

---

## Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community

Emerson Abraham Jackson

*B.Sc [Hons] Econ, M.Sc [Res. Methods], PGCE*

---

### ABSTRACT

Goderich is a community that lies within strategic position in the Western Area Peninsula Forest [WAPFoR]. It has a fast growing population, fuelled by a regeneration of new building construction projects but at a cost to the depletion of forest reserve and ultimately, mobility / extinction of biodiversity. In addition to these developments, it also lies in the heart of a fishing community where demand for firewood is always on the high due to demands for smoked fish.

Primary survey was conducted to address opinions about the current state of deforestation and biodiversity loss, with mixed opinions emanating from the analysed results. Reference was also linked to safeguarding as an important aspect to be considered when dealing with measures to curb deforestation, particularly for people in dependant forest communities like Goderich. The way forward was addressed with discourses pointing around possible initiatives like community Forestry and agroforestry to bolster community cohesion aimed at empowering people.

**Keywords:** Deforestation; reforestation; biodiversity; livelihood; community forestry; agroforestry.

---

### INTRODUCTION

The main purpose and objective of this article is to explore the impact of forest degradation activities in the Goderich community, with reference to livelihood and loss to biodiversity. On this note, this article will be done on the premise [research statement / hypothesis] that deforestation impact:

- *On livelihood (adversely to a reasonable extent).*
- *On mobility and the existentiality of biodiversity in the Goderich community.*

Given the limited scale of empirical evidence about facts relating to deforestation, particularly in the Goderich community, evidence was focused on responses received from a small-scale interview conducted (see details on methodology) in the period of February - March 2015.

Prior to the civil war in Sierra Leone, and more so during the global oil crisis in the 1960s, the increased cost of fuel resulted in people resorting to an increase consumption of forest resources like firewood and charcoal as source of energy; Freetown Peninsula was seen to have been greatly affected by this due to direct access to its vast forest reserve (Cline-Cole, 1987). Lately, it is an unquestionable fact that the impact of the 10yr civil crisis exacerbated massive influx of people and also, with high level of demand for land acquisition, more so in the Western Area Peninsula of Freetown, and for which the Goderich community is no exception (Blondell, 2004; Jackson, 2015; Munro, 2009; Sierra Leone Forestry Policy, 2010 and UNEP, 2010), equally added to the current state of deforestation experienced in the country.

### BACKGROUND INFORMATION ABOUT GODERICH

Goderich is a small rural community located along the Coast of the Western Rural Peninsula of Freetown, the capital city of Sierra Leone [see reference to **Appendix 1**]. It is only 13 miles from the

---

*\*Address for correspondence:*

EAJ392@bham.ac.uk

## Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”

centre of the administrative capital<sup>1</sup>. The area is naturally endowed with strong attraction for its artisanal fishing industry, hence making it a very economically active community, but yet still deprived in terms of economic regeneration activities.

It has a population of 19,209<sup>2</sup>, based on the 2004 population census, and with over half the population highly dependent on its natural resource potential (fishing, forest and Agriculture) for their livelihood sustenance (CONCERN Worldwide, 2012). It could potentially be a good base for development due to the presence of a polytechnic / higher education institution, the Milton Margai College of Education and Technology (MMCET), consisting of a dedicated Agricultural education department. One of the most beautiful and attractive feature about the community is its easy access to beautiful forested flat and hilly landscape facing several locations of sea front, hence making it a very lucrative hot spot for eco-tourist attractions.

The table excerpt in **Appendix 2** shows the 1985 population census report with a projection figure up to the year 2000 for selected areas of the western area peninsula, of which Goderich and its constituent environs are included (Sesay, 2004). The projected figure is also a justification for the high level of deforestation experienced in the Goderich area, which was also exacerbated by the brutal ten year civil war in the country (Blondell, 2004 and Reuters, 2011). There is no surprise to notice the massive clearance of forested land in the wider community to make way for housing projects in order to accommodate the increase rate of population experienced lately around rural community towns in the Freetown peninsula region.

### STATE OF FOREST RESERVE INGODERICH

Forest by definition can be explained as land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10%, or trees able to reach this thresholds *in situ* but this definition does not include land that is predominantly under agricultural or urban land use<sup>3</sup>. Moving further, forests by virtue of their role played, are economic resources and this is simply because of the fact that they can be used by people and communities to produce goods. In the context of this work, these resources include non-timber products like bush-meat, parkland for communal usage and timber

---

<sup>1</sup> Trip Mondo website - <http://www.tripmondo.com/sierra-leone/western-area/bammbatuk/attractions-in-bammbatuk/>

<sup>2</sup>Ibid

<sup>3</sup> FRA 2015 - explanatory notes for the above definition according to the FAO:

- Forest is determined both by the presence of trees and the absence of other predominant land use.
- Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of at least 10 percent and tree height of 5 metres or more. It also includes areas that are temporarily un-stocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used.
- Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.
- Includes abandoned shifting cultivation land with a regeneration of trees that have, or are expected to reach, a canopy cover of at least 10 percent and tree height of at least 5 metres.
- Includes areas with mangroves in tidal zones, regardless whether this area is classified as land area or not.
- Includes rubber wood, cork oak and Christmas tree plantations.
- Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.
- Excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems when crops are grown under tree cover. Note: Some agroforestry systems such as the "Taungya" system where crops are grown only during the first years of the forest rotation should be classified as forest.

## Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”

products like wood used mostly for livelihood sustenance particularly in deprived communities and timber logging to produce secondary produce like chairs, etc.

Forests in Sierra Leone is greatly threatened as a result of the high demand placed on forest timber resource as one of the main source of bio-energy; this account for 80-90% of the country's population, both rural and urban and over 70% of energy consumption in the country (Blinker, 2006). It is a true fact that pressure placed on high demand for forest resources like wood has intensified ‘deforestation’<sup>4</sup> rate and the existence of ‘forest biological diversity’<sup>5</sup> in the country as a whole.

Up to the early 1990s, Goderich was classified as just a village community and the only way in which it was remembered by people in the country is through its thriving economic status for fishing activities and hence, became known as 'FUNKIA MINA'<sup>6</sup>. In Goderich, degradation of forest reserve, particularly prior to the civil crisis, has been greatly fueled through pressure on demand for fuel wood by local fish mongers intending to smoke fishes caught by fishermen using mainly artisanal fishing vessels on a daily basis. Because of the lack of alternative source of energy, there seemed to have continuously been high level of exploitation of the local forest reserve to cater for the high demand of firewood to preserve fishes by local fish mongers and in addition, the pressure of increased population in the Freetown peninsula seeking greener pasture after the devastation inflicted during the brutal civil war in provincial towns (Jackson, 2015a; Brown and Crawford, 2012).

### TOPICAL DISCOURSE ON THREAT TO BIODIVERSITY & THEORETICAL FRAMEWORK

It is reported that over 2000 species of plants are present in the country, including 74 endemic species; 15 primate species still threatened or endangered, 18

antelopes and duikers and for which two out of these are extinct and the remaining 16 still threatened; 9 bats and over 500 birds; 6 of the birds species are recorded to be threatened with extinction<sup>7</sup>. Conservation of forest biodiversity drastically slowed down during the era of the brutal civil war as it was very difficult for the ruling government at that time to gain total control and defence of its forest borders.

