Review

Sustainable Environmental Management Through Urban Public Park in Southwestern Nigeria.

Okunlola, A. Ibironke.

Department of Crop, Soil and Pest Management The Federal University of Technology P.M.B. 704 Akure Ondo State, Nigeria.
E-Mail: aiokunlola@yahoo.co.uk

Parks development in urban areas can be an effective planning strategy to enhance environmental management, improvement, conservation and aesthetic maintenance due to its roles in upgrading quality of life, economic well being and fulfilling the social needs of urban-dwelling individuals. It provides a healthy environment by reducing air pollution, urban heats, noise and green space loss. Parks in urban areas enhance city aesthetics, acts as green lungs of the city, refresh the air and provide beneficial contact with nature as an upstream health promotion intervention for the population. Parks also create natural surrounding of urban area for leisure, relaxation, recreation, psychological and physical comfort of the people. In Nigeria, the realization of the important role of public parks, natural open spaces and well designed green spaces has resulted in the launch of the "City Beautification Concept" of most capital cities to provide an environment conducive for quality urban living, recreation, social interaction and community action for the pursuit of legitimate pleasures and economic activities. This paper examines the effectiveness of public parks development in urban areas as a strategy for environmental improvement, conservation, and its potential in sustaining a pleasant, exciting, invigorating and comprehensive urban environment in the capital cities of Southwestern Nigeria.

Keywords: Environmental management, conservation, Public parks, urban area and open spaces.

INTRODUCTION

The environment is an interactive, indispensable medium, within and through which man's life performance is carried out. Man's life is unimaginable without the environment to supply him with his needs such as air (to breathe), water (to drink and wash with), food (to eat), and solid materials for fashioning weapons, building shelters and clothing (Atolagbe, 2002).

Environmental degradation resulting from human attitude is becoming serious the world over, and Nigeria is no exception. Generally, problems arising from environmental degradation are mostly due to developmental processes and are of local, regional and global effects kadir, 2006. These effects are viewed as consequences of human activities, and are most often harmful on human beings, livelihoods, animal and plant lives (Kjellstrom and Mercado, 2008) these also have far reaching implications on sustainable development, therefore, urban environmental issues will continue to dominate sustainable development agenda the world over and in developing nations in particular in the next few decades (Daramola and Eziyi, 2010).

In the face of increasing urban population, the increased number of human extension of urban area through industrialization and technological advancement in transportation and building construction has contributed to industrial, human wastes and effluents resulting in environmental pollution such as noise pollution, air pollution, water pollution, land pollution, urban heat and urban sprawl leading to loss of green area (Hales, 2000).

Also human activities in search of wealth by clearing the forests and other natural areas have further increased the problem. The development of human skills in using natural resources to serve human purposes gradually challenged the natural environment at both local and global level Crompton, 2000. However, such challenges has resulted in serious concerns over the deteriorating quality of air, water, land and forests giving rise to increasing awareness and the need to stem pollution and degradation to all components of the environment (Fadamiro and Atolagbe, 2006).

In Nigeria, the need to combat these challenges have propelled the government especially in the southwest (Lagos state as example) to put in place policies that focus on preventive measures to mitigate negative environmental effects, intensify conservation efforts and sustain ably manage natural resources.

These efforts have resulted in the launch of the "City Beautification Concept" of most capital cities in southwest Nigeria to improve and reduce environmental destruction through landscaping and beautification approaches.

Presently in many of the southwest states government's efforts in reducing environmental destruction has resulted in significant change in the environmental quality.

This paper therefore aimed at reviewing the effectiveness of public park development in urban areas as a planning tool for environmental development and management in the capital cities of Southwestern Nigeria.

Concept of an Urban Public Park

Urban areas as centers of arts, culture, education, entertainment, technological innovations, providers of specializes services and "economic engines" (Udeh, 1992) are products of urbanization which come with far reaching economic, socio-spatial and health implications (Acho,1998).

