The Impact of Charcoal Production for Energy on Tropical Rainforest Resources in Nigeria

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In Sub Saharan Africa, many people depend on biomass for their household energy. Charcoal production is a common technique for converting biomass into a useful energy source. Nigeria is the biggest charcoal producer in Sub Saharan Africa. A large amount of wood is harvested from Nigerian forests for this charcoal production for energy. The Nexus of charcoal-land use change-energy imposes a considerable burden on the amount of wood that must be extracted from the forest for charcoal production. Therefore, charcoal production is linked to deforestation and forest degradation. However, it is not clear to what extent the demand for charcoal in Nigeria contributes to deforestation by land use change, and degradation of forests by selected wood logging. In this study, an attempt was made to provide an answer to this and to state which situation could occur by 2030, following the expected population growth in Nigeria. To achieve this, literature and open data on charcoal production, deforestation, forest degradation and population growth in Nigeria have been collected and analysed. Subsequently, calculations were carried out to determine to what extent charcoal production contributed to deforestation in the period 1990-2015. In this period, the share of deforestation due to charcoal production increased from 6% to 14%. If the expected charcoal production in 2030 were to apply to the current situation, this share would be around 20%. The quantity of wood required can also be expressed in numbers of hectares with biomass. In that case, around 80,000 ha would be required in 2030. To validate the findings, further research is needed on the amount of biomass per hectare in Nigerian forests, and on the amount of charcoal exported, not only as source of household energy but also globally as barbecue fuel. A more extensive analysis of open data on the nexus charcoal-land use change-energy at multiple scales will help to project future interlinkages.