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Review Article

FOREST DECLINE IN AFRICA: TRENDS AND IMPACTS OF FOREIGN DIRECT INVESTMENT: A REVIEW

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A B S T R A C T

Africa is home to some rapidly developing economies, tremendous natural resources and remarkable social and ecological diversity. Forests are one of Africa's most important natural resources, both for the influence they have in the continent's ecology and for their economic benefits. However, in the continent the combination of unsustainable management and uncoordinated externally driven resource extraction with the additional influence of foreign direct investment and infrastructures are influencing the forest cover. Due to these, the continent is losing more than 4 million hectares (9.9 million acres) of forest every year; twice the world's average deforestation rate. Thus, protecting the vanishing and vulnerable forests of Africa is extremely important.

INTRODUCTION

Africa is home to some rapidly developing economies, tremendous natural resources and remarkable social and ecological diversity (Christopher *et al*., 2007). Its living organisms comprise around a quarter of global biodiversity and it supports the earth's largest intact assemblages of large mammals, which roam freely in many countries (UNEP-WCMC, 2016). The content's species compose the world's most diverse and biologically important ecosystems such as savannahs, tropical forests, coral reef, marine and freshwater habitats, wetlands, and montane ecosystems. These regionally important ecosystems provide benefits that many African communities obtain, collectively known as ecosystem services (MA, 2005).

However, in 2014, 6,419 animals and 3,148 plants in Africa were recorded as threatened with extinction on the IUCN Red List, and unsustainable forest use is an important cause of biodiversity decline in Africa (UNEP-WCMC, 2016). Africa's forests are fast diminishing to the detriment of climate, biodiversity, and millions of people of dependent on forest resources for their well-being (Karimeh, 2011).

Forest decline here is interpreted as deforestation, forest degradation or a combination of both and is a complex socio-economic, cultural and political event (Arnoldo, 2000).

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As there's no single definition for the term forest decline that could explain with major causes, researchers confirm that it's a problem associated with both biotic and a biotic factors (Su Y. W., 2009). The disappearance of the forest can be seen where communities clear the land on the forest edge, and where crops are introduced even on steep hillsides as in the montane regions. Because, loggers, miners and rural communities all exploit forests in unsustainable ways in search of profits and means of subsistence. They are the primary actors in forest decline and their immediate motivations are the direct causes of deforestation and degradation (Arnoldo, 2000).

On the other hand, investment and infrastructures are the major factors influencing the forest cover. The tropical forests of Africa are experiencing unprecedented changes as a result of a rapid proliferation of roads and other infrastructure (William *et al*., 2017).Studies reveals that foreign investment has a negative and significant net effect on forest area (Boka,2018;Nicola *et al*., 2008). Also FAO, (2012) stated that large-scale international investments in developing country agriculture, especially acquisitions of agricultural land, continue to raise international concern. For instance, FAO, (2018) stated that the foreign investment inflows to Africa grew rapidly during from the period 2004-2011 rising from 4% to 25% of total FDI (Foreign Direct Investments) inflows to AFF (inflows to agriculture, forestry and fishery). Bo and Yaxin, 2016) stated that China's investments in Africa have exploded in recent years, with outward foreign direct investment (OFDI) stock growing from $1 billion in 2004 to more than $30 billion in 2014.

Basically the link between forest decline and development projects could be explained through both direct effects, including contributing to forest clearance for construction of infrastructure; by deforestation is a phenomenon justified by the sheer scale of modern day destruction (Karen, 1998) and through indirect impacts, where foreign investment could induce changes in behavior that affect the environment (David *et al*., 2013; Nicklas, 2017). African leaders have traditionally been much more concerned about issues such as income development means, disease, poverty, civil conflict, ethnic violence, and religious extremism. While this remains the case, there has to be growing awareness of the importance of dealing on the environmental issues, mainly the causes of change on the forest cover or decline and a concern that could aggravate climate change will have a special importance for the sustainability of development for the continent. In this paper the real situation in the continent from different sources and literatures were reviewed to put more attention for the decline of forest resources in Africa.

Forest Decline: Trends of Forest Cover in Africa

The extent of forest resources is the first measure of sustainable forest management. Because, reliable information on trends in forest area is of great help to international agencies, governments, non-governmental organizations and the commercial sector when they make decisions on policies and investment, and to scientists whose research also informs these decisions (Rodney *et al*., 2015).

