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# Energy and Human Development Index (HDI)

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## Introduction

Energy is often defined as the capacity to do work (Britannica 1990). But in the context of this discussion, energy is considered as the force multiplier that enhances humans' abilities to convert raw materials into finished goods and services. This conversion process is the fulcrum of industrialization. Human Development Index (HDI) on the other hand, is the statistical composite measure of a country based on certain parameters such as life expectancy, literacy rate and per capita income (United Nation Report 2019). It is important to include a fourth parameter, that is, good governance. HDI is therefore, a summary of the levels of a countries' level of development based on set parameters. This short report examines the relationship between energy and HDI [1].

## Countries categorization based on HID parameters

Based on HID parameters, countries are categorized into four groups; very high, high, medium and low. The very high category includes countries such as Norway, Switzerland, Ireland, Germany, Hongkong, Australia, Barbados etc , while the high group comprise Trinidad and Tobago, Costa Rica, Mauritius, Brazil, Algeria, China, South Africa etc. The Medium group include, Iraq, Morocco, India, Honduras, Ghana etc. Nigeria, Uganda, Tanzania, Ethiopia are placed within the low category (United nation 2018). It is obvious from the above classification that most of the European countries are in the very high index group while the Sub-Saharan countries are in the low category [2].

## Correlation between Energy and Human Development Index and Industrialization

From the above HDI categorization, it is clear that a positive relation does exist between energy, industrialization and HDI. Countries with very high HDI, generate/utilize enormous amounts of energy, these countries also have a high literacy rate, highly industrialization levels and demonstrate high levels of good governance. These parameters are interrelated and inter-dependent. Energy is needed for industrial development and education is required to develop and implement industrial policies. Consequently, most Sub-Saharan countries such as Nigeria, Uganda, Tanzania, Ethiopia etc that are in the low HDI category generate abysmally low levels of energy. These countries also have low educational standards, low life expectancies and industrial development is almost non-existent. For example, South Africa that is placed in the High HDI group generates about 40,000MW of electricity (Sambo, 2008) with a population of about 40m and the country has a relatively high standard of education. Nigeria on the other hand, at the low HDI category, generates only 5,000MW of electricity (Sambo, 2008; Okey, 2013) with a population of about 200m. Nigeria is also considered not-industrialized. The electricity situation in Nigeria is deplorable and most of the population depend on generators with high environmental pollution effects. By extrapolation, Nigeria will need to generate about 200,000MW of electricity to ensure 24hour light and to drive the level of industrialization needed for sustainable development. It has taken Nigeria 60 years since independence to generate 5,000MW of electricity so all things being equal, Nigeria will need 100s of years to achieve stable electricity generation and utilization [3-5].

## Conclusion and Recommendations

This short report is meant to stimulate strategic planning by countries of the world especially those of Sub-Saharan African. Region. It is also intended to prompt governments and citizens of these countries to focus on energy policies and implementation and not continue to pay lip services to this back bone of countries development, "energy". It is therefore, recommended that, these countries assiduously pursue projects in renewable energy since this is projected by scientists as the 21st dominant energy source. Sub-Saharan Africa is endowed with enormous, solar, wind, biomass, hydro etc, which if adequately harnessed can solve their energy problems and thus boost industrial development. Lastly, these countries should promote good governance to create conducive environments for industrial development.

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