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RESEARCH ARTICLE

REVIEW OF CHALLENGES CONFRONTING THE IMPLEMENTATION AND ENFORCEMENT OF ENVIRONMENTAL POLICIES AND REGULATIONS IN SIERRA LEONE.

Fayiah. M¹, Otesile A. A¹ and Mattia. S. B¹.

Department Of Forestry, School Of Natural Resources Management, Njala University, Sierra Leone.

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Abstract

Environmental sustainability in a developing country like Sierra Leone is faced with numerous challenges such as shifting cultivation, mining, deforestation, land degradation, urbanization, land grabbing, wildfire outbreak, corruption, under funding, inadequate man power, pollution, and political interference. Since independence, Sierra Leone has enacted various environmental protection instruments alongside with 48 international multilateral environmental agreements though some are yet to be ratified. Environmental performance index ranking of Sierra Leone is at the bottom of the index for almost four decades. This paper examines the environmental policies, regulations, challenges, mining impacts, conflicting mandates, treaties and conventions since independence and proposed the way forward in sustaining Sierra Leone's environment. It is concluded that the major challenges facing the current and past governments in dealing with environmental issues includes; weak policies and institutions, implementation and adoption problem; natural disasters; war; non mechanized farming, mandate overlap by ministries, corruption, poverty, illegal mining and logging, weak monitoring and absence of inter-sectorial coordination among government agencies among others. Sierra Leone needs sound environmental institutions that are equipped with environmental research facilities as well as improve the educational and expertise capacity of staff. It is recommended that sound EIA/SEA survey should be conducted annually with standard guide lines on the environment health status. The formation of the Environmental Protection Agency through the Acts of Parliament in 2008 is seen as the right step in the right direction on environmental sustainability. This review provide relevant information on the current status and challenges facing the environment and hence serve as a bench mark for designing appropriate policies and regulations for a sustainable environment in the near future.

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Introduction:-

Sierra Leone, a former British protectorate, and colony, became an independent nation in 1961 (UNEP, 2010). The Republic of Sierra Leone lies between latitude 7° and 10° N and Longitudes 10° and 14° w, on the west coast of

Corresponding Author:- Fayiah M.

Address:- Department of Forestry, School of Natural Resources Management, Njala University, Sierra Leone.

Africa, covering an area of 71,740 Sq Km² (27,699sq miles, World Bank, 2009; EPA, 2014). It is bounded on the North and East by Guinea, on the Southeast by Liberia and on the South-West and West by the Atlantic Ocean (FRA, 2015). The country is divided into four administrative regions: North, South, East and the Western Area where the capital Freetown is situated. Sierra Leone is well endowed with substantial natural resources of croplands, forests, rangelands, freshwater, wetlands (swamps), biodiversity, wildlife, extensive fisheries and mineral resources-diamonds, gold, rutile, bauxite, iron ore, chrome and many more (Blinker, 2006). The country has a tropical humid climate with two distinct seasons, namely the wet season starting from May-October and the dry season from November to April, each lasting for about six months. Daily temperatures vary from 20 degrees to 30 degree Celsius although they could be as low as 16 degree Celsius at night during the harmattan. The average monthly temperatures are around 26 degree Celsius (Blinker, 2006). Sierra Leone has a resilient environment that supports all forms of life and harbors diverse natural resources with fertile soil. The natural landscape of Sierra Leone is made of different ecosystems such as rainforest, montane forest, lowland, swamps, coastal, mangrove and marine ecosystem.

The post-independent Sierra Leone paid very little attention to adequate environmental protection and management. From 1961-1989 the Crown Land Ordinance Act was the only Acts that was somehow connected with the environment. After independence, there was virtually no concrete or sound environmental protection policies instituted by the new government then till the early 1990s but being that the population was low at that time so environmental damage was minimal (Table,1). It is no secret that the 1991 constitution of Sierra Leone had very little to offer in terms of protecting and mitigating environmental issues.