Because of its closeness to the capital city, the 'Western Area Peninsula Forest Reserve (WAPFoR)' received high premium and hence, became the first forest area in the Sierra Leone to receive protection, declared in 1916 under the British Colony<sup>8</sup>. Protection of terrestrial landmarks in Sierra Leone, which covers WAPFoR, also incorporating the wider Goderich community, comes under the jurisdiction of the Conservation and Wildlife section of the Division of the Ministry of Agriculture, Forestry and Food Security (MAFFS). Both the Forest Acts 1988 and the Wildlife Conservation Acts 1972 forms the guiding principles responsible for the protection of forests and biodiversity in relation to wildlife in Sierra Leone, but has so far proved inadequately in addressing existing issues relating to forest management in the country [Sierra Leone Forestry Policy, 2010]. This is due to lack of capacity

---

<sup>4</sup>The concept of deforestation as used in this context is described as the situations of complete long-term removal of tree cover. In a few cases, we also address issues related to biomass loss, shortened fallow length and other types of forest degradation (Kaimowitz, D and Angelsen, 1998)

<sup>5</sup>This is defined as the variability among forest living organisms and the ecological processes of which they are part; this includes diversity in forests within species, between species and of ecosystems and landscapes [Convention on Biodiversity. Available in <http://www.cbd.int/forest/definitions.shtml>]. According to Swingland (2001), the term ‘forest biological diversity’ was first used by Lovejoy in 1980 but lately, has taken a reductionist approach in the name of “BIODIVERSITY”, meaning variety of species and their variability in an environment or natural habitat.

<sup>6</sup> A type of species of 'genus Phoxinus

<sup>7</sup> Blinker (2006). Threats to the country's biodiversity have been attributed to the indiscriminate practices, over-exploitation of forest resources, over-fishing (a case of the Goderich community), mining and logging.

<sup>8</sup> Brown and Crawford (2012) - It is estimated that the WAPFoR consists of up to 50 species of mammal, including 7 primate species and 374 birds, which also helps to purify the capital's water supply.

**Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”**

of the division to provide full protection and monitoring of its terrestrial forest reserve and hence making it vulnerable to abuse by intruders and particularly, to existing biodiversity.<sup>9</sup>

Lately, the establishment of organisation like the Environmental Protection Agency (EPA) and most recently, the National Protected Areas Authority (NPAA) have taken vital steps towards the protection of biodiversity and forests in the country. These institutions are established under special jurisdictions ('Environment Agency Protection Acts 2008'<sup>10</sup> and the 'National Protection Area Authority and Conservation Trust Fund Acts 2012'<sup>11</sup>) to ensure full protection of the environment, which also encompass terrestrial boundaries and biodiversity. This now means that individuals can be prosecuted under any of the aforesaid acts in the event that they are found to be in breach of the law pertaining to destruction of the environment, which includes degradation of protected forest land and poaching of treasured biodiversity.

The main theoretical foundation of this article is rooted on the grounds of the impact of deforestation on loss to biodiversity and livelihood especially for the poor rural community around the wider Goderich community. It is a provable fact that deforestation has both positive and negative impacts, and based on a study carried out, the root causes of these are classified broadly into anthropogenic and natural factors [Mahapatra and Kant, 2005 and FAO, 2010]. Based on the FAO study, the natural factor is mainly the result of natural disasters such as forest fires and droughts. The anthropogenic factor according to Mahapatra and Kant [2005] on the other hand, is thought to have being rooted from the following sectors:

- The extent of forest area which also allows for the exploitation of essential biodiversity and their demise.
- Demographic [mainly as a result of the growth in population and mobility as already illustrated in the case with the Goderich community, thereby giving rise to high rate of land acquisition, and thus increase in the level of deforestation].
- Macroeconomic [more so the result in the expansion of economic growth]
- Agricultural development or expansion
- Infrastructural development in road construction
- Political influences which is more so attributed to the decision by post-war government in Sierra Leone with an open policy in giving people access to protected land territories around on the WAPFoR area, and particularly so Goderich.

The above mentioned points provide a good illustration of the connection between deforestation and the demise of biodiversity and particularly so, loss of livelihood to the most needy around the Goderich Village community.

The impact of deforestation as illustrated above by the two causal factors [anthropogenic and natural] and also supported by research is thought to have positive socio-economic benefits through livelihood, particularly for those who are able to access forests to fetch wood and other non-timber products like herbal leaves and plants for their daily sustenance [Casse et al, 2004]. For such a community like Goderich, the costs seemed to have out-weighed the socio-economic benefits as the expansion in the regeneration work is making it impossible for those highly dependent on forest resources to be able seek an easy means of alternative to their livelihood. The negative impact of deforestation can also be viewed in terms of global warming, soil degradation, loss of biodiversity [addressed in the interview] and increased poverty, particularly for the poor [Chakravarty et al, 2012]. The diagram below provides the theoretical construct on which the methodology is to be explored.