Africa is losing more than 4 million hectares (9.9 million acres) of forest every year; twice the world's average deforestation rate (Alister, 2018). The recent data from different studies indicates that forest cover of Africa has been reduced by net forest area (FAO, 2015a; Rodney *et al*., 2015; FAO, 2016c; UNEP-WCMC, 2016; FAO, 2018). FAO in the state of world's forests 2018 indicated that from the year 1990 to 2015 forest area as a portion of total land area was reduced by 3.5%. On the other hand, the forest area net change rate shown that there was negative change in the North Africa and small changes in the sub-Sahara Africa (FAO, 2018).

Also (Seth, 2018) reported that degradation of the trees widespread tree cutting for fuel and other uses makes up the majority of the biomass loss (55 percent) along the massive ecosystem across Angola, Zambia, Tanzania and Mozambique, known as the Miombo woodlands. This clearly shows the proof of (UN, 2015), stating that the demand of wood in Africa could triple by 2050, straining the continent's dwindling forest resources even before the expected time. The forest cover among the four eastern Africa countries of Mozambique, Tanzania, Uganda and Kenya is 70%, 55%, 9% and 6.99% of the total land area respectively (Mwangi *et al*., 2018), and Ethiopia, 12.5% (World Bank, 2015). In these countries the greatest drivers of deforestation are not from within the forest sector but rather outside, primarily from the agricultural and energy sectors.

The proportion of the land area covered by forests in the various sub regions of Africa is: Central Africa (43.6%), Southern Africa (31%), East Africa (20.8%), West Africa (14.3%) and North Africa (7.2%) (FAO, 2003). The planted forest area is 14.8 million hectares, and this represents 5% of the global total (FAO, 2009). As indicated by (Carole, 2013), that the Congo Basin forests (Cameroon, the Central African Republic, the Democratic Republic of Congo, the Republic of Congo, Equatorial Guinea, and Gabon) may be at a turning point, heading toward higher deforestation and forest degradation rates due to variety of reasons, including mineral extraction, road development, agribusiness, and biofuels, in addition to subsistence agricultural expansion and charcoal collection. In the year 2016, in the Republic of Congo, one of the largest fires ever recorded in Central Africa destroyed 15,000 hectares (37,000 acres) of forest. This fire, too, was likely strengthened by drought from El Niño and natural and human disturbance (Mikaela and Liz, 2017).

The United Nations (2017) stated that the proportion of land area covered by forest in the world decreased from 31.6 per cent in 1990 to 30.8 per cent in 2010 and 30.6 percent in 2015. Here the most forest loss can be attributed to deforestation in sub-Saharan Africa, Latin America and the Caribbean. Africa lost about 34 million hectares of its forests between 2000 and 2010 (Eric,2018). Forested area as a proportion of total land area in 1990, 2010, 2015 in sub Saharan has shown reduction in coverage 30.6%, 27.7%, and 27.1% respectively. And also the North African countries 3.9% in 1990, 3.8% from 2010-2015 (FAO, 2018; UN, 2017a). From the above data we could see that the forest cover decline in the continent and also the percentage of the annual emission of carbon dioxide from deforestation and forest degradation in the world, Africa accounts the second position next to the South and Central America, which is resulted from timber harvest and forest fire (Timothy *et al*., 2017). Forest cover trends in the Africa region (2001-2013) compared to 2000 forest cover (>10% tree cover), blue bars represents annual forest loss and the green line represents cumulative loss (UNEP-WCMC, 2016).

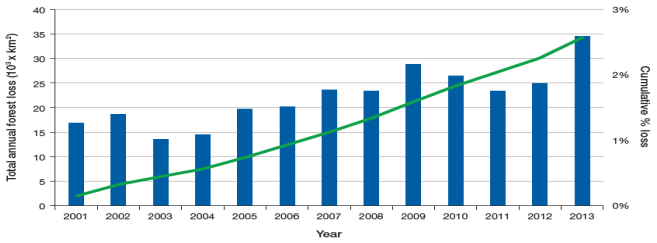

Fig 1 Forest cover trends in the Africa region (2001-2013) (UNEP-WCMC, 2016)