Urban open spaces are regarded as landed areas not built upon and ranged considerably from natural landscapes to definitely cultural, artificially designed areas and from huge green areas to almost entirely enclosed small outdoor rooms Kadir, 2006.

At the macro level, they are meant to serve as urban parks or as green belts to limit development and to act as buffer zones between urbanized areas or elements. While at the micro level where town houses and apartments are grouped together, much of the land left, are open spaces

meant for recreation and aesthetic purposes Kjellstrom andMercado, 2008.

Hales, (2000), observed that the pace and scale of growth have outstripped the capacity to maintain acceptable standards of public health, environmental safety and sustainable economic growth in urban areas in less developed nations in Africa, Asia and Latin America.

In many African nations, the general attitude in green space planning is, often expressed solely through spontaneous action and direct intervention to a pressing problem. Consideration is centered only on the short-term effects that are set against limited time horizons. Few of African cities where little attention has been given to urban green space include Abuja, Lagos, part of Cairo, and Capetown among others (Abegunde, 2008; CCG, 2008).

Like many other third world nations, rapid urban development in Nigeria has caused lack of green spaces in urban settings (Daramola and Eziyi, 2010). Consequently, this has contributed to the problems and issues related to urban pollution, heat island, erosion and flood (Omar *et al.*, 2000).

Also, the challenge of global warming, rapid depletion of the ozone layer, and changes in the ecology of urban environment occasioned by increasing population, overcrowded habitations and uncontrolled exploitation of natural resources which posed great threat to life have accounted for the promotion of green space in the built environment (Stoel, 1999; Hales, 2000).

These challenges notwithstanding, the possibility for the sustainable landscaping of the urban open spaces in Nigeria is currently far from being realized. It seems that the outdoor environment had been forgotten as a space that needs to be consciously organized for social relationships for the city inhabitants (Fadamiro and Atolagbe*,* 2006).

The development of urban green space is manifested through conservation of existing green belts in cites, tree planting, soft landscaping, urban agriculture, creation of green parks and gardens among others. Urban green provides an essential structural and functional contribution to cities so as to make them more attractive and habitable (Melville, 1975). Green space helps in keeping the quality of city life (Liu *et al.*, 2008).

Putting green space planning into practice remains, therefore, a major challenge, and the practice of horticulture as a means to urban development really needs to be firmly supported by federal and state governments. Considering the advantages of green space the government in most capital cities, in Nigeria have begun to inculcate a good attitude toward green space in their citizens (Ward, 1992).

Roles and Functions of Urban Public Park

Park is a place where people can have recreational pleasure, exercise, and appreciate nature (Osman, 2006).

An urban public park also known as municipal park (North America) or a public park or open space (United Kingdom) offer recreation and open space to residents of, and visitors to, the community. Common features of municipal parks include, play ground, hiking, running and fitness trails or paths, bridle paths, sports field and courts, public restrooms, boat ramps and/or picnic facilities, depending on the budget and natural features available (Wikipedia, 2009). The main purpose of urban park is to provide recreational opportunities, enjoyment and encourage healthier lifestyle for the urban working class Calson, 2001. Other roles and function of urban park include:

To preserve essential ecological functions and to protect diversity:

Urban parks can help protect the local floral and fauna it also acts as wildlife habitat system and help to restore and maintain ecological functions and services.

To help shape urban form and compatible uses:

Urban public parks can enhance city aesthetics and can increase the attractiveness of a city. The design of the park in term of their elements can provide visual relief, separate incompatible land uses and complement the placement of new buildings roads and infrastructure.

Economic benefit:

Urban public park can help in increasing the property value the real estate market consistently demonstrate that many people are willing to pay a higher amount for a property located close to parks or open space areas than for homes that does not offer this facility (Love and Crompton, 1999). A park basically becomes one of a city's landmarks and attraction making it a prime marketing tool to attract tourists, conventions and business.

