along river banks.

Social functions

Socially, benefits from urban greenery can accrue to urban communities through access to urban green spaces, healthy living and education. Many public green areas provide the local community and visitors with opportunities for physical recreation and relaxation, as well as for social interaction. For this purpose, green spaces do not have to be necessarily large to be enjoyed (Włodarczyk, 2007).

However, one concern that is sometimes raised about public open spaces is their potential to attract criminal activities such as drug dealers and other undesirable elements from outside the immediate community. This is because the public green spaces are often deserted at night, thus providing secluded and convenient venues for crime. However, if the community has been involved in the planning and implementation of a green area, its presence could be increased as it takes over management and ownership of the green areas in their locality.

Economic function

Economically, urban greens, once mature, can be a source of raw materials for local handicrafts and small scale commercial activities. Similarly, in poor urban areas, where food purchasing makes up a large part of a house-hold's income, the produce from urban agriculture or gardens can be used for home consumption and as an effective way of supplementing income, thus contributing towards poverty reduction.

High quality parks and green spaces often add an economic value to a city by improving the quality of the townscape. This can assist in urban regeneration and renewal; improve the attractiveness of locations for business investments; create community enterprises; and generate new employment opportunities (Włodarczyk, 2007). Green space areas can also provide shaded cool areas for vendors and customers seeking to escape from the heat.

Threats to urban green area management

Despite the many aforementioned benefits, some cities

have faced several obstacles in developing and managing their green areas. Increased urbanization and development have placed some urban green spaces under extreme pressure, while unplanned urban growth has resulted in the loss of urban landscape and ecosystems (Wright and Nebel, 2002). As the percentage of urban population increases, many cities have found themselves unable to cope with housing provision. This has forced some residents to illegally live in fragile and sensitive areas such as swamps, riversides, steep mountain slopes and other areas generally reserved for urban greeneries.

Other constraints include lack of political will, declining revenue budgets, lack of skilled employees, increased maintenance responsibilities, lack of information or knowledge about green areas, and encroachment by other activities into existing green spaces. These have led to declining quality of green spaces, often at a time when there is increasing demand by urban populations for recreation areas.

Developing and managing green areas

Some cities have developed strategies and master plans to preserve their green spaces. Streets have been lined with trees and houses separated from streets by several meters of trees and bushes. In some cases, trees have been used to rehabilitate gravel pits and waste disposal sites, thus creating more areas for recreation within the urban areas.

Most strategies for green area management are based on the concept of equal access and distribution. For example, the Master Plan of the City of Sophia, Bulgaria, stipulates that recreation for citizens has to be developed within a certain distance from their homes or within certain minutes of walking time. It also emphasizes *partnerships and networking* between local neighborhoods, residential groups, companies and other organizations, in developing and improving residential open spaces or rejuvenating former industrial areas and other problematic areas (<http://www.members.tripod.com/datacom.bg/asde.engl.>). This approach ensures sustainable development by taking care of the three pillars of development, namely, ecological, social and economic aspects of the city.

Other master plans may concentrate on distribution and usability of green areas around a particular city or town. For example, the City of Zurich, Switzerland, aims at creating a certain number of green spaces per resident for recreation and sport respectively (<http://www.stadt-zuerich.ch/gla/leutschenbach>). The green areas may also be used for the protection of water catchments and fragile areas as well as for the rehabilitation of unpleasant areas like landfills. For example, the Bayrampasa Urban Park, a former landfill in Istanbul, Turkey, has been transformed

into an urban park to provide recreation facilities in a densely populated area. The Park includes an amphitheatre, an open air cinema hall and a huge picnic area. The city has also created linear open spaces or green corridors along sea fronts, lake shores, river valleys, etc (http://www.urge_project.ufz.de/istanbul/greensys.htm).

Developing and managing green areas in Addis-Ababa

In Ethiopia, urban green areas have been consumed by industrial, commercial, residential and infrastructural developments, as well as by spontaneous and illegal settlements along mountain slopes, river valleys and other open spaces. However, following the Rio Summit held in Brazil in 1992, Ethiopia took a number of initiatives to address its environmental problems, including minimizing environmental impacts induced by the urbanization process. The country introduced a number of legal instruments to help implement Agenda 21 at local level. This included the enactment of Article 44 of the country's Constitution (1995) which states that the people of Ethiopia have the right to live in a healthy environment. The country also established the Ethiopian Environmental Protection Authority in 1995, and went on to formulate the Ethiopian Environmental Policy in 1997.