Africa, the second largest continent by area has a forest cover of only 624 million hectares (FAO, 2015). Oishimaya(2017) indicated about a shocking data from FAO that primary forests in the continent are being clearedat a rate of 4 million hectares each year. In a period of only 15 years (1980 to 1995), over 10% of the forest cover of Africa has been lost.The FAO report indicates that between 1990 and 2015, the world's forests decreased from 31.6% of the world's land areas to 30.6%, although the rate of loss has slowed down in recent years. This loss occurred mainly in developing countries, particularly in sub-Saharan Africa, Latin America and Southeast Asia (FAO, 2018).According to the report, the forests managed for soil and water conservation have increased worldwide in the last 25 years, with the exception of Africa and South America. On the other hand, the proportion of people who depend on firewood varies from 63% in Africa to 38% in Asia, and 16% in Latin America. These are clearly indicating that the rate of forest decline is increasing and the forests in the continent are vanishing. Thus, protecting the vulnerable forests of Africa is extremely important.

Forest Decline and Impacts of Foreign Direct Investments (FDI)

There are an arguments about the negative environmental impacts or importance of FDI; especially in developing countries. The lower environmental standard that constitute "pollution havens", stringent environmental regulations in developed countries lead to the relocation of pollution intensive production away from high income countries toward developing countries (Barrett, 1994; Nick *et al*., 2003); thus, FDI leads to more forest degradation (Boka, 2018);increase in FDI significantly raises the land degradation (Salami *et al*., 2012). Nicola *et al*., (2008) indicated that expectations regarding the environmental impacts of FDI are rather mixed. Because, some claim that foreign firms help to improve environmental performance in developing countries by transferring both cleaner technology and management expertise in controlling environmental impacts. However, in this case side effects on the destruction of the ecosystem, pollution, emission, creation of opportunity for invasive alien species and influence on the biodiversity of the area in unavoidable fact as it's difficult to avoid damage on the environment completely.

Although the commodity boom of the past decade may be at an end, global demand for mineral resources is set to increase in the medium term owing to infrastructure expansion and urbanization in emerging economies (Stephen, 2007). The poorest countries receive a disproportionately high share of resource- seeking investment. In Africa, 95% of FDI comes from OECD countries; dominated by France, the UK, the United States and Germany (Nick, 1999). Natural resource strongly attracts FDI inflows into Africa (Godfred *et al*., 2014).It's clear that one of the intensive and very destructive foreign investment in Africa is mining. However, there is a gap in understanding and awareness of the impact of mining on forests (Royal Institute of International Affairs, 2015).Despite, the area of land involved for mining is quite small and it is not seen as a major cause of primary deforestation (Sumit *et al*., 2012), the impact of the mining investment on the decline of forest is critical.

For instance, mining is an important land use activity in the forested region of the Congo basin, employing millions of people in the informal sector, and in the past few decades surpassing timber as the largest economic activity (Global Forest Atlas, 2018). From the year 2000-2014 the African country, DRC lost about 13 million hectares of forest (meaning almost 1 million hectares every year) due to mining and related natural resources export (MECNDD, 2015).

Country	Tree cover loss, Million ha	Key mineral export commodities (those linked to significant deforestation are in bold)	%
DRC	7	Copper, Gold, Tin, Tantalum, Tungsten, Cobalt	3
Cameroon	0.5	Aluminum (Bauxite), Gold	2
Ghana	0.5	Gold, Manganese	7
Liberia	0.6	Iron ore, Gold	7

Source: The Royal Institute of International Affairs, 2015

Mining is going to have a massive influence on the natural environment in Africa, with the potential for impacts at any particular locale determined by the scale of operation and the infrastructure needed to extract and transport prospective minerals (David *et al*., 2013). The (UNCSD, 2009) indicated that it is inevitable that extraction of minerals from the nature earth leads to disturb the environment. When disturbing the environment there must be careful and systemic protection of the whole system of environment that assures sustainable use of the current resource and or ecosystem and that bring about either less or almost none destruction or pollution of the environment.