The early 1990s was the beginning of a new dawn in the history of environmental misuse and destruction in Sierra Leone. Policies, regulations, and strategies spelled out by the agencies responsible for environmental protection were poorly been adhered to and their implementations were weak and mostly politicized. The civil war broke out in 1991 and so the rule of law binding the state was only observed in the capital city while the rest of the country especially the Southeast was under the rebel control. This era saw massive environmental destruction as lakes were being contaminated; trenches dug a cross roads, forests being bombed and cleared indiscriminately, wildfires set at random and rivers polluted. The war, fortunately, ended in 2003, but the environmental degradation continued at an exponential rate due to the rebuilding process, refugee camps construction, mining, internal migration and urbanization among others. Currently, environmental degradation/ destruction is mainly due to mining (stones, sand, and mineral), deforestation, shifting cultivation, over-exploitation of marine resources, waste, fisheries, pollution from land based industries with outdated technology, land encroachment and flooding(Blinker, 2006; Akiwumi and Butler, 2008) and recently infrastructure, population increase and urbanization.

After the war in 2003 however, awareness grew in the country of the imperative need to reverse trend of environmental degradation. Consequently, the formulation of environmental policies, enactment of Acts and signing of international multi-lateral environmental treaties, regulations, and framework followed one another in quick successions (Table 1, 2,3). These led to the establishment of agencies such as the Sierra Leone Environmental Protection Agency through the enactment of the Environmental Protection Agency Acts of 2008. However, the formulation and enactment of some of these policies and Acts is not devoid of limitations to ease of implementation and enforcement. Other Acts with linkages to the environmental policy Acts are the forestry Acts 1988, Wildlife Acts 1972, Fisheries Acts, 2007, Mines and Mineral Acts 2009, National Land Policy and Commission Act (2010) and the National Protected Area Acts (2015,Table, 2).

This overview seeks to highlight the past and current environmental issues, challenges instruments that have been instituted or formulated to protect Sierra Leone's environment since 1961. Additionally, the review further examines the current environmental status, environmental performance index rankings, treaties and conventions signed gaps and line ministry policies in protecting the environment. Furthermore, the paper highlights major environmental problems and proposed the way forward in combating these problems.

Table 1:-Sierra Leone environmental instruments, policies and their challenges

No	Acts title	Period	Main objective/focus	Challenges
1	Crown land Ordinance Acts	1961-1989	Land acquisition, distribution and management	Tribal confrontations with colonial masters
2	Sierra Leone 1991 constitution	1991 to date	Serve as the legal guides for all activities within the nation	Very little is mention on environments
3	National Environmental	1990-1994	Quality environment for all,	Implementation &

	Policy (NEP)	1994-2000	Conserve and use the environment and natural resources wisely and Environmental improvement.	adoption was weak couple with war.
4	National environmental Action Plan (NEAP)	1995	Managing the environment, recommended interventions and proposals.	War, Adoption & implementation was challenging
5	The National Environment Protection Act	2000	The Act makes provision for the development of an Environment Impact Assessment (EIA) for certain types of projects to be undertaken within Sierra Leone, which include agriculture, mining, construction, waste disposal, and exploitation of hydraulic resources.	Locally available expertise in conducting sound EIA study. Weak implementation of the beautiful act.
6	National Commission on Environment and Forestry (NaCEF)	2005	Gives policy advice, monitoring and enforcing environmental regulations environmental monitoring and priority setting	Coordination lacking, inadequate man power as well as underfunding
7	Environmental Protection Agency (EPA) Acts	2008 To date	Effective environmental management, research, issuing of environmental licenses based on EIA, Standard and guide lines on air water and soil quality.	Natural disasters, EIA process was expensive with inadequately sound local expertise and Environmental monitoring skills

Table 2:-Other Acts with environment linkages

No	Acts title	Main mandates
1	Forestry Acts 1988	Protect forest ecosystems and resources, reserves and biodiversity in general
2	Mines and Mineral Acts 2009	To promote local and foreign investment in the mining sector by introducing new and improved provisions for exploration, mine development and marketing of minerals and mineral secondary processing for the benefit of the people of Sierra Leone
3	Wildlife Conservation Acts 1972	Utilization, conservation, and protection of wildlife resource Nation wide
4	National Land Policy and Land Commission Act 2004	Judicious use of the nation's land and its natural resources by all sections of the Sierra Leonean Society. Ensure equal opportunity of access to land and security for a stable environment.
5	National Mineral Agency Act 2012	To promote the development of the mineral sector by effectively and efficiently managing the administration and regulation of mineral rights and minerals trading in Sierra Leone, to provide technical and other support to the mineral sector including geological survey and data collection activities.
6	National Water and Sanitation Policy 2010	Ensure exploitation and effective utilization of national water resources while maintaining a healthy environment.
7	The National Protected Area Authority and Conservation Trust Fund Act, 2012	Established to exercise oversight authority over National Parks and Protected Areas designated for conservation purposes so as to protect the fauna and flora in its natural state, promote sustainable land use practices and environmental management
8	The National Water Resources Management Agency Act 2017	Being an Act to provide for the equitable, beneficial, efficient, and sustainable use and management of the country's water resources
9	Bumbuna Watershed, Management and Conservation Authority Acts 2008	To coordinate sustainable land, use and agriculture programmes in an environmentally compatible manner in the Bumbuna Watershed, to promote environmental, management and biodiversity conservation

