



ESUT PUBLIC LAW REVIEW

Vol. 1, No 1. (December 2008)

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MEGA CITIES AND URBAN SPRAWL: EVOLVING STANDARDS OF ENVIRONMENTAL PROTECTION

By

Dr. Olanrewaju A. Fagbohun and Gbadebo Anthony Olagunju, Esq©

INTRODUCTION

In the last several decades, urban countries, Nigeria¹ inclusive have witnessed a fundamental shift in patterns of development. Several core compact cities extended out to the suburbs, many of them resulting in what is now known as urban sprawl. This development has caused a serious growth debate which pits growth and anti-growth forces against each other. Many countries, particularly developing countries have not been able to effectively deal with the environmental challenges arising from urban sprawl.

Take the case of Lagos in the south-west of Nigeria.² In land size, the state is the smallest in Nigeria with an area of about 358,861 hectares or 3577sq.km. This represents only 0.4 percent of the entire area of the country. Yet, Lagos State with its cities within a city is the most populated with over 10 million inhabitants, and is the 16th largest city in the world. Lagos which had a population of 252,000 as of 1952 is now projected by the United Nations as likely to have a population of 17.0million by 2015, possibly establishing it then as the 8th largest city in the world.³

In a recent report,⁴ the Presidential Task Force on Lagos Mega City concluded that the Lagos

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¹ Nigeria occupies an area of approximately 924,000 square kilometers and shares borders with Niger, Chad, Cameroon and Benin. Nigeria has a GDP of about \$45 billion in 2001 and a per capita income of about \$300, ranking her one of the poorest countries in the world (CBN: 2002). With an average annual investment rate of barely 16% of GDP, Nigeria is far behind the minimum investment rate of about 30% of GDP required to reach a growth rate of at least 7-8% per annum required to achieve the Millennium Development Goals by 2015.

² Lagos is situated within latitudes 6° 23'N and 6° 41'N and longitudes 2° 42'E and 3° 42'E. The state is bounded in the north and east by Ogun State, in the west by Republic of Benin and the south by the Atlantic Ocean/Gulf of Guinea.

³ It is difficult to readily ascertain the population figure of Lagos as various conflicting estimates have been put out. Some studies suggest that as at the moment the city population is about 17million. The UN Habitat on its part suggests that as at 2000 Lagos had a population of 13.4 million, (the 6th largest in the world) and that by 2015 this would have grown to 26.1 (the 3rd largest in the world) UN Habitat 2000.

master plan "was not implemented. Instead, the experience had been of significant distortions in many parts of the plan". The far reaching implication of this is what has resulted "in lopsided population distribution, high cost of infrastructure development, drainage obstructions, environmental and sanitation challenges, traffic congestion and numerous other problems."⁵

Lagos is not alone in facing environmental challenges of being a megacity. In 2000, there were 18 megacities conurbations such as Tokyo, New York City, Mexico City, Bombay, Sao Paulo and Karachi. By 2025, it is estimated that Asia alone will have at least 10 cities each with a population greater than 20million.⁶

While some have argued that urban sprawl is bad, harmful and a threat to ecology, some others have contended that it is inevitable and maybe should even be encouraged. This paper is not intended to resolve the difference of opinion. Rather, what this paper will make clear is that it is neither population numbers or explosive growth that necessarily determines a city's prospects. What matters is whether there is proper and effective planning. Consequently, we can talk of well-planned sprawl as against chaotic sprawl, high-density sprawl as against low-density sprawl, and auto-dependent sprawl as against mass-transit-oriented sprawl. The quality of sprawl is what we are concerned about as against the amount of sprawl.

In accordance with Agenda 21 of the United Nations Conference on Environment and Development, there are certain essentials that a city must achieve in order to meet the concern of sustainability. These are:

- i) Promotion of adequate shelter for all;
- ii) Improvement of human settlement management;
- iii) Promotion of sustainable land use planning and management;
- iv) Promotion of integrated provision of environmental infrastructure;
- v) Promotion of settlement planning and management in disaster prone areas;
- vi) Promotion of sustainable construction industry activities;
- vii) Promotion of human resources development; and
- viii) Capacity building for human development;

Quite certainly, urbanization is set to increase. Energy demand for production is expected to double every 12 years in a place like Asia; traffic congestion is estimated to cost from US\$272 million to over US\$1 billion per year in Bangkok; nearly US\$300 million in Hong

⁴ Report of the Presidential Task Force on Lagos Mega City, 2006, p.13.

