

## Poverty to Alleviation: Green economy and sustainable development - a review

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**Abstract:** About 840 million persons in developing countries live in dimensional poverty with an income line of \$1.25 per day, specifically, Sub-Saharan Africa and Southern Asia. It is believed that a green economy boosts an attractive management out of the current economic crises affecting both developed and developing nations for sustainable economic and environmental sustainability. Public transport system in developed and developing countries is a crucial part of the solution to the nation's economic, ecological, and social challenges, targeting a better quality of life. This study is aimed to suggest the possible ways for minimizing global challenges affecting developed and developing countries on the ground of sustainability. The major problem of this study is global economy recession. Economy recession is a worldwide challenge affecting mostly developing countries. In this research, different methodologies are used for the identification of economic challenges currently affecting developing countries. In Nigeria, 54.80% of the people are experiencing critical poverty, hunger, and food insecurity. In Asia, Bangladesh has the highest overall loss of 58.00%, followed by Papua New Guinea and India with the same value of 48.00%; compared to Nigeria which has 50.90%. The study highlights the positive and extensive solutions to the above global challenges. It can be concluded that, these global challenges will be minimized through the suggested recommendations for better improvements of Nigeria.

**Keywords** –Green economy, sustainable development, poverty, hunger, public transport.

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### I. INTRODUCTION

The major problem of this study is global economy recession, which is a global challenge affecting developing countries especially, Nigeria for instance. Additionally, other global challenge of this study is poverty & hunger. Therefore, development of green economy is an effective way to develop the concept of green economy in order to control and improve poverty, environmental challenges, and global climate change in Nigeria. Public transport system in developed and developing countries is an essential part of the solution to the country's economic, environment, social and energy challenges, aiming at bringing a better quality of life for the users [1, 2].

This study is aimed to suggest the possible ways for minimizing global challenges affecting developed and developing countries on the ground of sustainability. In order to achieve this goal, the following objectives are shown below:

- i. To collect data related to the global challenges from different sectors or organizations.
- ii. To highlight the possible causes of the global challenges.
- iii. To provide critical solutions to the global challenges affecting developed and developing countries for future humanity.

According to the recent report by United Nations Environment Programme (UNEP), the concept of green economy treaties to the growing awareness that, achieving sustainability totally rely on getting the economy absolutely correct [3, 4]. The fundamental contributor to global warming is human formed greenhouse gas emissions that infect the air, and these greenhouse gas emissions are common problems [5]. Fig. 1 shows the environmental effects of global warming.

According to the UNEP, green economy is defined as “an economy that not only improves human well-being standards, but also reduces environmental risks, ecological deficiencies, social instability, and undesirable externalities” [3, 8]. That is to say, it is “a low-carbon, resource efficient and socially inclusive” [3, 8]. Fig. 2 shows fume as a result of GHG emissions released from the burning fossil fuels such as gas, coal, oil spill, and etcetera [5].

However, the concept of sustainable development is the result of the growing awareness of the global chains between environmental problems, socio-economic issues (which has to do with poverty, hunger, and gender inequality) and concerns about a healthy future for humanity [11, 12]. Therefore, sustainable development is being classified into the economy, environment and social aspects [13]. Thus, improvement of economic, environmental, and social issues of sustainable development are drawing attention to the construction industry, which is a globally emerging sector, and a highly active industry in both developed and developing countries [14]. Hence, no any research paper available to develop green economy and green development in construction and transportation industries. The paper also provides the useful suggestions for minimizing the global economic crises, poverty and hunger for the benefit of future humanity.

## **II. LITERATURE REVIEW**

Developing countries are experiencing economic challenges and high rate of environmental risks. Most of the developing countries are ranked lowest survivable index in terms of economic development and poverty & hunger among developing countries in the world [15]. Thus, developing countries that are ranked lowest survivable index include: Nigeria, Bangladesh, India, Ethiopia, Republic of Congo, New Guinea, Sub Saharan Africa to mention but a few. Nigeria is chosen as the case study of this review based on the current economy recession affecting the country. The following topics are discussed in this chapter.

### **2.1 The concept of a green economy and its sustainability**

The main concept of a green economy confirms to promise an attractive orientation out of the present economic crises affecting developing countries for sustainable economic growth and environmental improvements [16]. Therefore, good investments can create good jobs, high income generation, as well as development of new additional export markets with less poverty, CO<sub>2</sub> emissions, climate change and pollutions [17].