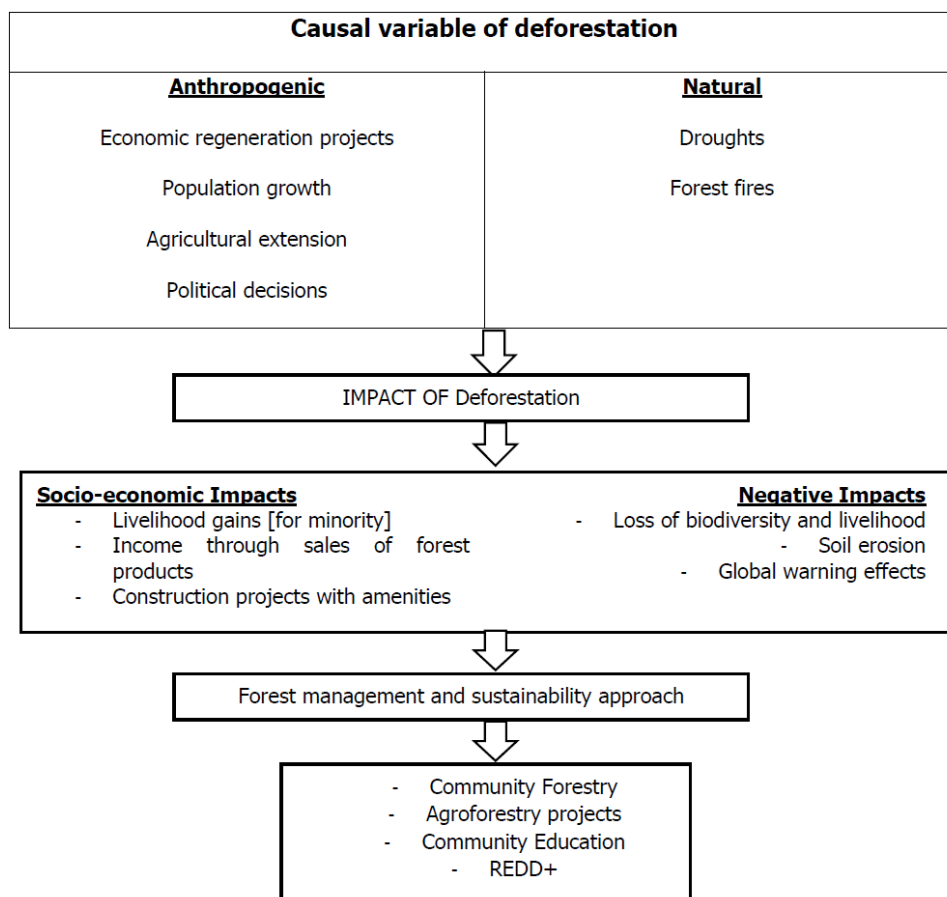
---

<sup>9</sup> Ibid - It is noted that the Conservation and Wildlife unit at MAFFS is only fully manned by 25 staff members to protect the entire country's forest reserve; even with just over a dozen staff number at the Environmental Protection Agency still seemed insufficient to be able to provide full security and protection to the country's terrestrial biodiversity, yet alone, the Goderich community.

<sup>10</sup>The World Law Guide (Online)

<sup>11</sup><http://www.sierra-leone.org/Laws/2012-11.pdf>

**Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”**



**METHODOLOGY**

The methodology of this article is based on an online interactive survey conducted with participants most directly affected by the situation of deforestation in the Goderich community. The justification for choosing a questionnaire was based on the need to minimize cost and most importantly, the fact that the researcher is currently resident in the UK. Despite the restrictiveness of the chosen method in terms of respondents' choices of opinions, the questionnaire was created with the scope for an open-ended response for some of the questions [**OTHER option**] and most importantly, with a view that it will help address objectivity in responses to address the research statements as outlined in the introduction. This also created the chance for extended categories to be established based on respondents' expressed opinions. In terms of confidentiality, respondents were given the opportunity to make their identity anonymous, with an option for them to request the outcome of their analysed response[s] online or in hard copy.

*Limitations of using the online survey method is stated thus:*

- Restricted scope for accessibility, particularly by poor people in the community for whom internet facility is not readily available. This in effect has made it quite difficult to get a high response rate on the overall outcome from the survey.
- There is also a problem associated with literacy rate, which is obviously high in the Goderich community, and hence those for whom the survey was targeted were under-represented in this case.

Nevertheless, the response rate received has been used as the basis for making informed decisions from which generalization was made about opinions relating to deforestation and biodiversity loss in the Goderich community. With more time permitted and also backed by the availability of financial resources, it is hoped that a similar survey will be trialed to a wider range of population in the same community.

*Sampling and Statistical Analysis*

A random sampling technique was used with 50 questionnaires distributed electronically to people in the wider Goderich community. Despite the obvious limitations of using an online method [see points as



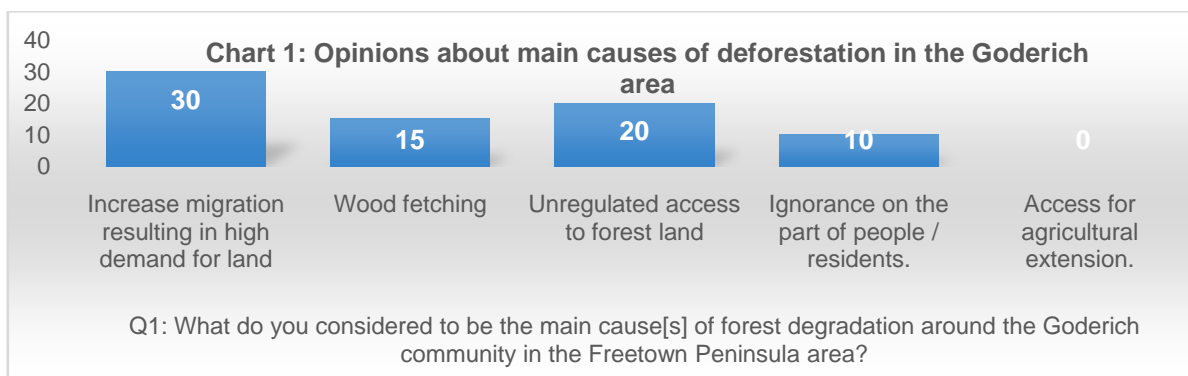
**Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”**

mentioned above], rationale for this a random sampling technique was done so as to minimise biasness in under-representation of the population. Data analysis was simplified by applying straightforward statistical summary using MS Application with percentages used to emphasise on response rates for the different options. Pictorial representation is used throughout so as to provide visual illustration of responses received.

**DISCOURSE ANALYSIS IN RELATION TO RESULTS AND THE RESEARCH STATEMENTS [FINDINGS AND DISCUSSION]**

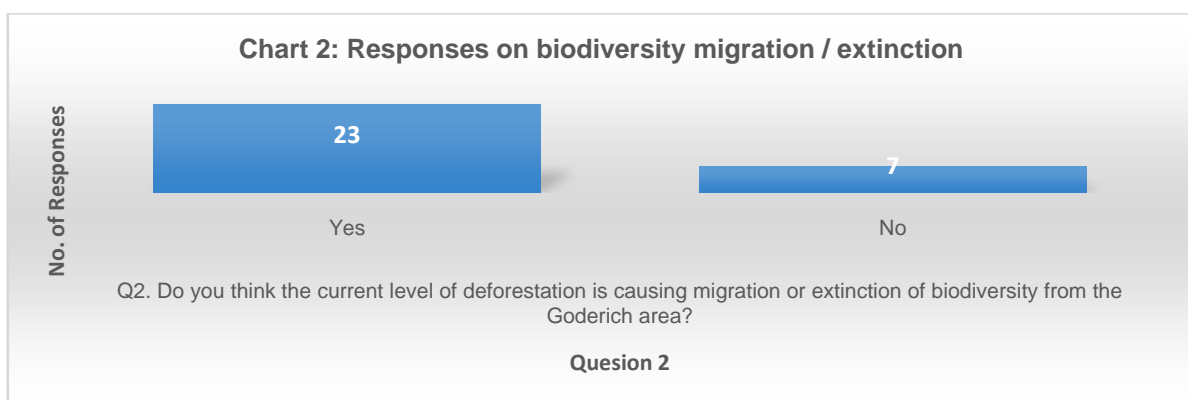
There is very little or no empirical evidence to justify rate of deforestation and its resulting impacts on biodiversity loss in the wider Goderich community. However, responses from the survey conducted as shown in the analysis below, will help explore scope for further research in the area, particularly in relation to livelihood impact and loss of biodiversity [for which the researcher’s current doctoral study is endeavouring to explore]. The analysis below shows 30 respondents’ views in relation to their understanding of the current situation. As already explained, the interview was conducted online with responses returned through online means. Response rate was average (30 out of 50 questionnaires returned), and this is evident on the fact that majority of those expected to respond do not have access to regular internet connection to allow questionnaires to be returned.