⁵ This development is what has prompted the desire of the new administration to transform Lagos into a mega city that meets global standards.

⁶ See megacity Wikipedia, the free encyclopedia, <<http://en.wikipedia.org/wiki/megacity>> accessed 9 June, 2008.

Kong, China; and over US\$300 million in Singapore, primarily due to the cost of wasted fuel and time delays; population growth will also not take a back-seat. How megacities can meet the emerging global environmental and sustainability challenges is the focus of this paper.

Clarification of Concepts

Megacity

The term 'mega-city' lacks a clear-cut definition. The United Nations identifies a mega-city as an urban agglomeration with a population that exceeds 8 million.⁷ Some others have defined it as a metropolitan area with a total population in excess of 10 million. Some other definitions set a minimum level for population density i.e. at least 2,000 persons per square km. A megacity can be a single metropolitan area or two or more metropolitan areas that converge upon one another. Other terms which have been used synonymously with megacity are megapolis, megalopolis, conurbation and metroplex.⁸

In 1950, New York was the only urban area with a population of over 20 million.⁹ As at October, 2005, geographers have identified 25 such areas.¹⁰ The largest of the megacities identified is the Greater Tokyo Area with a population estimated to be between 35 and 36 million. The variation in estimates is as a result of different definitions of what the area encompasses. This difficulty of defining the outer boundaries of megacities for the purpose of clearly and accurately estimating their population is characteristic of megacities around the world.¹¹

Urban Sprawl

As with the term 'mega-city', there is no agreed comprehensive definition of the phrase 'urban sprawl'. Not surprisingly, most definitions of the phrase stem from the meaning of the word 'sprawl'. Simply defined, 'sprawl' refers to the spread-out of a city and its suburbs over more and more rural land at the periphery of an urban area. The Oxford English Dictionary defines the word as 'the straggling expansion of an indeterminate urban or industrial environment into an adjoining countryside; the area of this advancement'. In yet another definition, a sprawl is defined as dispersed development outside of compact urban and village centres along highways and in rural countryside.¹²

Burgess defined it as expanding physical development, at decreasing densities in

⁷ United Nations Population division, 2002.

⁸ See Megacity, the free encyclopedia, *ibid*, fn. 6.

⁹ T. Chandler, 'Four Thousand Years of Urban Growth: An Historical Census', 1987, St. David's University Press, <<http://geography.about.com/library/weekly/aa011201g.htm>> assessed 15 June, 2008.

¹⁰ Population statistics <<http://www.citypopulations.de/World.html>>.

¹¹ *Ibid*, fn. 6.

¹² The Vermont Forum on Sprawl, <<http://www.vtsprawl.org/Learnabout/sprawl/whatisprawlmain.htm>>.

metropolitan regions, where the spatial growth exceeds population growth.¹³ Peiser defined it as the gluttonous use of land, uninterrupted monotonous development, leapfrog discontinues development and inefficient use of land.¹⁴ Of these various definitions, the one that has gained acceptance the most is that offered by Galster et al. They defined sprawl as 'a pattern of land use in an urbanized area that exhibits low levels of some combination of eight distinct dimensions: density, continuity, concentration, compactness, centrality, nuclearity, diversity and proximity'¹⁵

It is instructive to note that the early uses of the term suggest that the concept of 'sprawl' is with reference to the spreading out of a city in an uncontrolled, disorderly manner. Thus, because sprawls are largely unplanned, fragmented and characterized by poor planning, people readily tend to equate it with slums. They invariably consider a place a sprawl predicated on their aesthetic judgment. From the various definitions given, however, what is clear is that if 25 square miles of rural land or open spaces close to a city is taken over by that city in the course of its extension, it would in the technical sense be a sprawl i.e. an extension of that city, regardless of whether it is tastefully developed or not.