The following evolutions are provided by green economy for sustainable future:

- i. Discussing unwanted ecological challenges and the existing market disaster by generating taxes that uphold green investments and modern improvement [17].
- ii. Establishing a collective partnership between developed and developing nations through skills and occupation [18].
- iii. Inaugurating global governance in different zones where international and national laws regulate economic measures [17].
- iv. Guaranteeing ecological sustainability mostly, in rural and urban residences by regular cleanliness of the environment [18].
- v. Developing innovative investments by disbursing vast amount of money especially, in areas that encourage a green development [17].
- vi. Achieving comprehensive universal knowledge for beginners who are still illiterate after completing their primary school [18].
- vii. Reestablishing agendas that create good skills, employments, and sustainable life [17].
- viii. Limiting government expenditure in places that eradicate natural capital through a reduction of global destructive on the surroundings [17].

However, based on the existing level of development, different nations have different capabilities to present and execute policy that manage with the transformative variation [17].

### **2.2 The concept of sustainable development and its components**

The concept of sustainable development establishes a basis for apprehending the development of the concept of green economy [17]. In Nigeria, sustainable development can be achieved by a functional and efficient campaign which is aimed at overcoming poverty, hunger, and environmental risks [19]. Therefore, sustainable development is a systematic development that meets the needs of the present without compromising the ability of future generations to meet their own needs [20]. The main objective of sustainable development is to decrease the complete rate of poverty of the world's poor by safeguarding long livelihoods that minimize environmental degradation, global climate change and social instability [19, 21]. In addition, green economic growth, poverty alleviation, social development, and environmental improvement are the first and overriding priorities in developing countries and they are essential to meeting sustainability targets [15, 22]. Therefore, to achieve the main objective of sustainable development, the following components such as economy, environment, social, technical, safety, and culture must be considered (Refer to the Fig. 3) [13].

### **2.3 Factors responsible for attaining sustainable development in green economy**

Below are some of the essential measures and policies for attaining a complete economy, an environment and a social developments in the concept of green economy and sustainable development [15]:

- i. Discouraging the links between the livelihoods and the living standards of rural communities with their environment [15].
- ii. Accessing and empowering better prices to basic commodities for environmental improvements [15].
- iii. Providing adequate food security, good living standards for urban and rural people, and sustainable agricultural trades and products [15].
- iv. Restoring and protecting natural resources, new investments, new export markets, environmental degradation, and eco-systems [15].
- v. Assisting and strengthening international policies efforts towards attaining good sustainability life [15].
- vi. Preserving and reassuring rational use of global ecosystems, bearable management of timberlands, meeting desertification, and conflicting global degradation and damage of biodiversity [15, 18].
- vii. Cheering political and ample civilizations on the ground of sustainability, offer area for rationalization for the humankind, responsible and wide-ranging associations at all phases [15, 18].
- viii. Motivating the widespread and feasible green development, comprehensive and non-damaging work for all the concerned citizens [15].

## **2.4 Environmental sustainability and public transportation system**

The public transport system in developed and developing countries is an essential part of the solution to the country's economic, environment, social and energy challenges, aiming at bringing a better quality of life for the users [1, 2]. Therefore, public transportation plays a vital role in every portion of society such as families, individuals, businesses, and communities [1].

However, the green highways and roads are the public thoroughways prepared using engineering constituents and petrol products that release no or slight Greenhouse gases (GHGs) toxins and are biological enjoyable on green ground [23, 24]. Meanwhile, transport and constructional materials are the crucial features that support in innovative GHGs emissions in roads construction sectors [25, 26]. Public transportation plays a vital role in every portion of society such as families, individuals, businesses, and communities. Table 1 shows United State various comparative modes of public transportation system.

Meanwhile, the green highways and roads can lift commercial events and assure the formation of different communities [28]. However, application of biofuels such as biodiesel and ethanol formed minor amount of GHGs expulsions relate to the conventional fuels due to minor sulphur content. Thus, a less significant amount of CO, CO<sub>2</sub> and N<sub>2</sub>O might also affect the environments [29-31].

