

Deforestation in Ghana

Erdőirtás Ghánában

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Abstract: This article seeks to highlight the increasing environmental problems in Africa with focus on deforestation in Ghana. The paper discusses how agricultural expansion, illegal mining and logging activities have become key driving factors of deforestation in the country due to increasing socioeconomic challenges and poor environmental protection policies. The devastating effects of deforestation in Ghana include biodiversity loss, land degradation and increase in water security issues. The dire situation posed by deforestation has become a national concern with strong public calls for immediate solution to the problem. Emphasis on the role stakeholders are to play in achieving environmental sustainability by promoting public awareness on deforestation, forest protection policy reforms, poverty alleviation, law enforcement and educational reforms are highlighted in this paper.

Keywords: *deforestation, illegal mining, illegal logging, environment, forest protection*

Összefoglalás: Ez a cikk az Afrikában egyre súlyosbodó környezeti problémákra kíván rávilágítani, különös tekintettel a ghánai erdőirtásra. A dokumentum tárgyalja, hogy a mezőgazdasági terjeszkedés, illegális bányászat és az illegális fakitermelés a fő hajtóereje az erdőirtásnak, elmélyítve a szociális-gazdasági kihívásokat és a gyenge környezetvédelmi politikát az országban. A Ghánában történő erdőirtás pusztító hatásai közé tartozik a biológiai sokféleség csökkenése, a földterület degradációja és a vízellátási problémák növekedése. Az erdőirtás okozta szörnyű helyzet nemzeti aggodalomra ad okot, és a nyilvánosság erőteljesen követeli a probléma azonnali megoldását. Ebben a cikkben hangsúlyt kap az érdekelt felek szerepe a környezeti fenntarthatóság elérésében az erdőirtással, az erdővédelmi politika reformjával, a szegénység enyhítésével, a bűnüldözéssel és az oktatási reformokkal kapcsolatos tudatosság növelésével.

Kulcsszavak: *erdőirtás, illegális bányászat, illegális fakitermelés, környezet, erdővédelem.*

1. Introduction

The environment we live in thrives on ecological balance. An ecosystem consisting of a complex mix of a myriad elements depending on one another for existence (Anjum, 2020). Humans are a critical part of this ecosystem. As the human population increases, the greater the influence on the environment. United Nations (UN) report (2019) estimates that world population is expected to grow to 8.5 billion people in 2030 and 9.7 billion by the year 2050. The Anthropocene era is proving too expensive for the planet, the actions of mankind have become detrimental, threatening the stability needed for the survival of all aspects of the

ecosystem. In some cases, these actions lead to irreversible consequences including extinction of species (Wodak, 2020). The quest for survival is fundamentally changing the biology and geology of the planet through acidifying coral reefs, mining of minerals and cutting down trees (Crutzen and Schwägerl, 2011).

The Food and Agriculture Organization (FAO) indicated in 2020 that forests form about 31% of the total land cover of the earth with an estimated area of 4.06 billion hectares providing habitat for most of the Earth's terrestrial biodiversity which consists of different animal and plant species. Forests provide homes to millions of indigenous people across the globe as well as serving as means livelihood providing jobs, food and fuel to millions across the globe report (FAO, 2020a; UN, 2015). Forests serve as carbon sinks, filtering out harmful gases from the atmosphere which are crucial to the greenhouse effect and climate change (Dean, 2019). Hence, there is no challenging the importance of forests to the different life forms that exist on the planet however, they are under serious threat around the globe due to deforestation. Deforestation is defined as the conversion of forests to other land use or the long-term reduction of tree canopy cover (FAO, 2007). Tropical forests spread across South and Central America, Central Africa and South East Asia. World Wide Fund for Nature (WWF) report (2022) indicates that tropical forests region which serves as home to a wide range of flora and fauna biodiversity and has unfortunately seen an alarming increase in deforestation in the past century. This is a very devastating situation, especially since tropical forests provide habitat to about two thirds of the world's total biodiversity (Mulatu et al., 2017). The Amazon forest in the past 50 years has lost close to 17% of its forest and in Brazil, deforestation in the year 2020 increased exponentially resulting in global concerns and demand for measures to halt the rise (Silva Junior et al, 2020; WWF, 2022). South America and Africa were reported as the regions with the largest carbon dioxide (CO₂) emissions in 2020 with emissions of 1 billion tonnes of CO₂ each. This article seeks to study deforestation in tropical forests with focus on Ghana, highlighting current situations and discussing possible measures of mitigation (FAO, 2020b).