**Response to Question 1 [Reference to Chart 1**



With reference to responses from question 1, increased migration has come up high as a factor responsible for the high rate of land acquisition in the area. Second to this is the unregulated access to forest land and with wood fetching coming third, which certainly has to do with the low level of income of residents to pay for the high cost of other forms of cooking fuel. Ignorance also comes up as a fourth factor, as this is likely due to low level of education, in most cases on the part of people to understand the future implications of their present acts of depleting forest land, mostly for personal and economic gains.

**Response to Question 2 [Reference to Chart 2]**

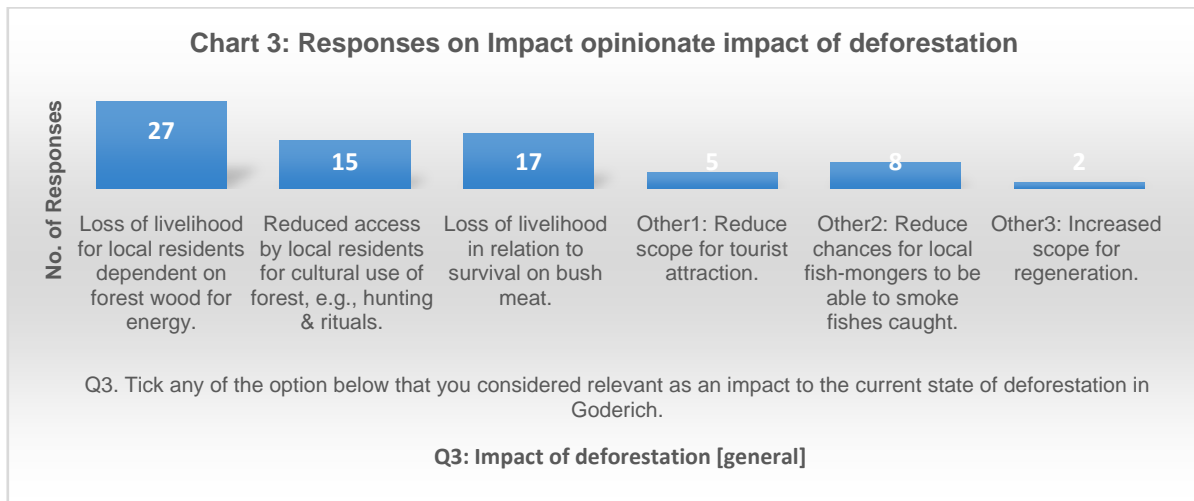


In relation to responses for question 2, more people [23 out of 30] have supported the idea that depletion of forest land also give rise to high mobility of biodiversity [*reference to the second research statement outlined in the introduction*], for example, animals that would in most cases be expected to reside in forests are no longer found in the area and with the likelihood of some of them being driven to extinction. This to a greater extent can also impact on livelihood, especially for those

**Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”**

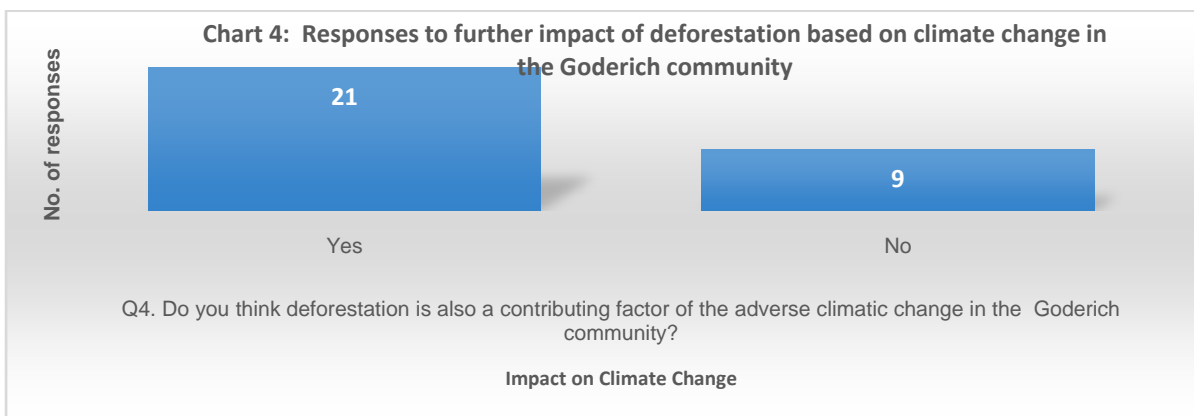
local residents whose lives are highly dependent on bush / forest meat for their daily survival. The gains on this is much in favour of residents who may perceive forest animals [particularly wildlife] as threats to their existence in the community.

**Response to Question 3 [Reference to Chart 3]**



With regard to question 3, majority of respondents felt that livelihood is greatly affected as a result of the degradation of their local forest [reference to the first research statement outlined in the introduction]. The high response of this is largely attributed to the fact that majority of the respondents are highly dependent on forest resources for their survival, for example, wood fetching as a means of income, but much more so in terms of its usage to local fish-mongers who also depends heavily on wood to preserve fishes caught in the local fish industry. Given the importance of Goderich, and its fishing activity to the entire Freetown community and beyond, it is quite evident that some responses are being flagged up as an extension to the *OTHER* category. Regeneration also comes up as a positive impact of deforestation, despite low in response. The general interpretation of this response is also a way of understanding people’s views about their interpretation of what is perceived as development in their community, may also have wider implications on the cost of financing future ‘reforestation’<sup>12</sup> projects.

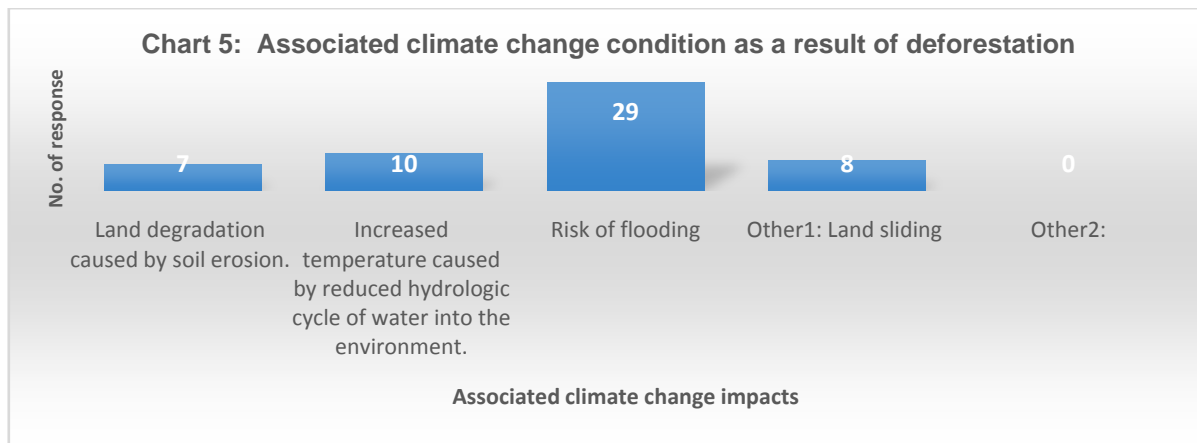
**Response to Question 4 [Reference to Chart 4]**



With reference to question 4, majority of the respondents [23 out of 30] have responded **YES** to the question relating to the impact of deforestation on climatic change in the Goderich community. Public awareness plays a great role in terms of understanding the wider impact of deforestation, particularly for those who would have responded **NO**. Regeneration projects has brought about beautiful housing developments in the area, but the devastation to the environment may be greater in the event that no action is taken to deal with on-going crisis of deforestation.

