

## THE PUBLIC HEALTH RAMIFICATIONS OF OPEN GRAZING PRACTICE IN NIGERIA

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### Abstract

*The practice of open grazing as the main livestock management method in Nigeria comes with serious public health ramifications amongst other challenges. Transhumant migration within Nigeria and the West African sub-region for open grazing is aided by the Economic Community of West African States (ECOWAS) Treaty allowing for the free movement of livestock and herders within the sub-region. The lack of political will, weak legal structures, inadequacies of laws, and lack of effective enforcement mechanisms keeps sustaining the culture and practice of open grazing in Nigeria. It is premised on the above that this article settled the argument on the justification or otherwise of open grazing in Nigeria. It takes the stance that open grazing causes serious menace to the Nigerian environment as it spreads diseases and increases the risk of exposure of livestock and humans to certain diseases from animal to animal or from animals to humans and vice versa. Also, open grazing spreads water borne diseases such as cholera, typhoid fever infections, hepatitis and zoonotic diseases due to contact with contaminated and polluted water; it contributes to bush burning, air pollution and air borne diseases such as asthma and other respiratory conditions; it exacerbates the spread of poverty diseases and climate change, all of which can negatively impact public health and safety. In conclusion, the authors recommended among other that anti-open grazing laws should be enacted at both the federal and State levels in Nigeria to eliminate the practice of open grazing and its accompanying challenges.*

**Keywords: Herders, Open Grazing, Public Health, Transhuman Migration, Water Borne Diseases.**

### 1. Introduction

The livestock industry is a major contributor to the food security architecture and poverty reduction efforts in Nigeria.<sup>1</sup> The unregulated practices of open grazing of livestock animals, particularly cattle in Nigeria continues to impose certain challenges such as; environmental degradation and unsustainability, depletion and dilapidation of land, water and the loss of biodiversity.<sup>2</sup> It is responsible for inflaming the conflicts between farmers and herders and poses serious threats to the food security, environmental sustainability and economic growth of Nigeria. It is also very negatively affecting the unity and national security of Nigeria, in

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<sup>1</sup> K. O. Iloanya and E. E. O. Chukwuemeka, 'Effect of Open Grazing on the Sustainable Development of Nigeria 2015 - 2019' *International Journal of Academic Accounting, Finance and Management Research* (2020) 04 (2) 1-20.

<sup>2</sup> *ibid.*

addition to very serious public health implications for Nigeria amongst others.<sup>3</sup> It has been reported that cattle and other livestock graze more than a quarter of the earth's total land surface, thereby making livestock grazing activity one of the most ubiquitous human activity on the earth in terms of land area of use, which makes livestock grazing a source of very serious environmental degradation. Which also imply that the practice of open grazing has great capacity and potential to impact on public health in addition to environmental degradation and other impacts.<sup>4</sup>

Apart from the public health concerns, open grazing of cattle and other livestock animals can lead to soil erosion, deforestation, desertification and other forms of degradation through long term over grazing of land, particularly in semi-arid rangelands due to loss of vegetation cover. It leads to land, air and water pollution, biodiversity loss and other forms of environmental pollution which can negatively impact on the environment and public health.<sup>5</sup>

The impacts of open grazing on the environment is so far reaching and multifaceted. However, this article undertakes a contemporary discourse on the public health ramifications of the practice of open grazing in Nigeria. It would conclude with recommendations which if implemented would no doubt help in eliminating the menace of open grazing in Nigeria.

## 2. The Concept of Open Grazing and Open Grazing in Nigeria

Open grazing has been defined by the Delta State Livestock Breeding, Rearing and Marketing, Regulation Law, 2021, as the act of roaming livestock in a designated area in search of pasture or foliage.<sup>6</sup> It involves the movement or migration of livestock and their herders or owners from place to place in search of pasture and water, which can take place anywhere that is accessible for the herders, including in planted areas or farmlands, but most preferably in pasture or rangelands.<sup>7</sup> Open grazing is a livestock management method that is very common in Nigeria. The majority of pastoralist herders in Nigeria belong to the Fulani ethnic group, which practices open grazing both as a culture and a way of life. Open grazing has been described as an unsustainable, obsolete and outdated method of livestock management, hence calls for Nigeria to embrace more sustainable livestock management practices that meets global best practices, such as ranching, which will help to eliminate the practice of open grazing.<sup>8</sup>

In Nigeria, the Fulani tribe or ethnic group of Northern Nigeria are well known for the business of cattle rearing. They keep large herds of cattle and livestock and are known to own over 90% of Nigeria's livestock population, accounting for one third of Nigeria's agricultural Gross Domestic Product (GDP) and about 3.2% of the country's GDP and contributing greatly to

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<sup>3</sup> *ibid.*; K. O. Mrabure and U. V. Awhefeada, 'Appraising Grazing Laws in Nigeria. Pastoralist Versus Farmers' *African Journal of Legal Studies* [2020] 12 302-308; C. O. Adetunji and K.E. Ukhurebor, 'The Health Implication of Open Grazing of Cattle in Nigeria' *Nigerian Journal of Food, Drugs and Health Law*, [2020] 9 42-50.

<sup>4</sup> T. P. Robinson, G. R. Wint, W. Conchedda, G. Van-Boectal, and M. Gilbert, 'Mapping the Global Distribution of Livestock' *PLOS One* (2014) cited in E. Francis, O. M. Adesope and C. G. Obute, 'Responds of Local Communities to Open Cattle Grazing in Niger Delta, Nigeria' *International Journal of Interdisciplinary Research and Innovations* [2022] 10(4) 1-3; N. J. Nnoruga, 'Open Grazing in Nigeria: A Threat To Human Life and Environmental Degradation' *Ochendo: An African Journal of Innovative Studies* [2022] 3(1) 377-391; Adetunji and Ukhurebor (n 3) 42-52.

<sup>5</sup> K. E. Ukhurebor and C. O. Adetunji, 'Environmental Impact of Open Grazing in Nigeria', *Nigerian Journal of Food, Drug and Health Law*, [2020] 9 1-12.