2. Deforestation in Ghana

The Republic of Ghana in West Africa is characterized by a tropical climate. The country has a total land cover area of 238,535km² and a 550km long coastline. Annual mean temperatures range between 24°C and 36°C with relative mean humidity of about 81%. Annual rainfall ranges from 800mm to 2000mm depending on the ecological zone due to climate variability. The northern part of Ghana which is characterized by the savannah zone experiences little rainfall as compared to the southern part of the country with evergreen and forest areas (Owusu et al., 2021).

Ghana, like most developing countries with tropical forests is not immune to deforestation. Ghana has lost about 20% of its forest area from the year 1990 till date. The country had an estimated forest cover around 9,924,000ha in 1990 which has reduced to about 7,976,000ha today (Guuroh et al., 2021). Ghana is listed in a report by WWF as one of 24 deforestation fronts in the world (Pacheco et al., 2021). The report highlights these deforestation fronts as places noted with high concentration of deforestation zones where remaining forests are under serious threat. Deforestation in the country is ongoing also in some protected forests as shown Figure 1 resulting in increased national biodiversity losses. Currently in Ghana, the western chimpanzee is listed as an endangered species due habitat loss resulting from deforestation (Evans et al., 2021).



Figure 1. Essen Epam Forest Reserve, Ghana. March, 2022. Photos by Thomas Omari.

3. Driving Factors of Deforestation in Ghana

3.1. Agricultural Land Expansion

Agricultural expansion is at the front of deforestation in Ghana. 45% of the country’s over 31 million population are employed in the agricultural sector making it an integral part of Ghana’s economy (Quacou, 2016). Cash crops such as cocoa, oil palm, coconut, rubber, mango, citrus and cashew which are mostly mono-cropped on large scale in the country, require the clearing of huge tracts of land usually forests for their production. The farmers often employ the shifting cultivation system where new tracts of land are cleared usually by slash and burn methods. This has resulted in the destruction of many forests in the country as illustrated in Figure 2 (FC 2021a).

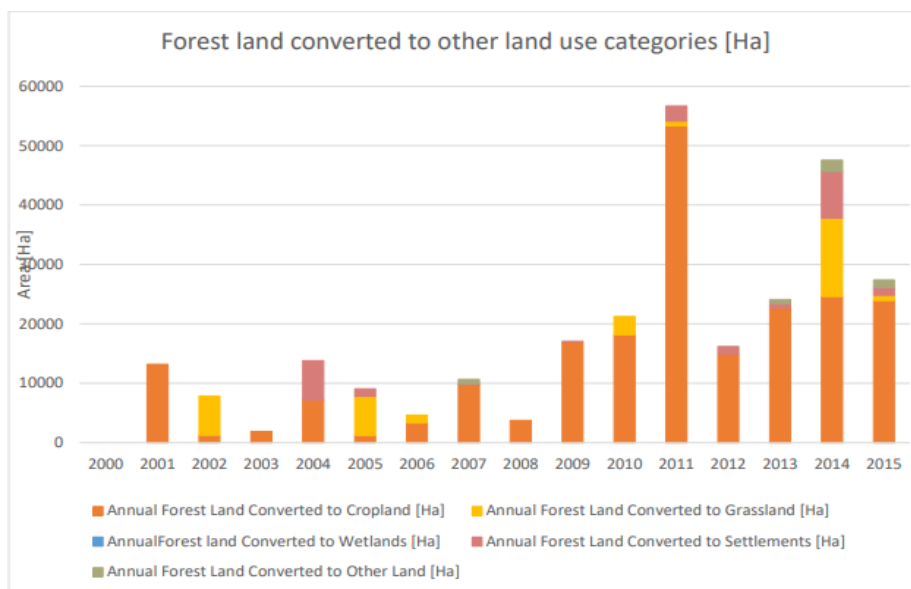


Figure 2. Illustration affirming the conversion of most forest land to cropland in Ghana. (Sourced from Forestry Commission, Ghana’s National Forest Reference Level, 2021)

3.2. Illegal Tree Logging Activities

The rich wealth of natural resources of Ghana include its forest with different species of timber. Ghana secured a cumulative €113,522,746.51 from the export of 248,657.909m³ timber products from January to October, 2021. The export products consisted of lumber, billet, briquettes, sliced veneer, rotary veneer and plywood from different tree species such as Teak (*Tectona grandis*), Wawa (*Triplochiton scleroxylon*), Ceiba (*Ceiba pentandra*), Essia (*Petersianthus macrocarpus*) and Denya (*Cylicodiscus gabunensis*) to about 40 countries including Belgium, India, Togo, Germany and United States of America (FC, 2021b).