Consequently, when consideration is being given to development of megacities, the goal should not be to develop anti-sprawl programs by concentrating growth. Rather, we should seek to properly plan sprawling extensions of urban areas the same way we plan urban areas and in such a way that will achieve healthier communities. As population grows, people desirous of urban life will move to available open spaces next to urban areas. Even where government programs channel population growth into even-denser settlements in the urban area through continual demolition of existing housing to make room for higher-density cluster houses, condominiums, apartment buildings and higher apartment buildings, such efforts would only last for a period of time as extensions would ultimately have to be created to accommodate the continuous growth. A proper re-defining of sprawl consistent with the above is what will help decision-makers and planners to better understand their roles in the management of urban sprawl.

Megacity and Urban Sprawl Making Connection

¹³ Burgess, A. 'Revisiting Sprawl: Lessons From the Past', <<http://www4.ncsu.edu/grhess/papers/sprawl.pdf>>.

¹⁴ Peiser, R. "Decomposing Urban Sprawl", (2001) *Town Planning Review*, 3 (72) 96-108.

¹⁵ George Galster, Royce Hanson, Michael Ratcliff, Harold Wolman, Stephen Coleman and Jason Freihage, 2001, 'Wrestling Sprawl to the Ground: Defining and Measuring an Elusive Concept', *Housing Policy Debate*, Volume 2, Issue 4, 681-717. The lack of a clear definition of urban sprawl has led some commentators to question its legitimacy as a national threat. See Billingsley, L. (1999), 'Facts versus Fantasy on Urban sprawl', *Pacific Research Institute Action Alert* 17 <<http://www.pacificresearch.org/pub/act/1999/action17.html>> accessed November 2001, Stayley, S. R. (1999), 'The Sprawling of America: In Defence of the Dynamic City', Reason Public Policy Institute, <www.ncpa.org/ba/ba287.html> assessed November, 2001.

There is no standard of what is an urban area. Each country develops its own set of criteria for distinguishing cities or urban area. Generally, however, a city is defined as a political unit i.e. a place administered and governed by an administrative body. One view of how to define a city or urban area is by the number of residents. In this context, the United Nations defines settlements of over 20,000 people as urban and those with more than 100,000 as cities. For the United States, an urban area will qualify as a city if it has a minimum population of 50,000.

From the above perspective, cities with over 5million inhabitants are referred to as megacities. As at 2000, there were 41 of such cities. This number is expected to grow as population increases. It is expected that by the year 2015, there will be at least 50 megacities.

What comes out clearly is that while you can have a megacity which is not the result of an urban sprawl, a sprawling urban area is ultimately a megacity. As has been noted by Toepfer,¹⁶ the major environmental problems of the future will be city problems. These will have profound impact on the global environment, and serve as obstacles to sustainable development unless the issues are tackled.

Environmental Challenges of Megacities and urban Sprawls

In considering the environmental challenges characteristic of megacities and urban sprawls, it is apposite that we first draw a distinction between how urban sprawls evolved in developed and developing countries. For developed countries, the movement of people from crowded cities to the outskirts and periphery of the city is usually a matter of preference. With rise in household income, there is a motivation for larger suburban lots and more living space.

In contrast, sprawl in developing countries is largely a result of necessity. People are driven to the city in search of better employment and opportunity. With increased congestion and density in the city, many of them are constrained to spread out from the inner city into the urban fringes, thereby creating edge cities. The implication of the above is that while sprawls in most developed countries are often a sign of economic vitality, in the developing economies, they are more of ecological threats.