<sup>6</sup> Delta State Anti-Open Grazing Law, 2021.

<sup>7</sup> *ibid.*

<sup>8</sup> *ibid.*, Nnoruga (n 4) 377-391.

Nigeria's food chain and food security efforts.<sup>9</sup> They remain one of the largest pastoral groups in the world, found mainly in the Sahel regions of Africa, including Nigeria. They have always been and still remains largely on itinerant group who did not own lands because they are always on the move with their livestock animals to places where they can find abundant fodder or pasture for their animal and the absence of the tsetse-fly.<sup>10</sup> The practice of open grazing is the main means these herders of livestock in Nigeria maintain and sustain their livestock due to the difficulty of supplying enough fodder to feed the large herds of livestock, which is why they have to keep moving from place to place for open grazing purposes.<sup>11</sup> This quest for greener pasture for their animals and the accompanying resource competition has forced the herders and their livestock into a Southern-ward migration or movement in Nigeria also known as transhumant migration causing them to intrude into spaces long held by farmers and host communities, thereby leading to the destruction of crops and agricultural products, loss of lives and properties, displacement of families and communities as a result of the conflicts between farmers and herders in addition to being a source of public health concern for Nigeria amongst other challenges.<sup>12</sup> Transhumance migration of herders and livestock animals, mainly cattle from place to place for open grazing is aided in part by the Economic Community of West African State (ECOWAS) Transhumance Protocol. This Protocol allows for the free movement of livestock animals and herders across the West African sub region. Which is further been made easy by the porous and uncontrolled national borders of Nigeria.<sup>13</sup> The (ECOWAS) Transhumance Protocol is the reason why there are so many herders and their livestock from neighbouring West African countries in Nigeria for open grazing.<sup>14</sup> Sadly, open grazing has shown to be an avenue for the transmission of serious diseases from one place to the world over, due to the migrations involved in the practice of open grazing and as such it has serious implications for the public health of the communities and places where it is practiced.<sup>15</sup> Livestock production or processes in Nigeria and everywhere comes with occupational hazards, environmental health impacts, ecosystem health impacts, food borne hazards, and diet related chronic diseases which can also be identified as potential public health hazards of livestock keeping and production. Apart from the great benefits of providing nutrients, economic opportunities and the great potentials of the livestock industry not only in Nigeria but also globally.<sup>16</sup>

The culture and practice of open grazing in Nigeria has proven to be a very divisive and controversial issue, which has made it very difficult to control or regulate the practice through the enactment of laws. The slow emergence of laws or the inadequacy of laws which regulate open grazing has helped to exacerbate the practice of open grazing and its attendant challenges,

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<sup>9</sup> Iloanya and Chukwuemeka (n 1) 2-4.

<sup>10</sup> I. F. Ezeonwuka and A. U. Igwe, 'Emerging Challenges in Nigeria's Security in the Twenty-First Century: The Fulani Herdsman Menace' *Asian Journal of Multidisciplinary Studies* [2016] 4(5) 204-215 cited in Iloanya and Chukwuemeka (n 1) 17-19.

<sup>11</sup> Mrabure and Awhefeada (n 3) 302-303.

<sup>12</sup> *ibid.*; Adetunji and Ukhurebor (n 3) 42-50.

<sup>13</sup> Ukhurebor and Adetunji, (n 5) 3; Nnoruga (n 4) 386-387; I. L. Azomani, 'The Legal Impacts of the Asaba Declaration on Open Grazing Prohibition on the Protection of the Environment in Nigeria' (Thesis, Faculty of Law, Delta State University 2024) 74-76; ECOWAS, 'Twenty First Conference of Head of States Decisions, A/DEC.5/10/98' *Official Journal of the Economic Community of West African States (ECOWAS)* [1998 35 3-7.

<sup>14</sup> Ukhurebor and Adetunji, (n 5) 3; Azomani (n 13) 74-76.

<sup>15</sup> Nnoruga (n 4) 386-388; Adetunji and Ukhurebor (n 3) 42-50; Azomani (n 13) 74-76.

<sup>16</sup> L. Grout, M. G. Beker, N. French, and S. Hales, 'A Review of Potential Public Health Impact Associated with the Global Dairy Sector (2020) National Institute of Health (NIH) <<https://pmc.ncbi.nlm.gov>> accessed 23 March 2025.

until very recently when states in Nigeria began to enact Anti-Open Grazing laws to help minimize the impacts of open grazing in Nigeria.<sup>17</sup>

### 3. The Laws on Open Grazing and its Inadequacies

There is a nexus between the environment and human health which cannot be over emphasised, because the environment and human health are very much intertwined and have great influence on each other.<sup>18</sup> This is also because a healthy environment is necessary for the overall wellbeing of human beings and environmental pollution and degradation can lead to health problems in Nigeria.<sup>19</sup>

The growth of the livestock sector in Nigeria over these years should have naturally led to the emergence of laws regulating the growth of this very important part of the Nigerian economy.<sup>20</sup>

The right to life may imply the right to an environment that is healthy and protected. Section 17(3)(c) of 1999 Constitution of the Federal Republic of Nigeria (CFRN) as amended falls under the fundamental principles and directives of state policy and provides that the Government shall direct its policy towards ensuring that the health, safety and welfare of all persons are safeguarded and not abused. In the same vein, the environmental provisions or objectives which are found under section 20 of the Nigerian Constitution, which mandates, the state to protect and improve the environment, safeguard the water, air, land, forest and wildlife of Nigeria. The above provisions of the constitution on Health and Environment are however rendered non-justiciable by the provisions of section 6(6)(c) of the Constitution of the Federal Republic of Nigeria, 1999 ( as amended).

