The Genesis & Revolution of the Ebola Virus Disease (EVD) in the Mano River Union (MRU) Region -The Case of Sierra Leone.

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Abstract
Contrary to other past health hazard epidemic that lasted within a short period of time, the current ebola scourge that enters the fabrics of the Mano River Union (MRU) region has exacerbated and lasted for a period of over a year since December, 2013 and is yet to be fully eradicated. As of 8th June 2015, the World Health Organization (WHO) statistical records revealed that there were 27,214 EVD infected cases and a total of 11,167 deaths from ten (10) Countries including six (6) West Africa Countries -Sierra Leone, Guinea and Liberia which are three (3) most affected Countries added to the others, e.g. Senegal, Nagel and also USA, Spain, UK and Italy indicating a geometric variation comparing to the 32 years cumulative sum of the past ebola episode since 1976 to 2012 recording 2,232 EVD infected cases and 1,503 deaths which is now over thirteen (13) times total number of infection cases and about seven (7) times the total number of fatalities. The research study was conducted within the time frame of a period of fifteen (15) months started from the 8th March 2014 to the 8th June, 2015. The main purpose of this qualitative research was to bring out clearly the conceptual framework of the ebola genesis and revolution identifying the deficiencies, problems and challenges that lead to a systemic and Country risk as a result of the rapid spread of the plague and break down of the entire health and socio-economic system in Sierra Leone and its impact on the Sierra Leonean population and demography. From the findings, the researchers were able to reveal macro of the consequences that lead to such devastation and calls for combined national and regional preventive and early response mechanisms bringing out solid recommendations as a proxy for both regulators and medical technocrats on the way forward for a safe, sound and sustainable health system and socio-economic livelihood in Sierra Leone in particular and the MRU region in general.

Keywords: Sierra Leone, Ebola Virus Disease, Ebola Genesis & Revolution and Mano River Union (MRU)

1.0 Introduction
Despite the prudent fact that Ebola scourge started about 5 decades ago in 1976, when two (2) simultaneous outbreaks occurred and caused an inexplicable illness among villagers in two (2) Sub-Saharan Africa countries; Nzara Sudan and Yambuku DRC Congo in a village near the Ebola River from which the naming of the disease originated, the Mano River Union (MRU) region have never experienced such an outbreak and no cases had ever been initially reported. The early cases were initially diagnosed as other diseases more common to the area. Thus, the unprecedented ebola disease had several months to spread before it was recognized as Ebola. Statistics of the World Health Organization (WHO) records clearly shown that the Ebola Virus Disease (EVD) epidemic that enter the fabrics of the three (3) Mano River Union (MRU) Countries -Sierra Leone, Guinea & Liberia since December, 2013 has been proven to be the world’s deadliest and devastating virus as certainly one of the most deadly infections ever encountered and have an ability to spread fear around the world, often through the prism of migrant ebola cases and sensationalist media reporting. The Ebola scourge has caused an alarming high probability of mortality rate and health hazard to humanity with a reported case fatality rate of 70%. This menace has not only caused an acute health hazard illness but has also seriously caused an exponentially accelerated terrifying socio-economic erosion with negative ramifications that slammed an automatic break on the entire economic activities in the aforesaid affected Countries with an ultimate deflating hamstrung systemic risk on the overall system such as; budget deficit, social chaos, corruption and the masses having political distrust to both does in governance and INGOs/NGOs in the implementation of the ebola response funds and in the long-run will incubate economic recession in the three (3) countries in questioned and become a Global peril.

As of 8th June, 2015 WHO statistical records reveals that about 11,167 reported total deaths and 27,214 Ebola affected cases from the outbreak in West Africa, the virus continues to be an urgent health hazard crisis with a
devastating impact on the economies of three(3) most affected MRU region Countries and has resulted to an accelerating declining effect on not only the health sector but other sectors in the economy such as; Education, Agriculture, Fishing & Marine Resources, Trade, Investment, Commerce, Financial Services, Transport & service sector, Diplomatic corporation, Mining, Tourism, Infrastructure and Labor with a rapid increasing decline on the mobilization of Government consolidated revenue and geometric expansion on government expenditure that has resulted to a budget deficit of the aforesaid countries in questioned. However, considering the manner in which the West African economies are structured where human sustainability is low, poor standard of living as a result of the high poverty rate, the ebola scourge is having an outsized effect on these economies. It’s entirely possible that those economic effects will be a party to the killing of more people during the ebola crises. The reality and the hysteria over this plague is having a serious economic impact on Guinea, Liberia and Sierra Leone, which are three(3) poor nations already at the bottom of global economic and social indicators. Ebola outbreak could make them poorer especially Sierra Leone and Liberia who have both emerged from horrific civil wars and are managing to rebuild their economies. Aggravating both the financial and social consequences, these countries and their frightened African neighbors are enacting concentric circles of quarantines, cutting off neighborhoods, regions and even whole nations worsen the situation.

Before the alarming ebola plague outbreak in these MRU countries though richly endowed with natural resources; Sierra Leone, Liberia, Guinea and Ivory Coast are members of the Highly Indebted Poor Countries (HIPC) and Least Develop countries (LDCs) in the world and all have peculiar problems of war devastation and negative socio-economic impact as a result of post war conflict, political instability, poor, inadequate and bad policies and the ebola outbreak has made the socio-economic environ to be more worsen.

Unlike past occurrences, which affected rural remote villages, the current outbreak is geographically spread out, involving both the Rural areas and Urban Cities, and occurring simultaneously in different areas and countries. There were numerous indicators that complicate the containment of this deadly virus in taken a regional approach to tackling Ebola in West Africa. Such an approach will be more effective than just focusing on national preventive actions. A healthy population is a necessary condition for rapid and sustained growth and development. The infection of health workers, of whom about 55% died, further complicated its containment. This is the first time that the EVD has been transmitted to other countries through air travel.

The Ebola outbreak in West Africa is the longest, largest, deadliest, and the most complex ever witnessed recording over thirteen (13) times total number of infection cases and about seven (7) times the total number of fatalities indicating a geometric variation comparing to the 32 years cumulative sum of the past ebola episode since 1976 to 2012 that recorded 2,232 EVD infected cases and 1,503 deaths. The fight against Ebola in West Africa is showing the limitations of national containment responses, especially when several outbreaks are taking place in contiguous countries at the same time.

The Ebola virus species is one of three members of the Filoviridae family (filo virus), alongside with the Marburg and Cueva virus species. Ebola virus species comprises of five distinct species, namely: Bundibugyo ebola virus (BDBV); Zaire ebola virus (EBOV); Reston ebola virus (RESTV); Sudan ebola virus (SUDV); and Taï Forest ebola virus (TAFV). Micro Virologist /microbiologist have proven that BDBV, EBOV, and SUDV species are associated with the current alarming EVD outbreaks in West Africa especially in three (3) most affected MRU Countries.

Ebola virus is transmitted to people as a result of direct contact with body fluids containing virus of an infected patient. The incubation period usually lasts 5 days to a week and approximately 95% of the patients appear signs within 21 days after exposure. Typical features include fever, profound weakness, diarrhea, abdominal pain, cramping, nausea and vomiting for 3-5 days and maybe persisting for up to a week. Laboratory complications including elevated aminotransferase levels, marked lymphocytopenia, and thrombocytopenia may have occurred.
1.1 Problem Statement

The current ebola scourge has causes predicament and devastating Health systems and socio-economic break down in the three (3) MRU most ebola affected Countries in particular and West Africa as a whole. This research specifically looked at the Sierra Leone case with the notion that it exhibit peculiar paucity and weaknesses fraught with difficulties and challenges with the other affected ebola sister Countries such that the catalyst indicators to the rapid geometric expansion of the disease in the epicenter Countries are also present in the wider sub-region. These includes; free movement of commodities and people across countries, close and friendly bonds existing among border towns and villages, high illiteracy rate, and inadequate capacity to respond to prevent the occurrence of such deadly disease outbreak. The health systems in the aforesaid most affected countries were unprepared for the ebola outbreak, lacking trained personnel, equipment and financing. Impoverished rural areas have specifically suffered, because they have more limited access to services than relatively well-off urban areas. This inequitable distribution of human and financial resources has hampered the response to the epidemic. Ignorance, lack of preparedness and fear have also played an important role. Health professionals have mis-diagnosed EVD cases because the early symptoms of the disease resemble those of malaria, cholera and Lassa fever. Many people have denied the existence of Ebola or believe it was spread by the government to raise international funds that they will never see.

All these factors have caused the virus to spread silently. Fear spreads as fast and wide as a virus. Due to fear of infection, members of the public have been reluctant to engage in contact tracing; infected persons are hesitant to present themselves for treatment; women are giving birth without modern medical attendants; and health workers are frightened to provide care. This is further complicated by intense migration flows and risky cultural practices. For instance, many communities insist on burying the dead near their ancestors, moving corpses over long distances and creating additional risks of infection. In addition, overly centralized health systems have impaired the engagement of local communities, which is so critical to fighting epidemics such as this one.

Ebola also highly affected the most vulnerable group (women and children) in the Countries in questioned recording a statistics of about 20% of the infected cases are children; About 17,000 children have lost either one or both parents to this deadly plague, and were unable to go to school for months. As of 8th June, 2015, nearly 51% of the infected cases were women, representing 118 /100,000 populations against 115 for men. Women’s role as caregivers and their participation in traditional practices and rituals such as burials make them more vulnerable to contracting Ebola. In addition, fewer births have been attended by trained medical personnel, and women have suffered reversals in economic activities due to their large presence in informal activities. The pandemic has devastated the socio-economic and traditional fabrics that glue society together in all affected countries –mutual trust, bilateral trade and investment, between the people and their governments, and between communities has weakened, and declined drastically. Most people in the epicenter countries expressed a fear for the future of their families, communities and countries. The EVD is pushing people into poverty and making them more food insecure and vulnerable to shocks. The cost of the pandemic on the economy has been very high, with indications that economies in West Africa have also suffered from its consequences. Also, the fight against Ebola in the aforesaid Countries has also clearly shown the limitations of both national and international containment ebola responses, especially when several simultaneous outbreaks are taking place in the MRU sister Countries.

1.2 Research Objective

The aim of the research is to provide a conceptual framework on the Genesis and revolution of the deadly Ebola menace, identifying the deficiencies, problems and challenges that lead to systemic and Country risk as a result of the rapid spread of the plague and break down of the entire health and socio-economic system in Sierra Leone and its impact on the Sierra Leonian population and demography.

2.0 Literature Review

This chapter will show case the qualitative conceptual framework of Ebola virus outbreak with a view to intricate its underlying principles from its geneses when it started in DR. Congo and Sudan in 1976 to its current predicament in
2.1 Conceptual Framework of Ebola Virus Outbreak

The Ebola virus species is one of the known viruses capable of causing viral hemorrhagic fever syndrome and is one of three members of the Filoviridae family (filo virus), alongside with the Marburg and Cueva virus species. Genus Ebola virus species is currently classified into 5 separate species: Sudan ebola virus, Zaire ebola virus, Tai Forest (Ivory Coast) ebola virus, Reston ebola virus, and Bundibugyo ebola virus. Micro Virologist/microbiologist have proven that BDBV, EBOV, and SUDV species are associated with the current alarming EVD outbreaks in West Africa especially in three (3) most affected MRU Countries.

Ebola virus is transmitted to people as a result of direct contact with body fluids containing virus of an infected patient. The incubation period usually lasts 5 days to a week and approximately 95% of the patients appear signs within 21 days after exposure. Typical features include fever, profound weakness, diarrhea, abdominal pain, cramping, nausea and vomiting for 3-5 days and maybe persisting for up to a week. Laboratory complications including elevated aminotransferase levels, marked lymphocytopenia, and thrombocytopenia may have occurred.

The Ebola epidemics were first recorded in the DR Congo(DRC) and Sudan in 1976; researches have proven beyond all reasonable doubt not discovering the virus in insects or mammals. The disease re-appeared with a single lethal case in Tandala, DRC, in 1977 and a new outbreak in Sudan in 1979. An outbreak due to a new sub-type of the virus, EBO (subtype Reston [EBO-R] has occurred in a colony of cynomolgus monkeys (Macaca fascicularis) in a quarantine facility in Reston, Virginia, in 1989. The same virus was responsible for outbreak in Italy in 1992. Also in November 1994, ethologists studying the behavior of a community of chimpanzees in the Tai National Park, Ivory Coast found 8 dead chimpanzees and noted the absence of other individuals and did an epidemiologic survey to elucidate the cause of these deaths. The findings led to the identification of a new sub-type of the virus, ebola (subtype Co’té d’Ivoire [EBO-CI]), in the blood of a researcher who was probably infected during a chimpanzee necropsy.

Lastly, there is a current ebola menace involving the Zaire ebola virus in the West Africa Sub-region since end December, 2013 when it enters the fabrics of Guinea Conakry killing a baby boy and continues to spread in the nearby villages and towns and to the other neighbouring Countries-Sierra Leone and Liberia. Investigations traced the source of EVD outbreaks to a primate export facility in the Philippines, but the mode of contamination of this facility was not determined. Although African green monkeys (Cercopithecus aethiops) from Uganda were the first animals known to be infected with filovirus, the cycle of these viruses in nature is yet to be thoroughly understand, remains doubtful and have created an ambiguity in the affected Countries in particular and causes global concern.

2.1.1 Signs and Symptoms of Ebola

Signs and symptoms of Ebola usually begin suddenly with an influenza-like stage characterized by fatigue, fever, headaches, joint, muscle and abdominal pain, expressionless facies, hearing loss, unilateral orchitis, suppurative parotitis, bleeding from intravenous (iv) puncture sites and mucous membranes, hypotension, anuria, coma and severe constitutional signs and symptoms. Vomiting, diarrhea and loss of appetite are also common. Less common symptoms include the following: sore throat, chest pain, hiccups, breath and trouble swallowing. Medical expert Findings have proven that the average time between contracting the infection and the incubation period depends on the type of exposure(Primary and Secondary exposure). Primary exposure engross travelling to or working in an ebola epidemic area with an incubation
period of 3 to 8 days, but it can vary between 2 and 21 days especially in the case of Secondary exposure which takes more longer period. Secondary exposure is the human to human contact as a result of traditional and cultural belief engaging in activities like medical caregivers, family caregivers, or persons who prepared deceased patients for burial, primate-to-human exposure (eg, animal care workers who provide care for primates) and persons who collect or prepare bush meat for human consumption.

Skin manifestations may include a maculopapular rash (in about 50% of cases). Early symptoms of EVD may be similar to those of malaria, dengue or other tropical fevers, before the disease progresses to the bleeding phase.

In 40–50% of cases, bleeding from puncture sites and mucous membranes (e.g.-gastrointestinal tract, nose, vagina and gums) has been reported. In the bleeding phase, which typically starts 5 to 7 days after first symptoms internal and subcutaneous bleeding may present itself through reddening of the eyes and bloody vomit. Bleeding in to the skin may create petechiae, purpura, ecchymoses and hematomas (especially around needle injection sites). Types of bleeding known to occur with Ebola virus disease include vomiting blood, coughing it up or blood in the stool. Heavy bleeding is rare and is usually confined to the gastrointestinal tract. In general, the development of bleeding symptoms often indicates a worse prognosis and this blood loss can result in death. All people infected show some symptoms of system involvement, including impaired blood clotting. If the infected person does not recover, death due to multiple organ dysfunction syndrome occurs within 7 to 16 days (usually between days 8 and 9) after first symptoms.