9	Fisheries Management and Development Acts 2007	Protection and management of all marine resources for the benefits of the nation.
10	Draft Forest policy 2010	Never adopted formally till date
11	Draft Forestry and Wildlife Sector Policy 2003	Never formally adopted
12	Draft wildlife policy 2010	Has not been adopted formally till date
13	The Local Government Act, 2004	Sensitization campaigns on forest conservation, fire prevention and control, village forest nurseries, community forest woodlots, national protection forests and national production forests catchments.

Source: Laws of Sierra Leone available at (<http://www.sierra-leone.org/laws.html>, FAO, 2015)

Environmental policy insight;-

Environmental policy is any instrument/actions by a state/government, corporation, public or private institutions regarding the effects of anthropogenic activities on the environment, especially those actions that are designed to prevent or check harmful effects of human activities for a safe environment/ecosystems (Kozluk and Zipperer 2015; Burden, 2010; Caldwell & Siddiqi, 1974). Policies related to the environment typically address issues related to pollution, waste management, biodiversity conservation, and the protection of natural resources, wildlife and endangered species (McCormick, 2001). Policies serve as a guide as to how a government or organization functions on a sustainable basis. The process of environmental protection and their implication for a sustainable management of the environment as well as the quality of living standard of citizens is the fundamental obligation of environmental policies and this lies squarely on the Government. The issue of the quality of life brings into focus the concepts of the environment Egunjobi (1993).

Scholars such as Ramus, (2002); Brophy (1996); Sadgrove (1992); Shimell (1991) have contributed a lot in analyzing the content of environmental policy statements. Furthermore, research on drivers of environmental management; regulation, the degree of stake holders and economic pressure etc have been conducted by (Bansal & Roth, 2000; Berry & Rondinelli, 1998; Hoffman, 1997; Lawrence & Morell, 1995; ECOWAS, 2008). The principal goal of environmental policies is to improve environmental outcomes, driven by the pursuit of objectives of broader wellbeing and ensuring sustainable growth. If policies actually increase innovation they can enhance productivity growth (Kozluk and Zipperer, 2015). Environmental policies are needed because environmental values are usually not considered in organizational decision making (Rafferty and Buren, 2014; Burden, 2010).

Mining and Environmental Degradation in Sierra Leone:-

The natural minerals composition in Sierra Leone is made up of three sub-categories: (1) large-scale production of non-precious and precious minerals - rutile, bauxite, and diamonds; (2) mechanized small-scale mines, mostly diamonds; and (3) artisanal production of precious minerals diamonds and, to a much lesser extent, gold. Large-scale mining operations in Sierra Leone are all foreign-owned. It is estimated that about 20 small-scale mines exist in the country while artisanal miners ranges from 200,000 to 300,000 (World Bank, 2008). Mining contribution to the GDP is currently over US\$150m per year (Blinker, 2006). The mining sector was a significant contributor to Sierra Leone's economy; it accounted for about 90% of export revenues, mainly from diamond exports, and 20% of the country's gross domestic product [GDP] (Bermúdez-Lugo, 2011). Mining is the second largest and important industry, after agriculture regarding job employment and revenue generation in Sierra Leone (World Bank, 2008; IMF, 2013; Wilson, 2011; Bermudez-lugo, 2014).