The Nigerian constitutional shortcomings in respect of the Health and Environmental provisions notwithstanding Health and Environmental Laws can be said to have a Nexus and Complement one another. There are however international and regional instruments which provides for the right to health for citizens, to which Nigeria is a signatory.<sup>21</sup> The African Charter on Human and Peoples Rights in Article 16(1) and (2) provides that every individual has the right to enjoy the best attainable state of physical and mental health and that states are obligated to take necessary steps to protect the health of their citizens or people.<sup>22</sup> Other instruments too have similar provisions.<sup>23</sup> It is very evident that human activities which pollutes or degrades the atmosphere and environment in which there is human life can also be injurious to the health of humans and the community. It is therefore immaterial that the Nigerian constitution has not made provisions for the right to life which will be greatly impaired if the health of the individual and the community is jeopardised. <sup>24</sup> The Nigerian Animal Disease (Control) Act, 2004 makes provisions for measures to prevent the spread of diseases affecting animals in Nigeria, particularly, sections 1-6 and 8-11 of the Act by helping

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<sup>17</sup> Mrabure and Awhefeada (n 3) 304-308.

<sup>18</sup> Wellwo; The relationship between Human Health and the Environment (2024) <<https://www.wellwo.es>> accessed 28 March 2025.

<sup>19</sup> *ibid.*

<sup>20</sup> Mrabure and Awhefeada (n 3) 304-308; and Azomani (n 13)130-133.

<sup>21</sup> E. Emenike, M. A Ebikake-Nwanyanwu and C. Ajie, 'Right to a Healthy Environment in Nigeria and Other Jurisdiction's: A Legal Assessment' *Global Journal of Politics and Law Research* [2020] 8(3) 8-10.

<sup>22</sup> African Charter on Human and Peoples Rights (Ratification and Enforcement) Act Cap. A9 LFN 2004.

<sup>23</sup> WHO, Human Rights 2023 <<https://www.who.int>> accessed 24 March 2025; and Nigerian National Human Right Commission <<https://www.nigeriaright.gov.ng>> accessed 24 March 2025.

<sup>24</sup> Emenike *et al.* (n 21) 8-10.

to prevent animal diseases spread, through the regulation of the importation, exportation and movement of animals and animal products and other relate matters.<sup>25</sup> Inspite of this, the problem of unregulated cattle and livestock migration for open grazing into and out of Nigeria and within Nigeria, coupled with the problems of the very porous national borders of Nigeria, continues to exacerbate the spread of livestock and human diseases in Nigeria. The concept of the environment being so wild and broad has continued to evolve and develop, pushing new frontiers and the need for environmental laws that are abstract and the need to regulate the various environmental and Health challenges facing the society including the practice of open grazing.<sup>26</sup>

The National Environmental Standards Regulatory Enforcement Agency Act, 2007 (NESREA Act, 2007) is currently Nigeria's flagship environment law.<sup>27</sup> It established NESREA as the Agency responsible for maintaining, regulating and protecting the Nigerian environment, including the issues related to sustainable development as it has to do with the Nigerian environment.<sup>28</sup> The NESREA Act, 2007 has a novel and pro-active provision in section 34, of the Act, which allows the Minister of Environment to make sector specific environmental regulations as the need for such regulations arises.<sup>29</sup> All human activities with negative effect on the environment including open grazing practice are supposed to have been covered in Nigeria but the provisions of section 34, NESREA Act, 2007.<sup>30</sup> NESREA has used the provisions of section 34 to make so many environmentally related regulations. In fact, there are about thirty 33 NESREA regulations in all, cutting across many areas of human activities affecting the environment in Nigeria, but unfortunately, there is no NESREA regulation banning or regulating the practice of open grazing in Nigeria.<sup>31</sup> It is also pertinent to note that Nigeria does not have a national or federal law regulating or controlling the practice of open grazing at the moment. There has been failed efforts and what appears to be the lack of political will to regulate the practice in Nigeria by the Nigerian Federal Government, because of the highly divisive, political and controversial nature of the issue of open grazing in Nigeria.<sup>32</sup> The Grazing Reserve Law of Northern Nigeria, 1965, was a law which used to operate in the defunct Northern Nigeria, which has now become state laws in those states that came out of Northern Nigeria.<sup>33</sup> This Law was meant to grow the livestock industry in the northern Nigeria then by encouraging the setting up of grazing reserves, banning the grazing of livestock or open grazing outside the grazing reserve area and the carrying of fire arms by herders of livestock. This law however did not cover the whole country but only Northern Nigeria and it has now become obsolete and inadequate to handle the current challenges and demands of livestock grazing in Nigeria. This is because of the almost near non-existence of the grazing in Nigeria reserves due to mismanagement, corruption, increased development and urbanisation.<sup>34</sup> The provisions of

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<sup>25</sup> Nigerian Animal Disease (Control) Act, 2004 - No. A17 LFN, 2004.

<sup>26</sup> B. E. Umukoro and O. Ituru, 'Conceptual Challenges to the Recognition and Enforcement of the right to Clean, Safe and Healthy Environment' *Journal of environmental law and policy* [2022] 2(2) 2-5.

<sup>27</sup> NESREA Act 2007.

<sup>28</sup> NESREA Act 2007, s.7.

<sup>29</sup> *ibid.*; and Azomani (n 13) 25-26.

<sup>30</sup> Wikipedia <<https://en.wikipedia.org>> accessed 30 March 2025; and S. R. Monsurat, R. M. Olalekon and S. H. Olawole, 'A Deep Dive Into Review of National, Environment Standard and Regulations Enforcement Agency (NESREA) Act 2007', (2019) <<https://papers.ssrn.com>> accessed 31 March 2025.

<sup>31</sup> *ibid.*; Azomani (n 13) 125 -134.

<sup>32</sup> Azomani (n 13) 117-118; and K. E. Nnamani, D. C. Ononogbu, N. I. Okafor, J. Ohabuenyi, and O. J. Anichebe, 'Open Grazing, Prohibiting Laws Political Economy of Centralized Law Enforcement Mechanism and Nomadic Pastoralists – Sedentary Farmers Relationship in Nigeria' (2024) <<https://doi.org/10.1080/23311.886.2024.241-4869>> accessed 25 November 2024.

<sup>33</sup> Mrabure and Awhefeada (n 3) 304-307; and Azomani (n 13) 125-130.

