

The Political Economy of Ebola Virus Disease (EVD) in West African Countries

OPINION

Abstract

The Ebola virus disease (EVD) was first reported to have been identified in Africa in 1976 when it occurred in south Sudan and Zaire (now Democratic Republic of Congo). Its first occurrence in West Africa was in a 1994 lone infection of an ethnologist in Côte d'Ivoire but in 2014, there was an outbreak in West Africa stemming from an index case in Guinea. After more than a year, the outbreak is still ongoing. The EVD is one of the filoviral hemorrhagic fevers. This paper examined the political economies in West African nations in relation to the management of their natural resources and the resultant susceptibility to an infectious disease outbreak. A review of the African Development Bank Reports from 2007 to 2012 showed that abundant natural resources did not translate to improved economic opportunities but usually a downturn in economic resources and poor governance riddled by civil conflicts over the regions of natural resources. The foundational issues in the current outbreak lie in the political economies of the West African countries that have left the citizens of the affected nations poor with weak and struggling infrastructures. The numerous conflicts have made the West African nations susceptible to preventable diseases like EVD. Ecological studies also suggest that changes in climatic conditions around the West African country of Guinea enabled the Ebola virus to come in contact with humans. In order to achieve a long-term, sustainable control of EVD, the author admits that it is not enough to view the outbreak as just a result of a disease pathogen but to delve into the foundational causes of the disease outbreak which has made the West African nations susceptible to an infectious agent like the ebolavirus. These foundational causes are the outcomes of the political economies over natural resources in the West African nations. This paper suggests that governments of West African nations should develop a transborder framework for regions around natural resources and those governments should be more transparent with the people they govern. In addition, individuals and communities should take ownership in the prevention and control of EVD.

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Introduction

The Ebola virus disease (EVD) was first reported to have been identified in Africa in 1976. In 1976, an outbreak of a viral hemorrhagic disease occurred simultaneously in south Sudan and in Zaire (now Democratic Republic of Congo (DRC)) [1, 2]. The Ebola virus is responsible for one of the filoviral hemorrhagic fevers. The concept of viral hemorrhagic fevers was developed in the 1930's by Soviet investigators studying the hantavirus with renal syndrome [3].

In 1989, a different species of Ebola virus was isolated from cynomolgus monkeys (*Macaca fascicularis*) imported into USA. One hundred monkeys were imported from Manila, Philippines. Several of these monkeys began to die and necropsy findings isolated a new species of the Ebola virus. It was later named Reston Ebola virus after Reston, Virginia because the monkeys were housed in Hazelton Research Products in Reston, Virginia [4]. It was the first time that Ebola virus was isolated in USA [5].

In 1994, another species of Ebola virus was discovered when an ethnologist conducting necropsy on chimpanzees in the Tai Forest Park in Côte d'Ivoire got infected [6]. The Ebola virus species identified was later named Tai Forest Ebola Virus or Côte d'Ivoire Ebolavirus [7]. Since it was only one person that got infected, it cannot be considered an outbreak as such.

In 2002, necropsies conducted in insectivorous bats from caves in Spain isolated filoviruses similar to the Ebola virus but of a different genus that was later called *Cuevavirus* [8]. In 2007, an outbreak of viral hemorrhagic fever in the Bundibugyo District of Western Uganda was later identified to be caused by a new species of the Ebola virus. It was later named Bundibugyo Ebola virus [9].

Mononegavirales is the taxonomic order of Ebola viruses and filoviridae is the taxonomic family of Ebola viruses [10]. Filoviridae are filamentous. The name was derived from the morphological shapes of their virions that look like filaments, thread, cir-

cular or U-shaped. Filo means thread or filament in Latin [11]. Two other genera belong to the filoviridae family; the Marburg virus (MARV) and the recently discovered *Cuevavirus* [8, 10]

Since 2014, Ebola virus has been responsible for the current EVD outbreak in West Africa especially in Liberia, Guinea and Liberia. Briefly, Nigeria had EVD when the index case from Monrovia, Liberia took a plane and flew from Liberia, changed planes in Lomé, Togo before landing in Lagos [12]. Similarly, Senegal had an index case that imported the disease from a Guinean traveler that travelled to Senegal in a seven person taxi [13].