However, mining is the major environmental degradation and destruction culprit in Sierra Leone (Akiwumi and Butter, 2008; Lubovich and Suther, 2007; Chasek, 2000; Cooper and Palmer, 1995 and Fergusson, 1997). According to USAID (2012; 2013) mining by both registered large- and small-scale producers as well as illegal producers often results in severe degradation of vegetation and top soils. Serious negative environmental impacts due to mining activities include among others: the destruction of large swaths of forest (some of which are in designated reserves), chemical spills and leaching of mining effluent that pollutes both surface and groundwater supplies used by host and other downstream communities, large open pits that fill with water and become breeding grounds for mosquitos, and the destruction and degradation of land and endemic biodiversity.

Sannoh (2017) affirmed that Sierra Leone is already facing environmental problems such as global warming, natural disasters, waste disposal, water pollution, deforestation and so forth. Most of these problems are typically linked with the unregulated mining activities even though there are stated mining regulation and policies but yet still Sierra

Leone is prone to environmental degradation. Critics argue that even the current 2008 Environmental Protection Agency Acts has failed to stop the rapid environmental destruction because of illegal mining of minerals, stones, sand, land encroachment, natural disasters and urbanization surge. Fergusson (1977) warns that the ways natural resources are explored, interfered and destructed have reached an already unacceptable state. This scenario when linked to Sierra Leone is largely due to poor environmental policies, implementation problems, expertise, lawlessness, and corruption. The presence of corruption and the absence of monitoring at the mining sites by government officials have all contributed to the current state of the environment. GEF, (2014) affirmed that there are a significant number of national legislation in Sierra Leone that are designed to regulate conduct in the environment and natural resources management areas, however, they are scattered and piecemeal and are often difficult for officials to comprehend and operate. If well managed, the environment and its natural resources are essential components for the sustainability of a nation-either developed or underdeveloped (Kamara, 2015), and tourism (EU, 2014).

Bueren (2010) put forward a critical question that if the current generation of Africans finds it difficult to grapple with development challenges in spite of current natural resources endowments will future generation finds it even more difficult to survive and thrive on the continent in later years? The answer to this question depends on the environmental policies and regulations we formulate and implement today. High levels of poverty, coupled with the fact that the majority of people's livelihoods rely on natural resources such as lands, minerals, and timber, means that demographic pressure on natural resources is significant and is likely to increase thereby destroying the environment (Brown and Crawford, 2012).

Environmental treaties and conventions signed by Sierra Leone over the years:-

Sierra Leone is signatory to almost 48 multi-lateral environmental agreement and has signed 15 (Table 3). These treaties put pressure on nations to abide by their mandates and hence conserve and protect the environment. The convention on biological diversity for instance, has induced the government of Sierra Leone to take drastic measures in protecting sensitive biological diversity areas such as (Tiwai Island) and also by producing a country report after every five or so years. Among the treaties some have been ratified while others are yet to be ratified. Among the ratified treaties some are yet to kick off and therefore are still in the embryonic stage. Alternately, no action has been taken for treaties such as basal convention on the control of trans-boundary movement of hazardous waste and their disposal, Bamako convention, protocol on liability and compensation, Ramsar convention on wetlands and international treaty on genetic resources (Table 3).

Table 3:-Lists of environmental treaties and conventions to which Sierra Leone is signatory

Convention/Treaties	Adoption date	Ratification date	Objectives	Implementation Programmes /projects
The Vienna Convention on Protection of Ozone Layer and Montreal Protocol on Substances that Deplete the Ozone Layer	Sept 1987	April 1993	Protect human Health and the environment against adverse effects from ozone layer, from anthropogenic emissions.	Phasing out of Ozone Depleting Substances (ODS) by 2010. Capacity building of Institutions dealing with ODS
The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal	March 1989	April 1993	To reduce trans- boundary movements of hazardous and other wastes and to treat these wastes.	
Bamako Convention on the ban of the import into Africa and the control of trans-boundary movements of hazardous wastes within Africa (Bamako convention)	January 1991	April 1993	To protect by strict control the human health of African population against adverse effects of hazardous waste, adopt precautionary measure for proper disposal and prevent dumping of this waste in Africa.	
The United Nations	May 1992	April 1996	To achieve stabilization of	Initial communication to