## **2.5 Poverty reduction and human development**

The poverty have been made from minor, weak and conflict affected countries as a result poor objectives of sustainable development [16, 32]. Therefore, poverty doesn't mean lack money and capitals, but to assure an acceptable livelihood [18]. Poverty results to hunger and malnourishment, insufficient access to education and other basic amenities for sustainable life [18, 32]. In order to alleviate poverty and hunger especially, in developing countries, green development should offer sustainable services for the benefit of future humanity [18]. About 840 million persons in developing countries live in dimensional poverty with an income line of \$1.25 per day, specifically, Sub-Saharan Africa and Southern Asia [18, 33]. In 2017, nearly 50,000 persons had to run away from their communities just to seek for security and safety as a result of global crises [34]. More than average of the poor persons (i.e. under the age of 18) live in remote regions and they are illiterate, mostly engaged in hunting and agricultural sectors [18, 32].

The method of alleviating poverty is unsociable from terminated, which remain a challengeable issue especially in developing countries [18, 35]. The people that are living in typical rural areas are becoming problematic to be approached due to the severe poverty [18, 36]. They have no access to good education, roads, electricity, potable water, healthcare centers and other facilities, remain mysterious for most of them [18, 37]. Additionally, for those of them that were manage to change location as a result of severe poverty, the enhancement is generally for a short period of time (temporary) [18, 38]. This is because they would be influenced by climate change, economic surprises and food ambiguity, which will take them back to their former location [18, 39]. Hence; it would be hard to flush poverty crises for 2030 vision [18, 40].

### **2.5.1 Instruments used for measuring reduction of poverty**

Reduction of poverty is defined as the process of alleviating poverty in terms of economic improvement in order to boost the living standards of the people [41, 42]. Poverty is usually witnessed in both developed and developing countries but much more witnessed in developing countries compared to developed countries [43, 44]. Nowadays, unremitting economic improvement is restricted by the absence of economic liberties [45, 46]. Thus, economic liberties entails spreading rights of assets to the masses, particularly to green land [43, 47]. Therefore, poverty reduction can be measured by capitals, personal account, land worth, infrastructures, medical status, education background, and etcetera [43, 44]. The instruments used

for measuring poverty reduction could be successfully achieved through green revolution [43, 44]. There are two major instruments of measuring reduction of poverty, thus [47, 48]:

- i. Fiscal instrument, and
- ii. Non-fiscal instrument.

Additionally, some of the examples of poverty indicators which affect the living standards of human being are [43, 44,49]:

- i. Schooling poverty indicator
- ii. Healthiness poverty indicator, and
- iii. Household's poverty indicator.

The measurement of poverty is subject to the distribution of income or rate of consumption of a particular nation [44]. Thus, measurement of poverty emphasis on the conditions of people or families at the lower level of dissemination [43, 50]. Therefore inequality-adjusted human growth index is a larger idea than poor index or income gap [50, 51].

### 2.5.2 Correlation and methods of poverty reduction

Poverty variations are constraints by small and large economic variables [41]. The easiest technique for evaluating the correlation of poverty is through the use of regression method [41, 52]. This method measures the outcome of poverty for a particular people or household for better assessment [48, 53]. Apparently, the general financial and non-financial aspects of a country depends on the significant element of poverty whether employments or investments are established via economic development for the purpose of poverty reduction worldwide [53-55].

Regression method of poverty reduction can be done only if there are available households, consumptions and income surveys of a case study area [41, 48,56]. In regression method, the log of household, consumption, and income could be obtained by dividing each of these variables by poverty line (poverty gap) [48, 57]. This method is usually known as positive and negative regression correlation [48, 57]. The positive regression correlation consists of correlation of variables like education, income status, employee, proportions, composition and location of a particular household [45, 48]. Therefore, other variables are considered as negative regression correlation [48].

### III. FIGURES AND TABLES



**Figure 1:**Environmental effects of global warming[6, 7].



**Figure 2:** Fumes as a result of greenhouse gas emissions [6, 9,10].



Figure 3: Components of sustainable development for environmental sustainability [13].

Table 1: Different modes of public transport system in USA, from 2013 to 2016 [27].