Five Ebola virus species have been identified from the ebolavirus genus; The Sudan ebolavirus, the Zaire ebolavirus, the Bundiguyo ebolavirus, the Tai Forest ebolavirus and the Reston ebolavirus. The strain of Zaire ebolavirus that is responsible for the present outbreak is a variant of the Zaire Ebola virus from Democratic Republic of Congo (DRC) [14]. The implication of this is that the ebolavirus that caused outbreaks in DRC is not the same variant. The current outbreak in West Africa does not show the same phylogenetic composition as the variants that caused the outbreak in DRC [14].

Political Economy of West African Countries

What made the ebolavirus that has never occurred in West Africa (apart from the lone infection with the Tai Forest ebolavirus) get into Guinea and from there spread to Liberia and Sierra Leone?

Why did it spread so rapidly? Even after the virus was identified why has it taken so long to curb the spread of the disease? Are there foundational problems in the political economies of these West African nations that make the control of EVD seem evasive? This paper would attempt to answer these questions.

West Africa has a population of 339 million people [15]. Endemic diseases like malaria kill thousands of people yearly. In 2012, there were over 300,000

deaths from malaria [16]. Two thirds of the people that suffer from malaria are from West Africa [16]. The regions with the highest under five mortality rates are in West and Central Africa [17]. Twelve West African countries that make up 75 % of West African nations are listed as members of least developed country [18]. **Table 1** shows the list of West African countries that are members of Least Developed Country.

Table 1. List of West African Countries that are Members of Least Developed Country

Member of Least Developed Country	Not a Member of Least Developed Country
Benin	Cape Verde
Burkina Faso	Côte d'Ivoire
Gambia	Ghana
Guinea	Nigeria
Guinea-Bissau	
Liberia	
Mali	
Mauritania	
Niger	
Senegal	
Sierra Leone	
Togo	

In the multi-dimensional poverty index (MPI), the poorest country is from West Africa [19]. Republic of Niger ranks as the poorest country using the MPI. In the United Nations Development (UNDP) Human Development Index; out of countries ranked between the 171st and 187th positions, nine of those countries are from West Africa. Republic of Niger ranks as the 187th country out of 187 countries on the UNDP Human Development Index [20]. **Table 2** shows the list of countries from the UNDP Human Development Index showing countries ranked between the 171st and 187th positions. The UNDP Human Development Index is a comparative measure of life expectancy, literacy, education and standard of living in all the countries of the world. A review

of African Development Bank reports from 2007 to 2012 showed that an abundance of natural resources did not translate to an improvement of life of the citizens. Rather, an abundance of natural resources may signal the beginning of a downturn in the political economy of the country.

Table 2 List of Countries between the 171st and 187th position in the 2013 UNDP Human Development Index.

Country	UNDP Human Development Index
Côte d'Ivoire*	171
Gambia*	172
Ethiopia	173
Malawi	174
Liberia*	175
Mali*	176
Guinea-Bissau*	177
Mozambique	178
Guinea*	179
Burundi	180
Burkina Faso*	181
Eritrea	182
Sierra Leone*	183
Chad	184
Central African Republic	185
DRC	186
Niger*	187

* represents countries in West Africa

Source: Adapted from UNDP Human Development Reports. Table 1: Human Development Index and Its Components [20]. (Listed as [20] on the reference list).

Natural Resources and Conflict

However, despite the UNDP Human Development Index and the Multidimensional Poverty Index, West Africa is also home to natural resources like bauxite, iron ore, crude petroleum, diamonds and aluminum. Further, West African countries are exporters

of products like cocoa beans and cotton [21] **Table 3** shows the list of African nations with their main exports. Natural resources like diamond and crude petroleum are sources of main exports in countries like Sierra Leone and Nigeria.