Framework Convention on Climate Change			greenhouse gas concentrations in the atmosphere at a level that will prevent disaster.	Fulfill the Country's Obligations to the UNFCCC
1. Convention on Biological Diversity (CBD)	June 1994	12 th Dec 1994	Promote Conservation of Biological Diversity, Sustainable use and fair and equitable sharing arising out of the utilization of genetic resources	Development of National Biodiversity Strategic Action Plan (NBSAP).
3. United Nations Convention to Combat Desertification	June 1994	25 th Sept 1995	To combat desertification and mitigates the effect of drought in countries experiencing serious droughts and or desertification	Development of National Action Programme (NAP). Development of Medium Size Projects (MSP) to combat land degradation
Kyoto Protocol	Dec 1997	(Advance stage)	To strengthen the commitment of developed country to reduce their overall emissions	National Capacity Self-Assessment
Protocol on liability and compensation on damages resulting from trans-boundary movements of hazardous waste and their disposal	Dec 1999	Not yet	To provide for a comprehensive regime for liability, prompt compensation for damages resulting from the trans-boundary movements of hazardous wastes and their disposal	
The Cartagena Protocol on Biosafety to the Convention on Biological Diversity	January 2000	2003	To contribute to ensuring an adequate of protection in the field of living modified Organisms resulting from modern biotechnology	National Biosafety Framework Project launched in 2002 2. Establishment of Biosafety Clearing house
Stockholm Convention on Persistent Organic Pollutants (POPs)	22 nd May 2001	17 th May 2004	To strengthen National Capacity and to enhance knowledge and understanding amongst decision makers ,managers, etc on POPs and develop a National implementation Plan.	Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Sierra Leone.
Abidjan Convention And Protocol on Management And Protection Of Coastal and Marine Environment In The Sub-Region		7 th June 2005	For the cooperation and the protection and development of the Marine and Coastal Environment of west African Region.	Guinea Large Marine Ecosystem to Combat Living and Fisheries Marine Depletion
Ramsar Convention On Wetlands	2 nd Feb 1971	7 th June 2005	To manage wetland systems for human uses and retain their natural capital for future generation by all countries and to implement national	

			policies and legislature.	
Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES)	3 rd March 1973		CITES prevent trade in endangered and threaten to extinction species, ensure proper documentation to wildlife trading.	Facing poaching challenges and international cooperation
International Treaty on Plant Genetic Resources for Food and Agriculture			This treaty seeks to protect plant genetic resources for food.	

Adapted from (Gray 2002; Blinker 2006; USAID, 2013)

Sierra Leone Environment Performance Index (EPI) Ranking:-

Over the past decades, Sierra Leone has been constantly ranked at the bottom of the EPI tables for failing to uphold to best environmental practices and standards (Table 4). The best environmental performance index ranking Sierra Leone has received in the past years was in 2006 when it was rank 111 out of 133 countries with a score of 49.00 (EPI, 2006). In the subsequent years as seen in (Table 4), the country has been constantly ranked the least among other countries in the environmental performance index. Sierra Leone remains among the world's poorest countries, ranking 180th out of 187 countries in the Human Development Index in 2011 (UNDP, 2018). The 2010 Environmental Performance Index places Sierra Leone at the absolute bottom – 163rd out of 163 countries – and registers some significant regressions since the end of the civil war. In particular, the Environmental Performance Index gives extremely low scores to Sierra Leone in the area of “Environmental Health”, which describes severe impacts of environmental degradation on the personal health of the Sierra Leonean people (YCELP, 2010). However, with the country being stable for the past decade and the establishment of EPA, more favorable ratings are expected in the coming years.

Table 4:-Environmental Performance Index Ranking of Sierra Leone over the years

Date	Country	Ranking	Total Countries	Scores
2006	Sierra Leone	111	133	49.70
2008	Sierra Leone	147	149	40.00
2010	Sierra Leone	163	163	32.10
2014	Sierra Leone	173	178	21.74
2016	Sierra Leone	162	180	45.98
2018	Sierra Leone	155	180	42.54

Adapted from Environmental Performance Index Ranking reports <http://archive.epi.yale.edu/epi/country-rankings> and Wendling et al., (2018)

Major environmental problems and their root causes in Sierra Leone:-

The Government of Sierra Leone has over the years formulated series of sectorial policies, institutional frameworks and regulations that directly deals with the judicious use of our natural resources and the environment in particular. They includes; mineral Acts, forestry, wildlife, fisheries, marine, biodiversity etc. but yet still we are faced with numerous environmental challenges like flooding, mudslides among others.