<sup>34</sup> *ibid.*

this law was further rendered ineffective and redundant by provisions of section 1 of the Land Use Act, 1978, which established state control of land in Nigeria, by giving the Governor of States, the powers to designate urban and rural lands, which included lands for both farming and grazing purposes in rural areas, thereby completely covering the field under sections 6(1) and (2) of the Land Use Act, 1978.<sup>35</sup>

The National Grazing Reserves (Establishment) Bill, 2016, was another effort at making a national law in Nigeria to encourage ranching for livestock animals and other related matters.<sup>36</sup> But the bill could not become law because some of its provision were so pre-occupied with the expropriation of land from individuals and State Governments by all means, in clear contravention of constitutionally guaranteed rights and the allodia provisions of the Land Use Act, 1978. Particularly, section 17(1) and (2), 18(1) and (2) of the National Grazing Reserve (Establishment) Bill, 2016.<sup>37</sup> The provisions of section 43 of the CFRN, guarantees the right of every Nigerian to own property. While section 28(1) and (2)(b) of the Land Use Act 1978 clearly provides for the powers of the Governor of a state for the revocation of right of occupancy in respect of overriding interest, which the bill purported to take way, leading to public outcry against some of these provisions of the bill.<sup>38</sup>

The current 10th National Assembly in Nigeria is in the process of enacting a national anti-open grazing law for the whole country, although the details are still sketchy, but the efforts has gone through the second reading at the floor of the Nigerian Senate.<sup>39</sup> In the absence of a national law to regulate open grazing, the practice of open grazing and its consequences have continued largely unchecked with serious consequences for Nigeria, until states in Nigeria began to enact anti-open grazing laws. The efforts by the states in enacting anti-open grazing laws was greatly accelerated by the Asaba declaration on open grazing prohibition, issued when the Governors of the seventeen (17) States of southern Nigeria met in Asaba, the Delta State capital and resolved to ban the practice of open grazing in their respective states. Leading many States in Nigeria to having one form of anti-open grazing law or the other.<sup>40</sup> The enactment of anti-open grazing law by the States in Nigeria was and still continues to be very divisive and political, particularly, between the Federal and State Governments in Nigeria.<sup>41</sup> These and other challenges are affecting the effective enforcement of the State anti-open grazing laws in Nigeria.<sup>42</sup> In spite of the State anti-open grazing laws, the practice of open grazing has continued in most of the States in Nigeria, including Delta State, which has an anti-open grazing law, but this law has been rendered largely redundant due to lack of effective enforcement.<sup>43</sup> The inadequacy of laws or the slow emergence of laws, legal structures and

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<sup>35</sup> Land Use Act, 1978 (L5 LFN, 2004).

<sup>36</sup> The bill was sponsored by Senator Rabiu Kwankwaso then representing Kano Central Senatorial District under the All Progressive Congress (APC) and was supported by other senators. Senator Rabiu Kwankwaso later became the Presidential candidate of the new Nigeria Peoples Party (NNPP) in the February 25, 2023, Presidential Elections in Nigeria.

<sup>37</sup> Mrabure and Awhefeada (n 3) 306-310; and Azomani (n 13) 131-133.

<sup>38</sup> *ibid.*

<sup>39</sup> J. Ajia, 'Senators Bicker as Bill to Ban Open Grazing Scales Second Reading' Punch (Lagos, 5 June, 2024) <<https://www.punching.com>> accessed 28 march 2025.

<sup>40</sup> S. Egede, 'Southern Governors Set Agenda for Buhari, Oppose Open Grazing', The Pointer (Asaba, 12 May, 2021) 1-3; and Azomani (n 13) 81- 87.

<sup>41</sup> A. Malami, 'Southern Governors Ban on Open Grazing Violates, The Constitution', This Day (Abuja, 20 May, 2021) <<https://www.thisdaylive.com>> accessed 20 March 2025.

<sup>42</sup> Azomani (n 13) 115-121.

<sup>43</sup> A. Adedipe, M.Ochei, D. Olatuji, A. Wodu, A. Nejo and S. Nwakanma, 'Herders Adamant; Southern Governors Fail to Enforce Anti-Open Grazing Laws', Punch (Lagos, 31 March, 2022) <<https://www.punching.com>> accessed 10 JANUARY, 2024; News Net Nigeria, 'Anti-Open Grazing: Herders Continue Activities with Impunity One

enforcement mechanisms for the regulation of open grazing is helping to still keep the culture and practice of open grazing alive and going in Nigeria.

#### 4. Public Health Ramifications of the Practice of Open Grazing in Nigeria

Public health refers to the health of the community at large. It refers to the healthful or sanitary conditions of the general body of people or the community including the methods of maintaining the health of the community, preventive medicine, and organised care for the sick.<sup>44</sup> Public health is the science and art of preventing diseases, prolonging life, and promoting health through the organised efforts and the informed choices of society, organisations, public and private communities, and individuals. It focuses on the health of entire populations rather than that of individuals and aims to prevent diseases, injuries and other health problems before they occur by promoting healthy lifestyles, behaviours, and environments.<sup>45</sup> Public health can therefore be impacted by a wide range of issues and activities which can significantly affect the health and well-being of the community and its citizens or members. It includes changes in public health as a result of exposure to a source or some factors. This is because whatever impacts public health negatively in Nigeria, will also adversely affect public health and have adverse public health implications or ramifications for Nigeria.<sup>46</sup>

Human health as a critical component of public health is very essential and crucial for the attainment of sustainable development because it is a necessary precondition for achieving the three dimensions of sustainable development which are – economic, social, and environmental. These three dimensions are very intricately interconnected and are necessary for the well-being of the individual and the society. In the absence of sound health it will be almost impossible for human beings to be involved in any meaningful development or to be able to fight poverty and or take good care of the environment.<sup>47</sup> The following are the health impact of open grazing:

##### 4.1 The Capacity of Open Grazing to Spread Diseases:

Open grazing of livestock has been identified as one of those human activities which can have adverse public health impacts or ramifications in Nigeria because of the public health challenges and concerns that it poses. The capacity of open grazing to speed disease in Nigeria is based on the unregulated migration or movement of the livestock animals and their herders from place to place. This is one way by which some communicable diseases can be contracted and spread, not only in Nigeria but globally.<sup>48</sup> Open grazing makes it easy for animal and human diseases to be easily transmitting from place to place, because animals and also humans in any part of the country and beyond can become easily infected with disease when they come in contact with infected livestock animals and herders from another part of the country or region

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Year After Law Came Into Force in Delta', <<https://newsnet.ng/environment/int-open-grazing-herder-continue-activities-with-impunity-one-year-after-law-came-into-force--n-Delta>> accessed 10 January 2024; and Azomani (n 13) 116-118.