2.1.2 Diagnosis

Since the inception of this deadly disease, medical experts have adopted diagnostic studies that may aid the process of identifying the affected ebola cases through laboratory tests such as:

- Basic blood tests – Complete Blood Count with differential, bilirubin, liver enzymes, blood urea nitrogen (BUN), creatinine and pH
- Studies for virus Isolation - Tissue culture (only to be performed in one of a few high-containment laboratories throughout the world), reverse-transcription polymerase chain reaction (RT-PCR) assay
- Serologic testing - Enzyme-linked immunosorbert assay (ELISA) for antigens or for immunoglobulin M (IgM) and immunoglobulin G (IgG) antibodies
- Other studies – Immuno chemical testing of postmortem skin, electron microscopy

2.2 Global Overview of Ebola Virus Disease (EVD) Statistics Outbreak in West Africa

Since the inception of the ebola plague in West Africa end December, 2013 in Guinea Conakry, the virus continue to exacerbate in other part of the Africa Continent with a minimal spread to other part of the globe- Europe, America, Spain, UK and Italy with a cumulative WHO statistics recording a total of 27,221 affected ebola cases and 11,168 deaths as of 8th June, 2015 of which: Sierra Leone recorded 12,850 ebola affected cases(47.22%) and 3,912 deaths(35.03%); Liberia recorded 10,666 cases(39.19%) and 4,806 deaths(43.04%); Guinea recorded 3,669 cases(13.48%) and 2,435 deaths(21.81%); Nigeria recorded 8 cases and 1 death; 1 case in Senegal; Mali recorded 8 cases and 6 deaths; United States recorded 4 cases and 1 death; Spain, UK and Italy recorded 1 case each. All the aforementioned affected Countries have been declared of ebola free with the exception of two (2) of the three (3) most affected Countries-Sierra Leone and Guinea.

The matrix below shows the demographic cumulative statistics of the ebola virus recorded by the World Health Organization (WHO) in the countries affected showing their respective ebola viral affected cases and deaths as of 8th June, 2015.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Ebola Affected Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra Leone</td>
<td>12,850</td>
<td>3,912</td>
</tr>
<tr>
<td>Guinea Conakry</td>
<td>3,669</td>
<td>2,435</td>
</tr>
<tr>
<td>Liberia</td>
<td>10,666</td>
<td>4,806</td>
</tr>
<tr>
<td>Nigeria</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Mali</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Senegal</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>United State</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Italy</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>27,221</td>
<td>11,168</td>
</tr>
</tbody>
</table>

Sources:

WHO Statistics as of 8th June, 2015
Figure 1 shows that as of June 8th, 2015 despite Liberia recorded the second largest number of ebola affected cases of 39.19% (10,666) after Sierra Leone as the largest, recorded the highest fatality of 43.04% (4,806) seconded by Sierra Leone with 35.03% (3,912). Guinea recorded the lowest in both the fatality and affected ebola cases of 21.81% (2,435) and 13.48% (3,669) respectively. The aforesaid records indicate that despite the deplorable and devastating health system in the three sister Countries, Guinea health system is far much better to that of Sierra Leone and Liberia. The reason might be the later Countries have experienced over a decade rebel war and they were transforming both the health and socio-economic System when the outbreak stroke.

The World Health Organization (WHO) record has clearly shown that the Ebola Virus Disease (EVD) outbreak in the Mano River Union (MRU) countries is the world’s deadliest virus; recorded to date an alarming mortality, with a reported case fatality rate of 70% and has not only caused an acute health hazard illness but has also seriously impede on the Socio-economic system of MRU countries to be specific and the world in general which has ultimately resulted to an accelerated socio-economic break down in the sub-region especial Sierra Leone, Guinea and Liberia and a negative magnitude effect in the African Continent in particular and the world in general. This outbreak is in an exponentially accelerated terrifying scale which has slammed an automatic break with an ultimate deflating economic effect particularly to these countries and this scourge has incubated tendency of economic recession, social chaos and the masses having political distrust to does in governance and other NGOs/INGOs as a result of the corrupt activities in the ebola response activities in Sierra Leone, Liberia and Guinea. Outbreaks such as Ebola have an ability to spread fear around the world, often through the prism of sensationalist media reporting. Analysing the death rates from different viruses shows Ebola is certainly one of the most deadly infections ever encountered.

Table 2: The Mano River Union(MRU) WHO Cumulative EVD Affected Cases & Death Statistics As At 1st June, 2015

<table>
<thead>
<tr>
<th>DATE</th>
<th>GUINEA CONAKRY</th>
<th>LIBERIA</th>
<th>SIERRA LEONE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CASES</td>
<td>DEATHS</td>
<td>CASES</td>
</tr>
<tr>
<td>As at 1/4/2014</td>
<td>127</td>
<td>83</td>
<td>0</td>
</tr>
<tr>
<td>As at 1/5/2014</td>
<td>226</td>
<td>149</td>
<td>13</td>
</tr>
<tr>
<td>As at 1/6/2014</td>
<td>328</td>
<td>208</td>
<td>12</td>
</tr>
<tr>
<td>As at 1/7/2014</td>
<td>413</td>
<td>303</td>
<td>107</td>
</tr>
<tr>
<td>As at 1/8/2014</td>
<td>485</td>
<td>358</td>
<td>468</td>
</tr>
<tr>
<td>As at 1/9/2014</td>
<td>771</td>
<td>494</td>
<td>1,698</td>
</tr>
<tr>
<td>As at 1/10/2014</td>
<td>1,199</td>
<td>739</td>
<td>3,834</td>
</tr>
<tr>
<td>As at 1/11/2014</td>
<td>1,667</td>
<td>1,018</td>
<td>6,535</td>
</tr>
<tr>
<td>As at 1/12/2014</td>
<td>2,164</td>
<td>1,327</td>
<td>7,965</td>
</tr>
<tr>
<td>As at 1/1/2015</td>
<td>2,707</td>
<td>1,708</td>
<td>8,018</td>
</tr>
<tr>
<td>As at 1/2/2015</td>
<td>2,855</td>
<td>1,944</td>
<td>8,745</td>
</tr>
<tr>
<td>As at 1/3/2015</td>
<td>3,219</td>
<td>2,129</td>
<td>9,249</td>
</tr>
<tr>
<td>As at 1/4/2015</td>
<td>3,492</td>
<td>2,314</td>
<td>9,712</td>
</tr>
<tr>
<td>As at 1/5/2015</td>
<td>3,584</td>
<td>2,377</td>
<td>10,022</td>
</tr>
<tr>
<td>As at 1/6/2015</td>
<td>3,729</td>
<td>2,482</td>
<td>10,666</td>
</tr>
</tbody>
</table>

Sources: World Health Organization bulletins/releases, supplemented by reports from the Health agencies of Liberia and Sierra Leone as of 8th June, 2015
2.3 An Overview of Ebola Virus Disease (EVD) in Sierra Leone

Researchers have proven that the verity of the first index case of the current ebola virus epidemic entered the fabrics of the Mano River Union (MRU) end December,2013 when a year-old boy, later identified as Emile Ouamou died on the 28th December 2013 in a village of ‘Meliandou, Gueckedou” prefecture in Guinea. People infected by those initial cases spread the disease to other villages unknowingly.

The Sierra Leone ebola drama has been over a year since the 26th May, 2014 when a tribal woman healer who had been treating Ebola patients from across the nearby border with Guinea became affected and died. According to tribal tradition, her body was washed for burial and that causes the rapid spread of the virus in neighbouring towns and villages. It was on the 15th October, 2014 when all the twelve (12) Districts in Sierra Leone declared Ebola cases with Kabala District been the last to be effected.

During the first week of November, 2014 it was reported that the situation was "getting worse" due to intense transmission in Freetown as a contributing factor. As a result of aggressive quarantines by authorities of suspected and effected victims to mitigate the risk of spread, the Disaster Emergency Committee revealed that there are food shortages making the situation worse. It was reported on the 4th November, 2014 that thousands of people violated quarantine homes in search for food in the town of Kenema that caused a geometric terrible increase in the number of ebola cases. During mid-November 2014, the WHO reported that, while there was some evidence that cases were no longer increasing in Guinea and Liberia, steep increases persisted in Sierra Leone. Although the international community had responded to the emergency
by building and equipping treatment centers, they were not able to function effectively because of lack of staff, poor coordination, government mismanagement and inefficiency.

News report on the 9th December described the discovery of "a grim scene": piles of bodies, overwhelmed medical personnel and exhausted burial teams in the remote Eastern Kono District. On the 15th December, the Center for Disease Control & Prevention (CDC) indicated that their main concern was Sierra Leone where the epidemic had given no evidence of halting and cases continued to rise exponentially; during the second week of December 2014, Sierra Leone reported nearly 400 cases, more than three(3) times the number of cases reported by Guinea and Liberia combined. The CDC described that scene to be of a very high risk that Ebola will simmer along, become endemic and be a problem for Africa and the world, for years to come. On the 17th December 2014, President Koroma launched "Operation Western Area Surge" and treatment centers filled as health workers went door-to-door in the capital city looking for possible patients. The operation led to a surge in the number of cases, with 403 new cases reported between 14th to 17th December. On the 25th December 2014, Sierra Leone put the Northern Province on lockdown; on the 4th January 2015, the lockdown was extended for two weeks and then lifted on 22 January 2014.

On the 8th January 2015, MSF admitted its first patients to a new treatment centre in Kissy, an Ebola hotspot on the outskirts of Freetown. On the 29th January 2015, the center opened a maternity unit for pregnant women with the virus.

The president took further action declaring a State of Public Emergency that has taken a year ago since the 7th August, 2014 to close markets and ban activities including worship in mosques, churches with limited time of operation, prohibition on; public meetings and gathering, sporting activities, night clubs and video centre operation and general activities. As at 7th August, 2015, the State Of Public Emergence has been lifted by the President due to the rapid and considerable drastic decline in case incidence with a tremendous gain of having only 4 confirmed cases and two(2) transmission chains nationwide with nine(9) of the fourteen(14) districts have not recorded a confirmed case for over 110 days and also Kambia and Port Loko District that are have been hot spot recently have recorded twenty-six(26) days with no new cases according to the recent, according to the President speech delivered. He said”Before lifting the restriction in he’s speech, he further warn all Sierra Leonean that only after forty-two(42) successful days of having zero cases after the last ebola patient have been tested negative will the WHO declared the ebola outbreak Over in Sierra Leone”. See table and chart below showing the trend of ebola cases in the 12 districts as of 8th June, 2015.

Sources: World Health Organization bulletins/releases, supplemented by reports from the Health agencies of Liberia and Sierra Leone as of 8th June, 2015

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**Table 3: SIERRA LEONE EBOLA AFFECTED CASES STATISTICS BY DISTRICT AS OF 8TH JUNE, 2015**

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>2014 EST. POPULATION</th>
<th>NO. OF EBOLA AFFECTED CASES</th>
<th>% OF TOTAL AFFECTED CASES BY DISTRICT</th>
<th>RATE OF EBOLA CASES/POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bo</td>
<td>335,000</td>
<td>680</td>
<td>4.83</td>
<td>1.14</td>
</tr>
<tr>
<td>Bondo</td>
<td>471,000</td>
<td>1,298</td>
<td>5.15</td>
<td>2.47</td>
</tr>
<tr>
<td>Bonthe</td>
<td>561,000</td>
<td>89</td>
<td>0.68</td>
<td>0.55</td>
</tr>
<tr>
<td>Kailahun</td>
<td>435,000</td>
<td>674</td>
<td>5.13</td>
<td>1.63</td>
</tr>
<tr>
<td>Kambia</td>
<td>322,000</td>
<td>447</td>
<td>3.41</td>
<td>1.43</td>
</tr>
<tr>
<td>Kenema</td>
<td>375,000</td>
<td>807</td>
<td>6.13</td>
<td>1.49</td>
</tr>
<tr>
<td>Kenema</td>
<td>387,000</td>
<td>226</td>
<td>1.74</td>
<td>0.74</td>
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<tr>
<td>Kono</td>
<td>387,000</td>
<td>662</td>
<td>4.57</td>
<td>1.68</td>
</tr>
<tr>
<td>Moyamba</td>
<td>301,000</td>
<td>468</td>
<td>3.11</td>
<td>1.36</td>
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<tr>
<td>Port Loko</td>
<td>524,000</td>
<td>2,106</td>
<td>16.06</td>
<td>4.83</td>
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<td>Pujehun</td>
<td>246,000</td>
<td>89</td>
<td>0.68</td>
<td>0.34</td>
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<tr>
<td>Tonkolili</td>
<td>401,000</td>
<td>429</td>
<td>4.79</td>
<td>1.37</td>
</tr>
<tr>
<td>Western Rural</td>
<td>1,693,000</td>
<td>1,624</td>
<td>12.45</td>
<td>8.12</td>
</tr>
<tr>
<td>Western Urban</td>
<td>201,000</td>
<td>3,461</td>
<td>26.37</td>
<td>3.08</td>
</tr>
<tr>
<td>Yoko Jako</td>
<td>N/A</td>
<td>34</td>
<td>0.26</td>
<td>0.02</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5,744,000</td>
<td>13,226</td>
<td>240</td>
<td>2.26</td>
</tr>
</tbody>
</table>

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Sources: World Health Organization bulletins/releases, supplemented by reports from the Health agencies of Liberia and Sierra Leone as of 8th June, 2015.
Figure 4 & 5 revealed that as of 8th June, 2015 about 13,126 ebola affected cumulative cases recorded by district of which; western urban region recorded the highest with 3,461 cases (26.37%) followed by Port Loko District with 2,108 cases (16.06%), western rural region with 1,634 cases (12.45%), Bombali with 1,258 cases (9.58%). Kenema with 807 cases (6.15%), Kailahun with 674 cases (5.13%), Kono with 652 cases (4.97%), Tonkolili with 629 cases (4.79%), Bo with 608 cases (4.63%), Kambia with 447 cases (3.41%), Moyamba with 408 cases (3.11%), Koinadugu with 228 cases (1.74%) and Pujehun with 89 cases (0.68%). It can be clearly seen that the Western Area was the most affected region with a cumulative total of 5,095 cases which constitute 38.82% of the total cumulative as of the 8th June, 2015 whilst Koinadugu and Pujehun Districts recorded the least.

3.0 Response To the Ebola Virus Disease (EVD) in Sierra Leone

All three ebola affected countries- Sierra Leone, Guinea and Liberia recognises the seriousness of the Ebola outbreak, and they took actions in accordance with their international obligations by reporting the deadly plague to the International Institutional World players especially the World Health Organisation (WHO) whose sole responsibility is to mitigate and eradicate health hazard in humanity globally for a safe and sound healthy system in the globe which contribute to incubate and facilitate sustainable socio-economic and political growth and development in the world. The countries in questioned have been making regular and continual contact with WHO, as required by the International Health Regulations whenever governments detect human cases of disease like the case of the ebola virus. Officials from the three countries activated their national infectious disease emergency committees and met with each other on how they can work together with solidarity to combat the virus which is as of now 15th August, 2015 in an increasing decline heading for zero effected case.

The Ebola epidemic reminds us that our global efforts to build the capacity to prevent, detect, and rapidly respond to infectious disease threats like Ebola have never been more vital. It was on the 8th August 2014, far too late, when the World Health Organization (WHO) declared the Ebola epidemic a public health emergency of international concern as a result of its devastating ramification to the three (3) sister’s countries- Sierra Leone, Guinea and Liberia. However, it had been officially declared in West Africa since March 2014.

China and MSF has been responding to the crisis since March 2014. Since then MSF have actively been calling for more hands-on assistance especially from International
players to control the epidemic and to provide the best possible care to patients before getting out of control.

The initial response by MSF, WHO and CDC seemed to be more effective in April and May 2014, but, in fact, failed. By 21st June 2014, according to MSF, the epidemic was “out of control”- Dead bodies in the street, families wiped out, dozens of health care workers infected, hospitals shut down and panic and mistrust in the eyes of the people in the streets and fear spread as the disaster is becoming even more dramatic as the health systems in the affected region have imploded. Patients are dying of Ebola, but also of malaria, diarrhoea or complicated deliveries due to the absence of effective medical.

Albeit of the initial call of MSF and WHO for international players to effectively respond as dying need of decisive action needed to combat the outbreak such as; intensified case finding, more isolation centers have to be set up, epidemiological surveillance and laboratory capacity have to be reinforced, contact tracing and follow-up must be strengthened, communities must be sensitised, experienced staff and training are needed in the field, and general health services must be reopened: these activities must be properly coordinated inside and beyond the borders of the affected countries which necessitates a hands-on, operational approach but only a handful of international actors were initially engaged in the fight against Ebola which however showed a slow derisory of international response in the MRU region contrary to the international global mandate.