Presently, Sierra Leone is facing series of environmental problems, ranging from deforestation, loss of biological diversity, land degradation, pollution of fresh water resources, exploitation of natural resources such as water, minerals, costal degradation, marine resources and so forth (GOSL/UNDP, 2007; Dumbuya, 2009; US, AID, 2013). The major causes of these environmental degradation however is mining, shifting cultivation, illegal logging, fuel wood collection, charcoal production and wildfire (Fayiah, 2017) with mining and shifting cultivation being the two main culprit of environmental deterioration. This practice among others has led to massive deforestation in rural and a peri-urban area in the country but very little is being done in stopping or preventing these practices. Sood (2004) opined that the Environmental Protection Act of 2000 provides no stipulation discharge standard for industries waste exits. He further noted that, the institutional capacity of the Environmental Protection, Waste Management, and Water Sanitation departments has been assessed to be grossly-inadequate to enforce and monitor any regulations. According to FAO/FRA (2005&2010) for example, the change in forest cover of Sierra Leone between 1990 and 2010, the country lost an average of 19,600 ha or 0.63% per year. When put all together, from 1990 to 2010, the

country lost 12.6% of its already limited forest cover or around 392,000 ha. Sierra Leone is among the countries with sound written environmental policies but weak implementation, enforcement and monitoring. Between 2003 and 2011, a significant extent of forest, mangrove and agricultural lands has been reduced to accommodate the urbanization and human activities and led to a tremendous increase of built-up area and bare lands (Gbanie 2014).

August 2017, mud landslides massacre that left almost 1500 dead would have been avoided if only the country environmental policies were being effective and implemented accordingly. Another challenge has been that the laws and regulations relating to mining, including land tenure, are either outdated or contradicting and do not meet the needs of a modern mining industry best practices. World Bank (2008) argues that where the laws and regulations are satisfactory, the responsible institutions are inadequate. The failure of past and present Governments to fully incorporate sensitive environmental issues in the present 1991 constitution has all contributed to the current environmental dilemma of the country being ranked 155 out of 180 EPI in 2018 (Wendling et al., 2018). Kamara (2015; Kanu, 2013; Egunjobi, 1993) noted that the absence of policies or legislative efforts in certain issues facing the country in relation to its natural resources protection such as sand mining will degrade the quality of coastal resources and create problems for the tourism industry. Unfortunately, Sierra Leone's regulations has failed to control the behavior of its citizens as well as activities such as mining, shifting cultivation and other land use changes affecting the environmental quality especially in the urban areas (Forkuor and Cofie 2011, Gbanie 2014, Mansaray, Huang et al. 2011).