To enhance public health benefits:

People walking around parks have been shown to reduce stress across a broad spectrum of individuals (Ulrich, 1989). A study conducted by Frank (2003) found that college students under exam stress had increased positive feelings and reduced fear and anger when they had a view of plants. Lohr, *et al.* (2007) also demonstrated that plants in the workplace reduce stress levels. It was found that when plants were present in the interior space systolic blood pressure was reduced by one to four units, to which worker's productivity was also increased.

To act as pollution abatement and cooling

Trees and plants have been labeled as the "lungs of cities" (McPherson, 2005) because they have the ability to remove contaminants from the air that is breathed. Acting as natural filters and reducing air pollution, it has been shown that plants generate health benefits by reducing the mortality rate and reducing visits to the hospital (Powe and Willis, 2004). Every tree helps fight global warming by reducing the amount of greenhouse gases in the atmosphere. By absorbing carbon dioxide and pollutants fuelling climate change, parks and green space offset the warming effects on cities, making them cooler(city park alliance).

Other ways in which plants reduce air pollution are as follows:

 -Absorption of gaseous pollutants through their leaves, e.g., Ozone, Nitrogen oxides, and Sulphur dioxide.

 -Further reducing ozone concentrations at ground level by reducing the temperature via evapotranspiration as mentioned above.

 -Collection of dust, ash, pollen and other particulate matter on their leaves hence reducing its presence in the air breathed.

 -Releasing of oxygen, as mentioned above, which increases the quality of the air for human use (McPherson, 2005).

To enhance social benefits

Well-maintained parks promote community engagement and civic pride. Neighbourhood parks attract and connect individuals of all ages and ethnic backgrounds who share a vision for the betterment of their surroundings. Neglected public spaces can become vital community assets when residents, civic groups, and city leaders come together. Whether transforming vacant lots to community gardens, planning for a future park, or beautifying existing public green spaces, parks provide opportunities for people to take ownership of their community, which improves the quality of life.

Parks also makes substantial contributions to the community's economy for example Golf is growing in popularity, and appealing to a broad range of people. Golf courses can have large impacts on the economy by providing jobs and creating tourism to an area.

The combination of mowed turf, trees and natural areas provides a diverse environment for people and wildlife, and preserving these green spaces improves the environmental quality of the entire community (USGA, 2007).

Urban Park, Green Space and Location of Plants

Ornamental plants can be strategically located to engineer a more pleasant environment in which to live. They can be placed around pools to provide shade but also to reduce the glare that is reflected up to surrounding buildings; they
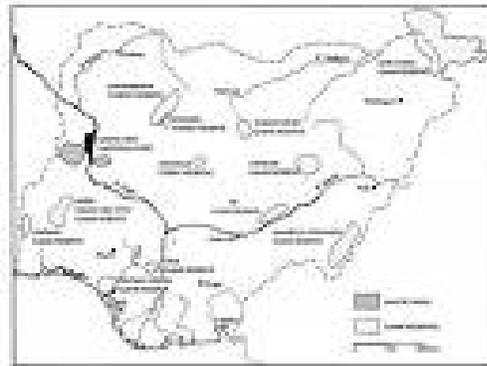
Figure1. Map of Nigeria

can be placed in front of houses to prevent lights from vehicles or the street shining into the house; and they can also play a role in reducing noise from highways (Akbari, 2002). Green roofs also reduce noise distractions from the outside world (Grower-Talks, 2006). Plants in the urban environment provide shade to escape the heat of the sun and they also provide green spaces for rest, relaxation and recreation (Behe *et. al*; 2005). However, there are various ways in which green spaces can be designed. For example, they can be managed as natural woodland areas or manicured to provide formal settings such as those found in botanical gardens. For some people the "natural" landscape is something that should be kept for wilder places and doesn't have legitimacy within the urban context due to an association of "natural" with fear of physical danger (Özgüner and Kendle, 2006). Others, however, feel a natural landscape gives them a sense of freedom and is a better place to socialize than the formal landscape. Conversely, it was found that in a formal landscape people had a sense of safety and that they found it a better place to relieve stress, and that it was more peaceful, quiet and calming (Carlson, 2001). Extending the calming effect beyond parklands, Wolf (2006) suggests that forested urban roadways increase the level of safety, both by defining the roadside and focusing the drivers' attention. They also create a more pleasant, less stressful environment in which to operate. In a separate study, Wolf (2004) provided a comprehensive list of environmental, social and economic benefits that can be achieved from utilizing trees in parking lots. Not only do the trees provide shade for the parked vehicles and, therefore, make returning to a vehicle a more pleasant experience, but the trees were also found to provide many other benefits simultaneously.