Consequently, when people in developed countries talk about urban sprawls, they emphasise more their perception of its primary advantage which is decentralization of employment to different parts of a city. They contend that it is not healthy to live in areas with increased densities and smaller meter square of space per individual ratios since this creates psychological and health problems. Thereupon, they conclude that the ideal is for people to

¹⁶ Klaus Toepfer, Executive Director UNEP in a paper titled, '*Megacities Local, Regional, and Global Environmental Challenges*', delivered 9th May 2002 at Shanghai, China.

live in bigger plots with their own green spaces away from city centres and work areas.¹⁷

With respect to developing economics, however, the outlook that sprawl presents is the negative. There is a loss of limited resources, which is land; it directly contributes to the degradation and decline of natural habitats such as wetlands, woodlands and wildlife; it reduces farmland and open spaces; water use and energy consumption is increased; it results in land-use patterns which are unfavourable to the development of sustainable transport modes, thus, increasing the use of private car which in turn result in increased congestion and increase in fuel consumption and air pollution.¹⁸ It is also argued that sprawls are breeding grounds for social problems such as crime, drug addiction, poverty, alcoholism, unemployment and high rate of diseases due to unsanitary conditions, malnutrition and lack of basic health care.¹⁹

Against the above background, we shall briefly examine some of the environmental risks arising from urban sprawls.

(i) Air Quality

There is virtually an infinity of airborne residuals that may be discharged to the atmosphere either as gaseous or particulate materials. This discharge may be mobile as well as stationery sources. Atmospheric pollution poses three major threats, namely, threat to human health, threat to ecosystems and threats of severe climatic disruption as a result of global warming arising from excessive levels of greenhouse gases.

With respect to urban sprawl and the challenges posed for air quality emissions occur as a result of increased traffic, rapid industrialization and increased energy consumption.

(ii) Land Degradation and Destruction of Natural Landscape and Habitats

Land area contain vulnerable or conservation worthy ecosystems that can be adversely affected by urban sprawl. The same with natural landscapes and habitats.

¹⁶ Klaus Toepfer, Executive Director UNEP in a paper titled, 'Megacities Local, Regional, and Global Environmental Challenges', delivered 9th May 2002 at Shanghai, China.

¹⁷ Haregewoin Bekele, 'Urbanization and Urban Sprawls', Master of Science Thesis No. 294, Department of Infrastructure, Section of Building and Real Estate Economics, Kunliga Tekniska Hogskolan, Stockholm 2005, pg. 13.

¹⁸ Ibid, pg. 14.

¹⁹ Planet of Slums The Third World's megacities <http://www.blackcommentator.com/88/88_reprint_planet_slums.html>.

Take the case of forest tropical forests for instance hold most of the plant biomass on earth e.g. about half of all standing wood.²⁰ As a result of unplanned consumption of land by sprawling suburbs, farmlands are destroyed and wildlife habitats are displaced.

As forest and farmlands are cleared and covered with concrete in the suburbs, rainfall is less effectively absorbed into the ground water aquifers. This in turn threatens both quantity and quality of water. The fragmentation of land also increases the risk of invasive species spreading into the forest. The importance of forest is beautifully summed up in the United Nations Forest Principle²¹ which states:

Forest resources and forest lands should be sustainably managed to meet the social economic, ecological, sulfural and spiritual needs of present and future generations. These needs are for forest products and services, such as wood products, water fodder, medicine, fuel, shelter, employment, recreation, habitat for wildlife, landscape diversity, carbon sinks and reservoirs, and for other forest products. Appropriate measures should be taken to protect forest against harmful effects of pollution including airborne pollution, fires, pests and diseases in order to maintain their full multiple value.

(Iii) Coastal Areas and the Sea

In the bid to accommodate the spread of cities coastal areas are at times sandfilled and reclaimed. It was in this context that a commentator once wrote²² about Lagos that it is certain that future urban expansion would mean reclaiming more land. Land reclamation in many parts of metropolitan Lagos he thus concluded represents the visible record of man's success in using modern technology to make the desired changes in the coastal landscape. Invariably, reclamation always result in the modification of areas of the coast such as sandy formation, swamps, mudflats and lagoon inlets. Regrettably, the biologically productive areas of the sea are mainly to be found along the coastlines, where there is considerable supply of nutrients from the shore, or where upward streams that bring a rich supply of nutrients, come up from the deep seas over the continental shelves. The high biological production along the

²⁰ For a comprehensive classification of forest ecosystems, see *Forestry Initial Environmental Assessment* Series No. 3 (NORAD, 1994). For a study of the world's forests to date and the first attempt of what the world's original forest looked like before humans began transforming it See *The Last Frontier Forest Ecosystem & Economics on the Edge* (WRI, 1997).

