

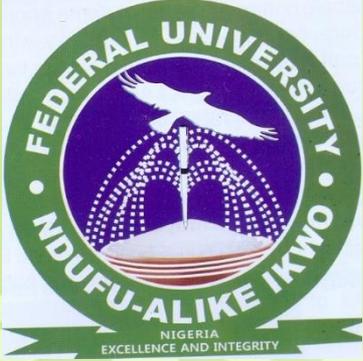
Building Green and Sustainable Cities: The Place of Environmental Standards and Regulations

By

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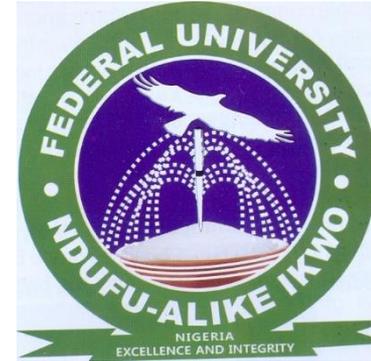
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APPRECIATION

SOME FACTS ABOUT URBANIZATION AND URBAN AREAS



At least three figures is enough:

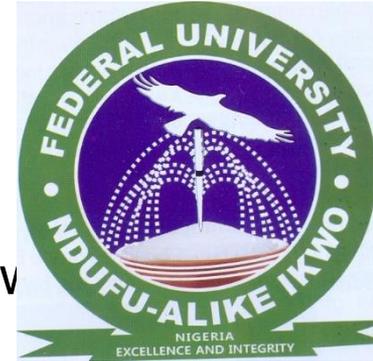
1. Population living in urban areas (approximately 50% of global as well as Nigeria's population live in urban areas today. 2050 projection suggests that this population will increase to 70%).
2. Energy consumption (**about 67% of world's energy consumed in urban areas**)
3. Global greenhouse gas emissions (**about 70%**)

IF NOTHING IS DONE TO CONTROL THIS

It will lead to:

1. Increased environmental disasters such as depletion of renewable resources,
2. pollution,
3. waste accumulation,
4. worsened traffic congestion,
5. habitat loss,
6. biodiversity loss,
7. increased greenhouse gas emissions,
8. global warming and climate change.

This calls for green and sustainable development of our cities.



GREEN CITY AND SDG 11

- Green and sustainable cities - consistent with the United Nations Sustainable Development Goal 11, which is to make cities and human settlements inclusive, safe, resilient and sustainable. Nigeria at the inception of the SDG endorsed the take-off of the new global measures, and has since been committed to its domestication.
- There are other commitments of Nigeria internationally and locally that are consistent with building green and sustainable cities. These include but not limited to the following:
 - The Paris Climate Agreement and Nigeria's Nationally Determined Contribution
 - The National Policy on Climate Change, and the National Adaptation Strategy and Plan Action on Climate Change for Nigeria (NASPA-CCN)
 - National Housing Policies
 - Economic Recovery and Growth Plan
- Each of these have elements that have implications for building green and sustainable cities.



CONCEPTUALIZING GREEN CITIES AND RELATED THEORETICAL ISSUES

- Green city - a concept of urban planning which relies on the ecosystem services that green infrastructure can provide. Three pillars of green city are energy and materials, water and biodiversity, and urban planning and transport. Ecosystem services is at the core of the concept.
- Sustainable cities- built considering social, economic, environmental impact, and resilient habitat for existing populations, without compromising the ability of future generations to experience the same.
- Livable city- contributes to the physical, social and mental well-being, and personal development of all its inhabitants. Key principles are equity, dignity, accessibility, conviviality, participation and empowerment.
- Smart city applies user-friendly information and communication technologies developed by major industries for urban spaces. Smart cities provide high-quality of life while promoting social and technological innovations and linking existing infrastructures.
- A resilient city- one that has developed capacities to help absorb future shocks and stresses to its social, economic, and technical systems and infrastructures so as to still be able to maintain essentially the same functions, structures, systems, and identity.



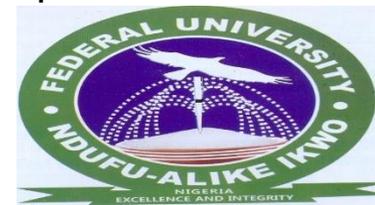
ENVIRONMENTAL GOVERNANCE AND GREEN CITIES



- Environmental governance- an environmental policy and ecology concept that considers sustainability in planning and managing all human activities- can assist in achieving the goals of a green city.
- Managing the environmental impact of cities is one of the critical challenges many resource-dependent countries are facing.
- Weak capacities of environmental protection agencies and ministries of environment, in protecting the environment while simultaneously improving social quality and standard of living and accelerating economic growth, have often been cited as the root cause.
- Failure to ensure environmental governance of cities can have profound negative impacts on long-term economic development and human rights of our cities, including the right to life, adequate food, water, and housing.