As earlier stated, Addis-Ababa is one of the cities of Ethiopia that have experienced environment deterioration and, in some cases, the disappearance of its green areas (Yewoinesh, 2007). The City has a population size, estimated to be 4 million, and a growth rate of 8% per annum. As a consequence of its deteriorating open spaces, Addis-Ababa produced a Master Plan which stipulates that, out of 54,000 hectares of land covered by the City, 22,000 hectares or 41% should be reserved for greenery purposes (Addis-Ababa Five-Year Plan, 2007). Out of the 22,000 hectares, 141.16 hectares of land are assigned for city-center recreation and park development (Belay, 1994). This is because Article 3.7 (n) of the Ethiopian Environmental Policy calls upon urban planners to give due consideration to the creation of green spaces within each urban area, including parks and community forests for recreation and fuel wood, respectively.

To ensure the implementation of this aspect of its Master Plan, in 2002, the Addis-Ababa City Government established the Sanitation, Beautification and Park Development Agency (SBPDA) by Proclamation No 2/2002, Article 37/1-E. Its specific mandate and responsibilities include:

- i. Enhancement and maintenance of the city's level of beauty;
- ii. Development of parks, zoos and recreational centers for various social services;
- iii. Supervision of the extent to which the City's beautification is managed;

- iv. Protection of rivers against the release of solid and untreated waste water;
- v. Protection of the City's forest areas against illegal settlements;
- vi. Involvement of the public in the development of parks;
- vii. Issuance of certificates of competence, supervision and provision of support to interested parties to participate in the development of parks;
- viii. Creation of awareness and building of capacity for better beautification and park development activities; and,
- ix. Preparation of standards for park management and ensuring the implementation of same upon approval.

The study problem

The unsustainable urban growth rate of Addis-Ababa has placed green areas under extreme pressure; consumed the natural and scenic beauty of the landscape; and altered the attractiveness of the City, thereby threatening the ability of green areas to perform their basic ecological, social and economic functions. Although the SBPDA has made some strides towards coping with the pressures of a rapidly expanding City since 2003, Addis-Ababa still faces a number of urban environmental challenges that require a closer analysis to understand their ramifications.

The annual and monthly reports that are produced by the SBPDA, while useful in their own way, do not shed much light in terms of the fundamental factors that hinder the development and management of the City's green frame. It was due to the absence of any comprehensive evaluation of the SBPDA performance that this study was conceived. Thus, the study was initiated as an attempt to fill this knowledge gap.

Objectives of the study

The main objective of the study was to evaluate the achievements of the SBPDA, identify its challenges and recommend possible strategies for the better protection and greening of open spaces in Addis-Ababa. Specifically, the study looked at the institutional, social, financial and economic frameworks within which the SBPDA was managing the green areas of the City of Addis-Ababa.

Significance of the study

Urban green areas are an integral part of urban land use planning and zoning. They form an important component of urban infrastructure that maintains air and ground water quality, and reduce run-off and flooding. They are essential also for purposes of complimenting urban tourism and education. For these and other reasons, it is hoped that the results of the study will contribute towards improved development and management of the open

spaces of Addis Ababa City and, indeed, other cities in Africa. It is our hope, also, that this study will motivate other scholars to carryout similar research in this and other cities of Ethiopia and Africa at large.

METHODOLOGY

The study utilized both secondary and primary data sources. The secondary data were obtained from the Master and Strategic plans of Addis-Ababa City Government, from the monthly and annual reports of the Bureau of Environmental Protection, Sanitation, Beautification and Park Development Agency, as well as from the internet. Primary data were obtained from officials of the above organizations, the private sector as well as from the general public.

DISCUSSION

The study found that the Sanitation, Beautification and Park Development Agency had had some successes as well as constraints in developing and managing the green areas of Addis-Ababa, as per its mandate and obligations.

Major achievements of the SBPDA

The achievements of the SBPDA may be assessed from two perspectives, namely, the institutional framework and from the point of view of social aspects. The key institutional issue was to find out if existing policies and laws were adequate to allow the SBPDA to properly manage the open green spaces. The study regarded this as a critical and fundamental starting point in establishing the existence of a national policy and city bye-laws on green space management standards and practices. This approach also helped the study in identifying the roles and responsibilities of each level of government to ensure that local government had the authority to implement a green space management strategy/plan.

Institutional aspects: The study found that the Agency had developed an indicative long-term vision, goals and objectives in line with its mandate and responsibilities. It had also produced proclamations some of which had since been ratified by the Addis-Ababa City Council. These include municipal solid waste management, industrial pollution control; and urban green area management (Draft), among others. In support of the proclamations, the Agency regularly prepared technical manuals to guide the work of sub-cities and the private sector, including small-scale enterprises (MSEs). Some of the manuals had to do with roadside cleaning, park development and solid waste management.