Serial No.	Transit Mode	Number of Transit Modes			
		Developed Areas	Developing Areas	Non-Profit Providers	Total
1	Aerial Tramway	2	1	0	3
2	Automated Guideway Transit (AGT)	7	0	0	7
3	Bus	653	525	0	1,178
4	Bus Rapid Transit (BRT)	7	1	0	8
5	Cable Car	1	0	0	1
6	Commuter Bus	100	56	0	156
7	Commuter Rail	26	0	0	26
8	Demand Response	654	1,133	4,583	6,370
9	Ferry Boat	35	6	0	41
10	Heavy Rail	15	0	0	15
11	Hybrid Rail	5	0	0	5
12	Inclined Plane	3	0	0	3
13	light Rail Transit (LRT)	24	0	0	24
14	Monorail	2	0	0	2
15	Public	1	0	0	1
16	Street Cars	11	0	0	11
17	Van Pool Services	78	24	0	102
18	Trolley Bus	5	0	0	5
Total Modes		1,629	1,746	4,583	7,958

#### IV. CONCLUDING REMARKS AND RECOMMENDATION

The concept of green economy and sustainable development plays a vital role towards improving the present economic and environmental disasters affecting developing countries worldwide. In Nigeria, 54.80% of the people are experiencing critical poverty, hunger, and food insecurity.

In Asia, Bangladesh has the highest overall loss of 58.00%, followed by Papua New Guinea and India with the same value of 48.00%; compared to Nigeria which has 50.90%. About 840 million persons in developing nations live in dimensional poverty with an income line of \$1.25 per day, specifically, Sub-Saharan Africa and Southern Asia. The aggregate number of transit modes in developed and developing areas of USA as for 2016 are 1,629 and 1,746 respectively; compared to Nigeria which has poor transport system. This public transport system can provide millions of jobs for the citizens.

This study finds that the global challenge is not a new challenge, but, it is an accomplishable challenge aimed to guarantee that all countries develop and change in manners that have helped its citizen both international and national levels. It can be concluded that, Nigeria's global challenges particularly, in terms of the present economic crises, poverty, and hunger, will be alleviated through the suggested recommendations for future development.

In order to accomplish the aim of this study, the following are useful recommendations to be taken into account:

- i. Innovative export marketplaces for biofuels and renewable energy should be presented and executed with direct effect to decrease global warming.
- ii. The revolution of GHGs into biofuel is an extreme application which may eradicate the challenges of greenhouse gasses released into the surroundings.
- iii. Public transport systems should be encouraged to minimize the degree of unemployment nationwide.
- iv. Enthusiastic employment and increase social benefit for all genders and at all ages should be assured.

- v. Greenhouse gas emissions, and subsidies for fossil fuels should be reduced in order to promote sound renewable energy, nuclear-powered energy, and coal fired power stations.
- vi. Government should be taken vital actions for ecological protection through the transformation of low carbon society with an embracing of a green economy.
- vii. Land should not be irreversible for environmental improvements.
- viii. Use of a green economy will greatly create green development, green jobs to the society and reduces the degree of poverty and hunger particularly, in Nigeria.
- ix. Government should be given vast subsidies to enterprises, innovative export markets, and research & development (R&D) for conservational benefits.
- x. All the three components of sustainable development (economic, social, and environment) should be operated together to achieve a successful environmental sustainability.