To be honest, Three (3) questions come to our mind as a result of the lack of timely and ineffective response by the big International players;

1-Why is it that the International community was initially largely relying on the very fragile health systems in the affected countries to manage an International health crisis of this scope?

2-Why initially are they entrusting global health security to private organisations that have, by nature, limited capacities to respond to major outbreaks?

3-Is it responsible to place exclusive management of such a devastating, deadly epidemic on the back of besieged nations especially Sierra Leone and Liberia who are in post-civil war socio-economic transformation?

However, though the late response, macro of the Organizations from around the world responded to help stop the ongoing Ebola Virus epidemic in Mano River Union (MRU). The government of the three (3) affected countries and the International community with collective effort has put all hands on deck to fight against the epidemic, generally putting in policies, procedures and strategies to fight against EVD with the common goal of mitigating and eradicating the ebola epidemic.

This clearly categorise the Government of Sierra Leone and Development Partners Cooperation Humanitarian Response in to five (5) main indicators. Namely;

A) Sierra Leone Government Response
B) The Big nine (9) International Players
C) Other International Players
D) International Charitable Organizations & Foundation Response
E) Individuals Response

3.1 Sierra Leone Government Response
It’s an absolute truth that despite the inadequacies and challenges such as the poor health system, untimely intervention to combat the plague, socio-economic breakdown, misappropriation of ebola funds and other operational deficiencies, the leadership of the Governments of Sierra Leone, His Excellency President Dr Ernest Koroma and its people have been continual making frantic effort, strategies and emergency risk management policies and procedures with the common goal of putting an end to this epidemic, the mission marks a shift towards recovery.
and longer term support as case numbers and deaths drop across the country. Some of this policy, procedure and strategies are as follow:

- Establishment of a Presidential Task Force, National Ebola Response Committee (NERC) and the Emergency Operations Center (EOC)
- Required leadership by the president together with his cabinet and also underscoring the need for openness in the fight against the menace and the need for public fund to be judiciously and prudently utilized with transparency and accountability for the said purpose. The Government Audit Service is charge with the responsibility to thoroughly audit the ebola fund account with the collective effort of the Anti Corruption commission, parliment and the Anti-Graft Agency and who so ever found culpable will be indicted. As the President Dr. ernest bai Koroma refer to the ebola funds in one of his speech to the public as "Blood Money"
- Disbursement of billions of Leones towards the fight of this Pandemic from the consolidated fund
- Declaration of a State of Public Health Emergency and quarantined Epicenters and some homes by H.E. the President and also curfew was instilled to limit the movement of people within the Country
- Declaration of a Day of National Reflection; calls for Sensitization and Public Education and also a three-day “Stay Home House to House” sensitization campaign, prayers and fasting declared by the president
- On the 11th June, 2014 Sierra Leone shut its borders for trade with Guinea and Liberia and closed schools in an attempt to slow the rapid spread of the virus.
- On 30th July 2014, the government began to deploy troops to enforce quarantines Epi centers and homes and On the 25th December 2014, Sierra Leone put the Northern Province on lockdown
- On the 17th December 2014, President Koroma launched "Operation Western Area Surge" and treatment centers filled as health workers went door-to-door in the capital city looking for possible patients. The operation led to a surge in the number of cases, with 403 new cases reported between the 14th to 17th December, 2014
- The president ban activities to discourage gathering of people including worship in mosque and churches and put a time limit of market places operation to mention a few of the very numerous robust interventions of the Government of Sierra Leone
- Also Government parastatals, private businesses and local NGOs gave their contributions to the Government as their own national support and commitment to fight the ebola epidemic
- On the 15th February 2015, the leaders of the three countries in the MRU seriously hit by the outbreak signed a joint declaration to eradicate the ebola virus by April 2014 and also commit themselves to achieving zero ebola effection within 60 days effective the 15th February 2015.etc
- Lastly, despite the devastation by the menace, the Government of Sierra Leone is also simultaneously engage in bringing the ebola fight to zero and as well preparing in readiness for a post–ebola plan to revamp the socio-economic system and setting up a well structure and infrastructural health system in the Country.

3.2 The Big nine (9) International Players to the Ebola Response in the Mano River Union (MRU) This category includes; UN, China, USA, UK, EU, WB, IMF, ADB & Germany. Below are there specific response to the MRU in general and Sierra Leone in particular:

3.2.1 United Nation (UN)-Constitute the response of UNMEER, UNICEF, WFP, FAO & WHO.

UNDP is charge with the responsibility to lead the UN response on Ebola recovery that focused on four pillars: revitalizing economies and jobs, helping the health sector to recover, strengthening the institutions that promote peace and stability, and reducing poverty and environmental degradation, which exacerbated the crisis. Below are the respect responses of the UN institutions headed by UNDP;
i) United Nation Mission for Ebola Emergency Response (UNMEER)

- On the 18th, September 2014, the United Nations Security Council declared the Ebola virus outbreak in the West Africa sub-region a "threat to international peace and security".

- The Security Council also unanimously adopted United Nations Security Council Resolution 2177, which urged UN member states to provide more resources to fight the outbreak. The resolution was the first in the history of the Security Council to deal with a public health crisis with the primary task of coordinating the UN agencies' vast resources to combat the epidemic under the leadership of the WHO. Dr. David Nabarro, 

- Coordinates all relevant United Nations actors in order to ensure a rapid, effective, efficient and coherent response to the Ebola crisis. UNMEER's objective is to work with others to stop the Ebola outbreak.

- Has been continually working closely with the respective affected governments, regional and international actors, such as the African Union (AU) and the Economic Community of West African States (ECOWAS), and with UN Member States, the private sector and civil society.

- A UNMEER base is set up in Accra with teams in Guinea, Liberia and Sierra Leone to facilitate an effective and efficient fight against the plague.

- A United Nations General Assembly document, the Report of the Secretary-General on UNMEER and the Office of the Special Envoy on Ebola (A/69/404), issued on 24th September 2014, details UNMEER's proposed mission, budget, and structure or appropriate response in the MRU region.

- During October 2014, WHO and UNMEER announced a comprehensive 90-day plan to control and reverse the epidemic of EVD by the 1st December 2014 (90-days target) with the objective to isolate at least 70% of EVD cases and at least 70% safely burial of patients who died from EVD.

ii) United Nations Children’s Fund (UNICEF)

- Allocated $200 million as a response to the Ebola outbreak - part of the $1 billion total UN program. Of which, $65 million allocated to UNICEF’s programmes in Liberia, $61 million in Sierra Leone and $55 million in Guinea.

- An additional $10 million will help neighbouring countries be prepared for a potential spread of the disease within their borders, with the remaining $9 million required for regional coordination efforts.

- UNICEF, working closely with partners, supports the operation of Ebola treatment centres and community care centres by providing the infrastructure, staffing, as well as critical supplies and services.

- As the lead agency for raising awareness among communities, UNICEF is conducting large scale activities through door-to-door campaigns, and dissemination of messages through leaflets, posters and radio/television spots.

- Health and nutrition services are being re-established or continued with UNICEF support, including making sure children receive vaccinations, medicines, and mosquito nets.

- UNICEF On the 8th October 2014, more than 900 metric tons of supplies were delivered to the MRU region to three (3) affected countries in support of partners, through a total of 73 flights.

iii) World Food Programme (WFP)

- On the 18th August 2014, the World Food Programme (WFP) announced plans to mobilize food assistance for an estimated 1 million people living in restricted access areas.

- On the 18th September 2014, WHO Ebola Response Roadmap Situation Report showed that as of that date the WFP have delivered an estimated 3,000 metric tonnes of food to the worst affected areas, enough to feed 147,500 people.

- They have also assisted in the transportation of 400 cubic meters of medical cargo.
The WFP-led Logistics Cluster provides free logistics services, such as storage, transport, coordination and information management, to WHO and other health and humanitarian actors.

WFP also launched a regional emergency operation to reach 1.3 million people in Health Centres and quarantine areas.

WFP provides food and logistical assistance alongside national governments, the World Health Organization (WHO) and other partners to support the treatment of Ebola patients and mitigate the risk of the virus moving into new areas.

iv) Food and Agriculture Organization (FAO)

launched a $30 million campaign to help stop the spread of ebola disease, meet immediate and long-term food and nutrition security needs and build resilience

In addition, it has been training its network of field agents and extension staff to understand how to stop the spread of the disease by simple measures of control and hygiene, and to promulgate this knowledge in their communities.

The FAO-led social mobilization campaign is expected to reach 9,000 households in Sierra Leone

v) World Health Organisation (WHO)

In July 2014, the World Health Organization (WHO) convened an emergency sub-regional meeting with health ministers from eleven countries in Accra, Ghana to tackle the ongoing Ebola virus outbreak in West Africa.

On the 3rd July 2014, the West African states announced collaboration on a new strategy, and the creation of WHO sub-regional centre inaugurated in Conakry Guinea on the 24th July 2014 "to coordinate technical support" in the ebola affected Countries.

The WHO Regional Director for Africa, Luis Sambo, visited the affected countries from 21st to 25th July 2014, meeting with political leaders, Ministers of Health, NGOs, and other agencies. He stressed the need to "promote behavioral and attitudinal change while respecting cultural practices."

On the 24th July 2014, WHO Director General met with agencies and donors in Geneva to facilitate an increase in funding and manpower to respond to the outbreak.

On the 31st July 2014, the WHO and West Africa nations announced a requirement for $100 million in aid to help contain the disease.

WHO declared the outbreak an International Public Health emergency on the 8th August 2014, after two-days teleconference of experts.

WHO also released revised guidelines on how to prevent the spread of the disease updating the existing guidelines of 2008.

On the 28th August, the WHO published a roadmap to guide and coordinate the international response to the outbreak, aiming to stop ongoing Ebola transmission worldwide within 6–9 months.

It simultaneously revised its cost estimate for the global resources required up to $490 million.

They establish Ebola treatment centres and strengthening capacity for laboratory testing, contact tracing, social mobilization, safe burials, and non-Ebola health care" and "continue to monitor for reports of rumoured or suspected cases from countries around the world

On the 16th September 2014, the WHO Assistant Director General, Bruce Aylward, announced that the cost for combating the epidemic will be an approximate minimum of $1 billion.

3.2.2 People’s Republic of China

Without doubt, the People’s Republic of China has been the first International player that starts helping the MRU region since the start of the outbreak and has stood outstandingly, very solidly to fight Ebola. China-Sierra Leone Cooperation continually expanding in deepening the relationship on the basis of mutual understanding and respect for principles, culture and traditions of each other’s
major concerns and core interests which have been manifested in the recent visit of the Foreign Minister of PR China- Wang Yi on the 8th August, 2015 who paid a courtesy call on His Excellency, President Dr. Ernest Bai Koroma at State House in Freetown, the capital city of Sierra Leone. We shall forever remain grateful for their timely and appropriate interventions and commitment in strengthening the bond of the China-Africa relationship in general and the China-Sierra Leone relationship in particular. Below are some of the specific responses:

- The medical squad of the People’s Liberation Army, which has experience from a 2002 outbreak of Severe Acute Respiratory Syndrome (SARS), built a 100-bed treatment center at Jui Chinese Hospital in Freetown city. The center is now open for operation with PLA medical staff deployed to treat Ebola patients.

- China also sent three (3) expert teams composed of epidemiologists and specialists in disinfection and protection as their commitment to the International response.

- On August 2014, China sent their second donation of supplies to Guinea, Sierra Leone, and Liberia. The supplies, worth 30 million Yuan (US$4.9 million), include medical protective clothes, disinfectants, thermo-detectors, and medicines.

- On the 15th August 2014, In addition to China’s relief effort to combat the ebola scourge, China Kingho Group which is a Chinese company and a leading exploration and mining company in Sierra Leone, donated Le400 million (about $90,000) to the government and people of Sierra Leone for the fight against ebola.

- On the 16th August 2014, Chinese President Xi Jinping and UN Secretary- General Ban Ki-moon discussed specifically about the Ebola outbreak, in their fourth meeting and Xi vowed for China continual joint efforts with the international community to prevent and control the Ebola virus outbreak that has hit West Africa.

- On the 25th September 2014, China sent a second mobile lab in Sierra Leone to assist the 29 CDC workers experts from China already in the region to help fight the ebola menace.

- Further to the relief response, On the 24th October 2014, China increased the number of Chinese medical staff working in Sierra Leone to fight the epidemic.

- China has also contributed to the World Food Program activities in the area.

- Also, continuing building Sierra Leone’s Human Resource Capacity, a total of 30 Sierra Leonean students from various fields of academia, arrived in the People’s Republic of China on the 5th of September, 2014 to further their educational capacity enhancement.

- P.R. China has also allocated a further 200 million Yuan ($32.54 million) package of humanitarian aid to the countries affected and International Organizations to help control Ebola. The Aid is expected to include “Food, Supplies for Disease Control, Emergency Treatment Facilities, and Capital Support”.

- Lastly, mid 2015, China also supplied to the government and people of Sierra Leone 100 buses in the form of contract loan to remedy the transport crises which have been an endemic in the system added to the ebola predicament and effective and efficient transport services in the Country will facilitate the socio-economic activities.

### 3.2.3 United State of America (USA)

The USA response constitutes US Agency for International Development (USAID), Center for Disease Control and protection (CDC), Health and Human services (HHS), National Institute of Health (NIH) and International Charter on Space & Major Disasters (ICSMD) etc. The US Government response to the ebola menace strategy consists of four (4) key goals:

- Controlling the epidemic at its source in West Africa
Mitigating second-order impacts, including blunting the socio-economic & political tolls in the region

Engaging and coordinating with a broader global audience

Fortifying global health security infrastructure in the region and beyond

On the 6th October 2014, the White House released a fact sheet detailing the key elements of the US response on the following:

- Deployment of medical personnel, equipment, and military logistical resources generally to the area but with a focus on Liberia

- Construction of treatment, logistics and training centers

- Measures to screen incoming travelers and prevent spread of the disease within the US.

- The United States Africa Command, working through United States Army Africa, has designated the Army's response to the epidemic as Operation United Assistance

- The United States committed more than $350 million toward fighting the outbreak in West Africa, including more than $111 million in humanitarian Aid

- The Department of Defense (DoD) also devoted more than $1 billion to the whole-of-government Ebola response effort

- As a further indication of US prioritization of this response, it convened a special UN Security Council session on the epidemic, and President Obama called the world to action during a subsequent UN session called by Secretary-General Ban Ki-moon. These U.S. actions have galvanized millions of dollars in international funding and in-kind support.

- Deployed to West Africa more than 130 civilian medical, healthcare, and disaster response experts from multiple U.S. government departments and agencies as part of the U.S. Agency for International Development’s (USAID) Disaster Assistance Response Team

- Also, US also allocated approximately 350 U.S. military personnel, constituting the largest U.S. response to the ebola plague as an international public health challenge

- Increased the number of Ebola Treatment Units (ETU) in the region, including supporting ETUs in Sierra Leone and Liberia

- Operating a training course in the United States for licensed nurses, physicians, and other healthcare providers intending to work in an ETU in West Africa

- Leveraging a regional staging base in Senegal to help expedite the surge of equipment, supplies, and personnel to West Africa

- Continuing outreach by all levels of the U.S. government to push for increased and speedier response contributions from partners around the globe

- Sustaining engagement with the UN system to coordinate response and improve effectiveness.

- Deployed and commenced operation of five mobile Ebola testing labs in the region and doubled lab capacity in the three(3) MRU countries-reducing time management from several days to just a few hours the time needed to determine if a patient has Ebola or not.