Table 3. List of West African Nations and their Main Exports including their Natural Resources

Country	Main Exports
Benin	Cotton, Edible nuts, Non-ferrous Metal Waste
Burkina Faso	Cotton
Cape Verde	Fish
Côte d'Ivoire	Cocoa Beans, Crude Petroleum, Cocoa Paste
Gabon	Crude Petroleum, Wood, Manganese Ores
Gambia	Edible nuts,
Ghana	Cocoa beans, Manganese Ores,
Guinea	Aluminum Ore, Aluminum Oxide, Copper Ores
Guinea-Bissau	Edible Nuts
Liberia	Ships, boats, Natural Rubber Latex
Mali	Cotton
Mauritania	Iron Ore, Molluscs, Fish
Niger	Radio Active Chemicals
Nigeria	Crude Petroleum
Senegal	Inorganic Acid
Sierra Leone	Diamonds, Cocoa Beans, Cultivating Machinery
Togo	Cocoa Beans, Natural Calcium Phosphates, Cotton

Source: Adapted from: African Development Report 2007 [21]. (Listed as [21] on the reference list.

Natural Resources and Conflict

Despite the natural resources and other valuable exports in the West African nations, about three-quarters of them are among the lowest ranked in the UNDP Human Development Index [20, 21]. Researchers have also noted that armed conflicts usually occur around the regions of natural resources

[22, 23]. The Mano River Region straddles Guinea, Liberia and Sierra Leone. Five civil conflicts occurred in the region between 1989 and 2004 [22]. These conflicts were the first and second Liberian civil war, the Sierra Leone civil war, the Guinean conflict and the first Ivoirian civil war [22]. The presence of diamonds and gold in the Mano River Region has positively correlated to the incidents of civil conflicts around the region [22].

Ecology of the Most Affected Nations in the EVD Outbreak

It has been suggested that climatic changes in temperature was another contributory factor in the index case coming from Guinea and for the spread of EVD in West Africa [24, 25]. The index case in the current EVD outbreak was from Guinea, West Africa. Prior to the current outbreak, EVD had never been reported in any West African country not counting the single incident of an ethnologist that got infected in Tai Forest Park, Côte d'Ivoire [6].

Recent research has also shown that the mean temperature in Guinea is similar to the mean temperatures in countries like DRC and Gabon [24]. Gabon and DRC are both in East Africa. Gabon and DRC have had several outbreaks of EVD [24]. Sudan and Uganda have also had numerous outbreaks of EVD and research showed that the mean absolute humidity in Guinea was similar to that of Sudan and Uganda [24]. Further, there have also been prolonged dry seasons in Guinea which increases the risk of humans making contact with the animal reservoir. Deforestation from logging and clearing of land for agriculture also increase the risk of humans coming in contact with the suspected animal reservoir of EVD [25]. Mining for natural resources also increase the risk of human contact with potential animal reservoirs.

Resultant Political Economy

The civil conflicts around the areas of natural resources have not led to stable governments in

these countries. Areas that do not have civil conflicts but are dependent on their natural resources for export have not invested in strengthening of their infrastructures. Similarly, the people in these countries have been impoverished despite an abundance of natural resources. The citizens of these nations have been left poor with weak and struggling infrastructures that cannot combat the EVD disease.

The term *resource curse* was first used by a British Economist, Richard Auty in 1993 [26, 27]. It is a paradox of plenty that describes how nations that have abundant resources tend to become impoverished while countries that have scarce resources tend to become rich [28]. It is not all African countries with abundant resources that tend to become impoverished. Botswana is the only country in Africa that has avoided conflicts despite its resources in diamonds [29]. Liberia and Sierra Leone both had civil wars in the 1990's that was related to diamonds and gemstones [30]. Nigeria had the Biafra war between 1967 and 1970 that was related to oil [30]. However, it is not all conflicts that are related to natural resources. There were more than 80 violent changes in governments in African countries between 1960 and the 1990's [31].

A 2007 report by the African Development Bank identified several factors associated with the paradox of plenty in countries with natural resources [21]. There were exacerbations of inequalities in the people, enhanced corruption and rent seeking, governments making poor investment decisions, poor governance, less prudent policies, lack of transparency and poor macroeconomic management [21]. Rent seeking behavior impoverishes the economy. Further, the report also showed that resource-scarce countries outperformed resource-rich countries in growth although overall, the resource-rich countries still had more wealth than the resource-scarce countries [21].