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## REFERENCES

- [1]. Manaugh, K., M.G. Badami, and A.M. El-Geneidy, Integrating social equity into urban transportation planning: A critical evaluation of equity objectives and measures in transportation plans in North America. *Transport policy*, 2015. **37**: p. 167-176.
- [2]. White, P.R., *Public transport: its planning, management and operation*. 2016: Routledge.
- [3]. Ash, N., *Ecosystems and human well-being: a manual for assessment practitioners*. 2010: Island Press.
- [4]. Richet, P., Y. Bottinga, and M. Javoy, A review of hydrogen, carbon, nitrogen, oxygen, sulphur, and chlorine stable isotope fractionation among gaseous molecules. *Annual Review of Earth and Planetary Sciences*, 1977. **5**(1): p. 65-110.
- [5]. Leung, D.Y., G. Caramanna, and M.M. Maroto-Valer, An overview of current status of carbon dioxide capture and storage technologies. *Renewable and Sustainable Energy Reviews*, 2014. **39**: p. 426-443.
- [6]. Ahmed, A.U., M. Alam, and A.A. Rahman, Adaptation to climate change in Bangladesh: future outlook, in *Vulnerability and adaptation to climate change for Bangladesh*. 1999, Springer. p. 125-143.
- [7]. Onuoha, C.M., Climate change and sustainable development in Nigeria: The mitigating role of green wall sahara Nigeria programme. *IMPLICATIONS OF CLIMATE CHANGE FOR ECONOMIC GROWTH AND SUSTAINABLE DEVELOPMENT IN NIGERIA*, 2009: p. 33.
- [8]. Warning, U.N.E.P.D.o.E. and Assessment, *UNEP Year Book 2011: Emerging Issues in Our Global Environment*. 2011: UNEP/Earthprint.
- [9]. Muradov, N.Z. and T.N. Veziroğlu, "Green" path from fossil-based to hydrogen economy: an overview of carbon-neutral technologies. *International Journal of Hydrogen Energy*, 2008. **33**(23): p. 6804-6839.
- [10]. Farrelly, D.J., et al., Carbon sequestration and the role of biological carbon mitigation: a review. *Renewable and Sustainable Energy Reviews*, 2013. **21**: p. 712-727.
- [11]. Cosbey, A., Trade, sustainable development and a green economy: benefits, challenges and risks. *The Transition to a Green Economy: Benefits, Challenges and Risks from a Sustainable Development Perspective*, 2011: p. 40.
- [12]. Gross, B.K., I.J. Sutherland, and H. Mooiweer, *Hydrogen fueling infrastructure assessment*. 2007: General Motors Corporation, Research & Development Center.
- [13]. Sachs, W., *Planet dialectics: Explorations in environment and development*. 1999: Zed Books.
- [14]. Berke, P.R., Natural-hazard reduction and sustainable development: a global assessment. *Journal of Planning Literature*, 1995. **9**(4): p. 370-382.
- [15]. Khor, M., Challenges of the green economy concept and policies in the context of sustainable development, poverty and equity. *The Transition to a Green Economy: Benefits, Challenges and Risks from a Sustainable Development Perspective*, 2011: p. 69.
- [16]. Brunnengräber, A. and T. Haas, Green economy–green new deal–green growth. *Occupy Rio plus 20. W&E-Hintergrund*, November, 2011: p. 1-3.
- [17]. Weick, V., *Green Economy and sustainable development*. Chapters, 2016: p. 121150-121150.
- [18]. Poverty, E., Millennium development goals. United Nations. Available online: <http://www.un.org/millenniumgoals/>(accessed on 23 August 2011), 2015.
- [19]. Lawanson, T.O., Challenges of sustainability and urban development in Nigeria: reviewing the Millennium Development Goals. Retrieved June, 2006. **24**: p. 2013.
- [20]. Rahman, F.A., et al., Pollution to solution: Capture and sequestration of carbon dioxide (CO<sub>2</sub>) and its utilization as a renewable energy source for a sustainable future. *Renewable and Sustainable Energy Reviews*, 2017. **71**: p. 112-126.
- [21]. Mitchell, G., Problems and fundamentals of sustainable development indicators. *Sustainable development*, 1996. **4**(1): p. 1-11.
- [22]. Dincer, I. and M.A. Rosen, A worldwide perspective on energy, environment and sustainable development. *International Journal of Energy Research*, 1998. **22**(15): p. 1305-1321.
- [23]. Stern, N.H., *The economics of climate change: the Stern review*. 2007: cambridge University press.
- [24]. Goldman, T. and R. Gorham, Sustainable urban transport: Four innovative directions. *Technology in society*, 2006. **28**(1): p. 261-273.
- [25]. Berardi, U., Sustainability assessment in the construction sector: rating systems and rated buildings. *Sustainable Development*, 2012. **20**(6): p. 411-424.
- [26]. Gudmundsson, H. and M. Höjer, Sustainable development principles and their implications for transport. *Ecological Economics*, 1996. **19**(3): p. 269-282.
- [27]. Ceder, A., *Public transit planning and operation: Modeling, practice and behavior*. 2016: CRC press.
- [28]. Fukubayashi, Y. and M. Kimura, Improvement of rural access roads in developing countries with initiative for self-reliance of communities. *Soils and Foundations*, 2014. **54**(1): p. 23-35.
- [29]. Ortiz, O., F. Castells, and G. Sonnemann, Sustainability in the construction industry: A review of recent developments based on LCA. *Construction and Building Materials*, 2009. **23**(1): p. 28-39.