Figure 3. Logging activities in the Essen Epam & Esuboni Forest Reserve, Ghana. March, 2022. Photos by Thomas Omari.

Unfortunately, not all logging activities are regulated and documented in the country. Illegal logging has become an undeniable factor in the increase in deforestation in Ghana and a serious threat to forests as shown in Figure 3 (FC, 2021b). Illegal logging involves harvesting trees in protected forests in violation of rules that govern which trees may be cut, where, when and in which quantities to cut (Hansen, 2010). Rosewood (*Pterocarpus erinaceus*) native to the forests

of West Africa has become highly sought after in the illicit wood trade due to the exponential increase in demand on the international market especially in China resulting in rosewood becoming an endangered tree species in Ghana consequently resulting in series of national bans on harvesting and exporting of rosewood since 2012 as illustrated in Table 1 (Kansanga et al., 2021; Zhu, 2020).

Table 1. African Rosewood exports from Ghana 2007–2018. Bans imposed in 2012, 2014 and 2017. Compilations of Ghana Forestry Reports. (Adapted from Kansanga et al., 2021).

Year	Volume (M ³)	Value (€)
2018	23,211.96	17,017,811.66
2017	57,383.38	39,370,242.41
2016	96,357.03	63,594,584.62
2015	3,124.63	2,096,486.24
2014	20,804.53	9,371,462.00
2013	40,984.31	19,862,066.95
2012	8,570.79	3,575,714.70
2011	127.034	21,894.69
2010	1,569.95	533,021.94
2009	1,032.04	286,062.53
2008	331.91	76,842.07
2007	315.3	76,238.90

Wood collection by rural folks and charcoal burning business are also a contributing factors to the depletion of forests in Ghana. Unfortunately, a large number of households in Ghana still rely on charcoal as energy source for cooking (Asante, 2019). Charcoal producers harvest trees to produce charcoal to meet the demands of buyers without regards to the impact it causes to the environment. Deforestation due to wood fuel harvest is particularly widespread in the Savannah ecological zones of northern Ghana (Dumenu, 2019).

3.3. Illegal Mining Activities

Ghana for centuries was known as the “The Gold Coast” due to the discovery of large deposits of gold in the soil during the colonial times. According to the Ghana Chamber of Mines (2020), Ghana maintained its position as Africa’s leading producer of gold and the 6th gold producing country in the world. The report indicated gold accounted for 97.2% gross mineral revenue with bauxite, diamonds and manganese accounting for 0.54%, 0.01% and 2.25% respectively, establishing gold as an important part of the country’s mining industry.

Small-scale mining in Ghana dates back to pre-colonial times where simple alluvial mining methods were employed. In recent times, small scale-mining has become more sophisticated, intensified and destructive causing serious environmental problems and threatening the livelihoods of people (Bansah et al., 2016). Unlike commercial mining where legal concessions are legally given and controlled, small-scale mining locally called “Galamsey” is plagued with a lot of illegal mining activities. The methods employed by miners involved in illegal mining are often crude. Many lose their lives in the pursuit of gold due to landslides and mine cave-ins, those who do not suffer adverse effects of exposure to dangerous chemicals and heavy metals (Salifu et al., 2013). Mining activities together with the use of mercury have resulted in the pollution of important river bodies and the contamination of soils in mining areas. Previously forested lands have been stripped bare, land degradation and deforestation have increased exponentially. Currently there is intense public outcry and pressure on the government to clamp down as the devastating effects of the mining activities have become more visible with the pollution of more rivers across the country as shown in Figure 4 (Hilson et al., 2014).

The presence of weak legal and regulatory framework for the enforcement of environmental protection laws have resulted in the situation where there is no consistency and transparency when it comes to small-scale exploitation of natural resources in the country. Especially with regards to licensing and issuing of permits creating the perfect grounds for political leniency, hierarchical corruption, nepotism, non-compliance with standards and tax evasion (Abdulai, 2017). There have been cases where officials responsible for protecting national interest have been found to be involved in illicit forest resource exploitation (Gyamfi et al., 2021).



Figure 4. Polluted Pra River as a result of illegal mining activities in Ghana (October, 2022). Photo by Richard Omari.