²¹ See Principle 2(b) of United Nations forest Principle in *Forest Principles UN Report for a Global Consensus on all types of Forests*.

²² M.A, Abegunde, "Environmental Management: Coastal Hand Reclamation in Lagos, in Urbanization Process and Problem in Nigeria, P. O. Sada and J. S. Oguntoyinbo (ed.) Ibadan University Press (1981).

coasts form the basis of practically all important fisheries in the world, as well as large populations of seabirds and animals.

Outside of tropical coastlines, there is an abundance of coral reefs vulnerable to intrusions. Some of these areas function as spawning, nursery and feeding grounds for a large number of commercially important populations of fish and shellfish. The sandy coastlines on their part represent important nesting areas for marine turtles and birds, while the subtidal sand and rocky habitats are home for the dense brown algae which supports some 650 species of animal and plant. The mud habitats represent important shrimping and fishing grounds while the sublittoral rock habitats rich in seaweed beds are economically important for shrimps, pearl oysters and abalone fisheries. Sandfilling and reclamation which are most times carried out without a proper impact assessment end up damaging these sensitive and highly productive systems.²³

(iv) Destruction of Plants

Granted that reference has been made to issues relating to destruction of forests in our discussion of land degradation and destruction of natural landscape, the importance of botanical resources²⁴ and the consequences of their loss make it imperative that the issues be treated in more details. The effects of species loss may not be immediately obvious, and are thus not usually considered in economic development plans. Some commentators have even argued that man does not need nature's storehouse of genes because of the impressive advances in biotechnology which has made it possible for scientists to concoct novel genes in laboratories. The reality, however, is that the genes need to be synthesized from models. Laboratories and computer memories cannot replicate the dynamic evolutionary process of the world through which these models are created. This being the case, the glamour of genetic engineering should not blind the society and policy makers of the need to safeguard the integrity of natural ecosystems.

Aside of the priceless heritage of plants as invaluable medicinal chests, another

²³ Under Article V of the African Convention on the Conservation of Nature and Natural Resources adopted at Algiers on September 15, 1968, contracting parties are enjoined to establish and implement policies which maintain air and water-based essential ecological processes, including prevention of pollution. African nation's sensitivity to natural resources management is also evinced in the treaty establishing the African Economic Community [30 I. L.M. 1241 (1991)] adopted by the fifty-one AU member states at Abuja, Nigeria on June 3, 1991.

²⁴ With particular reference to Africa and its rich diversity of biological resources, see the OAU's *Law on the Protection of the Rights of Local Communities, Farmers and Breeders and for the Regulations of Access to Biological Resources*, An Explanatory Booklet by Ekpere J. A. (2000).

dimension of their importance relates to the intricate and often fine-tuned relationship between plants, animals, pollinators and dispersal agents, all geared towards ensuring that the integrity of many wild populations of crop plant is maintained. The result of urban sprawl is that human residence displace wildlife habitats and farmlands, while increased air pollution results in changes to humidity and temperature.

(v) Destruction of Cultural Landscapes and Heritages

The importance of cultural landscape is best understood against the background that there currently exist a Convention for the Protection of the World Cultural and Natural Heritage.²⁵ The idea is to give recognition to a universal past, present and future generations in certain aspect of the environment in the exclusive territory of states.²⁶

Cultural heritage is defined as all traces of human activity in a physical environment, including sites to which one attaches historical incidents, beliefs or traditions. Cultural environments on the other hand refer to areas where cultural heritage constitute part of a large holistic setting. Some of the things that constitute cultural heritage and which may have a bearing on social life and traditions of the population are patterns of settlement, transport facilities as well as a number of different single objects of various characteristics and sizes. In relation to urban sprawl, if for instance the severity of a particular urban growth is such that it swallowed a smaller community thereby disrupting the surrounding population, the influx of this population into the smaller community may overload local services and generate economic, social and cultural conflicts.