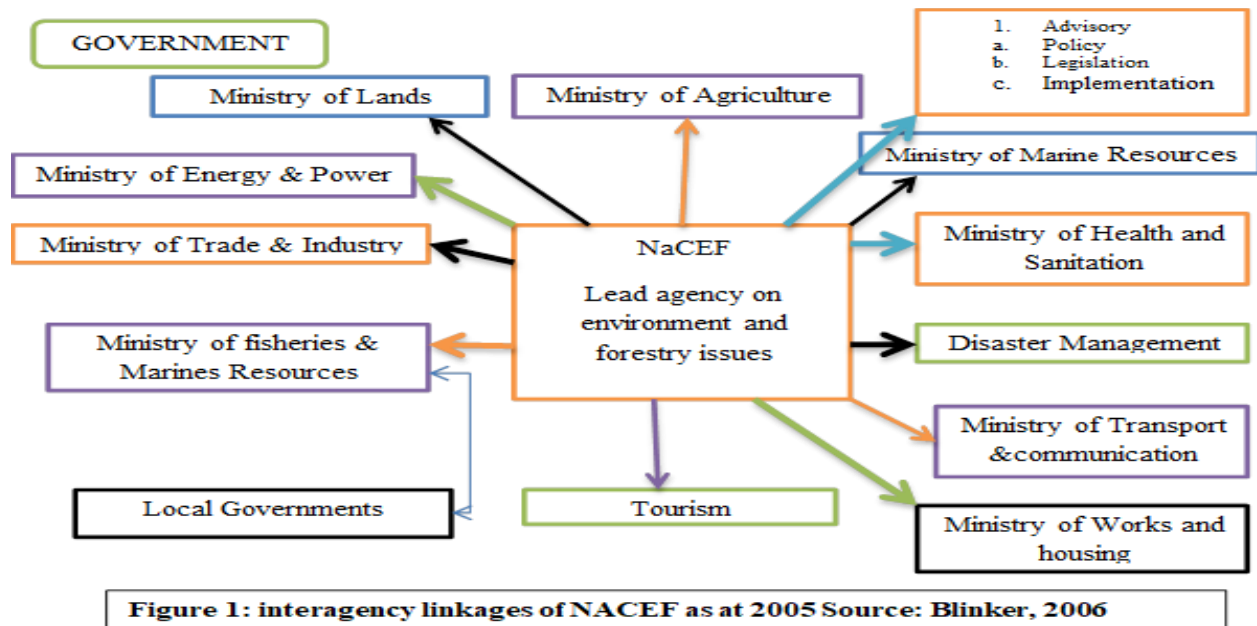
According to UNDP (2017), Sierra Leone is facing an urbanization rate of 2.9 per cent, and 75.6 per cent of its urban population is currently living in informal settlements. The rapid population growth has pushed Freetown's population to massively change forested areas to become settlements. USAID, (2013) warns that poor governance at national, regional and local levels allows illegal logging and indiscriminate cutting of trees for fuel wood and charcoal, overexploitation of marine fisheries resources and illegal fishing by both commercial and artisanal actors. Burden, (2010), believes that a regulation is an effective means to prescribe and control behavior. Apparently, Sierra Leone's desire to achieve its development objective within the shortest possible time through greater reliance on its natural resources might have great consequences on the environment for the present and future generation. According to Brown and Crawford (2012), they conclude that the capacity of responsible organizations to protect ecosystems in Sierra Leone is limited by a low man power (Example; only 25 staff are in the Conservation and Wildlife branch), low capacities for scientific research and monitoring, inadequate budget, limited political capital and weak mobilization for patrolling, and safe guarding these resources have all contributed to the current status of our environment. UNEP, (2010) also acknowledges that Sierra Leone's natural resources and environment, though valuable and resilient but it is badly degraded. Developmental activities to meet human needs must proceed within acceptable environmental limits (Egunjobi, 1993) as sustainable development should advocates for a balance between socio-economic development and the environment in the pursuit of human advancement (Boadi, et al, 2005). Sustainable development should be visible and be able to support economic transformation. Egunjobi, (1993) believes that there is a need to reconcile the demand of economic growth and development with the necessity to conserve and retain the quality of the natural environment. According to World Bank (2008), the greatest institutional difficulties is managing social and environmental problems in Sierra Leone range from building staff capacity to enforcing relevant environmental and social laws as well as regulations, while at the same time developing alternative institutional arrangements to undertake and enforce these tasks.

World Bank (2011), concluded that the failure of existing policies to effectively address environmental and social priorities in Sierra Leone mining sector was due to; lack of specificity in the mining legislation and regulation, insufficient clarity in the environmental and socio-economic responsibilities of the various ministries such as central, provincial and local authorities; lack of monitoring of companies and specific mining site and finally consistently weak implementation of laws and regulation which resulted in enforcement of having to rely on voluntarily initiation and pressure from civil society.

Major Challenges Facing Environmental Policies and Regulations Implementation in Sierra Leone:-

There are nine ministries that have direct or indirect link with the environment but the major ones are Ministry of Agriculture Forestry and Food security, Ministry Mines and Minerals, as well as Ministry of Lands and Country Planning. Most of the mandates of these ministries are mostly intertwined and so the battle for supremacy has been the bone of contention over the years (US, AID, 2008). Brown and Crawford, (2012) noted that there are overlapping jurisdictions between (and within) the central government and its environmental ministries, departments and agencies, and with traditional and elected authorities, which result in competing mandates and priorities, and