<sup>44</sup> B. A. Garner (ed), *Black's Law Dictionary* (10th Edn, Thomson Reuters, 2014) 835.

<sup>45</sup> Centre for Disease Control and Prevention, (CDCP) Introduction to Public Health – Public Health Series 101 <<https://www.cdc.gov>> accessed 20 March 2025.

<sup>46</sup> *ibid.*

<sup>47</sup> WHO, 'Health and Sustainable Development' <<https://apps.who.int>> accessed 24 March, 2025; UN, 'Transforming Our World: 2030 Agenda for Sustainable Development' <<https://sdgs.un.org>> accessed 24 March 2025.

<sup>48</sup> Nnoruga (n 4) 386-387.

in the course of migrating from place to place.<sup>49</sup> It is a way of contacting disease from one place where human and animals have already been infected and then spread same to other places by mere contact with infected humans and animals, and helps to hasten animal to animal and animal to human infections of some diseases and vice versa. The Corona Virus Disease (COVID 19) is a very good example of a disease that can be easily spread wide by herders through the process of migration from place to place, and for such other diseases that can be spread by contact with affected persons.<sup>50</sup> Infectious diseases such as Ebola virus and Lassa fever are viral diseases too that can be spread by contact with affected persons amongst others.<sup>51</sup>

#### **4.2 Open Grazing Widens the Scope and Area of Possible Spread of Diseases**

The herdsmen involved in open grazing are not limited to Nigeria, as some of them come from far way Sahel regions of West African, thereby greatly widening the scope and area of possible spread and transmission of any infectious or contagious human and livestock diseases. It also increases the chances and likelihood of these disease pathogens interacting locally within the neighbouring communities and the countries of the Sahel region of West Africa such as Niger, Chad and Nigeria and cango far beyond these places, due to the migration of livestock and herders for open grazing purposes.<sup>52</sup> The transhumance migration is mainly for the purposes of survival of the herders and their livestock animals and this has been going on for generations, over time, thereby building interdependent relations with communities along the livestock imaginary routes all of which helps to widen the scope and area of disease spread in the case of any disease outbreak.<sup>53</sup>

#### **4.3 Open Grazing and the Spread of Zoonotic Diseases**

Zoonotic diseases can be described as infections and illnesses that are spread from animals to humans. It includes a wide range of pathogens or disease causing agents such, as viruses, bacteria, fungi and parasites.<sup>54</sup> Brucellosis disease of cattle is an example of a zoonotic disease that is endemic to Nigeria which the practice of open grazing can help to prolong this prevalence. It leads to abortions, economic losses as a result of reduced man-hours in the people affected, decreased calving, decreased milk production, production of weak calves and increased financial burdens for the management of the disease.<sup>55</sup> The disease has also been known to cause hygroma, orchitis, seminal vasculitis and epididymitis which can spread quickly to other animals and humans when the livestock animals are kept in close contact.<sup>56</sup> Infected animals can transmit these diseases to other animals and humans when the uninfected animals and humans come in contact with contaminated food, it can also be contracted through the conjunctiva, a calve can be infected through the birth process, through infected milk or colostrum of the mother, through contact with the discharges from an infected animal, aborted fetuses, placenta membranes or fluids, vaginal discharges present after an infected animal has

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<sup>49</sup> *ibid.*

<sup>51</sup> Nnoruga (n 4) 386-387; and Azomani (n 13) 68-69.

<sup>51</sup> WHO, 'Lassa Fever' <<https://www.who.int>> accessed 22 March 2025; and NCDC, 'Lassa fFever Public Health Advisory (2023)' <<https://ncdc.gov.ng>> accessed 22 March 2025.

<sup>52</sup> S. I. B. Cadmus, H. K. Adesokan, and J. Stack, 'The Use of the Milk Ring Test and Rise Bengal Test in Brucellosis Control and Eradication in Nigeria' *Journal of South African Veterinary Medicine Association* [2008] 79 113-115.

<sup>53</sup> UNDP, 'Transhumance Routes for Survival (2020)' <<https://www.undp.org>> accessed 23 March 2025.

<sup>54</sup> Wikipedia <<https://en.wikipedia.org>> accessed 31 March 2025.

<sup>55</sup> Adetunji and Ukhurebor (n 3) 43.

<sup>56</sup> N. B. Adamu, 'Epidemiology of Brucella Infection in Ruminants and Humans and its Public Health Implications in Bornu State, Nigeria. (Thesis, Department of Veterinary, Public Health and Preventive Medicine, 2009); and Adetunji and Ukhurebor (n 3) 43.

calved or aborted and through venereal transmission.<sup>57</sup> The migration patterns of livestock and herders due to open grazing exposes livestock animals, herdsman, other human, communities and livestock workers to zoonotic diseases infections and the risks associated with antimicrobial resistant pathogens and genes respiratory symptoms, risks of certain types of cancers and injuries that result in musculoskeletal systems.<sup>58</sup>

Livestock animals, including cattle are known to be reservoirs or hosts for different pathogens and agents that can cause some illnesses and diseases in humans and other animals. It has been reported that about 60% of human pathogens and about 75% of recent emerging diseases are zoonotic in nature, even though most of them occur in the wild rather than domestically.<sup>59</sup>

Nigeria is the most populous country in Africa and ranked among the 10th countries in the world with the highest burden of zoonotic diseases. In Nigeria, rabies, avian influenza, Ebola virus disease, swine influenza, and anthrax disease are ranked as the first five priority zoonotic diseases in Nigeria.<sup>60</sup>