In addition to health problems that can easily arise, if conditions in a local community are radically changed, it may produce weakened social relations. Pollution arising as a result of sprawl may also devastate places of social and cultural importance e.g. places of worship and cultural ceremonies. Furthermore, where people who have had isolated existence suddenly find themselves in contact with other groups, it may result in the spread of diseases.

(Vi) Physiological and Other Effects on Human Beings

For human beings, health hazards can arise as a result of pollution of water resources and urban air pollution. The growth of populations and economies has had a

²⁵ UNESCO Convention for the Protection of the World Cultural and Natural Heritage, November 16, 1972, 1037 U.N.T.S 151. The Convention imposes obligations on states Parties both at the national levels, with regard to the world heritage within their own territories, and at the international level, with respect to that heritage which is situated in other states.

²⁶ This is in line with Principle 21 of the 1972 Stockholm Declaration, same which is confirmed in the Declaration in the World Chapter of Nature adopted by the General Assembly of the United Nations in 1982.

profound impact on freshwater resources of many megacities. Water quality deteriorates due to sewage, industrial effluent, urban and agricultural runoff, and saline intrusion. At the start of the 21st century, nine countries²⁷ with around 35% of the world population were believed to have less than 2,000 cubic meter of renewable freshwater available per capita per year. This is an indication of acute water scarcity.

The air in megacities characterized by urban sprawl is among the most polluted as a result of increased traffic and increased energy consumption. Air pollution causes increased mortality and disease, and leads to loss of crops and property.

Integrating Environmental Concern into Urban Management

If growing cities are desirous of meeting environmental challenges, there are key elements that need to be integrated into urban and environmental management. We can start by having a clear understanding of how growth impacts on urban management.

(i) Understanding Growth

Too often, growth is cited as the cause of congestion, overcrowding, deteriorating infrastructure and environmental degradation. What must be realized is that growth itself is not the problem, rather, inadequate planning, poor public policies and conflicts between governmental entities are the primary causes of land use ailments associated with growth.

Take the case of Lagos, Nigeria, the conflict which arose over which tier of government had constitutional right to legislate over town planning and development matters was bitter and divisive. The conflict was resolved in favour²⁸ of States but not before the parties had engaged themselves in very time consuming and expensive litigation which has, in addition, had damaging consequences for Federal State relations.

Growth will come from three main sources, namely, natural increases (more births than deaths), migration (people moving from one state to the other within the country) and immigration (people moving from other countries). Growth control should be more in the context of growth management. There are many reasons why cities adopt management strategies.²⁹ Some are related directly to a lack of adequate infrastructure while others are adopted to cure such problems as traffic congestion, air pollution and the like. What is of importance is that growth should be managed

²⁷ The nations in this list included India, Nigeria, Kenya and the People's Republic of China see UNEP WCMC, WRI.

²⁸ *Attorney General Lagos v. Attorney General Federation & 35 Ors*, (2003) FWLR (pt. 168) pg. 909 1120.

²⁹ For detailed discussions of effects of growth control, see *New Visions for Metropolitan America* (Brookings/Lincoln 1994); William Fulton, *Guide to California Planning*, ch. 11 (Solano Press 2nd ed. 1999); Patricia E. Sulkin, 'Smart Growth at Century's End: The State of the State', 31 *Urb. Law.* 601 (1999).

such that its consequences meet certain required standards.

Growth management is achieved either by amending a city's master plan or by amending the various mechanisms for implementing the master plan including specific plans and zoning laws.³⁰ The problem with most of these strategies, however, is that they rarely solve the underlying issue. Take single-use zoning regulations for instance, the aim is to have commercial, residential and industrial areas separated from one another. What eventually results is that the segregation makes it impractical for people to walk within the vicinity of where they live, work, shop and recreate. All activities end up requiring the use of automobiles thereby increasing consumption of energy and air pollution. In the same vein, when cities limit office growth for reasons of traffic congestion, what results is that the traffic problems shift elsewhere. Similarly, when limits are placed on high rise buildings, it forces development to spread rather than concentrate densely, such that mass transit and other options that can collectively relieve of traffic congestion become impractical.