poor coordination. From 2008, the Environmental Protection Agency (EPA) was given the sole mandate of protecting the environment and has the full authority to execute actions geared towards improving the environment and at the same time issue license and other protocols. However, the EPA had in the past had tussles with the Ministry of Mines on several occasions as to who have absolute power to confer license to a potential investors or which sector is to take instruction from the other. The Ministry of lands and country planning also faces mandate misunderstandings with the Ministry of Agriculture, Forestry and Food Security on land use issues. These conflicting mandates of supremacy saga in Government Ministries have contributed to the current deplorable state of our environment. The absence of clear lines of mandates within various ministries concern with the environment is a recipe for chaos and further environmental degradation. However, plans are on the way by the government to look into these conflicting mandates and harmonize them amicably as soon as possible. Seto (2011) stated that management frameworks for natural resources management in Sierra Leone are disjointed, fragmented and often donor-driven. In June 2005, National Commission on Environment and Forestry (NACEF) was created to harmonize the department of forestry in the Ministry of Agriculture, and the department of environment in the Ministry of lands and country planning to give the two departments' greater autonomy in the discharge of their responsibilities and it basically takes over the responsibilities overseen by the ministries (Blinker, 2006). According to FAO, (2015), most of the gaps that have been identified in the forestry legislation of Sierra Leone concern the principle of consultation and participation.



Conclusion and policy implication for environmental sustainability in Sierra Leone:-

As the forest and other natural resources disappears, its contributions in protecting humanity, soil, climate, water quantity and quality will disappear also. The eleven year brutal civil war (from 1991-2003), natural disasters like (flooding, landslides), urbanization, illegal mining of minerals such as stones, sands, timbers and the practice of archaic ways of farming has led to the deteriorating status of the environment amidst the rising population. The use of heavy bombs, missiles, amour tanks, and other battle gadgets all contributed to environmental degradation immensely in the past. The Government has over the past years formulated series of environmental and sectorial policies, regulatory and institutional frame works that deals with the natural environment as a whole but yet still Sierra Leone Environmental Performance Index is still low. The regular review of environmental policies over the past decades and the introduction of EIA is the right step in the right direction in combating environmental degradation and fulfilling one of the sustainable development goals. If Sierra Leone is to raise it head above environmental sanity, sound policies and proper monitoring of these policies should be instituted.

The way forward for a sustainable environment in Sierra Leone:-

The Environmental Protection Agency should be strengthened to steer the implementation of laid down environmental policies and legislatures and be given the sole mandate to execute this task. Our environments are

increasingly being shaped by the policies our leaders adopt based on economic, social, political and their sustainability orientation.

A small country like Sierra Leone can curb its environmental atrocities with sound policies, strong implementing institutions, frequent monitoring of areas prone to environmental degradation especially by mining companies, agriculture and adopting the Strategic Environmental Assessment approach and improving the EIA expertise locally. Well-designed environmental policies might actually enhance productivity and increase innovation, yielding direct economic benefits next to the environmental benefits (Porter, 1991; Porter and van der Linde, 1995). Burden (2010), opine that sound environmental regulations can result to considerable improvement of air quality, water, and land use. Environmental policies alert companies to the environmental improvements required however policy signals are sometimes inconsistent in the type of actions they promote (Kivimaa, 2008). In the case of Sierra Leone, the environmental resources can serve as a major asset to develop its tourism industry (European Union, 2014). Conflict of mandate among or within ministries should be tackled by reviewing the present ministerial mandates and placing all environmental issues final decision making into a single ministry, in consultation with communities and awareness raising. Environmental awareness campaign for sustainability should be aimed at creating an environmentally responsible population and links between poor sanitation that contributes to sustainable development (Kassas, 2002). The review of future environmental protection policies should be done by native environmental experts who know the issues affecting the country rather than a foreign consultant who doesn't know the issues and concerns faced by the country. The adoption of more robust environmental measures and methodologies such as Strategic Environmental Assessment (SEA) approach to integrate environmental issues alongside development plan and to establish and strengthen strong institutions like the Environmental Protection Agency and equip them with environmental research ability, build the educational capacity of staff to conduct sound EIA/SEA survey, introduce standard and guide lines on air, water, and soil quality assessment is the right thing to do. Furthermore, for a healthier environment, Sierra Leone must establish sound environmental governance, strengthen multi-lateral environmental treaties, promote strategic environmental assessment, promote sustainable management of our natural resources and introduce environmental information and sensitization programs. People tend to change when they understand the nature of change, and view it as beneficial, so that they make an informed and conscious choice to include it in their list of priorities (UNEP, 2000).

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