- Provided more than 10,000 Ebola test kits to the Sierra Leone’s Kenema Government Hospital and Liberian Institute of Biological Research

- Received and passed to interested humanitarian organizations information from nearly 2,200 volunteers willing to provide healthcare in the affected countries

- Delivered approximately 2,200 rolls of USAID heavy-duty plastic sheeting for use in constructing Ebola treatment units across the region

- Procured 140,000 sets of personal protective equipment, 10,000 of which have already been delivered, along with hundreds of thousands of medical gloves and thousands of protective coveralls,
goggles, face shields, and other personal protective supplies

- Supported aggressive public education campaigns reaching every Sierra Leone county with life-saving information on how to identify, treat and prevent Ebola
- Administered nutritional support to patients receiving care at Ebola treatment units and in Ebola-affected communities across the region
- Setting up and facilitating staffing for a hospital in Liberia that will treat all healthcare workers who are working in West Africa on the Ebola crisis should they fall ill
- The US Congressional actions taken to address the outbreak have been accelerating. Several committees have convened hearings on the Ebola outbreak and in July and September 2014, U.S. Representative Karen Bass and Senator Christopher Coons introduced legislation recognizing the severe impacts and threats of the outbreak.
- Also in September 2014, Congress enacted that provided $88 million for the Ebola response: $30 million for CDC Ebola response activities in West Africa and $58 million for research
- By the beginning of August 2014, the United States Centers for Disease Control and Prevention (CDC) had placed staff in Guinea, Sierra Leone, Liberia, and Nigeria to assist the local Ministries of Health and WHO-led response to the outbreak.
- The United States leverage the unique capabilities of the U.S. military and broader uniformed services to help bring the epidemic under control which entails command and control, logistics expertise, training, and engineering support.
- U.S. Africa Command set up a Joint Force Command headquartered in Monrovia, Liberia, to provide regional command and control support to U.S. military activities and facilitate coordination with U.S. government and international relief efforts
- U.S. Africa Command will establish a regional intermediate staging base (ISB) to facilitate and expedite the transportation of equipment, supplies and personnel. Of the U.S. forces taking part in this response, many will be stationed at the ISB.
- The US have also deployed more than 100 specialists from multiple U.S. departments and agencies, including the Departments of State and Health and Human Services (HHS), the CDC, the U.S. Agency for International Development (USAID)
- US have been working intensively with the United Nations, including the World Health Organization, the governments of the affected countries, and other partners, including the United Kingdom, France, Germany, Norway, the Africa Union, and European Union.
- US have also spent more than $100 million to address this challenge, including the purchase of personal protective equipment, mobile labs, logistics and relief commodities, and support for community health workers.
- USAID also made available up to $75 million in additional funding to increase the number of Ebola treatment units, provide more personal protective equipment, airlift additional medical and emergency supplies, and support other Ebola response activities in collaboration with the UN, including the World Health Organization, and international partners.
- More than 100 CDC personnel are on the ground in West Africa, and hundreds of personnel at their Emergency Operations Center in Atlanta have provided around the clock logistics, staffing, communication, analytics, management, and other support functions. The Administration has asked Congress for an additional $30 million to send additional response workers from the CDC as well as lab supplies and equipment.
- CDC Group plc (“CDC”), UK’s Development Finance Institution, and Standard Chartered Bank have announced on the 6th February 2014, a risk participation agreement one(1) year deal that will support new working capital lending of up to $50m to businesses in Sierra Leone by providing short-term
loans and overdrafts to number of businesses to be able to meet their day-to-day finance needs and to grow despite slower economic growth and supply chain disruption.

- In August 2014, USAID deployed a 28 member Disaster Assistance Response Team (DART) to West Africa to coordinate and prioritize the U.S. government’s response to the outbreak to assesses and identifies priority needs and coordinates key areas such as planning, operations, and logistics.

- The National Institutes of Health (NIH) has developed an investigational Ebola vaccine, including recently starting phase 1 clinical trials, as well as supporting efforts to develop additional Ebola antivirals and therapeutics candidates. The Administration asked Congress for an additional $58 million to support the development and manufacturing of Ebola therapeutic and vaccine candidates through Biomedical Advanced Research and Development Authority.

- DoD also has requested to reprogram $500 million in Fiscal Year 2014 Overseas Contingency Operations funds for humanitarian assistance, a portion of which will be used to fulfill requirements identified by CDC, USAID, the Joint Staff, and U.S. Africa Command to provide military air transportation of DoD and non-DoD personnel and supplies; medical treatment facilities (e.g. isolation units), personnel protective equipment, and medical supplies; logistics and engineering support; and; subject matter experts in support of sanitation and mortuary affairs.

- DoD’s Cooperative threat Reduction program is redirecting $25 million to provide personal protective equipment and laboratory re-agents, support for technical advisors, and other requests as validated by the DART. DoD has also requested to reprogram an additional $60 million to enable the CTR program to address urgent bio-safety, bio-security, and bio-surveillance needs in the three countries most affected by the Ebola outbreak, as well as bolster the capabilities of neighboring countries and other partners in Africa.

- USAID and the State Department are providing up to $10 million to support the deployment of an African Union mission sending more than 100 health care workers to the region.

- Additionally, the State Department has supported public education efforts in Sierra Leone, Liberia and Guinea regarding prevention and treatment of the disease. The effort has included radio and television messages in local languages, the production of nearly 100 billboards and thousands of posters, program support to local non-governmental organizations and a special song commissioned by a popular local musician.

- Recently, President Obama released a message to the people of West Africa to reinforce the facts and dispel myths surrounding Ebola. The video was transcribed into French, Portuguese, and other local languages and was distributed to television and radio stations across the region. Tens of thousands of West Africans viewed or listened to the message and helped in sensitizing the public.

- On February 2015, USA came together with other nations around the world to launch the Global Health Security Agenda (GHSA). CDC is contributing to the GHSA by partnering with nations around the world to help them establish measurable global health security capacity. This includes core CDC partnership programs like the Global Disease Detection Centers and Field Epidemiology Training Program, which enable the laboratory systems, disease surveillance workforce, emergency operations center capacity, and biosafety and biosecurity best practices required to counter Ebola and other biological threats.

- Lastly, USA is also working with at least 30 partner Countries to invest in model systems to advance the Global Health Security agenda. CDC and DoD will work with other U.S. agencies and partner Countries to establish emergency operations centers, build information systems, and strengthen laboratory security to mitigate biological threats and build partner capacity.

### 3.2.4 United Kingdom (UK)

The UK’s direct support includes:
Pledged £230 million ($360 million) to support the global effort to contain, control and defeat the disease in Sierra Leone. This includes support for 700 Ebola treatment beds in at least five treatment centres the UK will build from scratch. These centers will provide direct medical care for up to 8,800 patients over six months.

Support for medical agencies such as the Red Cross and World Health Organisation to provide direct care and expertise, and to train health workers.

The UK has committed the sum of £325 million package of direct support to help contain, control, treat and ultimately defeat Ebola in Africa. This is in addition to the UK’s support to international agencies like the World Bank and the UN’s Central Emergency Response Fund as well as regular cargo flights part funded by the EU which are carrying UK Aid to Sierra Leone.

300 military personnel making up the existing UK taskforce plans focused on delivering support to the Sierra Leone Government. This includes command and control, logistics and engineers that will provide the backbone of infrastructure, commodities, training and management needed to scale up the response in Sierra Leone. Units involved include 22 Field Hospital, 35 Squadron, 5 Armoured Medical Regiment, Royal Army Medical Corps, soldiers from the Queen’s Own Gurkha Logistic Regiment and 1st Battalion The Royal Regiment of Scotland

More than 160 National Health Service (NHS) staff have volunteered to travel to west Africa and help those affected by Ebola. On 22 November over 30 NHS volunteers flew over to Freetown, Sierra Leone to assist with the Ebola epidemic

Public Health England also deployed a team of experts including epidemiologists to provide expert advice to the Sierra Leone Ministry of Health on managing the outbreak.

Supporting more than 1,400 treatment and isolation beds to combat the disease, protect communities and care for patients. This includes building 6 Ebola treatment centres across the country, all of which are now operational and treating patients. It also includes support for safe isolation spaces in those areas where they are most needed.

Training over 4,000 healthcare workers, logisticians and hygienists including Sierra Leonean Army and Prison staff, led by UK military personnel who ran the UK-led Ebola Training Academy in Freetown.

£10 million provision by UK to boost the capacity of burial teams to respond quickly, supporting more than 100 teams across the country and also supporting charities on the ground to work with communities to develop new, safe burial practices.

The UK is backing Sierra Leone’s own Western Area Surge to track down hidden cases of Ebola through logistical support and vehicles to get around.

Also supply practical items such as food aid, medical kit, clean blankets and chlorine for hygiene and sanitising, reaching out to families cut off in quarantine.

Conducted emergency research to understand how Ebola spreads, and how to stop it. Plus building, running and staffing 3 new laboratories in Sierra Leone to double the number of diagnostic tests that can be carried out every day.

Set up a forward command and control logistical hub in Sierra Leone that will provide the backbone of infrastructure, commodities, training and management needed to scale up the response.

The UK’s Development Finance Institution, CDC Group plc and Standard Chartered Bank have announced on the 6th February 2014, a risk participation agreement one(1) year deal that will support new working capital lending of up to $50m to businesses in Sierra Leone by providing short-term loans and overdrafts to number of businesses to be able to meet their day-to-day finance needs and to grow despite slower economic growth and supply chain disruption.

Uk is also supporting the roll out of 200 community care centers where people suspected to might be suffering from the disease can seek quick and accurate diagnosis and appropriate care. Crucially this will
ensure that people who do have Ebola are isolated as quickly as possible to help limit the spread of the disease.

- 750 Ministry of Defence personnel were sent to help with the establishment of Ebola Treatment Centres and an Ebola Training Academy. This includes; the deployment of naval ship RFA Argus, involving around 250 personnel, to take and support three Merlin helicopters, aircrew and engineers in the region to provide crucial transport support to medical teams and aid experts.

- UK support has made it possible for WHO to be training health workers every week

- As of 12th October 2014, Aid supplies delivered by UK so far include: 20 vehicles including ambulances; 75 water tanks; 3 incinerators for disposing of clothing and other materials; 12 generators; personal protection equipment; radio equipment; lighting sets; chlorine for sanitation; latrine slabs; temporary warehouse tents; 14 air conditioning units and isolator equipment.

- On the 2nd October 2014, the UK hosted, alongside the Government of Sierra Leone, an international conference was done in London to rally the global community to provide an effective international response. The conference brought together more than 20 governments, a dozen charities and NGOs, the UN, World Bank, health experts and the private sector to pledge funds, equipment and health workers.

- The UK government is co-funding clinical trials to find a safe vaccine for Ebola. 10,000 doses of the drug are already being manufactured alongside the clinical trial in the hope that it will be approved for use in the coming months.

- A £6.5 million research initiative has been announced jointly by the Department for International Development and the Wellcome Trust to better inform the management of Ebola outbreaks.

### 3.2.5 European Union (EU)

- Has committed €600 million ($760 million) funding to fight the outbreak by mobilising substantial political, financial and scientific resources to help the affected people and to contain, treat, control and ultimately defeat the epidemic- including the provision of mobile laboratories, funding to strengthen healthcare capacity, support to help cushion the macroeconomic impact, support to the deployment of medical missions by partner organisations and funding for vaccine research and trials.

- On the 24th October 2014, the European Council announced that contributions by the European Commission and individual member states come to a combined total of €1 billion ($1.3 billion)

- In one of the concluded meeting of European Union held on the 3rd March, 2015 on the theme " from emergency to recovery" the Eu Commissioner for International corporation and development, Neven Mimica presented to the three(3) affected MRU Countries a new European Union mobile laboratory set to be transported to West Africa to train local specialists on diagnosis of highly dangerous pathogen.

### 3.2.6 World Bank (WB) Group/IBRD

- Pledged US $230 million in emergency funding to help Sierra Leone, Guinea and Liberia contain the spread of Ebola infections, help their communities cope with the economic impact of the crisis, and improve public health systems throughout West Africa.

- On the 25th September 2014, The World Bank has also made an additional funding of $170 million available to help curtail the spread of the Ebola virus. The funds used to finance medical supplies and increase the number of healthcare workers.

- On the 30th October 2014, a further $100 million funding was announced, bringing the cumulative total to $500 million. The latest tranche will go towards setting up a coordination hub to recruit, train and deploy qualified foreign health workers and support the three countries’ efforts to isolate Ebola patients and bury the dead safely.

### 3.2.7 Germany
The contributions of the German government to the fight against Ebola had reached a total of €17 million and it includes contributions to the World Health Organization, Medecins Sans Frontieres, and other agencies.

On the 16th October 2014, the German government has also increased its contribution to €102 million for fighting the outbreak.

On the 22nd November, 2014 Germany sent 400 specially adapted motorbikes to the worst hit areas of West Africa. The bikes are used in the remote areas to rush test samples to testing laboratories, thus reducing the result time from 9 or more days to less than 24 hours.

### 3.2.8 International Monetary Fund (IMF)

As a result of its international commitment in ending the ebola scourge in the three (3) MRU countries, IMF has cancelled $100 million of debt owned by the three(3) countries, whilst lending $160 million new loans. Sierra Leone received $31 million debt cancellation.

IMF also taking the lead for the campaign for more debt cancellation and the Managing Director of IMF-Christine Lagarde called on official bilateral creditors-both Paris and Non-Paris Club members to provide additional flow debt relief to the affected countries. In that regard, the resources to fund the IMF debt relief for the aforementioned countries through the former Post-Catastrophe Debt Relief (PCDR) Trust”Added to an early $130m, IMF will give more $160m in no interest loans.

On March 2nd, 2015 IMF Executive Board has also approved US $114.63 million in Financing and Debt Relief to Sierra Leone-disbursement of about US$85.45 million under the extended credit facility(ECF) 1 arrangement as well as an augmentation of access under ECF arrangement of 50% of Sierra Leone quota(about US$72.94 million), also approved a request for about US$ 29.18 million which is 20% of the countries quota in the immediate Debt Relief under the Catastrophe Containment and Relief(CCR) Trust. As the Chair and Deputy managing Director, Mr. Min Zhu on that meeting reiterated the need for continual effort response as "Sierra Leonean economy is battling 2 severe exogenous shocks with dramatic social and economic repercussions."

### 3.2.9 African Development Bank (ADB)

In 2014, the African Development Bank provided US $ 223 million and pledged an additional USD 300 million in April 2015 to help the three affected countries in West Africa – Guinea, Liberia and Sierra Leone – in their fight against Ebola and to rebuild their economies post-Ebola.

The AfDB has supported the World Health Organization (WHO) in the crisis response by providing essential medicines and equipment to fight the disease as well as emergency training of local health workers. Jointly with the African Union and ECOWAS, the Bank has financed the deployment of Foreign Medical Teams to help contain the epidemic.

As part of its post-Ebola response, the Bank is preparing two new operations to strengthen health systems and restore provision of social services: (i) the establishment of an Africa Centre for Disease Control (CDC), and (ii) a post Ebola Livelihoods Restoration Project (PELREP).

Pledge US$60-million grants multinational response to strengthen health systems and regional institutions in the West Africa region. Using various financing instruments including the AfDB’s Regional Public Good Facility, the Fragile States Facility and its current project portfolio in West African countries.

### 3.3 Other International Players

#### i) Cuba

- Sent 165 Medical Doctors, Nurses and Infection Control Specialists to Sierra Leone on a six (6) month rotation to help curtail the spread of the disease. The first group of these arrived in Freetown on the 2nd October 2014.

#### ii) India

- India has given $10 million to the UN Secretary General’s Fund for Ebola and $2 million for the
purchase of protective gear for health workers in the affected regions.

- India has also offered to contribute to the research for developing affordable drugs for cure or vaccination. Prior to this, India had contributed $500,000 to augment the WHO efforts to prevent the spread of Ebola virus.

iii) France

- France has committed €70 million in aid to fight the ebola epidemic which includes the provision of clinical testing facilities and the construction of a 50 bed treatment centre which will be managed by the French Red Cross.

- Additionally they are supporting other organisations working in the area and the wider international effort.

iv) Australia

- Australia has commit an additional AU$7 million to help the international response to the Ebola outbreak in West Africa, bringing the total committed to AU$8 million. The funds will be divided between support to the British government's response, the World Health Organization, and Medecins Sans Frontieres.