- [30]. Greene, D.L. and M. Wegener, Sustainable transport. *Journal of Transport Geography*, 1997. **5**(3): p. 177-190.
- [31]. Rosen, M.A. and I. Dincer, Exergy as the confluence of energy, environment and sustainable development. *Exergy, an International journal*, 2001. **1**(1): p. 3-13.
- [32]. Jahan, S., et al., Human development report 2015: Work for human development. UNDP: New York, NY, USA, 2015.
- [33]. Wier, M., et al., Effects of household consumption patterns on CO<sub>2</sub> requirements. *Economic Systems Research*, 2001. **13**(3): p. 259-274.
- [34]. Chang, W.-R., J.-J. Hwang, and W. Wu, Environmental impact and sustainability study on biofuels for transportation applications. *Renewable and Sustainable Energy Reviews*, 2017. **67**: p. 277-288.
- [35]. Markewitz, P., et al., Worldwide innovations in the development of carbon capture technologies and the utilization of CO<sub>2</sub>. *Energy & environmental science*, 2012. **5**(6): p. 7281-7305.
- [36]. Damen, K., A. Faaij, and W. Turkenburg, Health, Safety and Environmental Risks of Underground CO<sub>2</sub> Storage – Overview of Mechanisms and Current Knowledge. *Climatic Change*, 2006. **74**(1-3): p. 289-318.
- [37]. Starkey, R., Standardization of environmental management systems: ISO 14001, ISO 14004 and EMAS. *Corporate Environmental Management 1: Systems and Strategies*, 1998: p. 61-89.
- [38]. Cock, M. and B. Hopwood, *Global Warming: Socialism and the Environment*. Militant Labour: London, 1996.
- [39]. Tukker, A. and B. Jansen, Environmental impacts of products: A detailed review of studies. *Journal of Industrial Ecology*, 2006. **10**(3): p. 159-182.
- [40]. Chapple, K., et al., Innovation in the green economy: An extension of the regional innovation system model? *Economic Development Quarterly*, 2011. **25**(1): p. 5-25.
- [41]. Klasen, S., Economic growth and poverty reduction: measurement issues using income and non-income indicators. *World development*, 2008. **36**(3): p. 420-445.
- [42]. Jayne, T.S., et al., Smallholder income and land distribution in Africa: implications for poverty reduction strategies. *Food policy*, 2003. **28**(3): p. 253-275.
- [43]. Atkinson, A.B., On the measurement of poverty. *Econometrica: Journal of the Econometric Society*, 1987: p. 749-764.
- [44]. Gordon, D. and P. Townsend, *Breadline Europe: The measurement of poverty*. 2000: Policy Press.
- [45]. Haggblade, S., P. Hazell, and T. Reardon, The rural non-farm economy: Prospects for growth and poverty reduction. *World development*, 2010. **38**(10): p. 1429-1441.
- [46]. Rakodi, C., *Urban livelihoods: A people-centred approach to reducing poverty*. 2014: Routledge.
- [47]. Bourguignon, F., The growth elasticity of poverty reduction: explaining heterogeneity across countries and time periods. *Inequality and growth: Theory and policy implications*, 2003. **1**(1).
- [48]. Driscoll, R. and A. Evans, Second-generation poverty reduction strategies: New opportunities and emerging issues. *Development Policy Review*, 2005. **23**(1): p. 5-25.
- [49]. Dasgupta, S. and E.K. Tam, Indicators and framework for assessing sustainable infrastructure. *Canadian Journal of Civil Engineering*, 2005. **32**(1): p. 30-44.
- [50]. Ravallion, M., Growth, inequality and poverty: looking beyond averages. *World development*, 2001. **29**(11): p. 1803-1815.
- [51]. Jalilian, H. and C. Kirkpatrick, Financial development and poverty reduction in developing countries. *International journal of finance & economics*, 2002. **7**(2): p. 97-108.
- [52]. Grindle, M.S., Good enough governance: poverty reduction and reform in developing countries. *Governance*, 2004. **17**(4): p. 525-548.
- [53]. Grosh, M. and P. Glewwe, *Designing household survey questionnaires for developing countries*. World Bank Publications, 2000.
- [54]. Collier, P. and D. Dollar, Aid allocation and poverty reduction. *European economic review*, 2002. **46**(8): p. 1475-1500.
- [55]. Deininger, K.W., *Land policies for growth and poverty reduction*. 2003: World Bank Publications.
- [56]. Prozzi, J.A. and F. Hong, Transportation infrastructure performance modeling through seemingly unrelated regression systems. *Journal of Infrastructure Systems*, 2008. **14**(2): p. 129-137.
- [57]. Klugman, J., *A Sourcebook for Poverty Reduction Strategies: Volume 2: Macroeconomic and Sectoral Approaches*. 2002: World Bank Washington, DC.
- [58]. Oyedepo, S.O., Energy and sustainable development in Nigeria: the way forward. *Energy, Sustainability and Society*, 2012. **2**(1): p. 15.

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