Social aspects: An equally important social development revealed by the study pertained to the establishment of a

platform to facilitate coordination, cooperation and collaboration in park development and protection of the natural beauty of the City and urban green management. The study found that the Agency worked in partnership with other organizations, particularly the Clean and Green Addis-Ababa Society (CGAAS), a coalition of government, NGOs, private sector, universities, Health Bureau, traffic police, environmentalists and musicians. A well-known local artist, Silesh Demisse often mobilized the youth to clean and green the City of Addis-Ababa.

Financial/ Economic aspects: The study found that the Agency had been able to generate some modest revenue and created employment for some people through contracting out or outsourcing of some open spaces and parks to private developers on a contractual basis. For example, the study found that the Ambassador Park, one of the outsourced amenities, had shown impressive improvements in terms of both the infrastructure and quality of services provided. The services included a restaurant, video shows and photographing, particularly for wedding ceremonies, a souvenir shop, library, and recreation and sporting facilities. A nominal entrance fee, which was relatively affordable by the ordinary public, was being charged. The outsourced parks had created employment opportunities and generated income for the municipality.

Major challenges and constraints

The study found that, while working towards the achievement of their goals and responsibilities, the Sanitation, Beautification and Park Development Agency often encountered a number of challenges and limitations that made it difficult to achieve their goals. These included institutional, social, and financial/economic constraints.

Institutional constraints: The study found that the Agency was experiencing delays in land delivery from the Land Administration Authority of Addis-Ababa. According to the Addis-Ababa Master Plan, about 405 hectares of land were reserved for green space and park development purposes. However, the Agency had, at the time of the study, been given jurisdiction over only 89 hectares or 22% of the total (SBPDA Report, 2008). Although the remainder of the land had since been identified, it was not yet reflected on the map of Addis-Ababa. This was due to the difficulty the City's Land Administration Authority had in determining the ownership rights of several pieces of land within the municipality. Unfortunately, while this was going on, the remaining 78% was a victim of illegal settlements, illegal waste dumping and a home to street dwellers.

Also under institutional aspects was the Agency's inability to implement its rules and regulations to protect

open spaces. The study found that the Agency did not have the capacity to enforce them, a situation that was overshadowing the achievements it had made so far. According to the officials from the Agency, lack of enforcement of rules and regulations was compounded by *conflicts of interest and overlap of responsibilities* between the functions of their Agency on one hand, and those of the Addis-Ababa Environmental Protection Authority on the other.

Social constraints: The study also attributed the inability to effect rules and regulations to weak coordination among sub-cities and between sub-cities and the Agency itself, in terms of working together towards better sanitation, beautification and park development. For example, the development and beautification of 312 hectares of land along roadsides had not been fully accomplished. Only 37% of it had been developed.

Although the study noted that some degree of private sector participation had been achieved, there was lack of follow-up and close supervision to minimize potential side effects. The failure was attributed to weak coordination and mobilization of communities, the youth, voluntary organizations, and the private sector agencies that shared adjacent open spaces near the main roads.

Financial/Economic constraints: The study identified inefficient use of financial resources as one of the major constraints in park development and management of green areas within Addis-Ababa. The study found that the budget allocated to the Agency for investment purposes to enhance and upgrade sanitation, beautification and park development was hardly ever fully utilized. The study attributed this to shortage of manpower as well as inefficiency in implementing the Agency's annual work plans.

Out of a staff compliment of 100, the study found that 20% of the posts were vacant. In addition, the study found that there was a high staff turnover of professional workers who left for more paying jobs. This affected the capacity of the Agency to cover the whole city.

CONCLUSION

Addis-Ababa has a variety of open spaces. However, their current management poses a lot of challenges such as illegal settlements and illegal waste dumping. This is compounded by inability to enforce existing rules and regulations to protect open spaces as well as conflicts of interest and overlap of responsibilities between the Sanitation, Beautification and Park Development Agency and the Addis-Ababa Environmental Protection Authority.

Lack of coordination, cooperation and strong partnerships with the private sector, NGOs, residents and private individuals were other factors hindering effective protection and greening of the parks and riversides.

Unless there is effective involvement of these entities in developing the newly preserved sites and re-vitalizing the non-functional parks, the SBPDA will find it difficult to effectively implement its annual work plans, as expected.

The Agency is seriously constrained in terms of efficient use its financial resources. As a consequence, the budget allocated to the Agency for investment purposes to enhance and upgrade sanitation, beautification and park development is hardly fully utilized due to shortage of qualified manpower.

RECOMMENDATIONS

To achieve the goal of making Addis-Ababa a clean and green city, the SBPDA, the Environment Protection Authority, the private sector and the community at large have to work together. This should be based on a comprehensive awareness creation programme for the society, followed by an impartial enforcement of rules and regulations. The Addis Ababa City Government needs to sort out the issue of land ownership rights without further delay. The shortage of manpower and related high staff turnover also needs to be addressed by the City fathers through an attractive pay package that can attract and retain professional workers.

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