- Australian government has also agreed in subsequent response to assist with several hundred Australian expert volunteers to travel to one of the Ebola hot spots of Africa to help control the epidemic.

v) Canada

- On October 20th, 2014, Canada pledged 65.4 million Canadian dollars to the fight against Ebola. As part of its contribution, Canada has deployed two(2) mobile diagnostic laboratories in Sierra Leone, and shipped the first batch of an experimental Ebola vaccine to the WHO in Geneva.

- On the 12th August 2014, the Public Health Agency of Canada (PHAC) donate between 800 and 1,000 doses of an untested vaccine (VSV-EBOV) to the WHO. The offer was made by the Minister of Health directly to the Director General of the WHO as part of the country's commitment to containment efforts to combat ebola.

vi) Egypt -In October 2014, Egypt sent three (3) tons of Medical Aid, consisting of medicine and medical equipment.

vii) Brazil - Brazil's Health Ministry has donated number of medical kits to the three (3) affected MRU countries each kit comprises1.2 tons of supplies including antibiotics, anti-inflammatory, gloves and masks, sufficient to treat 500 patients for three months. five(5) kits have been allocated to Sierra Leone, Four(4) to Guinea, and five(5) to Liberia.

viii) Ethiopia -Ethiopia has donated $500,000 and also sent approximately 200 volunteer Health workers to the MRU affected countries

ix) Ireland -Ireland has provided direct funding of almost €3 million for Ebola treatment facilities in both Sierra Leone and Liberia, as well as for contact-tracing, community sensitisation and child nutrition programmes

x) Israel -Israel has contributed $8.75 million to the UN's Ebola Response Multi-Partner Trust Fund to help stop the spread of the disease. In addition the Israeli government has sent six cargo containers full of special equipment used to set up portable field hospitals.

xi) Netherlands

- The Dutch government has pledged over €35 million to combat the disease which includes donations to Médecins Sans Frontières (MSF), the Red Cross, the UN and UNICEF.

- In addition, a naval ship carrying relief supplies has deployed to West Africa on the 6th November 2014 with a cargo which has been provided by nine(9) EU member states. The supplies include a significant number of vehicles, ambulances, mobile laboratories and other vehicles; generators, rubber gloves and boots, and other medical supplies.

xii) New Zealand -The New Zealand Government has agreed to send 24 doctors and nurses to Sierra Leone to join international efforts against Ebola, at a cost of $2 million. The volunteers would join the Australian-led mission.
Nigeria - On Friday 5th November 2014, volunteer medical workers arrived in Liberia and Sierra Leone from Nigeria. The first arrivals included 100 volunteers in Freetown, Sierra Leone and a further 76 in Liberia. Nigeria has sent 600 volunteers medical workers to help stem the spread of the disease.

Norway

- Norway has sent 200 medical workers to Sierra Leone, in 4 teams of 50 each. The workers will help to run a treatment centre which has been set up by the British government.
- Norway will also establish an accommodation camp for between 50 and 100 health workers in Moyamba.
- Norway has donated $2.7 million to the African Union Support to the Ebola Outbreak in West Africa (ASEOWA).

Taiwan

- The Government of Taiwan gave $1 million to the U.S. Centers for Disease Control and Prevention (CDC). The donation was made to the CDC Foundation's Global Disaster Response Fund which provides materials from protective gear to vehicles used to provide transportation for medical workers.
- Taiwan also donated 100,000 units of coveralls and surgical masks to Guinea, Liberia, and Sierra Leone.

African Union (AU)

- In October 2014, the AU appealed for its members to send health-care workers to the three West African countries.
- On the 28th October 2014, it was announced that they had received substantial pledges; among others, the East African Community has promised 600 personnel, Ethiopia 210, and Congo 200. In total it is hoped that Africa’s contribution will reach 2,000 personnel, of who one-sixth are currently ready for deployment.

Authorize the immediate deployment of an AU-led Military-Civil Humanitarian Mission, comprising medical doctors, nurses and other medical and paramedical personnel, as well as military personnel, as required for the effectiveness and protection of the Mission.

Formed ASEOWA team as a follow up take necessary steps to develop a Concept of Operations for the AU Mission, including its logistical, financial and other relevant aspects.

Economic Community of West African States (ECOWAS)

- In March 2014 ECOWAS disbursed US$250,000 to deal with the outbreak.
- In response to the ECOWAS Special Fund for the Fight against Ebola, in July the Nigerian government donated us$3.5 million to Liberia, Guinea, Sierra Leone, the West African Health Organization, and the ECOWAS Pool Fund, to aid in the fight against the epidemic.

3.4 International Charitable Organisation & Foundation Response Médecins Sans Frontières (MSF)

3.4.1 Médecins Sans Frontières (MSF)

- The humanitarian aid organisation Médecins Sans Frontières (Doctors Without Borders) is the leading humanitarian organization the ebola crisis response in the MRU region.
- Has been leading the campaigned together momentum for a better response from governments and international agencies since the beginning of the epidemic. "Six months into the worst Ebola epidemic in history, the world is losing the battle to contain it even the most common illnesses. Entire health systems have crumbled. Ebola treatment centers are reduced to places where people go to die alone, where little more than palliative care is offered. It is impossible to keep up with the sheer number of infected people pouring into facilities. In Sierra Leone, infectious bodies are rotting in the streets."
 Collaborated since March 2014 with CartONG and the Humanitarian OpenStreet Map Team (HOT) to map the areas impacted by the Ebola outbreak, especially roads, buildings, and place names. These efforts started in Guinea, then extended to Sierra Leone and Liberia. The data and maps are also being used by the Red Cross.

 As at 30th October 2014, MSF budget for the Ebola response was €51 million for 2014, with further budget requirement for 2015. They have a total of 3,347 staff working in Sierra Leone, Guinea and Liberia operating 6 treatment centers. peculiar

3.4.2 Action Africa

Action Africa is a non-profit making Organization whose Headquarter is located in Washington DC,USA with sub- offices and branches in Sierra Leone , Nigeria and other Africa Countries with the main objective of addressing the peculiar associated risk with children and families in Sub-Sahara Africa Countries .The ebola crises in the MRU being an health hazard challenge which is one of the indicators of Action Africa’s operational plan framework rang a bell and in the view of fulfilling its mission as “an energetic non-profit response by Africans and friends of Africa to the challenges facing children and families in rural villages of sub-Saharan Africa in the vital areas of health, education, economic generativity, and human rights” was able to timely gave a response in the fight against the menace specifically in Sierra Leone with the following:

 By sending three containers to Sierra Leone of which two was loaded with accessories such as; face masks, gloves, gowns, hand sanitizer, soap and other medical accessories to aid the fight against the deadly virus

 The one container was sent to equip a new Health Center at Lunsar sponsored by London mining just with the view of aiding the fight to mitigate and eradicate the plague within the communities.

3.4.3 International Federation of Red Cross and Red Crescent Societies

The International Federation of Red Cross and Red Crescent Societies, in conjunction with the Red Cross and Red Crescent societies, has allocated a budget of more than 100 million Swiss francs to the Ebola crisis. It is running an Ebola Treatment Centre in Kenema, Sierra Leone as well as focusing on community engagement and safe burials throughout the region.

3.4.4 GOAL -The humanitarian charity GOAL is working in Sierra Leone, focused on public health information dissemination and establishing and supporting child protection systems, while also providing critical logistic and material support to health facilities, surveillance teams and partner organizations

3.4.5 International Medical Corps -The International Medical Corps is operating two Ebola Treatment Units - one in Sierra Leone and another in Liberia - as well as conducting community awareness programs and training of teachers and health workers.

3.4.6 Bill & Melinda Gates Foundation

 On the 10th September 2014, the Bill & Melinda Gates Foundation released $50 million to the United Nations and other international aid agencies fighting the epidemic.

 The foundation also donated $2 million to the CDC to assist them with their burden. Previous donations consisted of US $5 million to the WHO and $5 million to UNICEF to buy medical supplies and fund support efforts in the region.

3.4.7 Deutsche Welthungerhilfe (DWHH)

 Organise a community based training through the Ministry of Health and Sanitation and the District Health Medical Team (DHMT) in major Towns and Villages along the Coastal Communities in the Western Rural Area where the Ebola virus is spreading daily.

 Create awareness raising materials and Provide appreciable food supply for quarantine homes in coastal communities, provide 264 ebola T-Shirts to 21 task force groups

3.4.8 Oxfam -Oxfam scaled up its response to £30 million, working in Sierra Leone and Liberia to develop new healthcare facilities, improve access to clean water and toilets, as increase awareness with the objective to improve
the quality and quantity of health care facilities, and stop the chain of infection by creating hygienic communities who understand how to minimise and eradicate onwards infection.

3.5 Individual Response

- Aliko Dangote from Nigeria donated $1 million to halt the spread of the Ebola virus outbreak in MRU
- Facebook founder Mark Zuckerberg and his wife Priscilla Chan donated $25 million to the CDC Foundation to fight the Ebola crisis.
- Saudi King Abdullah donated $35 million to the Islamic Development Bank to support its Ebola fighting programme, funding equipment and treatment centres in the MRU region.

4.0 Challenges & Constraints to the Ebola Virus Disease (EVD) in Sierra Leone

The Mano River Union (MRU) Ebola affected Countries in West Africa Region have been fraught with difficulties and challenges as a result of an overall devastating effect in the health and socio-economic system that lead to a Country and Systemic risk with an ultimate causes global concern. The three (3) ebola most affected countries-Sierra Leone, Guinea and Liberia have struggled with a seemingly endless array of development challenges and problems from civil war and political instability to epidemic disease, chronic food insecurity and pervasive poverty. Albeit both domestic and international response in the fight against the evil ebola in reaching zero. From the research findings, there are numerous challenges and constraints catalogue in to various Sectors in the economy stated below;

4.1 Health System

Healthcare workers are among those most at risk of catching Ebola. This sector had been in a deplorable and devastating state even before the ebola outbreak. One of the reasons being two out of the three ebola affect Countries-Sierra Leone and Liberia are in a post war effect trying to reform their respective health status with regards quality health structures and infrastructures, quality human capital, technical competence staff with the required conceptual skills, techniques for effective and efficient operational performance.

The health systems in the affected countries were already weak before the Ebola outbreak. Not much was done to strengthen this sector and when the ebola stroke since end December, 2013 worsen the situation and have become overwhelmed by the crisis as our hospitals are not equip to counter such viral diseases attack, inadequate and less amount of trained Medical Doctors and Nurses as a proportion of the population in Sierra Leone. Most of the available medical practitioners (Doctors & nurses) have been killed by the virus leaving the health sector in a retrogressing and backward status with a shaky human capital.

There have been strikes in the health sectors especially by medical practitioners and other ebola staffs as a result of lack of timely and required payment for their respective service delivery. Some of the medical practitioners because of the death of others can’t go to work and some have left the country causing a brain drain.

Though the alarming high fatality rate is at a decrease, as result of the respective Governments and the International partners response in the fight consolidating effort, funds, skills and techniques in trying to end the menace but yet reaching zero is yet a daunting task and still a risk in the sector.

The virus exacerbated rapidly in the affected countries as a result of their severe deficiencies in the six components that build up a well structured health system The components are: human resources; governance and leadership; financing; commodities and supply chain networkers; service delivery; and information.

In Sierra Leone, though the ebola response is scaled up cases and deaths continue to occur, Riots are breaking out. Isolation centers are overwhelmed. Health workers on the front lines are becoming infected and are dying in shocking numbers. Others have fled in fear, leaving people without care and as result the human capital of the health sector has been seriously diminished and demoralized.

Governance Financing, Human Resources, Commodities Service Delivery, Information Description Policies, strategies, and plans that inform the course of action take to meet the health needs of the people, honestly lacks adequacy, efficiency, effectiveness and timely management of medical implementation. Insufficient financial resources...
to fund local responses and pay health personnel contribute to human resource and commodity shortages.

Shortages of not only health personnel, but also support staff like grave diggers and statisticians limit the ability to detect, prevent, and treat EVD cases. Insufficient supply of protective equipment threatens the safety of healthcare workers (including community volunteers) and is associated with hospital- and clinic based infections. Many health facilities in Liberia and Sierra Leone were closed due to staff shortages and other factors.

Limited capacity to conduct contact tracing and diagnosis calls into question the actual EVD cases and impedes efforts to detect, treat, and control the virus.

**4.2 Governance**

The unabated spread of the ebola menace in the three(3) countries- Sierra Leone, Guinea and Liberia has contributed to perceptions of government ineptitude, mistrust of Government officials, has prompted negative attitude by many civilians to resist or ignore government responses.

Slow initial government response to the Ebola outbreak, incapacity to implement national Ebola plans and the misuse of ebola funds has diminished public confidence in political authorities and limited efforts to dispel rumors and fears about Ebola.

Though Sierra Leone is making inroads in combating Corruption yet the task is still daunting and rings a bell especially in the response to the ebol plague. The recent Auditor’s General Audit report (May’2014 – Oct’2014) has clearly revealed that the management of the ebola response fund lacks proper monitoring, supervision, accountability and transparency as there are certain sum of money yet to be fully accounted by both the public and private officials who are part of the ebola task force disbursement team as a result of either the absence of proper procurement procedures or receipts and sum cheques issued as contribution to the fight by other institutions not honored by the financial institutions. Such act as a created a lot of risk within the fight against the deadly virus such as; financial, operational and reputational risk and if not manage well will incubate systemic and country risk.

Sierra Leone needs more money to combat the menace as well as in the post- ebola effect to embark on socio-economic transformation and recovery plan but such news will dampen the continual support of the International partners to end the menace and the drive towards the post-ebola recovery plan will be daunting.

Though the Government of Sierra Leone move to used armed forces to enforce disease control measures and to quarantine neighborhoods and Epicenters is good for the fight but it further deepening public resentment. Some have questioned the effectiveness of quarantines and criticized the measures, citing concerns about human rights, food scarcity, and possible unrest.

**4.3 Agriculture**

MRU economies are largely dependent on agriculture and mineral production and about 60% of the populations engage in agricultural productivity of which 75% of people living in rural areas are farmers. The ebola crises has put a slam on the breaks of agricultural productivity as a result of the death and threat of ebola virus to humanity causing:

- food shortages and pressure on food prices as the demand for agricultural goods greater than the supply which as a tendency of having inflation on agricultural goods.
- The Sierra Leone Agriculture Minister Dr. Sam Sesay in his past interview with BBC clearly stated that "The economy has been deflated by 30% because of Ebola," and also stated that "We are definitely expecting a devastating effect not only on labour availability and capacity but we are also talking about farms being abandoned by people running away from the epicentres and going to areas that don't have the disease,"
- Road blocks manned by police and military are preventing the movement of farmers and labourers as well as the supply of goods. We are starting to see a rise in inflation and pressure on the national currency as well as a shortage of foreign exchange,"
- Before the outbreak though the frantic effort of government in revamping the agricultural sector there are still inadequacies and deficiencies; like farmers access to finances, training, machinery and good farming infrastructure to rebuild and sustain their
farming activities for sustainable Agricultural productivity. FAO and IFAD need to scale up their previous support before the outbreak and other International plays also need to come on board to give added value and effective transformation of this sector.

### 4.4 Mining Sector

This sector has also been negatively impacted by the ebola scourge. London mining a British Company in the North of Sierra Leone moved out some it’s non-essential expatriate staff from Sierra Leone and has stop operation, where mining has accounted for much of the country's recent growth. According to International Monetary Fund (IMF), Sierra Leone's output grew by 20% last year; excluding iron ore mining, it grew by 5.5% indicating the high degree of growth rate is the revenue on the ore mining.

African Mineral which is also operating in the Northern Province of Sierra Leone is one of Africa’s largest iron-ore producers but the mine scaled down in operation and finally closed down as a result of the plague and now a new Chinese Company Shandong Steel has taken up the operations. There are also concerns that widespread poverty could force people to resort to criminality.