A hallmark of good land use planning is that decision makers are well informed and that the planning process is flexible, able to respond to changing circumstances and values and that final decisions reflect a comprehensive planning process which accommodates competing public interests.³¹ Consequently, the practical strategies which cities are evolving is that if they are to be able to deal with growth, it becomes imperative that they build consensus among all the different constituents within the community, namely business, developers, environmentalists, city activities, financial interest group and other stake holders. By developing a consensus on critical goals and objectives, they are better placed to continually address emerging issues and concerns.

In the words of a commentator:

We need good partnerships which grow out of multi-disciplinary thinking. That sounds like an academic egghead thing to say. But you go to a typical city ... and your mortgage lenders aren't talking with your public health people, who aren't talking with the landscape architects, who aren't talking with the planners. We need collaborative process where entire communities come together and envision how we want the communities to look, and go ahead and move in that direction. That's a big picture issue.³²

The above referred consensus can be achieved through round-table seminars, workshop and

³⁰ On the topic of growth control, see generally, Daniel J. Curtin, Jr. & M. Thomas Jacobson, 'Growth Control by the Ballot Box: California's Experience', 24 Loy. L.A.L. Rev. 1073 (1991); Daniel J. Curtin, Jr. & M. Thomas Jacobson, 'Growth Management by the Initiative in California: Legal and Practical Issues', 21 Urb Law 491 (1989); Daniel J. Curtin, Jr. & Ann Danforth, 'Looking Beyond the City Limits: Regional Approaches to the Growth Crisis', 22 Urb. Law 701 (1990); Madelyn Glickfeld & Ned Levine, *Regional Growth in Local Reaction* (1992)

³¹ Daniel J. Curtin Jr. 'Urban Sprawl and Its Effects on the Environment', paper delivered at World Jurist Conference, Warsaw, Poland, June, 17 21, 2002.

³² Jason Zasky 'Urban Sprawl is Hazardous to Public Health. Where Do We Go from Here', in city Limits, <http://www.failure.com/arch_science_city_limits_html> accessed on June 9, 2008.

various other interactive sessions that is aimed at identifying, and where necessary proffering solutions to the following core issues among others:

- a) Effective utilization of existing infrastructure;
- b) Building strong communities and encouraging community participation;
- c) Effective use of impact assessment to achieve environmental sustainability;
- d) Encourage the sharing of common facilities and promotion of integrated provisions of environmental infrastructure;
- e) Coordinate sustainable land use planning and management among relevant agencies;
- f) Support and encourage public private partnerships;
- g) Devise appropriate strategies for implementation and enforcement of laws;
- h) Build a steady and secure revenue base;
- i) Promotion of settlement planning and management in disaster-prone areas; and
- j) Promotion of human resource development and capacity-building for human development.

It was to assist the kind of stakeholder consensus noted above that the City Development Strategy (CDS) and the Urban Management Programme (UMP) initiatives came into being. CDS is one of the key strategies of City Alliance (a coalition of cities and development partners)³³ to meet the challenges of urban poverty reduction as a global committed policy issue. The CDS is about participatory decision-making and it provides cities with framework for sustainable and equitable pro-poor policies, strategies and action.³⁴ In the case of the UMP, it is one of the largest urban global technical assistance programmes of the United Nations. The programme in partnership with all levels develops, applies and shares urban management knowledge. Through consultation process, local governments are encouraged to engage in constructive dialogue with stakeholders and involve them in decision-making, while local and regional partner institutions are encouraged to build adequate support with government and other stakeholders.³⁵

(ii) The Place of Physical Planning

³³ The main consultative group members are the UN-HABITAT and the World Bank, Association of Local Authorities and Governments see www.citiesalliances.org.

³⁴ L. Oduwaiye and F. Gamu-Kaka, 'Towards Achieving Sustainable Development in Lagos State, Nigeria', presentation made at the Strategic Integration of Surveying Services FIG Working Week 2007, Hong Kong SAR, China, 13-17 May, 2007

³⁵ Ibid.