Across Africa, oil, gas and mining projects are driving investment in new and improved infrastructure. Forests within these development corridors are vulnerable to loss or severe degradation through conversion to agriculture or colonization by settlers seeking employment and other economic opportunities. The combination of unsustainable management and uncoordinated externally driven resource extraction, exacerbated by climate change, threatens to destabilize the region's development and natural resource base (WWF Global, 2017). A study by (Michael *et al*., 2016) revealed that the least developed countries with higher levels of foreign direct investment have higher levels of natural resource depletion and income (i.e., rents). Investments leads to an increase in natural resource depletion, while fostering dependency on income generated from that depletion. An example of income generated from resource depletion would be the money earned off of unsustainable forestry practices. The study assessed the relationship between FDI and four different natural resource depletion and rents measures (energy, forest, mineral, and total natural resources), and reported that FDI plays a great impact on the natural resources. Foreign direct investment was also found to enhance the dependency on income generated from the forest and mineral sector. In other words, increases in FDI make developing countries more dependent on the depletion of natural resources to keep their economy running (Sofia, 2018).

The less recognized factors such as exploitation by industrialized countries and the debt burden are among the major causes of forest decline in developing countries. According to (Sumit *et al*., 2012),wealthy countries or the erstwhile colonial powers having deficit of their own natural resources are mainly sustaining on the resources of the financially poorer countries those are generally natural resource rich.

CONCLUSIONS

Achieving sustainable development requires managing natural resources carefully, since high economic growth can deplete natural capital, such as forests and minerals (Godfred *et al*., 2015).Securing rights to forest resources are important, but not enough to improve livelihoods and sustain forests resources and natural resource management (Barrow *et al*., 2016).Key actions that African countries need to consider within the forest sector are as follows

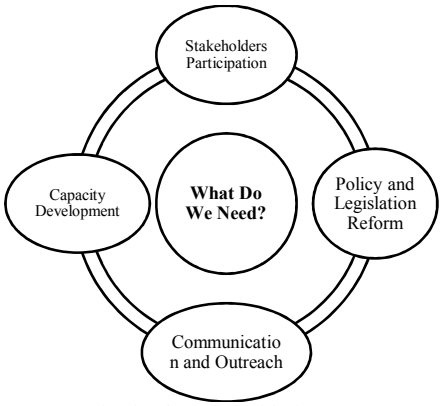

Fig 2 Strategies for the sustainable forest management

Stakeholders' Participation is the way in which management of

forests in participatory approach. It's an arrangement where key stakeholder enter into mutually enforceable agreement that define their respective roles, responsibilities, benefits and authority in the management of defined forest resources (Springate-Baginski *et al*., 2003). It is impossible for the government, policy makers or the state alone to adequately manage resources (Poffenberger, 1990). Thus, the participation of local communities and other stakeholders in managing forestry and conservation can help to improve forest productivity, alleviate poverty, enhance environmental sustainability, and make rules governing forest access more enforceable (Ajit *et al*., 1995).

Policy and Legislation Reform*:* The forest legislation can be understood as a set of laws governing the relations of exploitation and use of forest resources (Thiago, 2015). Legislation, institutional capacity, and economic arrangements, with associated policy measures at both national and subnational levels, create an enabling environment for the sustainable management of forests (Brett J., 2016).Therefore, policy failures should be addressed through a process of dialogue among various stakeholders (Narendra *et al*., 1994).

Communication and Outreach: Communication as a subject is seen differently depending upon the context, from persuasive or marketing communications that sell products and development ideas to communication as a process of consensus building (Ajith, 2015). Information on the characteristics and challenges of forest sector communication at the continent level and countries in Africa is needed. Because, communication in forest sector projects are important to build unity, manage risk, create transparency, and formalize mechanisms for participation and responses to stakeholder concerns.

Capacity Development: Capacity building aims to promote policy and implementation of program alignment for integrated multi-sectoral action to enhance coordination mechanisms for effectively assist sustainable forest management, prevent deforestation and forest degradation and to enhance forest carbon stocks. Because, successful development of adequate capacity for sustainable forest management requires training individuals, enhancing the structure and performance of institutions and organizations, and addressing constraints in the enabling environment (Kleine *et al*., 2005).

Regulating FDI-environment relationship is curtail to maintain sustainable forest management. The magnitude of the effect of FDIon the forest resources depends on the level of governance in the countries, awareness of stakeholders and policies. Thus, active policies and ecosystem friendly utilization of natural resources, participatory forest management and transparent governing systems are among the suggested methods of management for the forests of the continent.

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