The revenue for Gold exports contracted from Le3.6 billion Leones in March 2015 to le637 million in July, 2015 whilst diamond export also drop by 12,000 carats over 2014 export figures and west Africa minerals have also announced to likely exit Sierra Leone as a result of the ebola shock.

### 4.5 Education

Sierra Leone has experience a very serious break down in the educational system due to the ebola outbreak, Universities/Colleges/Schools luck down, death of pupils, students, teachers and lecturers; brain drain and also most schools have been used as treatment centers as a result of inadequate health infrastructure in the country and some of does schools will be demolish after the end to the outbreak to mitigate future risk of contracting the virus.

The Country’s human resource capacity is been determined by this sector. Even before the ebola viral menace, the sector had been fraught with difficulties and challenges as a result of the past civil war and that the country demographic representation shows that the level of illiteracy is relatively high. Even the educated few citizens left for overseas for greener pastures causing a brain drain.

International Partners should scale up in their scholarship quotas to enhance and strengthen the broken and weak human capital in the country so that scholars will embark in various field of studies especially in the health and sciences, that will help to rebuild both the educational structures and infrastructures for sustainable development.

### 4.6 Transport & Service Sector

Before the outbreak stroke, the transport delivery service in the country was not up to task as it engulfs with inadequacies and inefficiency as a result of high illiterate rate, lack of professional driving training and techniques and the lack of judicious management and use of public transport. During the outbreak, Most vehicle services especially public transport are use for attending the emergency of the outbreak and some drivers have fled, others are dead and some in sick bed so as result the sector has also experience a slow down and the services of foreign workers from the foreign department decline because most have fled as a result of the menace. The Sierra Leone economy had been expected to grow by about 11.3% 2014, but the country's but that forecast was not achieved and unrealistic as a result of the deadly Ebola virus which cause a slowdown in the transport and services sectors and the departure of foreign workers as the sector is also a major contributor to the County’s GDP. Also, most of the public transport have got break downs, spoiled and beyond repairs leaving the sector in a shaky position. Thank God for the supply of 100 Buses mid, 2015 on the bases of a contract loan by a vehicle manufacturing Company in China to the people and government of Sierra Leone which has certainly mitigate the risk and maximize quality service delivery but yet there are still challenges in the sector.

### 4.7 Socio-economic Constraint

Despite the fact that Sierra Leone was among 5 of the World's fastest growing economies in Africa before the outbreak, economic growth has increasingly slow down due to an exponential geometric accelerated terrifying ramifications of the ebola scourge that stifle the activities of economic players both in the public and private sector with an ultimate deflating hamstrung on the entire socio-economic system in the Country. GDP was expected to have
grown in 2014 by 11.3% but has been revised to 4% declined by 7.3%.

Furthermore shortages of food caused by farmers leaving their fields, disruption to supply chains due to travel restrictions and reduced production in the agriculture and mining sectors resulted to the fact that many businesses experience a huge drop in their earnings resulting to losses, some do not have the working capital needed to continually carry out day-to-day operations including, running cost, timely payment of employees which causes most business to closed, redundancy and voluntarily retirements of employees etc. This is a very big challenge in the sector as much is need to revamp the operation of economic activities in both the private and public sector and this sector should be prioritize in the post-ebola recovery plan because it complement all other sectors in the economy.

Social Infrastructural development has been a big challenge even before the virus stroke as the saying goes  “Good and quality infrastructural development serve has a hub and platform for sustainable economic growth and development”. Sierra Leone is highly deficient in this area and it’s even one of the main cause to the rapid spread of the virus for not having better infrastructures in the health system. Infrastructural development should be develop in all sectors and make them accessible and affordable to stimulate economic growth and development.

4.8 Macroeconomic policy Constraint

Macroeconomic policy regulates the entire economy and the stroke of the menace has resulted to the ineffectiveness and hampered the implementation of policy implementation such as the; Fiscal, Monetary, Stabilization and Exchange rate policy. The menace has cause Government to be spending exponentially more whilst revenue mobilization drastically declined at an increasing rate causing a budget deficit; the financial system has been defective causing a slowdown in deposits, loans and earnings etc causing financial system risk such as liquidity risk, credit risk, market risk, operational risk and systemic risk making the central bank not effectively and efficiently perform its traditional roles. Also, foreign exchange rate is sky rocketing as a result of scarcity of foreign reserve and also demand exceeding supply of foreign currency; off course inflation is no exception as a result of scarcity in commodities like agricultural goods and others .So there is need also to prioritize this constraint in the post-ebola recovery plan for necessary and timely reforms to be made to remedy the situation such as reforms on financial policies, private sector development, investment, foreign exchange, trade liberalization and facilitation to boost and stimulate the entire economic space in the Country for better standard of living and sustainable economic livelihood.

4.9 Financial System

The operation of Banks and Other Financial Institutions (OFIs) experience challenges during outbreak. Financial Institutions performance declined as a result of a cut down on; resource base, deposit base, customer base, loan portfolio, time of operation, earnings, asset base, bank net worth and an increase in the portfolio of Non-Performing Loans(NPL), death of competent staff and brain drain in the sector to seek greener pasture in overseas and the fear of the menace and this dampen the potential of having a safe, sound and secure financial system which lubricate the entire economy in the Country. The reason for the 2 hours cut down on the operation of financial Institutions in the Country is to reduce contact with clients because of the high risk associated with the ebola scourge.

4.10 Labour Sector

The labour sector of any economy is the source and hub of human capital that serve as main stakeholders in economic activities. The reason being the sector provides the man power (mental and manual) and the labour indicator is used to measure the rate of unemployment which is 1 of the 3 main economic indicators in the real economy together with GDP and Inflation. Before the menace, unemployment was very high and the virus has made the situation worsen as a result of closure of jobs, death of workers, redundancy, salary seiling and geographical mobility of labour. Since the time the menace entered the fabrics of MRU countries, this sector continue to be at high risk as the death rate toll keep on increasing and reducing the labour force increasingly which will in a long run cause labour demand to exceed its supply and ultimately have a negative effect to the real economy such that labour price increase whilst Aggregate Demand decline etc. High unemployment rate will incubate idleness especially in the youthful population and have tendency of creating social chaos, theft and other money laundering activities.

http://www.ijmsbr.com
4.11 Commerce sector
The commerce sector constitutes both trading and investment activities in the economy. This sector is very important component in calculating the country’s GDP. Trade accounts for the Current Account Balance which is one of the indicators to that of the Capital Account in calculating balance of trade. Before the outbreak the sector was in the transformation process to recover from the past civil way in the country as policies such as trade facilitation and liberalization were in place to stimulate both domestic and bilateral trading activities and the stroke of the ebola reverse and dampen the potential of the sector as a result of deaths, risk of contracting the virus, foreign trade partners left the country, domestic trade drastically cut down, closure of business. The aim of all businesses is to keep risk at lower ebb by maximizing profit and minimizing cost. So the ebola virus has been of high risk and high cost that render the sector handicapped.

Though the situation is much better, the fight against the menace heading for zero is still daunting. Both domestic and foreign trade decelerated as many shops and businesses have been forced to close as part of quarantine measures and bilateral trade partners are on the hold looking at the situation till there is a safe and stable situation in the Country virus continue to claim lives as the death toll is at increase.

Foreign Direct Investment (FDI) also decelerated as most foreign investors are nervously watching the Ebola outbreak unfold. Dianna Games, Chief Executive of Johannesburg-based consultants Africa@Work, says fears about the virus could damage Africa's economic revival of recent years. "Ebola has made a dent in the Africa rising narrative," she told the BBC. "The stereotypes of Africa as a place of poverty and disease have started to re-emerge again."

Though the ebola crises has deterred investors in Sierra Leone that has also contributed to the fall in the GDP, Sierra Leone has long term investment opportunities, especially in the mineral and agri-business sector, so investing in development and major infrastructure will help speed up recovery by creating jobs and make the region more resilient in the long term, helping end dependency on Aid and better prepared for humanitarian crises.

4.13 Diplomatic Corporation/Borders closed
The outbreak has caused number of countries to close their borders. The closure of borders in West Africa and the suspension of flights are also having a detrimental effect on trade, investment and other relations between people and Countries, severely limiting the ability to export, import goods and FDI and also limiting the Diplomatic Corporation amongst countries. Some examples are the closure of Cameroon's lengthy border with Nigeria, the closure of ebola affected sister Countries borders and the announcement of the suspension of flights to the ebola affected Countries. Also International stigmatisations of people living abroad that are citizen of the ebola affected countries have been creating lots of embarrassment, ridicule and disheartening. Also International travel restrictions by foreign countries with a strong prevention system along borders, screening of incoming air passengers, sales and consumption of bush meat also banned. Scholarship students overseas from the affected Countries are quarantined for 21 days before integrating in to the normal college activities. Another scholarship Sierra Leonean student came to our University around November, 2014 and his scholarship was deferred till the ebola situation become normal and he ended up returning back home and lot of other issues like Overseas Universities intermittently checking passports to track movement of students from the affected ebola Countries. Marginalizing the affected countries population and potentially worsening the crisis.

4.14 International Response
Some global health experts have criticized the U.S. and international response to the Ebola outbreak, decrying the pace and scale of assistance. The limited impact of U.S. and international responses to the Ebola outbreak has raised several questions regarding global health governance structures, international commitment to bolstering pandemic preparedness and response capacity in poor countries, and global support for strengthening health systems.

The international community lacks a rapid response team of health professionals prepared to address health emergencies.
in the ongoing West African Ebola outbreak. Debates about whether WHO should have such capacity have been at the heart of recent WHO reform debates.

5.0 Sustainable Remedy and Way Forward To the Ebola Virus Disease (EVD) in Sierra Leone

The World Health Organisation (WHO) consultative engagement in the fight against the menace in West Africa especially with the three Ebola most affected countries evaluated the entire system and identify risk management strategies which they segmented in to five (5) driving indicators as shown below;

- Sustainability
- Sustainable Development
- Sustainable Health System
- Capacity Building/Learning and development (philosophy and strategies)
- Rewarding people (addressing labour turnover)

From 9th - 23rd January, 2015 the World Health Organisation (WHO) supported the three (3) countries most severely affected by the Ebola outbreak - Guinea, Liberia and Sierra Leone to develop plans for rebuilding resilient health systems and to assess how the University Health Coverage Partnership (University Coverage (UC), University Health Coverage (UHC)) is defined as ensuring that all people can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship) programme can best respond to the impact of the epidemic by adjusting its health systems priorities accordingly.

One of the objectives of the three support missions conducted by WHO in Guinea, Sierra Leone and Liberia in January, 2015 was to help countries prepare for the aforementioned events, by supporting their respective health ministries in taking two fundamental steps needed for a sustainable approach to fighting the causes and addressing the consequences of Ebola. Firstly, the elaboration of sector recovery plans and secondly, the subsequent integration of these plans into the multi-year national health plans.

With financial and logistical support from WHO, the ministries of health in all three countries convened national planning meetings with multi-stakeholder participation from respective government, civil society and the international development community. In Sierra Leone, the consultation gathered a total of 196 participants including representatives from the Ministry of Health and Sanitation, district authorities, development partners and NGOs. During these meetings, WHO played a key role in helping the countries to identify and cost high-priority interventions, by focusing their recovery and health system resilience plans on three key areas:

- Getting rid of Ebola (0 cases, 0 deaths) by defining additional activities helping health centres and hospitals tackle the present crisis as well as potential future crises.
- Supporting the district health system, e.g. Ebola efforts need to be progressively integrated into district work through district-specific plans and indicators.
- Strengthen governance and leadership of the Ministry of Health, so as to progressively work towards risk reduction

5.1 Sustainability - sustainability is a function of social, economic, technological and ecological themes. Sustainability encapsulates long-term viability institutions financial services with respect to corporate
governance, profitability and bottom line, cost effectiveness of services being provided and institutional independence. It can also be defined as the ability of a service provider to cover all administrative and financial costs without the benefit of grants, subsidies, concessional borrowing of special legal conditions such as lower reserve requirements.

5.2 **Sustainable Development**- is a road map, an action plan, for achieving sustainability in any activity that uses resources and where immediate and intergenerational replication is demanded. Sustainable development coincides with further economic growth and human development in the developed economy (and society) for finding the means of continual development beyond economic development. As such, sustainable development is the organising principle for sustaining finite resources necessary to provide for the needs of future generations of life on the planet. It is a process that envisions a desirable future state for human societies in which living conditions and resource-use continue to meet human needs without undermining the "integrity, stability and beauty" of human existence.

5.3 **Sustainable Health System**- A sustainable health system, reflects a commitment on "improving the lives of the people and communities for generations to come in order to:

- Use new models of care delivery to make care more accessible, less costly, and more effective.
- Improves the health of entire population not just the health of the patients who walk through the doors of our facilities, but people throughout our communities.
- delvers care in the place and at the point of time or illness progression to have the most impact on the continued health of the patient
- Having a workforce working in new ways, often to the top of their license or profession, using the fullest potential of our talented and committed people.
- financially responsible, investing prudently in people, infrastructure, innovation, education, and research that will truly serve patients and population health.
- Values integration and a network of care, and partners locally, regionally and nationally to improve health and health care.
- measures its results, far beyond the current clinical outcomes and process measures that are in place nationally, so that we know how we are doing, how our patients are doing, and that what we are doing in terms of treatments, therapies, and that procedures are effective, necessary, and of value.
- Treats patients and families as partners in care, knowing that patients who are fully informed about the risks and benefits of treatments and procedures often make different choices and choices they are happier with, than if they had left the decision up to their physician.
- Be transparent, internally and externally, sharing our processes and our results with each other, with our patients and their families, and with other providers, to hold ourselves accountable and ultimately to make us all better.
- Develops plans, policies, programs, projects and strategies related to health facility development, planning, operation and maintenance
- Provide coordination, technical assistance, capacity building, consultancy and advisory services related to health facility development, planning, operation and maintenance.
- Advises the Secretary and the Undersecretary of Health on matters pertaining to health facility development, planning, operation and maintenance.

5.3.1 **Test utilization**- is a suitable strategic process for performing laboratory and pathology testing with the goal of providing high-quality, cost-effective patient care. Appropriate laboratory test ordering is an essential part of continuous quality improvement. The knowledge gained from test utilisation strategies can be used by the laboratory and shared with physicians to ensure that:

- Correct tests are ordered for the correct patients
- Best test methodologies utilized
Correctness and efficiency remain high, ensuring the best medical care

5.3.2 Medication

Initially, there are no commercially available Ebola vaccines but recently the National Institutes of Health (NIH) in US developed an investigational Ebola vaccine, including recently starting phase 1 clinical trials, as well as supporting efforts to develop additional Ebola anti virals and therapeutics candidates and first tested in Liberia with positive outcome and now extended to Guinea and Sierra Leone which have contributed greatly in bringing down the fatal cases. At present, no specific anti-Ebola virus agents are available. General principles of care are as follows:

- Supportive therapy with attention to intravascular volume, electrolytes, nutrition, and comfort care is of benefit to the patient
- Such therapy must be administered with strict attention to barrier isolation; all body fluids contain infectious virions and should be handled with great care
- No specific therapy is available that has demonstrated efficacy in the treatment of Ebola hemorrhagic fever
- Agents that have been studied for the treatment or prevention of Ebola virus disease include the following:
  - Ribavirin (possesses no demonstrable anti-Ebolavirus activity in vitro and has failed to protect Ebolavirus-infected primates)
  - Nucleoside analogue inhibitors of Sadenosylhomocysteine hydrolase (SAH)
  - Interferon beta & Human-derived convalescent immune globulin preparations
  - Recombinant human Recombinant human interferon alfa-2 & monoclonal antibody against the envelope glycoprotein (GP) of Ebola virus
  - DNA vaccines expressing either envelope GP or nucleocapsid protein (NP) genes of Ebola virus

5.3.3 Infrastructure and Equipment Development Division

Specific Functions:

- Develops policies, programs, standards, guidelines and projects related to development and upgrading of health facilities and health care equipment.
- Prepares master site development plans for health facilities under the Department of Health and reviews and evaluates such plans developed by other agencies and organisations.
- Formulates master health care equipment development and upgrading plans for the facilities under the Department of Health, reviews and evaluates such plans developed by other agencies and organisations.
- Coordinate planning, implementation, assessment and evaluation of activities related to health facility and health care equipment development.