Another serious zoonotic disease of livestock animals and humans is Anthrax. Anthrax is caused by the spore forming bacteria known as *Bacillus anthracis*, which can be acquired by livestock animals and spread from contaminated vegetation, soil or feed products such as bone meal.<sup>61</sup> Anthrax spores are extremely resistant to inactivation and can potentially survive in the environment for decades. Anthrax disease can be contacted by both animals and human by exposure to infected animals and animal products. Anthrax Infection can also occur infrequently and sporadically such as in occupational hazards among veterinarians, agricultural workers and people who are exposed to or process hides, hair, wool, and bone products.<sup>62</sup> Cutaneous Anthrax accounts for about 95% of all national Anthrax infections and is rarely fatal if treated with appropriate antibiotics.<sup>63</sup> Open grazing can aid in the spread of Anthrax disease in Nigeria. There was an outbreak of Anthrax disease in Ghana in June 2023.<sup>64</sup> And in less than three weeks there was a confirmation of Anthrax disease outbreak at a farm in Suleja and other

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<sup>57</sup>United States Department of Agriculture (USDA), 'Facts About Brucellosis' <[https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/brucellosis/downloads/bruc-facts.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/brucellosis/downloads/bruc-facts.pdf)> accessed 10 March 2023.

<sup>58</sup> Grout et. Al. (n 16).

<sup>59</sup> *ibid.*

<sup>60</sup> Science Direct, 'Critical Priority Zoonotic Diseases in Nigeria' <<https://www.sciencedirect.com>> accessed 22 March 2025; C. Ihekweazu, 'Prioritization of Zoonotic Diseases of Public Health Significance in Nigeria, Using the One Health Approach: National Institute of Health (NIH)(2020) <<https://pmc.ncbi.nlm.nih.gov>> accessed 24 March 2025; and Cleveland Clinic, 'Zoonotic Diseases: Types Transmission and Treatment' <<https://www.my.clevelandclinic.org>> accessed 31 March 2025.

<sup>61</sup> B. O. Ikede, S. Falade and R. R. Golding, 'Anthrax in Captive Carnivores in Ibadan' *Journal of Wildlife Diseases* [1976] 12 130-132 <<https://bione.org/journals/journal-of-wildlife-diseases/vol.12/issue-2/0090-3558-12.2.130/ANTHRAX-IN-CAPTIVE-CARNIVORES-IN-IBADAN-NIGERIA/10.7589/0090-3558-12.2.130.pdf>> accessed 23 July, 2023; Center for Food Security and Public Health (CFSPH), 'Anthrax (2017) <<https://www.cfsph.edu/factsheet/pdfs/anthrax.pdf>> accessed 23 July, 2023; M.E. Alam, M.M. Kamah, M. Rahman, A.Kabir, M.S. Islam and J. Hassan, 'Review of Anthrax: A Disease of Farm Animals'; *Journal of Advanced Veterinary and Animal Research* (2022) 9 (2) 323-334. doi: 10.5455/Javar.2022.1599.PMID:35891653; PMID: PMC9298093 <<https://www.ncbi.nlm.nih.gov/pmc/articles/pmc9298093>> accessed 23 July 2023.

<sup>62</sup> *ibid.*

<sup>63</sup> *ibid.*

<sup>64</sup> *ibid.*

parts of Nigeria by July 2023.<sup>65</sup> The transhumance migration for open grazing may have been most likely responsible for this spread of the Anthrax disease into Nigeria and in West Africa.<sup>66</sup>

#### 4.4 Open Grazing Endangers Medicinal Plants and Biodiversity

Open grazing helps to destroy plants that have medicinal properties, which can readily serve pharmacologically in the management of some infections and diseases in Nigeria. The people in the arid and semi-arid regions of Nigeria and West Africa for example, are heavily dependent on the use of medicinal plants in their environment for food and the treatment of ailments like malaria and other tropical diseases, because most of the locals cannot afford the expensive synthetic drugs which can become resistant to infection and with infections.<sup>67</sup> Most of these medicinal plants have become part of the endangered species of plants in the ecosystem which are at the verge of disappearing due to open grazing, climate change and other factors. Medicinal plants such as ‘Madaci’, a local plant species belonging to the *Annonaceae* family of plants is well known for its used for the cure of several ailments in Northern Nigeria and West Africa.<sup>68</sup> In traditional Nigerian medicine for example, the above plant known as *Gierra senegalenses* is also known as *A. senegalesis* and other plants in this group have potentially very useful health benefits because parts of the leaves and barks are believed to have anti-inflammatory, anti-microbial and wound healing properties. They are also used in the treatment of tuberculosis, gastritis snake bites, asthma, cough and other ailments.<sup>69</sup> It is also reputed to have anthelmintic properties by local small scale holder livestock farmers in Nigeria.<sup>70</sup> The potentials of this and other endangered medicinal plants for food and medicine in Nigeria are grossly underutilised and hence the need to valorize, conserve and sustainably manage these endangered species of plants which are very vital components and resources of the Nigerian ecosystem and biodiversity.<sup>71</sup>

#### 4.5 Exposure to Heat and Ultra-Violet Radiation

Open Grazing leads to the loss of vegetation cover, which in turn leads to deforestation and desertification and increased exposure of herders and their livestock to the direct effects of radiation of sunlight. Excessive exposure to the sun’s radiation can lead to the development of skin diseases such as skin cancers particularly, for outdoor workers like agricultural workers including the herdsman.<sup>72</sup> It has been reported that the high intensity of sunlight is part of the reason why there is a higher percentage cases of skin cancer and some malignancies in the

<sup>65</sup> Nigeria Centre for Disease Control and Prevention (NCDC) ‘Confirmation of Anthrax Outbreak in Nigeria’ (2023) <<https://ncdc.gov.ng/news/491/confirmation-of-anthrax-outbreak-in-nigeria>> accessed 23 July, 2023.

<sup>66</sup>ibid; and United States Department of Agriculture (USDA), ‘Facts About Brucellosis’ <[https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/brucellosis/downloads/bruc-facts.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/brucellosis/downloads/bruc-facts.pdf)> accessed 10 March 2023.