Urban public park development in Nigeria

The need for urban park has increased in response to the demand for more green areas, natural recreation, retreat, leisure, relaxation and recreational activities with the concept of "back to nature" Atolagbe, 2002. Hence the government is placing greater focus on preventive measures to mitigate negative environmental effects at source, intensify conservation efforts and sustainably manage natural resources. Environmental impact assessment (EIA), strategic environmental assessment (SEA), cost benefit analysis and environmental auditing are applied to evaluate and mitigate environmental impacts of developmental projects

Government with the support of the private sector has taken the initiative to beautify, provide leisure and other recreational facilities in the major capital cities of Nigeria. These efforts have resulted in an essential structural and functional contribution to cities so as to make them more attractive and livable.

Case study: Public Park Development in Lagos state

To realize the dream of making the state one of the most beautiful "mega cities" in the world. The Lagos state government launched the vision of the "millennium city" concept. This concept is to improve and reduce the environmental destruction in Lagos state through landscaping and beautification approaches. The landscaping and beautification programme of the Lagos state government covers; commercial, industrial and residential areas. Many wetlands and forests in urban areas have been conserved and transformed into parks and recreational areas and other green areas has been

Figure 2. Development of parks and walkways has reduced environmental destruction and increased the visual quality in Lagos state.

Figure 3. Beautification of residence and green spaces

Figure 4.   Ferry service from Victoria Island to badore lekki

gazette for conservation. These public parks ensure the provision and integrity of high quality and diverse parks with a safe, aesthetic and comfortable urban environment to meet urban lifestyle. It also ensures increased attractiveness of the surrounding areas; promote business by generating employment and revenue for the urban citizens.

CONCLUSION

The development of urban Public Park is an important mechanism for regenerating conserving, beautifying and managing the environment sustainably from the effect of climate change. It also encourages healthy recreational pursuits and communication amongst the residents. It

helps to retain green open spaces in urban areas adding value to properties thereby increasing their market value and enhancing the economic revival of cities and creating positive publicity for business.

REFERENCES

Abegunde AA (2008). Promoting Urban Land Economy in Africa through Effective Layout Design and Management. In Proceedings of Leadership Management Studies in Sub Saharan Africa Accra, Ghana. Romie F. Littrell. ed. 113-114pp.

Acho C (1998). Human Interference and Environmental Instability: Addressing the Environmental Consequences of rapid Urban Growth in Bamenda, Cameroon. Environment and Urbanisation 10(2): 161-174.

Akbari H (2002). Shade Trees Reduce Building Energy Use and CO2 Emissions From Power Plants. *Environ. Pollution* 116: 119-126.

Atolagbe AMO (2002). Architecture in Nigeria and the Practice for Sustainable Development:A Comparative Study of Modern and Indigenous Housing Strategy. AARCHES J. 2(1):61-65.

Behe B, Ode AR, Ribes RG (2005). Landscape Plant Material, Size and Design Sophistication Increase Perceived Home Value. *J. Environ. Horticulture* 23 (3): 127-133

Cairo City Guide (CCG) (2008). Wanted in Cairo City Guide. http://cairo.wantedinafrica.com/area_description.php?id_area=369.

Carlson C (2001). Environmental Aesthetics. The Rutledge Companion to Aesthetics, edited by Berys Gaut and Dominic M. Lopes, Routledge, London. 376pp

Daramola A, Eziyi OI (2010). urban environmental problem in Nigeria:implication for sustainable development. J. sustainable develop. in Afr. 12(1):124-145.