Physical planning has a critical role to play in meeting the environmental challenges of urban settings. Physical planning forecast and projects activities relationships through a planning process which involve evaluation. In this respect, it is the practice of physical planning that would determine at what point the external diseconomies of city growth, in terms of physical expansion, the cost of over-crowding, pollution, traffic congestion and ineffective administration, overwhelm the benefits derived from urban growth and concentration and begin to affect adversely the prospects for new investment and growth.³⁶

In the context of our discourse the focus of physical planning should be how to implement a program of urban renewal and reconstruction.³⁷ This will involve brownfield redevelopment or the reuse of existing land within the city and concentrating growth. Abandoned sites, industrial lands and parking spaces would be reused as alternatives to encroaching on virgin lands. Zoning policies that do not permit such redevelopment must be reviewed in a way that promotes reuse of land within already existing developments. The ultimate goal is to achieve a better and most efficient land use policies. It would also involve good transportation planning which has a focus on use of efficient mass public transport systems such as light rails and commuter trains.

New towns or satellite must be designed and constructed as neighbourhood units with social and commercial core, high density housing close to stations. Aside of the need to ensure that they are well connected to existing development by means of efficient public transportation, their design should incorporate mixed use environment, renewable energy sources, recycling and treatment plants and sufficient recreational areas. Using this approach, continual growth can strategically be combined with long-term sustainable development.

(iii) Reorientation of Government Institutions and Agencies

Given the growing environmental awareness and the greater education of the public about the real consequences of environmental degradation, the time has come for Government to realize the need to reorientate government institutions and agencies on the need for integration of socio-economic goals with environmental ideals. For instance, it is often the case that the structure of government will have separate agencies for transportation, commerce, land, environment among others. These different agencies rather than cooperate end-up having competing agendas.

In a 1997 study of seven Central and East European nations, it was found that transport

³⁶ For comprehensive analysis of the frontiers of physical planning, see O. A. Fagbohun 'Physical Planning and the Petroleum Industry: Nigeria's Legislation in Perspective', in *Current Perspective in Law, Justice and Development*, A. Onibokun and A. O. Popoola (eds.), Demm Ditt Project, 2007.

³⁷ This clearly is what is reflected in the initiative of the Lagos State Government in Nigeria in the way it is greening Lagos and reconstructing its business districts.

policies often contradicted environmental policies. As more established transportation ministries held more power than their environmental counterparts, transport policy priorities were able to prevail. On the contrast, countries such as Denmark and the Netherlands with national agencies for spatical planning and coordinated transportation and environment policies have fared better.³⁸ It was for this reason that the International conference on Population and Development (ICPD) recommended that

Governments should strengthen their capacities to respond to the pressures caused by rapid urbanization by revising and reorienting the agencies and mechanisms for urban management as necessary and ensuring the wide participating of all population groups in planning and decision-making on local development.³⁹

It is to achieve the above that some megacities are adopting unicity planning and administration. The thrust of the concept is to bring all areas in a city-state like Lagos under one major umbrella for ease of coordination. This again would appear to be the thinking behind the Lagos Mega City Project. The advantage of this approach is that it will eliminate situations of conflicts and overlapping responsibilities between the different tiers of government and between various agencies of government concerned with environmental planning and management. The various government institutions and agencies would come to realize that it is in their interests and that of the state to cooperatively develop effective management plans which allows for socio-economic development that is consistent with the imperatives of environmental protection. The disadvantage is that where care is not taken it may result in undue government bureaucracies with attendant over centralization.

Conclusion

The goal of this paper has been to better understand the nature of megacities and urban sprawl, and the challenges of environmental protection as are related thereto. In the absence of proper planning, the impact that urban sprawl has on the environment is predominantly harmful. The paper has examined the evolving trends in environmental protection. The solutions and strategies discussed are general in terms. They must therefore be modified for the context in which they are to be applied.

³⁸ Molly O' Meara Sheehan 'City Limits: Putting the Brakes on Sprawl', Worldwatch Paper 156, Worldwatch Institute, June 2001.

³⁹ Cited in 'The Promise of Urban Growth', UNFPA State of World Population 2007, *Unleashing the Potential of Urban Growth* <http://www.unfpa.org/swp/2007/english/chapter_1/index.html> assessed on June 9, 2008.