5.3.4 Technical Operation Division

Specific Functions:

- Develop and implement systems and procedures to operationalise networking of hospitals, laboratories and other health facilities.
- Formulate policies, guidelines and procedures related to the operation and maintenance of hospitals, laboratories and other health facilities.
- Provide technical assistance and expert services to implementing agencies on matters pertaining to the capacity building and operation and maintenance of hospitals, laboratories and other health facilities.
Conduct and coordinate human resource development activities related to hospital, laboratory and health facility operation and maintenance.

Develop and maintain data bank and information system on hospitals, laboratories and other health facilities.

5.3.5 Management Systems Development Division

Specific Functions:

- Formulate plans, policies, programs, projects and strategies for organisation and management systems development of hospitals, laboratories and other health facilities.

- Provide technical assistance and expert services to implementing agencies on matters pertaining to organisational and management systems development of hospitals, laboratories and other health facilities.

5.3.6 Infrastructural Development

Infrastructures are "the basic services or social capital of a country, or part of it, which make economic and social activities possible. In terms of public health, they are the formal and enduring structures that support public health, having both tangible and intangible aspects and existing inside and outside the government sector. They may be directly protective of health - as in public sanitation systems - or they may support other activities that protect and enhance health.

Public health infrastructures are formal and enduring structures that support public health. They comprises of:

- institutions and capacity

- knowledge (of public and professional) and

- commodities (physical infrastructure)

Public health is the science of protecting and improving the health of families and communities through the promotion of healthy lifestyles, research for disease and injury prevention and detection and control of infectious diseases. Public health professionals try to prevent problems from happening or recurring through implementing educational programs, recommending policies, administering services and conducting research in contrast to clinical professionals like doctors and nurses, who focus primarily on treating individuals after they become sick or injured. Public health also works to limit health disparities. A large part of public health is promoting healthcare equity, quality and accessibility.

The elements of public health infrastructure that tend to be easier to recognise and to describe are those concerned with areas such as (Communicable diseases spread from one person to another or from an animal to a person. The spread often happens via airborne viruses or bacteria, but also through blood or other bodily fluid) communicable disease control (including the safety of food), the protection of the health of mothers and children and the control of environmental contamination. Less easy to identify are those infrastructures related to the control of non-communicable disease (The term non-communicable disease refers to a group of conditions that are mainly caused by an acute infection, result in long-term health consequences and often create a need for long-term treatment and care. These conditions include cancers, cardiovascular disease, diabetes and chronic lung illnesses. Many NCDs can be prevented by reducing common risk factors such as tobacco use, harmful alcohol use, physical inactivity and eating unhealthy diets) and injury. However, in all these cases, effective improvements in public health require the three elements:

- institutions and capacity appropriate to respond to these problems and associated tasks (given the needs and circumstances of the country involved);

- knowledge, as assimilated and put to use both by the general population and by professional and administrative staff;

- Necessary commodities (resources or 'tangible' infrastructure).

- Institutional Capacity

- Appropriate legal and regulatory frameworks to enforce public health measures.
5.3.7 Legal & Regulatory Framework:

An appropriate legal and regulatory framework to enforce public health measures, in concert with the wider contribution of health-related civic organisations. Such institutional capacities - encompassing state and non-state actors - require political and social institutions to accord priority to collective measures to control disease. The political recognition of this framework will typically be supported by the perceived social and political legitimacy of public health endeavours. This legitimacy derives from the intrinsic importance of health to well being and from the importance of health to socio-economic development.

The ability to supervise, monitor and respond to changing patterns and determinants of disease. Just as national public health agencies are oriented in their tasks by systematic surveillance of trends, so too can they benefit from an appreciation of where their own country's health experience fits in relation to the experiences of countries in broadly similar circumstances. International public health surveillance performs this role but remains highly dependent on national surveillance capacities that have, in turn, their own institutional requirements. In middle and high-income countries supervision systems can be built on the foundations provided by comprehensive systems for the registration of vital events and of notifiable diseases. In low-income countries surveillance systems will be less comprehensive, but some effective system remains essential.

5.3.8 Education, Training and Wider Knowledge

Capacity of a country to absorb and use knowledge is a powerful predictor of mortality decline (reduction in death rate)-(Infant mortality is the death of a child less than one year of age. Childhood mortality is the death of a child before the child's fifth birthday). Such that;

- Competent staff do not just emerge and nor can they function effectively in professional isolation.
- Quality of vocational and research training institutions therefore vital.
- Changes in public consciousness and behaviour are also key determinants of health
- Staff with appropriate competences do not emerge from nowhere, and nor can they function effectively in professional isolation. The quality of institutions for vocational and research training in public health disciplines is an important determinant of staff effectiveness. Their capacity to absorb the evolving international professional culture of public health and to acquire and assimilate the latest knowledge - increasingly with the aid of digital technologies - will also determine their effectiveness.
- The capacities of countries to absorb and make good use of the global stock of knowledge has been shown to be a very powerful predictor of mortality decline: "some countries are better than others at absorbing ideas and technology from the world, harnessing technological and intellectual developments outside their country to boost those within it, and implementing new solutions as they become available”.
- Increase in knowledge brings health benefits not only by enhancing the effectiveness of professional medicine and public health, but also by contributing to changes in public consciousness and behaviour. If the assimilation of knowledge by the whole population is important, and if, in many important instances, such assimilation depends on informal channels rather than formal public health programmes, then it makes little sense to talk about health as some commodity-like entity that can typically be 'delivered' by 'interventions'.
- Industrialisation increased wealth but, initially at least, reduced health, with rapid urbanisation associated with rising mortality levels. Overcoming this 'urban penalty' required a deliberate (i.e. politically, not market, mediated) reconfiguration of the physical infrastructures of cities; safe water supplies secured, house construction is regulated with aim of making it more conducive to health. Later industrialising countries drew on this experience to
foreshorten their 'urban penalty', and today mortality tends to be lower in urban, rather than rural areas in low-income countries.

➢ The means by which urban life has been made compatible with low transmission risks for serious food and water borne infection are an important component of public health infra-structures, but they are now so widely 'taken for granted' as to be virtually invisible: few, if any, countries today count spending on safe water supplies as part of their spending on health.

➢ Successful measures to control the health risks associated with living in cities have thus been incorporated into the fabric of modernity itself and, paradoxically, have lost their salience as public health infrastructures. Analogous examples could be drawn from areas such as road safety, product safety and pollution control. It may, therefore, be salutary to remember that what one 'has' in the way of public health institutions may be rather more than what one 'sees'.

5.3.9 Public Health Infrastructure as Access Goods

Public health infrastructure provides access to other (global public) goods for health (e.g. it requires policy regimes, surveillance and vaccines). Special dimension of public health infra-structures extends from local to global and it contribute directly to final provision and indirectly on education.

The more foundational properties of public health infrastructures are the better the facilities in providing access to other (global public) goods for health. Control of cross-national communicable disease is very important, but achieved using ‘access goods’ of policy regimes, surveillance and vaccines is also important.

The special dimension of the three elements of public health infra-structure, may be envisaged as extending from the local through to global level. However, it is more likely that the national provision of these elements will contribute to global externality effects within the realm of public health e.g. the prevention of international transmission of disease. The global transmission of medical knowledge (both popular and professional public health knowledge) and of organisational solutions to health problems may thus help provide the tools to tackle those tasks, and itself exert an important externality effect in contributing to improved health in countries other than the one in which the relevant disease control methods were developed.

Public health infrastructures may therefore best be seen as 'access goods'. This may be directly, such as through the provision of pure drinking water and good environmental protection, but also indirectly, through externality effects. For example, in the case of medical and organisational knowledge, positive externalities may have an international domain, as in the case of the smallpox eradication programme in Africa (1959-1980), which left a legacy of useable and transferable skills for other vaccination and control programs. For practical purposes then, the provision of access goods may be seen as part of the general provision.

Public health infrastructures are national by nature so national aspect of provision and finance is critical to global availability. Public health institutions of rich countries and global institutions should help develop public health infrastructures in poor countries. Also, strengthening public health infrastructures in poor countries will yield global public goods, economic development etc.

Public health infrastructures tend to be national by nature. Thus, the national and local aspect of their provision and finance is critical to their global availability and benefit. Although this depends on the tangible dimension of infrastructure, consideration should not be limited to it because local conditions will influence the absorption and adaptation of knowledge, the less tangible aspect of public health infrastructure.

The national public health institutions of rich countries, and the global public health institutions that are heavily dependent on their material support, provide some help for the development of public health infra-structures in poor countries. The externalities that arise from the strengthening of public health infrastructures in poor countries yield, in turn, global public goods for all, as already noted, in areas such as communicable disease transmission. This is a major justification - and for some, a sufficient one - for support for these endeavours from rich countries.

The benefits of global investment in public health infrastructures in poor countries may transcend the sphere of
public health issues. It is well known that health is an important element of human capital formation, and that the improvement of health produces a positive effect on the generation of economic growth and productivity.

Rich countries face other serious international problems, such as those of illegal immigration and lack of external demand for their goods, which could be partially helped by the provision of a better quality of life for people living in poor countries.

One of the main (international) collective-action problems concerning public health infrastructure concerns balancing the incentives for the generation of new knowledge with the need for its optimum social provision.

Attempts at universalising the provision of pharmaceutical knowledge, for example, might undermine the incentives for the protection of property rights of investments made in this field.

Conversely, the undersupply of trained staff, physical infrastructure and medicines that are crucial for basic public health in poor countries should not be seen exclusively as a problem of the governments of those countries, but as part of an international division of labour that does not favour the production of these goods in all places where they are needed.

International institutional solutions, rather than merely national ones, are needed to overcome this coordination problem, with private provision complemented by international arrangements that entitle countries to achieve optimum levels of social provision.

There are two forms of financing that warrant mention in this respect. First, subsidies and incentives could be given to the production of new knowledge. Second, the costs of transmission, absorption and adaptation of this knowledge could be reduced.

5.3.10 Production of Knowledge

Knowledge is a vital element in public health infrastructure. Once produced, it is non-rival, and under these circumstances it is not efficient to artificially exclude people from using it. In this case, the issue becomes one of how the production of such knowledge is to be achieved, as it is only through exclusion that the private sector will reap the profits needed to justify their investment in research. The paradox to be solved is thus how to ensure both the incentive to produce knowledge whilst ensuring that all may benefit from it.

Increased production achieved by government production, changes in taxes etc. In addition, wider determinants of provision and consumption of public health infrastructures are: Poverty and primary schooling. International institutions have pivotal role as intermediaries in provision/finance of knowledge for many countries

Reductions in the price of knowledge could be funded either by taxes or by changes in the make-ups of big producers of knowledge (their products are usually price-inelastic). This will not be adequate alone; final production will be determined by participatory and social processes that will point out the extent of their undersupply. Financing mechanisms and incentives should also be given at a local level where these procedures will be adapted, modified and used.

Producing knowledge is of use when it has been disseminated and utilized in communities. There are two key elements to take note of such as: Extent to which knowledge is usable or embodied and Levels of schooling of local populations. Yet, it is not just the provision of knowledge that is of importance perhaps even more so is its transmission.

5.4 Learning and Development (capacity building)

Learning and development is the process of acquiring and developing knowledge, skills, capabilities, behaviors and attitudes through learning or developmental experiences. It is concerned with ensuring that the organisation has the knowledgeable, skilled, engaged and committed workforce it needs.

5.4.1 Learning

Learning is the means by which a person acquires and develops new knowledge, skills, capabilities, behaviours and attitudes. Learning happens when people can demonstrate that they know something that they did not know before (insights, realisations as well as facts) and when they can do something they could not do before (skills). Learning is a continuous process that not only enhances existing capabilities but also leads to the
development of the skills, knowledge and attitudes that prepare people for enlarged or higher-level responsibilities in the future.

5.4.2 Development

Development is concerned with ensuring that a person’s ability and potential are grown and realised through the provision of learning experiences or through self-directed (self-managed) learning. It is an unfolding process that enables people to progress from a present state of understanding and capability to a future state in which higher-level skills, knowledge and competencies are required.

- Training (self sponsored and employer sponsored training)
- Training involves the application of formal processes to impart knowledge and help people to acquire the skills necessary for them to perform their jobs satisfactorily.

5.4.3 Learning and Development Strategies

Learning and development strategies represents the approach an organisation adopts to ensure that now and in the future, learning and development activities support the achievement of its goals by developing the skills and capacities of individuals and teams. It can be described similarly as strategic human resource development. Strategic human resource development involves introducing, eliminating, modifying, directing and guiding processes in such a way that all individuals and teams are equipped with the skills, knowledge and competences they require to undertake current and future tasks required by the organisation.

5.4.4 Learning and Development Philosophy

A learning and development philosophy expresses the beliefs of an organisation on the role of learning and development, its importance and how it should take place. It can be expressed in the following terms:

- Learning and development activities make a major contribution to the successful attainment of the organisation’s objectives, and investment in them benefits all the stakeholders of the organisation.

5.5 Rewarding People

- Rewarding people to avoid employee turnover
- Aims of reward management
- Reward people according to the value they create.
- Align reward practices with business goals and with employee values and needs.
- Reward the right things to convey the right message about what is important in terms of behaviours and outcomes.
- Help to attract and retain the high-quality people the organisation needs.
- Motivate people and obtain their engagement and commitment.
- Develop a high-performance culture.

5.5.1 Elements of a Reward System
The starting point of the reward system is the business strategy of the organisation. This identifies the business drivers and sets out the business goals. The drivers are unique to any organisation but will often include items such as high performance, profitability, productivity, innovation, customer service, quality, price/cost leadership and the need to satisfy stakeholders – investors, shareholders, employees and, in local authorities, elected representatives.

5.5.2 Reward strategy and policy

The reward strategy flows from an analysis of the business drivers. The question is: ‘How can these be supported by reward in order to achieve the goals of the business?’ The reward strategy will define longer-term intentions in such areas as pay structures, contingent pay, employee benefits, steps to increase engagement and commitment and adopting a total reward approach. Reward policy will cover such matters as levels of pay, achieving equal pay, approaches to contingent pay, the use of job evaluation and market surveys and flexing benefits.

5.5.3 Base or Basic Pay

The base/basic pay is the amount of pay (the fixed salary or wage) that constitutes the rate for the job. It may be varied according to the grade of the job or, for shop floor workers, the level of skill required. Base pay will be influenced by internal and external relativities. The internal relativities may be measured by some form of job evaluation. External relativities (going rates) are assessed by tracking market rates. Alternatively, levels of pay may be agreed through collective bargaining with trade unions or by reaching individual agreements. Base pay may be expressed as an annual, weekly or hourly rate. This is sometimes referred to as a time rate system of payment. Contingent pay or allowances may be added to base pay. The rate may be adjusted to reflect increases in the cost of living or market rates by the organisation unilaterally or by agreement with a trade union.

5.5.4 Contingent pay

Additional financial rewards may be provided that are related to performance, competence, contribution, skill or experience. These are referred to as ‘contingent pay’. Contingent payments may be added to base pay, i.e. ‘consolidated’. If such payments are not consolidated (i.e. paid as cash bonuses) they are described as ‘variable pay’.

5.5.5 Employee benefits

Employee benefits include pensions, sick pay, insurance cover, company cars and a number of other ‘perks’. They consist of elements of remuneration additional to the various forms of cash pay and also include provisions for employees that are not strictly remuneration, such as annual holidays.

5.5.6 Allowances

Allowances are paid in addition to basic pay for special circumstances (e.g. living in unsocial working environment) or features of employment (e.g. working unsocial hours). They may be determined unilaterally by the organisation but they are often the subject of negotiation. The main types of allowances are location allowances, overtime payments, shift payments, working conditions allowances and standby or call-out allowances made to those who have to be available to come in to work when required.