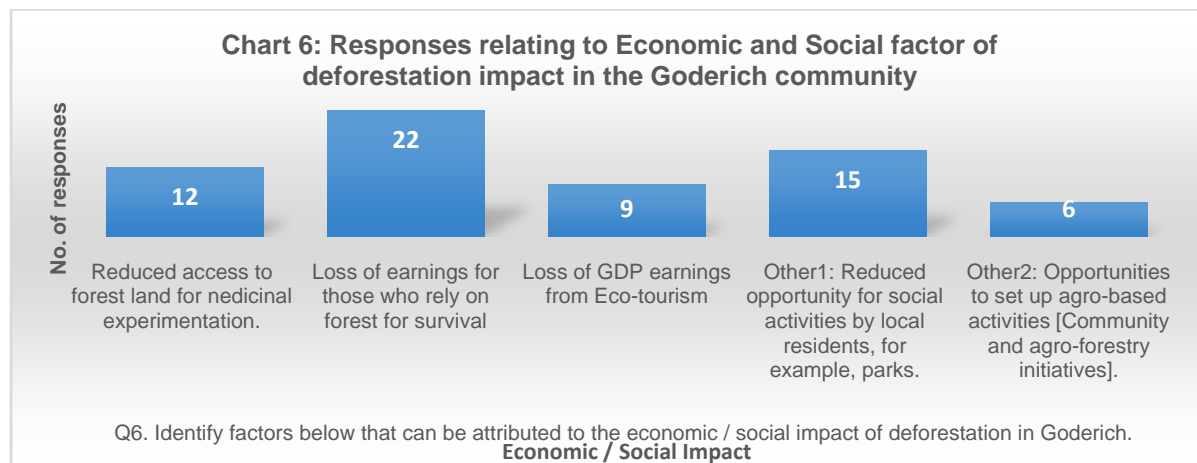
<sup>12</sup>An approach used to restock forest or woodland that has been depleted, mostly through deforestation [Wikipedia]; this can also improve livelihood standard through adoption of initiatives like agroforestry and also community forestry.

Response to Question 5 [Reference to Chart 5]



With reference to question 5, risk to flooding has come up high in the responses which be due to fear on the part of residents not wanting to be caught up with the influence of natural disaster. The risk may continue to surface as long as no concrete action is taken to curb deforestation. Increased level of temperature and land sliding comes second and third respectively in the responses for question 5, as the high level of deforestation is likely to create a situation whereby, tree falling can reduce possibility of hydrologic cycle of water conversion into the environment, and also increased possibility of soil erosion which can also result in land sliding for deforested land in hilly areas.

Response to Question 6 [Reference to Chart 6]



Loss of earnings [22 out of 30] has come up as the most favoured response for question 6 when dealing with economic / social impact of deforestation in the Goderich community. For those whose livelihood is highly dependent on the existence of forest resource[s], this is likely to be true as there is very limited chances for these people to seek alternative means of survival, given the current high level of ‘unemployment’<sup>13</sup> in the country as a whole. The capacity for the government to create opportunity for people to be gainfully engaged in economic activities is very slim due to various constraints such as; the astronomical cost of controlling the on-going Ebola crisis [at the time of writing this article], and the winding up operations of major employers in the mining industry like African Mineral [harshly hit by slump in global market price]. The opinionated **OTHER** response option [reduced opportunity for social activities by local residents] produced the second highest response. This might be due to the fact that, as the area is being regenerated, middle income earners in the locality are seeing it as a necessity for people around their community to be socially integrated through the creation of amenities like PARK.

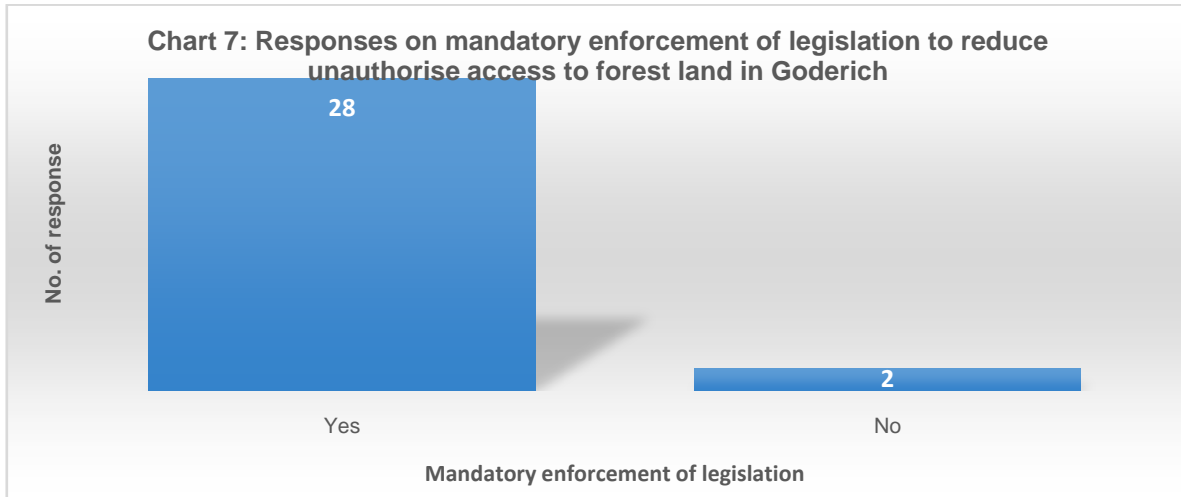
<sup>13</sup>No real figure quoted for Sierra Leone due to lack of substantive data, but based on the International Monetary Fund [IMF] summary of approved budget for the country in the month of October 2013, unemployment rate was still classified in the high end, in spite of the previous year’s progress made in key areas like GDP and foreign direct investment inflow within the mining industry [IMF, Press Release No. 13/410, 21<sup>st</sup> October, 2013].



**Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”**

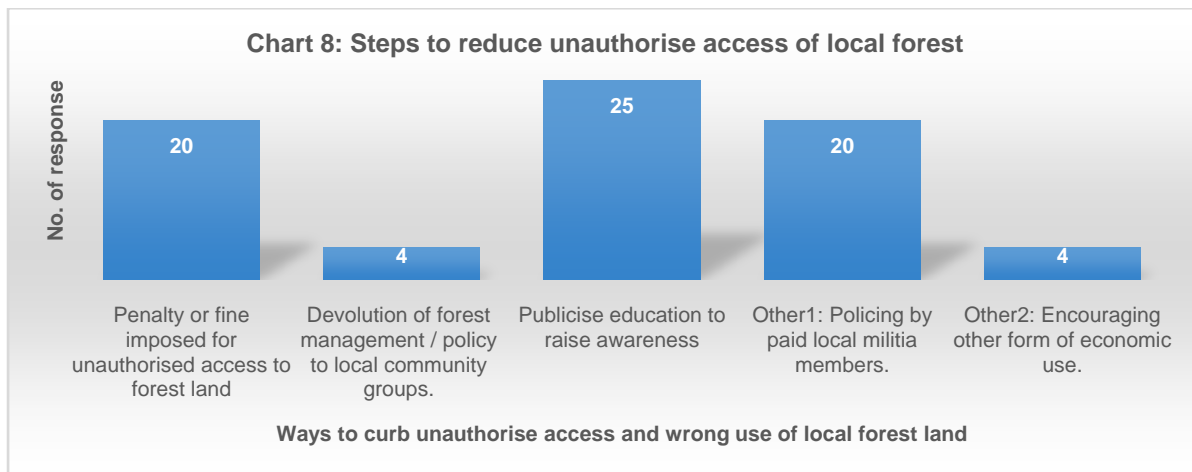
Forest is very important and considered a valuable resource for many activities like the preservation of the environment from drastic climatic conditions, protection of livelihood for residents in deprived communities like Goderich and most importantly [in relation to question 6], the cure of illnesses through use medicinal / herbal leaves produced by trees found in forest [third most responded option]. Loss of GDP from eco-tourism is also well responded to and the gains from this can be realized highly by local residents through a well-planned operation of decentralised governance of forest management. This also have the scope for the creation of employment opportunities for unskilled local residents, who currently see tree falling as the only means of survival, and which may also result in the establishment of productive activities like agroforestry [which is the least opinionated response as seen in Other2 option response in question 6].

**Response to Question 7 [Reference to Chart 7]**



With reference to question 7, majority of respondents [28 out of 30] are in favour of mandatory enforcement of legislation as a way of reducing unauthorized access to forest land in Goderich. On a more objective note, the YES option is not necessarily the answer to the current problem, but can be viewed as a way of ensuring effective management of local forest. Restriction can also be managed through the use of stipendiary volunteers, which may also help in reducing unemployment rate. The NO option is only 2 out of the 30 responses, which is a likely indication of fear on the part of the minority of ‘NO’ respondents due to their inability / low skills level to seek alternative means of survival. Critically, the purpose of legislative measures in this situation is to protect the abuse of forests and its resources, particularly in areas like Goderich which have lately seen high level of deforestation and the demise of biodiversity. The enforcement of legislations without adequate mitigation measure can also result in some form of under-ground exploitation of the local forest reserve, particularly those [local residents] for whom forest resources is considered relevant to their daily livelihood sustenance.

**Response to Question 8 [Reference to Chart 8]**



## Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”

With reference to question 8, public education as a means of raising awareness about the impact of deforestation came up as the most preferred choice [25 out of 30 responses]. This is quite interesting as people in most developing countries like Sierra Leone, are unaware about the devastating impact of their actions in the depletion of forest. One way of driving this through is to make sure that environmental study is incorporated into mainstream national curriculum courses like Geography as early as in the first year of secondary school education. Promotion through public broadcasting medium like national radio and TV stations can also help to sell out messages about the devastating impacts of deforestation. Policing of local militia members and the imposition of fines were also second on the response option for question 8. Devolution of forest management to local community groups and the encouragement of other forms of economic activities are the least in the response option, but are equally relevant in an effort to tackling deforestation.

### CONCLUSION AND WAY FORWARD

In view of the analysed responses from the survey, it is very important that pro-active steps are taken by the government to reduce the exponential rate of deforestation in the country, and particularly in the Goderich community which is also prone to risk of land-sliding as a result of its proximity to the sea front [see appendix 2 for reference to map]. There is prescriptive answer to the ongoing problems other than ensuring that, measures are regularly set in place to encourage active participation by local community residents to curb the mass exploitation of forest resources.

Enforcement of legislative measures such as the Environment Agency Protection Acts 2008 and the NPAA and Trust fund Acts 2012, have incorporated sections whereby perpetrators in breach of relevant laws can face persecution. On a critical note, and particularly in the case with economic regeneration of housing construction work in the Goderich community, there seemed not to be a lot in the legislative provisions to support the empowerment of local residents whose lives depends on forest land for their survival. In this case, residents can be left vulnerable, and with further risk of exploitation of the remaining forest land, due to lack of provision on the part of authorities to create opportunities to ensure local residents are gainfully engaged in productive activities to help maintain their survival / livelihood.

The ongoing initiative of 'REDD / REDD+' can also be adopted to support the Goderich community, particularly those currently relying on forest for their only means of survival [with reference to the theoretical construct diagram]. The term REDD is an acronym referring to “Reducing Emission from Deforestation and forest Degradation, and the scope of red could include the following options:

- **RED** = *Reducing emissions from (gross) deforestation: only changes from forest” to “non-forest” land cover types are included, and details very much depend on the operational definition of “forest”;*
- **REDD** = *as above, plus (forest) degradation, or the shifts to lower carbon-stock densities within the forest; details very much depend on the operational definition of “forest”;*
- **REDD+** = *as above, plus restocking within and towards “forest”;* in some versions REDD+ will also include peatlands, regardless of their forest status; details still depend on the operational definition of “forest”;
- **REDD++** = *as above plus all transitions in land cover that affect carbon storage, whether peatland or mineral soil, trees-outside-forest, agroforest, plantations or natural forest. It does not depend on the operational definition of “forest.” Minang et al [2009]*.

Based on the ‘Red desk’<sup>14</sup> approach, it is hoped that, future projects involving land investments in the Western Area Peninsula, and in particular, the Goderich community would take into consideration safeguarding issues, so as to ensure livelihood is highly prioritised. As outlined above by Minang et al, and particularly for the benefit of the Goderich community, it will be a good idea for development initiatives earmarked for the community to follow the REDD+ approach which will ensure that biodiversity in forest areas are protected and at the same time, encouraging productive activities like agroforestry and other forms of initiatives like community forestry. The use of the

<sup>14</sup> <http://thereddesk.org/countries/sierra-leone> [2015].

**Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”**

“*European Union (EU) Forest Law Enforcement, Governance and Trade [FLEGT] action plan*”<sup>15</sup> would also be relevant in this situation to address ways by which monitoring and application of forest legislative measures can be applied to help combat excessive abuse of forest and existing biodiversity.

There is also an opportunity for agro-based training activities to be established at the MMCET to support and develop community cooperation as an on-going means of educating people about the effective protection and management of forest and its resources. Agroforestry initiative can also benefit reforestation of land which may at some point in time being depleted whiles at the same time, empowering the acquisition of vital skills by local residents through agro-base activities and pasturing which can ultimately result in productive earnings for livelihood survival. This will also foster community cohesion through financial incentives from the World Bank REDD+ initiatives aimed at curbing carbon emission through reforestation and the effective management of un-tapped forest.