<sup>67</sup> G. O. Otegbeye, and E. Y. Otegbeye, ‘Socio Economics. In: Agro Forestry and Land Management Practices Diagnostic Survey of Katsina State of Nigeria’ G. O. Otegbeye (ed) Katsina State Agricultural and Rural Development Authority (2002) 63-79 cited in Adetunji and Ukhurebor (n 3) 44; and E. Kafaru, ‘Immense Help from Nature’s Workshop, Elikaf Health Services Ltd (1994) 212, cited in Adetunji and Ukhurebor (n 3) 43.

<sup>68</sup> Adetunji and Ukhurebor (n 3) 43

<sup>69</sup> P. A. Akah, ‘Annona senegalensis Pers (Annonaceae): Exploring the Underutilized Potentials of an African Medicinal Plant’ *Journal of Ethnopharmacology and Toxicology* [2023] 1(1) 16-26.

<sup>70</sup> C. B. I. Alawa, et al ‘In-vitro Screening of Two Nigerian Medical Plants (*Veronica amygdalina* and *Annona senegalensis*) for Anthelmintic Activities’ *Veterinary Parasitology* [2003] 113(1) 73-81. <[https://doi.org/10.1016/50304/4017\(03\)00040-2](https://doi.org/10.1016/50304/4017(03)00040-2)> accessed 31 March 2025; and M. B. Belemliga, et al, ‘Anthelmintic Activity of *Saba Senegalensis*, (*Apocynaceae*) extract Against Adult Worms and Eggs of *Haemonchus contortor*’ *Asian Pacific Journal of Tropical Biomedicine* [2016] 6(11) 945 -949.

<sup>71</sup> J. C. F. Donhouede, et al, ‘Food and medicinal uses of *Annona senegalensis* Pers: A Country and Assessment of Tradition Theoretical Knowledge and Actual Uses in Benin West Africa’ *Journal of Ethnobiology and Ethnomedicine* [2022] 18(10) 1- 3.

<sup>72</sup> O. E. Ikawo, ‘A Literature Review on Cancer in Nigeria (2013) cited in Adetunji and Ukhurebor, (n 3) 45.

Northern part of Nigeria, when compared with the Southern part of Nigeria.<sup>73</sup> Extreme heat conditions due to rising temperature can also lead to cardiovascular diseases, heat strokes, heart attacks which can affect the immune system functions and response of humans and animals to infections caused by parasites, including, viruses and bacteria.<sup>74</sup> It has been reported that there is a significant decrease in the Packed Cell Volume (PCV) and hemoglobin levels in thermally stressed domestic chicken in Northern Nigeria.<sup>75</sup> Heat waves can lead to thermal stress related to mortality and morbidity and affecting maternal and child health infections in both human and animals generally.<sup>76</sup>

#### 4.6 Spread of Human and Animal Ectoparasites

Open grazing has been implicated in the spread of ticks. Ticks are obligate haematophagus ecto-parasites of domestic and wild animals including humans.<sup>77</sup> It is reported to be the second world-wide vector of human diseases and the most important ecto parasites of livestock in tropical and sub-tropical areas. Ticks are responsible for severe economic losses either as a result of their direct sucking of blood of livestock animals and indirectly as vectors and carriers of disease pathogens in livestock animals and humans in Nigeria.<sup>78</sup>

#### 4.7 Open Grazing, Bush Burning and Air Pollution

Open grazing is also a factor in bush burning, a method used by both the farmers and herders to improve the condition of the lands either for farming or for grazing areas for livestock. Bush burning is a major source of air pollution because of the smoke and carbon from bush burning activities pose health challenges, as it pollutes the air and the environment generally. Smoke has been known to lead to very serious respiratory diseases such as asthma, lung cancer and heart diseases such as chronic obstructive pulmonary disease (COPD) and encourages the risk of infections for existing respiratory conditions.<sup>79</sup> Bush burning also reduces the vegetative cover of land, destroys wildlife habitat and leads to biodiversity loss. The excessive heat from bush burning not only destroys soil micro-organisms, but also affects soil health and fertility.<sup>80</sup>

#### 4.8 Impact of Climate Change on Public Health

Open grazing is a major contributor to global warming and climate change and is one of the great challenges facing the world at the moment. The 2030 target of achieving the agenda of the Sustainable Development Goals (SDGs) set by the United Nations has recognised climate change and particularly goal 13 of the SDGs as one of the most significant challenges facing the world and the attainment of the goals of the SDGs because of the great impact of climate change on human health and the physical environment, including social, economic and health

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<sup>73</sup> *ibid.*

<sup>74</sup> M. L. Bell, et al 'Climate Change Ambient Ozone and Health in 50 US Cities' *Climate Change* [2007] 82(1-2) 67-76 cited in Adetunji and Ukhurebor, (n 3) 45.

<sup>75</sup> *ibid.*

<sup>76</sup> J. O. Ayo, J. A. Obidi and P. I. Pekwot, 'Seasonal Variations in Feed Consumption, Hen-Day, Mortality and Culls of Bovans Black Chickens (Proceedings of the 35<sup>th</sup> Annual Conference of the Nigerian Society for Animal Productions, University of Ibadan, March, 2010) 415-418 cited in Adetunji and Ukhurebor, (n 3) 45.

<sup>77</sup> B. G. Eskezia and A. H. Dexta, 'Review on the Impact of Ticks on Livestock Health and Productivity' *Journal of Biology, Agriculture and HealthCare* [2016] 6(22) 1-7.

<sup>78</sup> *ibid.*

<sup>79</sup> John Hopkins Medicine, 'Smoking and Respiratory Diseases' <<https://www.hopkinsmedicine.org>> accessed 25 March 2025; National Institute of Health (NIH), 'Respiratory Diseases – The Health consequences of smoking' <<https://nlm.nih.gov>> accessed 25 March 2025.

<sup>80</sup> R. Rhuks, et al (ed). 'Food and Agriculture Law' (Afe Babelola University Press, 2015) cited in Ukhurebor and Adetunji, (n 5) 10.

care measures and challenges.<sup>81</sup> Open grazing leads to global warming and climate change which in turn has profound effects on all ecosystems and populations, because it leads to heat waves, increased ultra-violet radiation exposures, extreme weather events, prolonged pollen seasons, and has capacity to aid the spread of infectious diseases.<sup>82</sup> Extreme weather events such as floods, droughts and storms could also be a threat to human health and safety.