Foundational Issues in Combating EVD in West African Countries

In the English folk tale of the big, bad wolf; the only house the wolf was not able to blow down was the house built with bricks. It was able to blow down the house made with straw and the one made with furze [32]. The foundation of the house built with bricks was strong enough to withstand the challenging, puffing of the bad wolf.

The point of including the folktale in my review is to illustrate the foundational issues in West African countries especially in the countries most affected by EVD. In the present context of the current EVD outbreak, the existing foundational issues in the political economies of the three most affected countries implies that they are not able to withstand the challenges brought on by the current EVD outbreak. Prior to the existing situation, the foundational infrastructure that would have been used to combat the diseases was scarce and if they existed, they were inadequate.

The political economies of West African nations also provided a poor foundation for the health system and a ripe environment for the Ebola virus to prey on. Therefore, short-term solutions may not necessarily resolve the foundational issues in the political economies of the West African countries. West African nations should be looking at long term solutions. These foundational issues have led to mistrust of the government, fatal antagonism of health care workers, hospital vandalism and removal of EVD patients by their relatives, EVD stigmatization and lack of basic infrastructure [33, 34].

The Way Forward

The underlying problem in the present EVD outbreak goes beyond treating EVD patients. The Governments of West African nations need to be transparent and should collaborate with one another. The people of the affected countries need to take ownership in the prevention and control of EVD

[35]. West African countries with natural resources should collaborate with countries like Botswana that also have natural resources like diamond but have not had conflicts.

Individual Level: Instead of waiting to get infected and then being treated, individuals and communities should pro-actively prevent themselves from getting infected and they should self-identify and self-isolate if they get infected [35].

Community Level: At the community level, survivors of EVD are a good resource for health education and for debunking the stigma attached to EVD [36]. Survivors of EVD can become village health workers in their communities. Health education should respectfully debunk myths surrounding EVD. Members of the community that have a clout in the community should be trained to become health educators in the community and welcome EVD survivors who need to be re-integrated back into the community. They can also support those who self-identify as having a rise in temperature or who may have come in contact with an EVD patient. They can support them through provision of food and other basic necessities.

Village health workers (VHWs): Health care workers have lost many of their members to EVD and to fatal antagonism from community members [37,38]. Village health workers can reach the areas that may not be accessible to health care workers. Village health workers have been successfully employed by many countries to reach rural and remote areas that professional health workers are not able to reach [39]. Uganda has successfully employed VHWs in recent EVD outbreaks [40]. Village health workers should be members of the community that have been selected by the community. They can counsel EVD survivors and members of the community that would need counsel before reintegrating EVD survivors back into their community.

Government Level: West African nations should also develop a transboundary framework among areas of natural resources to prevent conflict. The

Governments of affected nations should make resources available for health education through use of posters, mobile phones, newspapers, and all forms of digital media. The governments should provide village health workers with mobile phones and bicycles or motor cycles for tasks like contact tracing. Posters written in the local language of the people promote a sense of ownership. **Figure 1** is a poster written in the local language. The governments should provide the basic infrastructure for potable water, waste and refuse disposal. The schools are a good resource for health education. They should not be closed except they have distance learning options and if schools should close; they should be for short periods. Teachers can be incorporated as health educators to teach the school children about the control of the EVD.

Cross border surveillance: Cross border surveillance should be strengthened so that infected travelers attempting to travel out are prevented. Boundaries over the land, sea and airports should be secured against infected persons that might want to cross the borders. The most affected nations should collaborate with countries like Nigeria and Senegal that have successfully stopped the transmission of the EVD. They should also collaborate with other African nations like Uganda and DRC that have had numerous EVD outbreaks. The Democratic Republic of Congo had its seventh EVD outbreak in July 2014 and by the 22nd of November, 2014 it was declared free from EVD transmission by the World Health Organisation [41, 42]. The current outbreak in West Africa and the one in DRC were not related.

International Organizations: International Organizations should continue in their efforts but must maintain sustainable plans that can be carried out even after the outbreak becomes controllable.


Figure 1: A poster on EVD in the local language. Used with permission from UNICEF.