## **ACKNOWLEDGEMENT**

The author is very grateful to members of the local community, particularly those who have taken up their time to complete and return the completed questionnaire. Appreciation is also extended to colleagues who have made their time available to provide relevant secondary data required to complete the work.

## **REFERENCES**

- Aliou, E. K (2001), ‘Forest Outlook Studies in Africa: Sierra Leone [Ministry of Natural Resources and Tourism [Online]’. Available at: <<http://ftp.fao.org/docrep/fao/004/AB577E/AB577E00.pdf>> [Accessed: 7<sup>th</sup> March, 2015].
- Blinker, L (2006). *Country Environmental Profile - Sierra Leone*. Consortium Parsons Brinckerhoff: Cardiff, United Kingdom.
- Blondel, A (2004) *HOW TIMBER FUELS THE WORLD'S WORST CONFLICTS - THE LOGS OF WAR* [Online]. Available at: <<http://mondediplo.com/2004/01/15timber>> [Accessed: 9<sup>th</sup> February 2015].
- Brown, O and Crawford, A (2012). *Conservation and Peace-building on Sierra Leone* [International Institute for Sustainable Development-iisd] (Online). Available at: <[http://www.iisd.org/pdf/2012/iisd\\_conservation\\_in\\_Sierra\\_Leone.pdf](http://www.iisd.org/pdf/2012/iisd_conservation_in_Sierra_Leone.pdf)> [Accessed: 8<sup>th</sup> March, 2015].
- Casse, T, Milhøj, A, Ranaivoson, S, Randriamanarivo, J.R. (2004). *Causes of deforestation in southwestern Madagascar: what do we know?* Journal of Forest Policy and Economics, Vol. 6 (2004): 33-48
- Chakravarty, S, Ghosh, S.K, Suresh, P.C,Dey, A.N and Shukla, G (2012). *Deforestation: Causes, Effects and Control Strategies, Global Perspectives on Sustainable Forest Management*, Dr. Clement A. Okia (Ed.). Available at: <http://www.intechopen.com/books/globalperspectives-on-sustainable-forest-management/deforestation-causes-effects-and-control-strategies>. (Accessed: 29<sup>th</sup> June, 2015).
- Cline-Cole, R. A (1987). *The socio-ecology of firewood and Charcoal on the Freetown Peninsula*. Africa: Journal of the International African Institute. 57 (4): 457-497).
- CONCERN Worldworld (2012). *Sierra Leone Programme Plan* (Online). Available at: <<https://www.concern.net/sites/default/files/resource/2012/02/5587-sierra-leone-programme-plan-2012.pdf>> [8<sup>th</sup> March, 2015].
- Environmental Protection Agency (2014), ‘*Fifth National Report to the Convention on Biological Diversity* [Online]’. Available at: <<http://www.cbd.int/doc/world/sl/sl-nr-05-en.pdf>> [Accessed: 10<sup>th</sup> March, 2015].
- EU-FLEGT. *What is FLEGT?* [Online]. Available at: <<http://www.euflegt.efi.int/about-flegt>> [Accessed: 7<sup>th</sup> March, 2015].
- International Monetary Fund (IMF – 2013). *IMF Executive Board Approves Three-Year, US\$95.9 Million ECF Arrangement for Sierra-Leone* (Online). Available at: <<http://www.imf.org/external/np/sec/pr/2013/pr13410.htm>> [Accessed: 9<sup>th</sup> March, 2015].

---

<sup>15</sup>The EU-FLEGT was established in 2003 by the European Union to support its members and partner countries to reduce illegal logging, whiles at the same time strengthening sustainable and legal forest management, improving governance and promoting trade in legally produced timber [<http://www.euflegt.efi.int/about-flegt>].

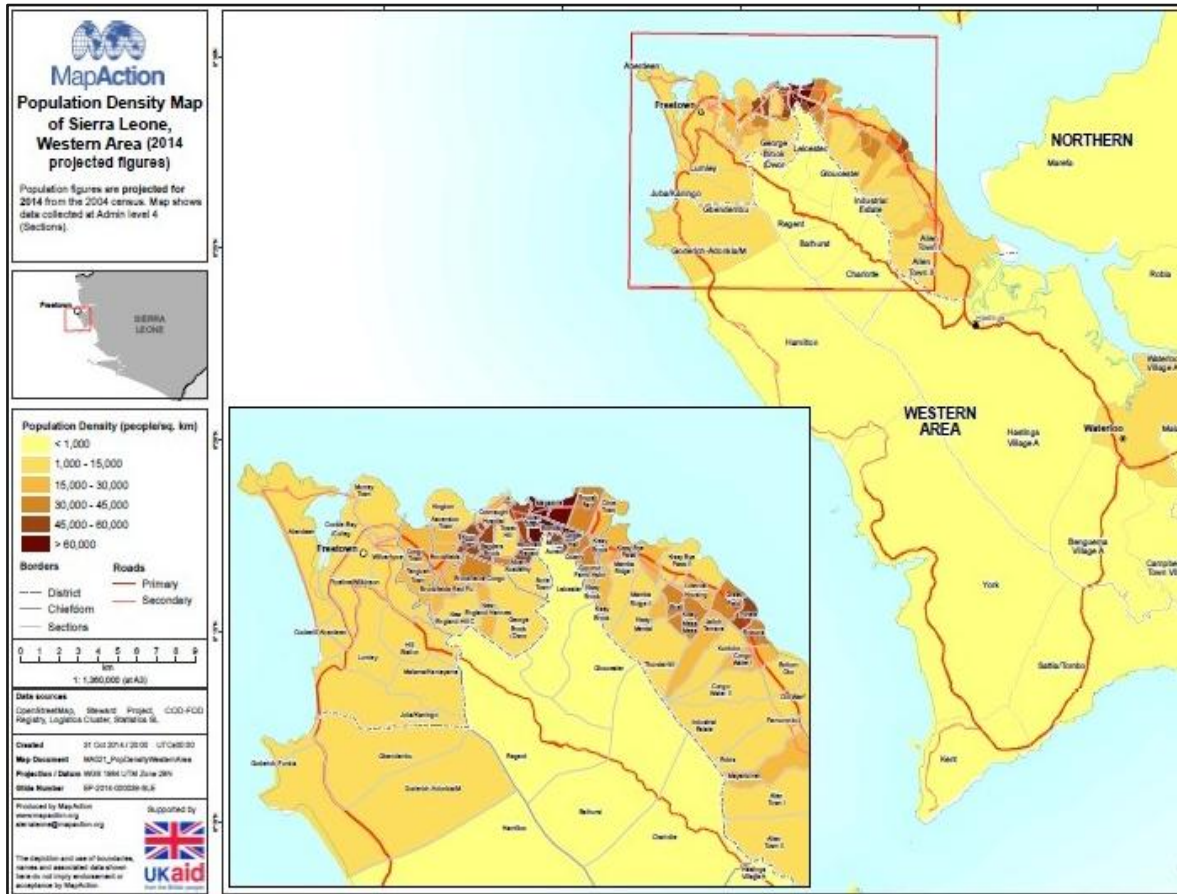
**Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”**