SOME SUCCESS STORIES OF GREEN INITIATIVES AROUND THE WORLD

- Oslo, Norway has lowest greenhouse gas emissions compared to other cities in Europe. More than four-fifth of school children in Oslo walk or ride bicycles to and from school.
- Stockholm, Sweden is also a green city and one of the cities in Europe with low greenhouse gas emissions. Rivers in Stockholm have been revived.
- Copenhagen, Denmark is also considered a green city due to the government's and the citizens' efforts to achieve and sustain a very clean and hygienic environment.
- Freiburg in Germany is one of the cleanest cities in the world. Freiburg has abundance of solar panels on top of its buildings (schools, local churches, and even the City Hall).
- Malmö, Sweden is a good model of metropolitan sustainability because it leads in the promotion of renewable energy solutions. The city has abundant green and fresh space.
- Vancouver is Canada's greenest city and is a center for clean-technology innovation. Solar-powered garbage compactors can be found within the city.
- San Francisco in California was the first US key city that banned the use of plastic bag and launched its mandatory recycling program.
- Reykjavik, Iceland runs almost on renewable energy. Rich with geothermal activity being effectively converted into renewable clean energy, this city utilizes less than 1 percent fossil fuels in providing power for electricity.



NATURE OF URBANIZATION AND CITIES DEVELOPMENT IN NIGERIA

- Nigeria's cities are the hub of major economic activities and opportunities, and therefore exert a pull on the people, hence the phenomenon of rapid urbanization. This is associated with poverty, inadequate health, poor sanitation, urban slums and environmental degradation. Related to these are difficult socioeconomic conditions of poorly designed, and developed cities, environmental challenges of waste and sewerage management, which are contributory to environment despoliation, toxicity, and heightened emissions.
- The functions of NESREA which are directly related to our subject matter (<http://www.nesrea.gov.ng/our-functions>), include: enforce compliance with laws, guidelines, policies and standards on environmental matters; coordinate and liaise with, stakeholders, within and outside Nigeria on matters of environmental standards, regulations and enforcement; enforce compliance with policies, standards, legislation and guidelines on water quality, environmental health and sanitation, including pollution abatement; enforce compliance with guidelines, and legislation on sustainable management of the ecosystem, biodiversity conservation and the development of Nigeria's natural resources.



SOME FUNCTIONS OF NESREA IN RELATION TO SOME OF NIGERIA'S INTERNATIONAL AND LOCAL COMMITMENTS



- The Paris Climate agreement, Nigeria's Nationally Determined Contribution, and Green Cities: Conditional and unconditional emission reduction. Renewable energy and energy efficiency in cities and sustainable transportation.
- The National Policy on Climate Change, the National Adaptation Strategy and Plan Action on Climate Change for Nigeria (NASPA-CCN) and Sustainable and Green Cities: The strategies related to green and sustainable cities highlighted in the NASPA-CCN document include using urban and regional planning approach, enhance the use of renewable sources for heating and cooling, and promoting decentralized energy infrastructure around the cities and other settlements.
- National Housing Policies and Sustainable Cities: Ensuring that all Nigerians own or have access to decent, safe, sanitary housing accommodation at affordable cost with secured tenure. **Poor policy implementation, standards and regulations led to the failure of these policies.**
- The Economic Recovery and Growth Plan (ERGP) and Sustainable Cities: Construction and Real Estate Sector is a priority sector of the ERGP and this sector will stimulate construction by building affordable housing.

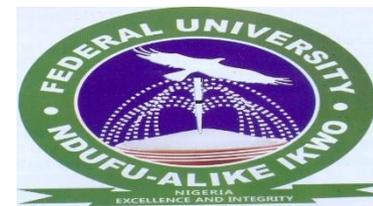
MORE WORK NEEDED BY IMPLEMENTERS OF ERGP

- The ERGP also considers transportation infrastructure as one of its key execution priorities and effective implementation of this Plan is projected to significantly improve the transportation network (road, rail and port) in Nigeria by 2020. The Abuja-Kaduna passenger rail services is completed and working.
- This a step in the right direction to achieving sustainable transportation in cities. Much still needs to be done regarding sustainable transport and housing in Nigeria if the country will build sustainable and green cities.
- Redesigning our cities as climate compatible centres is very paramount.
- Therefore, the implementers of the construction and real estate and transport sectors should pay attention to constructing green/low-carbon houses, restructure our cities with low-carbon infrastructure networks.
- This may involve collaboration among the different tiers of government, MDAs, international organizations, research institutes, polytechnics, universities, private sector actors, and communities.



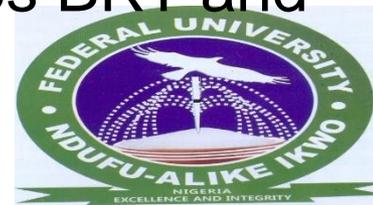
CONCLUSION

- Green city can be summarized as a new way/approach of ensuring sustainability in urban areas, and at the core of this is ecosystem services.
- There are many aspects of sustainable and green cities in Nigeria's policies, programmes, and pacts, but, the country is yet to have cities that can be called green and/or sustainable cities.
- The problem of policy implementation and the political will are the main limitations.
- Regulations and standards are also important limitations to achieving green cities in Nigeria.
- We need to combine sustainable solutions with focus on growth and quality of life to make our cities green, sustainable, smart, livable and resilient.
- Environmental standards and regulations are needed in checking technologies, innovations or solutions recommended for building sustainable and green cities in Nigeria.
- Standards and regulations are required to realize zero waste cities, green buildings, efficient and integrated public transportation, and clean our water ways. Achieving all these may be difficult, but, **SCIENCE** solves the problem.