5.5.7 Total earnings

Total earnings (financial rewards) consist of the value of all cash payments (base pay, contingent pay and allowances, i.e. total earnings).

5.5.8 Total Remuneration

Total remuneration consists of the financial rewards represented by total earnings plus the value of the benefits received by employees.

6.0 Conclusion and Recommendations for Policy Implication

The ebola virus disease (EVD) that has lasted for over a year within the axis of the Mano River Region (MRU) in West Africa is of high concern, dismal and a painful reminder that an outbreak in any Country or region can be a health risk globally. World Health Organization (WHO) statistics has proven it to be highly infectious and often fatal highlights the need for global co-operation in setting up well structure health system. The current Ebola crisis along with the outbreak of Middle East respiratory syndrome (MERS) and the resurgence of polio in the Middle East and Africa is simply the latest example of governments’ inability to control the spread of infectious diseases when
they act in isolation: global rules negotiated among governments are crucial to protecting the health of citizens.

Sierra Leone is a British Colony that gained independence on April 27, 1961 and since then it has been tested over the years passing through difficulties and challenges such as; health hazard, socio-economic consequences and the 11 years Civil War that began on the 23rd March, 1991 by Revolutionary United Front (RUF) and left over 50,000 people dead with deplorable and devastating socio-economic system. The three ebola most affected Countries were in socio-economic transformation of their economies after the atrocities and devastation caused during the war when the ebola menace invaded the MRU territory. As of the 8th June, 2015, the World Health Organization (WHO) statistics revealed a total death amounting to about were 27,214 EVD infected cases and 11,167 fatality caused by the virus of which Sierra Leone recorded 12,850 ebola affected cases (47.22%) and 3,912 deaths (35.03). Though the virus is at an increase declining rate, its ramification has caused an additional socio-economic impediments in the entire health system and economies of the countries in questioned.

Notwithstanding the devastating ramification due the aforementioned challenges and constraints, Sierra Leone at any given occasion as shown of capable facing down challenges and resilient is always her backbone and real hope the oxygen of the Country with the Cooperation of International partners simultaneously trying to reach the daunting zero effected cases and the planning of the implementation of the post-ebola plan for a safe, sound health system and socio-economic livelihood for a sustainable healthy, economic growth and development.

According to the recent public speech delivered by the President of sierra Leone-Dr. Ernest Bai Koroma on August 7th, 2015, said “The ebola scourge has been devastating challenge to Sierra Leone, but however, we can emerge stronger and wiser” and proceed to say “we must all remain vigilant in our households and communities and continue to call 117 to report the sick and the dead and provide the right response to the ebola response workers who visit our communities to investigate cases”.

The ebola outbreak effect in MRU countries are exacerbated by the way there economies work and structured. It’s important to note that these three (3) countries are still, by even historical standards very poor with uncertainty of human livelihood. That means that trade is still done, largely, by an individual actually going somewhere and choosing something, then returning it and trading it on. That is, trade and economic activity still depend largely on the movement of those traders. Quarantines and restricted areas are not just limiting the movement of people they also strangling even the low level of trade that happens.

The global economy is the single biggest factor in driving international trade and investment. More than at any time in history, the African economic outlook and growth is linked directly to other Continent especially the International players such as; Europe, UK, USA and China’s economic performance especially in the current high demand of African natural resources by these world economic players. The effect of ebola virus in West Africa has been precarious and causes threat to humanity particularly in the Mano River Union (MRU) and the world as a whole. With such devastating ebola effect over a year if not totally eradicated will have a very high probabilistic tendency of certainty of global economic meltdown even more than the most recent financial meltdown in Europe and America.

It is also a real fact that a lot of recent economic growth that has come from trade and investment across borders has been distorted as a result of the menace in the MRU region. Such effect as a result of viral attack on local economies is something that economists have been complaining about for decades now: the way in which there’s so little intra-African trade and investment. It’s rather a memento (and a pernicious one) of colonialism: that just as the Imperial and colonial nations used to trade and invest between the “home” country and the various colonies so too those colonies have their trade orientated outwards to those former colonial powers. In west Africa economies most trade is still done through personal meetings, and much of the recent growth has come from trade across those borders now being closed, the economic effects of Ebola are rather greater than we might think they would be.

Furthermore, the absence of sustainable and better economic growth in the MRU region kills people: let alone what happens when economies start to shrink. With so many people at or just above the subsistence level it doesn’t take much of even a slowdown in the economy to push some of them below it. As a result of that it’s entirely
possible that the economic effects of Ebola will kill more than the disease itself. Not that we’ll ever know the number because we’ll not be able to tell those deaths from the ones that already routinely occur from bad health care, impure water and shortages of food.

To international players such as; IMF, World Bank Europe, China, USA, UK and United Nation ever the best thing you can do for poor people in poor countries especially in West Africa is to help the African Economies to have a well structured Industrialized sector that is capable of processing raw materials to finished goods and purchase more of what they produce (given that most of us are not health care experts who can help with the actual disease itself) to enhance their capacity in building up weak sectors like the Health sector without relying on loans and donors. The lack of industrialize economy in Africa is the real truth why African economic growth are deplorable and unfavorable because when Africa raw materials are tapped and exploited by the west the benefit (revenue mobilization) to Africa and her people is very little and insignificant as over 75% of the benefit is going to you the international economic players in the world. So helping Africa continent to have a well Structured Industrialized sector will even save you from giving loans to Africa always as these loans and donor funding analytically also worsen the economic growth of African economies in the long run and there potential of future growth and continue to be absolutely dependent to you the west, Europe and China. Deliberately seeking out West African finished products and purchasing them, by preference over those from other areas of the world, is the one thing that each of us individually can do to help savage the problem of West Africa especially the MRU region that’s currently facing nightmare as a result of the ebola scourge that enters her fabrics with a continual increasing death toll.

African Leaders it’s high time they consolidate and integrate effort, ideas, strategies, better policies and procedures for better African Unionism in dealing with IPPs by changing the development co-operation model from the receivership/foreign Aid and raw material exploitation model to a business and Industrialise models for wealth creation both in the public and private sector so that the richly natural endowed resources in Africa will impact positively to the lives of all African people for sustainable development and prosperity for the common goal of the Continent to become rich in the mere future. This will enable each and every government in Africa to have a well structured Health System with inter- African Medical Health System job mobility to aid other African countries with weak health system by those with better and quality health system with required training of medical staff to enhance both their technical & conceptual skills for an effective, sustainable and well structured African Health System to mitigate future risk of health hazard that has a negative impact on the African economies.

It’s prudent and rationally expedient to note that Leaders in Africa must accept the fact that leadership is to create new tradition, being innovative and creative to honour the dignity and humanity for all individuals and leadership is also about empowering all our people in Africa (whether men, women, old, boys, girls, young, employed, unemployed, Christians, muslims, able and disable or any other denomination etc.) to be able to fulfill every last bit of their God’s given potential to immensely contribute in nation building and when Africa leaders commit to that kind of leadership, that is when we’ll truly start making progress in attaining a better and sustainable good governance in Africa with better structures and infrastructures in all the various sectors in our socio-economic and political system especially in attaining a safe, sound and sustainable health system and socio-economic growth for a better standard of living for the African people with a minimal risk contrary to the present EVD outbreak in the West Africa sub-region.

To our African people- the commoners, it’s rationally significant to know that ; whether be you men or women, youths, boys or girls, able or disable, muslim or Christians, employed or unemployed, the love of one’s country is paramount and we as Africans whether you are in the public sector or private sector, we must change our attitudes positively trying to be real, honest, truthful towards having a transparent, accountable operation in whatever we do best for the common goal and the betterment of Africa Independence to stop being under dogs to the IPPs as in the case of the current ebola predicament.

Since no country is immune from Ebola, the outbreak in Guinea, Liberia and Sierra Leone should serve as a warning and a call to action for the wider region. This research calls for a well structured combined national and regional
preventive and early response measures and strategies for West Africa in general and MRU region in particular.

Recovery interventions must give priority to addressing these challenges, especially the creation of jobs, livelihoods and incomes. Ebola is not only a threat to national security, but also an impediment to sub-regional, regional and global security. It therefore requires global attention.

A healthy population is a significant indicator for a rapid and sustainable growth and development. So this outbreak has given a red signal for West African governments should prioritize the health sector by increasing investments in it to accelerate recovery efforts. Strengthening health systems and addressing the structural vulnerabilities that allowed Ebola to take hold in the first place will help to ensure that such a crisis will never happen again.

The strategic engagement of the UN System in the Ebola response has enhanced its relevance in the region. UN agencies should continue to work with national and regional institutions to strengthen coordination mechanisms for recovery. The United Nations Development Assistance Framework (UNDAF) for each country in the region should be concerned with strengthening the capacity of health services to cope with future epidemics without compromising the fight against other priority diseases, ensuring the provision of quality care, and providing well-targeted and effective social protection mechanisms that could accelerate recovery.

Finally, the Global Health Security Agenda seeks to enforce public health systems in most affected countries in order to eliminate the spreads before they become emergencies. Although great improvements have been achieved over the past decade, better surveillance, real-time sharing of data and taking rapid action based on the available information remain necessary. Because Ebola virus is primarily transmitted through contact with the body fluids of symptomatic patients, the infection spread can be stopped by an early diagnosis, contact tracing, patient isolation and care, infection control and safe burial.

In summary, the research catalogue the problems that arise that causes the virus to spread rapidly in to threefold shown below:

a) Macro of the responses have been rather tardy. The World Health Organisation fulfilled its coordinating mission by organising a meeting of regional health officials in Accra in early July—but that was three-and-a-half months after the first report of the disease. Given how quickly Ebola spreads and its virulence, such a delay helped the disease gain a foothold in the region. Arresting the spread of infectious diseases requires quicker action.

b) The financial resources for addressing Ebola containment remain lacking. The governments of Guinea, Liberia, and Sierra Leone cannot afford to increase their health spending to address the Ebola outbreak. Liberia and Sierra Leone already have the highest total expenditures on health as a percentage of GDP in the world. The health care systems of both countries were also devastated by recent civil wars, and Guinea’s under-resourced health care system faced additional burdens due to the influx of refugees from Liberia and Sierra Leone. Even if these governments wanted to pool their resources to build laboratory, surveillance, or health care services, they simply lack the ability to do so. All of this means that regional governments will need to look to outsiders to finance an effective response to Ebola in the short-term. Health care workers wear bulky, protective suits in an effort to avoid infection, and public hand washing stations with chlorinated water have been established in some cities. Unfortunately, the protective suits are not foolproof, as evidenced by the fatality of Sheif Umar Khan’s who is the first medical Doctor to die of ebola and other health officials in Sierra Leone, the price of chlorine has tripled, making it harder to get. Nurses at the hospital in Kenema, Sierra Leone, went on strike on 21 July to protest the government’s failure to provide them with sufficient protective gear to protect against the disease, and a lack of adequate pay.

c) The introduction of necessary and deliberate timely policies that actually enforce an effective response to Ebola was a step in the right direction in the fight. As noted above, one of the keys to stopping an Ebola outbreak is to isolate the infected (or potentially infected) so that they cannot spread the disease to others and also introduction of punitive rules that essentially criminalize Ebola associated crime. The idea is that isolation will break the chain of transmission but unfortunately, the people of Liberia and Sierra Leone see that has marginalization and human right abuse.

Lastly, from the key lesson learnt from the crises, though the menace is on a decrease, Sierra Leone, Liberia, guinea
and the International community must continue to work in concerted effort to ensure there is need for a strong, organized global response and an authoritative, well-funded WHO to lead it. Whether the outbreak impels member states and other powerful stakeholders to strengthen the WHO’s resources and authority or to set up another institution to fight disease outbreaks will be the critical global governance issue for years to come.

Below are seemingly four (4) main driving positive indicators vital to implementing an effective and efficient response that will serve as a proxy contributing in stopping this deadly virus to spread and its re-occurrence in the mere future:

i) The response to the present ebola plague in the Mano River Union Countries needs to be ratcheted up with a specific focus of direction. Opening sub-regional command centers, deploying personnel from governmental and nongovernmental sources, and providing financial resources are all important but they need to be done in greater number and with greater urgency. The initial efforts are not necessarily failures; they are just too small and slow in response to the overwhelming nature of this unprecedented outbreak. The meeting of regional health ministers and government officials both nationally and internationally for an agreement to be met was a step in the right direction to increase cross-border cooperation, engage local communities better, and foster collaborations with international partners. This may provide a solid foundation for ratcheting up a more aggressive response to the outbreak.

ii) There is dying need for a concerted effort to be made for the provision of quality health care delivery services and outreach to affected communities to integrate local, cultural contexts and health care measures into ebola control. Rather than dismissing rumors as evidence of a lack of information, successful health interventions frequently trying to alter messages received in such a way that incorporate the rumors and the shared understandings about health and wellness in an exemplifying manner. In other words, the problem is less one of ignorance and more one of trying to send a message that fails to resonate. By a similar token, measures that criminalize or stigmatize ebola patients or those potentially infected with the disease are likely to encourage non-compliance. A more promising strategy is disseminating information in a simple and concise way to be able to sensitize communities accordingly like in the form of song or comedy that will instructs listeners about the proper steps to take to avoid infection. Using music both gets around issues of illiteracy and reaches audiences who might overlook official government pronouncements.

iii) It’s also a necessary and vital need to have a well structured and quality long-term effort plan framework to improve the health care systems, disease surveillance capabilities, and laboratory resources in Africa in general and the three most affected MRU Countries to be specific. Part of the reason for the delay between the first rumored cases of Ebola in Guinea end December and the official announcement in late March was because laboratory facilities were not available to conduct the necessary tests. Therefore, by the time the Guinean government could get the tests done, there was a geometric spread of nearly 100 people already infected with the virus. Undertaking a long-term campaign and outreaching to strengthen such weak systems would allow the respective affected governments and international partners to respond more quickly and have a greater chance of stopping any future outbreak.

iv) Lastly, international partners like the USA, China, EU and UK etch should help Africa in general and the affected countries in particular to build better and sustainable economies in the mere future that will finance building better structures and infrastructures in all sectors in the economy. It is no secret that international players are indeed exploiting the natural resources of the African Continent getting 85% gain and Africa getting only 15% from their various contractual relationship which they purport to be a win-win benefit but is not. The questions that came to the researchers mind which they will like the International partners to answer sincerely if and only if they want the African Continent to be self reliance and independent taking responsibility of solving their own problems are:

Firstly, why is it that International partners are not doing sincere, better and transparent contracts with African leaders to benefit the entire African populace so that even the commoners will live a better standard of living that will cut down on humanitarian donor funding and the high rate of dependency?

Secondly, why is it that International partners are not helping Africa to build a well structured and better health system to prevent such devastating disease and poverty
rather waiting to intervene when there is a crisis? As the saying goes ‘prevention is better than cure’

Thirdly, Why is it that International partners are not supporting the African governments in building the industrialisation sector so as to start the processing of raw materials and other product that will provide strong and quality infrastructural facilities, create more jobs, more revenue mobilization, grow the economy and good standard of living instead exploit our raw materials for pittance and processed overseas and come with their finished goods to be re-sale in Africa for lion prices? A food for thought.

References


4. Colonel Art Anderson, MD(18th December,2013) veteran Ebola ologist


6. Dr. Alan Cann


37. Ebola and Marburg Virus, Genomic Structure, Comparative and Molecular Biology


39. Journal of Infectious Disease Supplemental issue on filoviruses.


42. Outbreak of the Ebolavirus in Zaire (1976)by William T. Close, MD


44. Robert D. Siegel, MD, Ph.D.(9th December, 2010) Guideline for Ebola Virus Disease

45. Scientific American Shaking the Ebola Tree

46. Tiaji Salaam-Blyther(October 29, 2014) U.S. and International Health Responses to the Ebola Outbreak in West Africa

47. WHO – Affected Countries Ebola Virus Disease Outbreak Response Plan in West Africa Period: July – December 2014 launched by WHO on 31 July 2014