- Food and Agriculture Organization (FAO - 2010), “*Criteria and Indicators for Sustainable wood fuels*”, in FAO Forestry, Paper 160, Electronic Publishing Policy and Support Branch, VialeDelleTerme di Caracalla, I-00100 Rome, Italy.
- Jackson, E. A (2015a) Negotiating New Dimensions for Forests Conservation in Sierra Leone. *Journal of Applied Thoughts*, Vol. 4 (2): 85-102.
- Jackson, E. A (forthcoming). FLEGT Mandate: Its applicability and effectiveness in Sierra Leone. *Journal of Applied Thoughts*, Ghana.
- Kaimowitz, D and Angelsen, (1998). *Economic Models of Tropical Deforestation: A Review*. Centre for International Forestry [CIFOR]: Bangor.
- Keeley, J and Scoones, I (2003). *Understanding Environmental Policy Processes*. London: Earthscan.
- Mahapatra, K. and Kant, S. (2005) *Tropical Deforestation: A Multinomial Logistic Model and some Country-specific Policy Prescriptions*. *Journal of Forest Policy and Economics*, Vol. 7 92005): 1-24
- Minang. P, Jungcurt. S, Meadu. V and Murphy. D (2009). *The REDD Negotiations: Moving into Copenhagen* [International Institute for Sustainable Development (IISD) Online]. Available at: <[http://www.iisd.org/pdf/2009/redd\\_negotiations.pdf](http://www.iisd.org/pdf/2009/redd_negotiations.pdf)> [Accessed: 11<sup>th</sup> March, 2015].
- Munro, P.G (2009), *Deforestation: constructing problems and solutions on Sierra Leone's Freetown Peninsula (Online)*. Vol 16, pp. 104-123. [Accessed: 20th April 2015]. Available at:<[http://jpe.library.arizona.edu/volume\\_16/Munro.pdf](http://jpe.library.arizona.edu/volume_16/Munro.pdf)>.
- National Protected Area Authority and Conservation Trust Fund Acts (Online). Available at: <<http://www.sierra-leone.org/Laws/2012-11.pdf>> [Accessed: 10th March, 2015].
- Reuters (2011) *Forest loss threatens Sierra Leone water supplies* [Online]. Available at: <[https://www.icloud.com/pages/AwBWCAESEMLIBGsw7fOgivTBvFdxt4kaKtxwZ8W2CXvF-yWGqzg7TrYtZep3bPfEN17zF0EvTEbiogKD2NcElqZzGwMCUCAQEEIB0HQgLzkmA9IDpP1AV0NfMkWp9uuMvkHhoQW\\_ptmrrF#FLEGT](https://www.icloud.com/pages/AwBWCAESEMLIBGsw7fOgivTBvFdxt4kaKtxwZ8W2CXvF-yWGqzg7TrYtZep3bPfEN17zF0EvTEbiogKD2NcElqZzGwMCUCAQEEIB0HQgLzkmA9IDpP1AV0NfMkWp9uuMvkHhoQW_ptmrrF#FLEGT)> (Accessed: 20th February, 2015).
- Sesay, E. M (2004). *Project Plan: Western Area Peninsula Forest Reserve (WAPFR)*, Available at: <[http://www.rareplanet.org/sites/rareplanet.org/files/Edward-Plan-Final\\_04-03.pdf](http://www.rareplanet.org/sites/rareplanet.org/files/Edward-Plan-Final_04-03.pdf)> [Accessed: 21st February, 2015].
- Sierra Leone Forestry Policy 2010* [Online]. Available at: <[https://s3-eu-west-1.amazonaws.com/rdwebsite/slforestry/ForestryPolicyFinal\\_21July2010.pdf](https://s3-eu-west-1.amazonaws.com/rdwebsite/slforestry/ForestryPolicyFinal_21July2010.pdf)> [Accessed: 9<sup>th</sup> March, 2015].
- Swingland, I. R (2001). *Definition of Biodiversity* [Online - *The Durrell Institute of Conservation and Ecology*]. Available at: <<http://www.uprm.edu/biology/profs/chinea/ecolplt/swingland2001.pdf>> [Accessed: 7<sup>th</sup> March, 2015].
- The Red desk [2015]. *REDD in Sierra Leone*. Available at: <<http://thereddesk.org/countries/sierra-leone>> [Accessed: 10<sup>th</sup> March, 2015].
- The World Law Guide (Online). *Legislation Sierra Leone*. Available at: <<http://www.lexadin.nl/wlg/legis/nofr/oeur/lxwesle.htm>> [Accessed: 9th March, 2015].
- Trip Mondo. *Bammbatuk Sightseeing Guide*. Available in <<http://www.tripmondo.com/sierra-leone/western-area/bammbatuk/attractions-in-bammbatuk/>> [Accessed: 20th February, 2015].
- UNEP (2010) *Sierra Leone - Environment, Conflict & Peacebuilding Assessment: Technical Report* (Online). Available at: <[http://postconflict.unep.ch/publications/Sierra\\_Leone.pdf](http://postconflict.unep.ch/publications/Sierra_Leone.pdf)> [Accessed: 7th March, 2015].
- Wikipedia [Online]. *Reforestation*. Available at: <<http://en.wikipedia.org/wiki/Reforestation>> [Accessed: 9<sup>th</sup> March, 2015].



APPENDICES

Appendix1. Map of Western Area [Including Goderich as Part of Freetown Peninsula]<sup>16</sup>



Appendix1. Selected Locations in the Western Area Rural District

Location	1985	2000
Goderich	5476	8933
Ogoo Farm	699	1140
Adonkia	265	432
Lakka	252	411
Hamilton	392	640
Sussex	294	480
Bawbaw	306	499
No 2 River	161	263
Toke	540	881
York	780	1277
John Obey	179	292
Bureh Town	298	486
Kent	234	382
Tombo	4609	7520
Mammah Beach	295	481
Macdonald	982	1660
Grafton	2546	4305
Gloucester	1066	1802

<sup>16</sup>Map Source – ReliefWeb International.  
[http://reliefweb.int/sites/reliefweb.int/files/resources/MA021\\_PopDensityWesternArea-300dpi.pdf.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/MA021_PopDensityWesternArea-300dpi.pdf.pdf)

**Emerson Abraham Jackson “Deforestation on the Freetown Peninsula - A Case of Livelihood and Biodiversity Loss in the Goderich Community”**

Regent	1266	2066
Leicester	1266	2066
<b>TOTAL</b>	<b>21,243</b>	<b>35,008</b>

Table above is based on Mathematical projection method was used adopting geometric and exponential growth model at locality level. (Statistic Sierra Leone, Tower Hill, Freetown).

**AUTHOR’S BIOGRAPHY**



**Emerson Abraham Jackson** is a doctoral research scholar at the University of Birmingham (Centre of West African Studies).

My research involve an exploration of 'Forest(-based) livelihood on the Freetown Peninsula in Sierra Leone'. I am a member of the Chartered Institute of Foresters in the UK.

In addition, In addition, I am an experienced teacher, and an action researcher in the field of education exploring the use of technology based learning to improving outcomes of leaders achievements.