RECOMMENDATIONS

- Multi-stakeholders engagement in urban planning.
- We must consider workable approaches that enhance ecosystem services and counteract disservices in cityscapes
- Participatory approach to policy-making (especially on housing) is important for Nigeria.
- Renew urban environmental governance in Nigeria.
- Assess how existing environmental governance structures (NESREA and others) ensure ecosystem service protection and provision.
- Adopt and adapt examples of green cities around the world in building ours.
- Strengthening environmental governance institutions in Nigeria.
- Ensuring that city masterplans, environmental laws and acts are implemented very well.
- Sustainable means of transportation (like the Lagos BRT and railway) are needed in all Nigerian cities.



LITERATURE CONSULTED

- Ademiluyi, I.A. (2010). Public Housing Delivery Strategies in Nigeria: A Historical Perspective of Policy and Programme. *Journal of Sustainable Development in Africa* 12(6): 153-161.
- Abdul Samad Hadi (2008). In: Shaharudin Idrus, Others. 2008, SPATIAL URBAN METABOLISM FOR LIVABLE CITY, Blueprints for Sustainable Infrastructure Conference, 9–12 December 2008, Auckland, NZ, 2005, p. 2.
- Aribigbola, A. (2008). Housing Policy Formulation in Developing Countries: Evidences of Programme Implementation from Akure, Ondo State Nigeria. *Journal of Human Ecology* 23(2)125-134.
- Bilcke C.V. (2013). UNEP's work on the contribution of cities to resource efficiency. <http://cor.europa.eu/en/events/Documents/Vanden%20Bilcke.pdf>
- Federal Ministry of Environment (2015). Nigeria's intended nationally determined contribution. Submitted by The Federal Government of Nigeria Being a requirement by Conference of Parties to the United Nations Framework Convention on Climate Change (COP UNFCCC) in preparation for the adoption of climate change agreement at the Paris conference on climate change coming up in December, 2015.
- Federal Ministry of Environment (2011). National Adaptation Strategy and Plan of Action on Climate Change for Nigeria prepared for the Federal Ministry of Environment Special Climate Change Unit, prepared by the Building Nigeria's Response to Climate Change Project of the Nigerian Environmental Study/Action Team, Ibadan, Nigeria
- Federal Ministry of Environment (2012). National Policy on Climate Change. Department of Climate Change, Federal Ministry of Environment, Abuja, Nigeria
- Hosam K. El Ghorab and Heidi A. Shalaby (2016). Eco and Green cities as new approaches for planning and developing cities in Egypt. *Alexandria Engineering Journal* (2016) 55, 495–503
<http://smartcities.gov.in/upload/uploadfiles/files/What%20is%20Smart%20City.pdf>
- Lehmann, S. (2010). Green urbanism: Formulating a series of holistic principles. *SAPIENS: Surveys and Perspectives Integrating Environment and Society*, 3(2). Retrieved from: <http://sapiens.revues.org/1057>
- lijasz-Vasquez, E and S., Wahba (2016). Toward a "New Urban Agenda": Join the World Bank at Habitat III in Quito. <http://blogs.worldbank.org/sustainablecities/taxonomy/term/14825>
- May Hald, (2009) Sustainable Urban Development and the Chinese Eco-City: Concepts, Strategies, Policies and Assessments, Fridtj of Nansen Institute, FNI Report 5/2009, , p. 44.
- Ministry of Budget and National Planning (2017). Economic Recovery and Growth Plan, 2017-2020. Federal Republic of Nigeria
- Ocholi, S.O.; D. Manase; J. Lowe and J. Sommerville (2015). Critical Review of Nigeria National Housing Policies Delivery (NNHPD). *International Journal of Engineering Research & Technology*, 4 (9): 718 – 724
- The Environmental Magazine, What are 'Green cities'?, 2009. At website <<http://phys.org/news157055703.html>>.
- Vukan Vuchic, (2008). In: Shaharudin Idrus, Others, 2008, "SPATIAL URBAN METABOLISM FOR LIVABLE CITY", Blueprints for Sustainable Infrastructure Conference, 9–12 December 2008, Auckland, NZ, 1999, pp. 2–3.
- Yosef Rafeq Jabareen, (2006). Sustainable urban forms: their typologies, models, and concepts, *J. Plann. Educ. Res.* 26 38, <http://jpe.sagepub.com/cgi/content/abstract/26/1/38>.
- www.greenuptown.com/top-ten-greenest-cities-world-2015/
- www.resilientcity.org/
- <http://www.undp.org/content/undp/en/home/ourwork/sustainable-development/natural-capital-and-the-environment/extractive-industries-environmental-governance-for-sustainable-natural-resource-manage.html>





THANK YOU