Fadamiro JA, Atolagbe AMO (2006). urban encironmental sustainability; A challenge to effective landscape in Nigeria. DIMENSI TEKNIK ARSITERTUR 3(1):44-51.

Frank MS (2003). The Benefits of Plants and Landscaping. Florida Gardening. www.floridagardening.org/download/BenefitofPlants.pdf.

Grower T (2006).SkyHighandGreen.http://www.growertalks.com/archive/articles/306.asp .

Hales DF (2000). practical steps toward healthier cities and a cleaner global environment. Global issues-an electronic journal of the U.S. department of state 5(1):11-16.

Kadir KO (2006). planning sustainable cities in Nigeria. Res. J. Soc. Sci. 1(1):40-50.

Kjellstrom T, Mercado S (2008). towards action on social determinants for health equity in urban settings. J. Environ. and Urbanization 20(2):551-574.

Liu Y, Zi LL, Simone GE (2008). Which Ornamental Plant Species Effectively Remove Benzene From Indoor Air? *Atmospheric Environ.* 41 (3): 650-654.

Lothian A (1999). Landscape and the philosophy of aesthetics: is landscape quality inherent in the landscape or in the eye of the beholder? Landscape and Urban Planning. 74: 234-239

Lohr VI, Pearson-Mims CH, Goodwin GK (2007). Interior Plants May Improve Worker Productivity and Reduce Stress in a Windowless Environment. Plants in Buildings. http://www.plants-inbuildings.com/whyplantsstressreduction.php.

Melville CB (1975). Urban Planning Theory. Dowden, Hutchingon and Ross, Inc. Pennsylvania. 92pp.

McPherson EG (2005). Trees With Benefits. *American Nurseryman.* 1: 34-40.

Omar R, Ali RZ, Latif MT, Lihan T, Adam JH (2000). Problems and Issues related to Urban Pollution. In Proceedings of the Regional Symposium on; Environment and Natural Resources, Hotel Renaissance Kuala Lumpur, Malaysia. 1: 261-269.

Osman MT, Mohd Johari MY, Mohd Kher H (2006). Urban Landscape Development and Management Towards Sustainability. Paper presented at urban forestry conference Kuala Lumpur.

Özgüner H, Kendle AD (2006). Public Attitudes Towards Naturalistic Versus Designed Landscapes in the City of Sheffield (UK). *Landscape and Urban Planning* 74: 139-157.

Powe NA, Willis KG (2004). Mortality and Morbidity Benefits of Air Pollution (SO_2 and PM_{10}) Absorption Attributable to Woodland in Britain. *J. Environ. Manag.* 70 (2): 119-128.

Robinette GO (1972). Plants, People, and Environmental Quality. Washington DC: US Department of the Interior, National Parks Service.

Stoel TB (1999). reining in urban sprawl. Environment 41(4): 6-11.

Ulrich R (1989). The Role of Trees in Human Well-Being and Health. In Proceedings from Fourth Urban Forestry Conference. 323pp.

United States Golf Association (USGA) (2007). Golf Courses Benefit People and Wildlife.http://www.usga.org/turf/articles/environment/general/golf_courses_benefit.html.

Udeh C (1992). Urban Design and City Appearance in H. Chike Mba et al (eds) Principles and Practice of Urban and Regional Planning in Nigeria, Akwa Melslink Publishers (Nig) pp. 110-125.

Ward SV (1992). The Garden City Past, Present and Future. E and F.N Spon, London. 29pp.

Wolf KL (2004) Trees, Parking and Green Law: Strategies for Sustainability. University of Washingtonhttp://www.cfr.washington.edu/research.envmind/Roadside/Trees_Parking.pdf.

Wolf KL (2006). Roadside Urban Trees- Balancing Safety and Community Values. *Arborist.* 12: 56-57. http://www.isaarbor.com/publications/arbNews/pdfs/Dec06-feature.pdf.