Climate change is exacerbated by open grazing and has been known to affect disease transmission in animals at three levels, such as affecting directly, the biology and reproduction of the pathogens, hosts or vectors of the disease; affecting the habitats present in the area, including the community of the hosts, where the pathogen and the lifecycles or lifestyles of the hosts and triggering social and economic responses such as adaptation and mitigation measures which can affect land use, transport patterns, human population, movements and the use of available natural resources.<sup>83</sup>

#### 4.9 Open Grazing and Water Borne Disease:

Migration of livestock for open grazing is a serious source of spread for water borne diseases. This is so because herders and their livestock animals are usually in contact with polluted and contaminated water. Which puts them at the risk of contracting and spreading some water borne diseases, such as cholera, typhoid and infectious hepatitis amongst other diseases that can be easily spread when infected livestock animals or herders come in contact with the water sources of other animals and herders.<sup>84</sup> Open grazing puts so much pressure on the water resources in the environment with serious consequences, not only as a source of water pollution through animal waste which can lead to public health concerns as sources of water borne diseases. But, also because it forces water whether in wells, ponds, streams, rivers and other sources of water to dry up.<sup>85</sup> It has been reported that Lake Chad, one of the core sources of water supply in Nigeria is seriously aerating due to the enormous pressure and pollution by migrating herders and livestock amongst others.<sup>86</sup> Water is so critical to the livestock production process, as it largely determines the distribution of pasture land as well as livestock. Livestock herds are known to gather where there is water, which also help to increase the tensions between herders, farmers and host communities and a source of public health concerns for Nigeria because of the risk of water borne disease due to the water bodies becoming polluted.<sup>87</sup>

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<sup>81</sup> UN, SDGs, Goal 13 : ‘Take Urgent Action to Combat Climate Change and Its Impact’ Sustainable Development Goal Report(2023)<<https://www.un.org>> accessed 30 March 2025; L.S.Kalkstein and K.E Smoyer, ‘Impact of Climate Change on Human Health Some International Implications’ *Experiential* (1993) 49(11) 969-979 <<https://www.springer.com>> accessed 30 March 2025; K. H. Kim, et al, ‘A Review of The Global Consequences of Climate Change on Human Health’ *Journal of Environmental science and health* [2014] 32(3) 1 <<https://www.doi.org/10.1080/1059050.2014.941279>> accessed 20 March 2025; and B. E. B. Nwoke, E. A. Nwoke, and O. M Ukpai, ‘Effect of Climate Change on Human Health and Some Adaptive Strategies - A Review’, *Bayero Journal of Pure and Applied Sciences* [2009 2(1) 168-172.

<sup>82</sup> *ibid.*

<sup>83</sup> K. Wilkinson, et al, ‘Infectious diseases of animals and plants: an interdisciplinary approach’ [2011] <doi: 10.1098/rstb.2010.0415. PMID: 21624914; PMCID: PMC3130394. <<https://pubmed.ncbi.nlm.nih.gov/21624914/>> accessed 10 March 2025.

<sup>84</sup> Adetunji and Ukhurebor (n 3) 42-44.

<sup>85</sup> M. Herrero and P. K. Thornton, ‘Livestock and Global Change: Emerging Issues for Sustainable Food Systems’ *Proceedings of the National Academy of Sciences* [2013 1 10 cited in Ukhurebor and Adetunji, (n 5) 1-2.

<sup>86</sup> E. A. Ekanem, ‘Resource Competition Between Nomadic Pastoralists and Sedentary Farmers in Southern Taraba State, Nigeria’, *World Journal of Advanced Research and Reviews* [2020] 14(3) 346.

<sup>87</sup> British Columbia Ministry of Agriculture and land”, Sources of livestock water, Livestock watering factsheet (2006) <<https://www2.gov.bc.ca>> accessed 25 March 2025; F. A. O. Water Use in Livestock Production Systems and Supply Chains for Assessment and performance (CEAP) Partnership (2019)

## 5. Conclusion

This article has further contributed to the body of knowledge on public health and the ramifications of the practice of open grazing in Nigeria. It does not only make a case for the regulation of the practice of open grazing through the enactment of legislations, but also for the effective enforcement of the enacted laws to help regulate and deal with the many challenges of open grazing. Also, it calls for public education and enlightenment on the public health implications of open grazing practice and the need for more health surveillance and vigilance to ensure the sound public health in the face of the continued practice of open grazing in Nigeria.

## 6. Recommendations

Consequent upon the above, the following recommendations are made:

- i. Anti-open grazing laws should be enacted at both the federal and state levels in Nigeria to eliminate the practice of open grazing and its accompanying challenges.
- ii. Enforcement mechanism for anti-open grazing laws and all other environmental and public health laws in Nigeria should be strengthened.
- iii. Nigeria should seek an urgent review of the ECOWAS Transhumant Protocol in her own best national interest so as to discourage transhumant and trans-border migrations of herders and livestock for open grazing purposes in Nigeria.
- iv. The Nigerian Government and Civil Society Groups should take steps to create and recreate more awareness and enlightenment on the public health implications of the practice of open grazing in Nigeria to maintain greater surveillance and vigilance.
- v. The National Assembly of Nigeria should enact a law that adopts a more sustainable livestock management methods that meets best global practices such as ranching as a way of eliminating the movement of livestock animal from place to place for open grazing.
- vi. The Nigeria Government should take urgent steps to secure the porous national borders of Nigeria to stem the tide of cross-border transhumant migration for open grazing purposes, as a way of securing the public health of Nigerians.
- vii. The provisions of section 6(6)(c) of the CFRN be amended to elevate environmental and health provisions in the Constitution from being objectives principles to justiciable rights.

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<<https://www.fao.org/partnerships/heap/publication/en>> accessed 25 March 2025; and <<https://open.knowledge.fao.org>> accessed 25 March 2025.