3.4. Rapid Increase in Urbanization

In recent times, forest areas in the country have increasingly diminished mainly due to their conversion to agricultural lands and settlement areas as a result of rapid population growth, industrialization and urbanization (FC, 2021b). The population of Ghana has increased from 24.7 million people in 2010 to about 31 million in the past decade according to a report by the Ghana Statistical Service (GSS) in 2022. Rural communities around bigger cities like the capital, Accra, Kumasi and Takoradi are rapidly urbanizing leading to encroachment problems to forests in close proximity to urban sprawls and cities. The problem seems to compound each year with the increase in rural-urban migration due to poverty and low employment

opportunities in certain parts of the country forcing the youth to seek greener pastures in other cities and towns (Cobbinah and Erdiaw - Kwasi, 2018).

3.5. Land Ownership Systems

In Ghana about 80% of the total land area is held under customary land tenure system. This places ownership of lands to heads of family and clans, The lands under the ownership of the government for public works form about 20% (Sarpong, 2006). Woefully, it is common to find some of the people engaging in the illicit activities of illegal mining and tree logging in the country with permission from some traditional heads who are supposed to be custodians of the land making it difficult for implementation of government policies against perpetrators of deforestation (Banchirigah, 2008).

3.6. Poor Knowledge on Forest Protection

The local people involved in illegal forest exploitation sometimes are unaware of the consequences their actions leave behind. Most of the areas suffering forest depletion in Ghana are close to rural settlements where formal education is low and unemployment is high. The local people often engage in these activities considering it as a genuine source of income without having any thoughts with regards to environmental protection since they believe the land belong to the indigenes of the land who should be allowed to benefit from the lands. They see the government's efforts of stopping their activities as a form of oppression (Tuokuu et al., 2020).

4. Mitigating Deforestation in Ghana

Institutional strengthening and policy reform is needed in the forestry management sector in the country. This is necessary to reduce and check corruption in the natural resource exploitation sector. Legal framework that will hold members in position accountable and ensure high commitment to the elimination of malpractices in the forest sector. These policy reforms should dictate proper punitive measures to perpetrators irrespective of social connections and ranks to deter others from partaking. Policy reforms should also give forestry officials the independence to do their duties diligently and freely without external influences as well as provide conducive working conditions to serve as motivation against bribery and corruption. "Operation Vanguard" a joint military-police intervention recently launched by the President of Ghana in 2017 in the Ashanti, Western and Eastern Regions of Ghana to clamp down on illegal mining, saw a number of mining sites being shut down. This intervention resulted from general public outrage on the increase in production cost by the Ghana Water Company for treating water sourced from water bodies polluted by illegal mining. The operation saw to the seizure and destruction of mining machines and equipment at various mining sites (Abdulai, 2017). Another intervention by the Government of Ghana is the "Green Ghana Day" an annual day purposed for planting millions of trees nationwide which was started in June, 2021. The program saw to the successful planting of over 5 million trees 2021. The next year saw to the planting of about 20 million trees in 2022 (FC, 2022). Sustaining such policies is vital to the preservation of forests in the country.

Also, ensuring environmental sustainability and forest management in Ghana requires the active participation of every citizen of the country. Multi-stakeholder consultation and participation is necessary in solving deforestation problems. The traditional heads,

governmental heads, local people, forestry officials, law enforcement officers and ultimately all Ghanaians should be made aware of the extent of damage and the need for long-term, sustainable ways of protecting the forests. More education and awareness on deforestation issues is needed especially communities where the problem is prevalent as most people engaging in illegal activities have been found to be mostly unemployed with little or no formal education (Azumah et al., 2019).

Governmental policies should be directed at improving the socioeconomic status of the rural communities in Ghana. Interventions should be aimed at making productive use of the active population in the mining communities by creating employment opportunities in areas of forest management to give the people a means to provide for the families without engaging in illicit activities detrimental to the environment.

5. Conclusions

The clarion call for the address of deforestation in Ghana can no longer be ignored. The physical evidence of the damage being caused in the country are too overwhelming. The rivers are muddied and polluted such that accessibility to drinking water is under threat, biodiversity is diminishing, farm lands are degraded, and forests are being lost at alarming rates. There is the need for active participation of all stakeholders, government leaders, traditional rulers and officials and to ensure environmental safety and sustainability.

Institutions in authority should ensure proper monitoring of forest and proper investments put into safeguarding forest reserves in Ghana. As the country strives to restore depleted forest and reclaim degraded lands by planting more trees, it is important to protect the ones that are still left and limit further destruction.

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