Omanyanya ebikwete aha EBOLA



Ebola nibyo biiki?
Ebola nibulwaye obukwita gha obukwisaga nomuswija gwamani obuji nokutuwa esagama. Kyangu okukwatawa obulwaye buni guluga hamuntu hamuntu, Bukwitaga omubwile bukhe bhatu busobola Bukatangiluwa.

Bwo bubonelo kii no kususana kwo muntu alwaye Ebola?



Omuntuwe oukholobaga




Okutanaka



Okulumwa omungingo



Okulumangililwa omwetundu



Okuba nomuswija gwa maani

Obubonero buji busobola bukaba:
 ▶ Okweyagayagha komuntu alwaye ka gyana nabaana
 ▶ Okutukula amaso
 ▶ Okulugama Esagama omubikalo byawe byona ebyomubiri kini kisobola kikaboneka oba baa
 ▶ Okusanda

Obwo obulwaye buni Bukukwataga butia?

- ▶ Obulwaye bwe Ebola bukukwataga okusalila omumasi agalugiyi omu mulwaye we ebola, Esegama, Amataata, Amabili, Ebitanaki, Enkali hamui, nomukitugutano kyogu alwaye obulwaye bwe ebola.
- ▶ Osobola dhe okabutunga kasiita okolesia ekijo esikolesebeuwe nomulwaye we ebola.
- ▶ Akauka kani dhe osobola okakatunga kasiita okwata omunku gwo muntu ogu akuye aha bwe ebola

Kini kikulu: Ebola takukwatilaga owu mpeu oba omu maasi.

Omulingo gwo kwetangilia obulwaye bwe Ebola.



Omanisie Abakukolanganaga Nababwomili kasiita obona muntu wena ali nabulwaye bwe ebola welinde obutamukwatao.



Emutooka Abyoleci ekwisila omulwaye ogu.



Oseese JIK ebilalilo nengoye esyo omulwaye esi akolesilaga



Mwelinde okunabila hamui omungalo.



Aba boona abakuye ahabwe ebola bali nakuzikiluwao afa nala kini kikolebuwa nabakulu abali nokuziika abakuye ebola. Abo luganda tibasemelewe okuziika omuntu oni ogu akuye ebola.
We gendeleliye obu takwata omumasi agalugiyi omu mubili go mulwaye we ebola kuyo okolesia gilavu nebi byona ebyokutola nti Amasi gani tigakwika hamubili gwa we.
Aba boona abali nokukwata hamubili gwo mulwaye we ebola bali nokukolesia ebyokwesukililia emibili yabo bili byamani.



Mutaleugao okwekumakumania hamui nokulia ebyokuulia hanyuma yokuziika.
Mwegendelele okulila hamui.



Onabe omungalo nasabuni hamui namasi hanyuma yokukwata hamubili gwogu alwaye ebola oba omuntu akuye ahabwe ebola.

Okumanya ebikwete aha bulwaye bwe ebola wenyuro aha bakali ba bya bwo mii abakuli bali oba owomukulu wa District owa bya bwomili.

Produced by Health Promotion and Education Division - MCH, Illustrations and design by Debra Fisher

Conclusion

It is not enough to look at the current outbreak as a disease occurrence alone. Rather, we should delve into the foundational causes of what has made the West African nations a prolonged source of EVD. The various causes identified included the climatic changes in Guinea from where the index case was reported, the paradox of plenty in the West African nations that have abundant natural resources that have led to numerous conflicts, the governments making less prudent policies thereby increasing the inequalities between the rich and the poor. Instead of treating EVD patients which is a short term solution to the ongoing crisis, this paper suggested ways that can give sustainable long term solutions that would prevent the resurgence and spread of rapid killing infectious diseases. If it was not the ebolavirus, another class 4 pathogen could have caused the crisis.

Health education, community and individual ownership in the prevention and control of EVD were identified as a form of control. Cross border surveillance and collaboration with International Organizations were also identified as a sustainable form of control of EVD. Governments of abundant resource countries should collaborate with a West African country like Botswana that has diamonds but has not been embroiled in civil conflicts over their natural resources. Survivors of EVD can serve as a resource for health education and can also be an avenue to reduce stigmatization of the disease.

Conflict of Interest

None

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