

Sip Every Drop: Inaccessible and Jeopardized Water Resources in Nigeria and Ukraine

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Abstract

This article examines some key facts related to water scarcity in Nigeria and Ukraine. While both countries have considerable water resources, due to economic, political, and environmental factors, access to safe water and sanitation remains a problem. In addition to examining some key facts, the article reviews the issue of water scarcity from an ethical perspective, applying several lenses, including differences in the access to water and sanitation by gender and localities. It also discusses some ethical origins, current ethical structures, and ethical frameworks of water scarcity in Nigeria and Ukraine.

I. Introduction

Water is one of the most plentiful resources on our planet. Yet, over 700 million people live without consistent and safe access to water (Groenfeldt and Schmidt, 2013). Whether it be drinking, bathing, or cleaning, potable water is necessary to maintain good public health, which affects how people live and their quality of life. Water scarcity exists in all areas of the world. In the developing world, water scarcity is interdependent of many other aspects of development. Water is essential to life and lays the foundation for society.

This article evaluates water access and water safety in Nigeria and Ukraine. While both countries do not lack the water sources necessary to serve their populations, as a result of environmental, political, and economic factors, access to safe water remains a key problem. Following a review of the literature, this article provides some socioeconomic background of both Nigeria and Ukraine. Next, it provides an empirical analysis of several factors related to water scarcity in these two countries, using a comparative approach. Lastly, this article will discuss ethical perspectives, which help to understand the national and global duties to address the lack of access to safe water.

II. Literature Review

There is a plethora of research available about the struggles of not having access to water and the means by which the governments of Nigeria and Ukraine aim to amend this problem. Franks, Bdliya and Mbuya (2011), Slaguhter and Odume (2017), and Hadejia and Boso (2017) discuss how Nigeria's lack of infrastructure has problematized water access and what efforts are being

made to reduce the inequality in access to safe water. Frankhauser, Rodionova and Falcetti (2008) and Vystavna and Diadin (2015) elaborate on the origins of water scarcity in Ukraine and how that scarcity coincides with poverty.

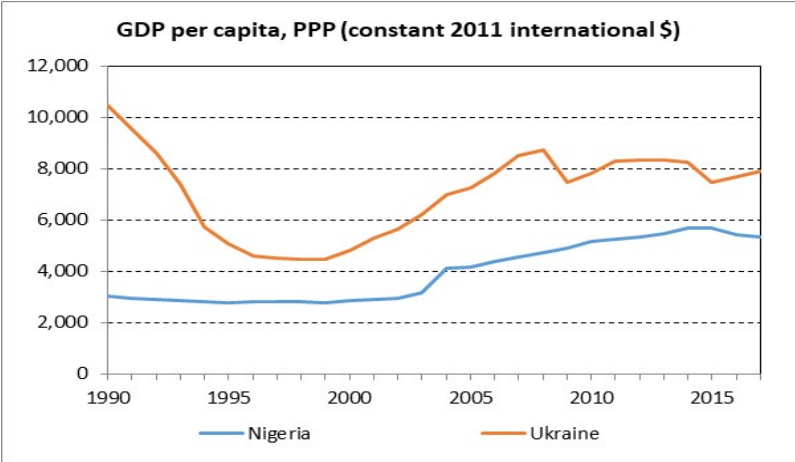
- Slaughter and Odume (2017) detail the causes and effects of water scarcity in Nigeria. Contrary to popular belief, water resources are actually plentiful in Nigeria, so much so that a majority of their states are named after rivers. However, due to weak regulatory, institutional, and bureaucratic procedures, the process of distributing water is highly uneven. Reform is limited to physical management and ignores community engagement. As a result, the effect of poor water management flows down into the social, economic, and environmental spheres. Additionally, groundwater contamination can prove detrimental to community and ecosystem health.
- Franks, Bdliya and Mbuya (2011) outline a human geographic comparison between two significant river basins in Tanzania and Nigeria. The problems and similarities between Nigerian and Tanzanian policies illustrate concepts which are crucial to understand how water governance in Nigeria has evolved. Franks, Bdliya and Mbuya (2011) also evaluate efforts made by national, international, and nongovernmental institutions, which affect how water policy is drafted and implemented in the Nigerian and Tanzanian river basins.
- Hadejia and Boso (2017) compile a comprehensive overview of sustainable water resources management in the Hadejia Jama'are Komadugu Yobe Basin (HJKYB), a resource from which four African countries (including Nigeria) draw a lot of their water. The authors analyze the wave effect of having less available water resources in an increasingly populated and poor Nigerian society. They also examine the history of problematic practices, which have caused scarce access in an otherwise plentiful area. Finally, they discuss current attempts to properly treat water insecurity through the formation of the HJKYB Trust Fund, which is based on integrated water management.
- Frankhauser, Rodionova and Falcetti (2008) report on the statistical access rates to running cold and hot water within Ukraine and analyze several aspects of affordability, subsidy, and economic regionality. They provide the foundation for understanding the disproportionate lack of affordability among poorer Ukrainians. They also identify several correlations between different kinds of access to water and sanitation, such as how access to cold water and proper sewage disposal go hand in hand. Frankhauser, Rodionova and Falcetti also touch on the Chernobyl disaster, which explains why especially the Volynskaya region has low water connection rates.
- Vystavna and Diadin (2015) analyze how Soviet planning and macroenvironmental factors affect the distribution of water in Ukraine. One of the most devastating trends in natural factors which promote water scarcity in Ukraine is the prevalence of anthropogenic factors such as pollution, flow regulation, extraction, and groundwater contamination. Vystavna and Diadin (2015) reaffirm the claim that a lack of safe water will decrease living standards, promote the spread of water-related illnesses, and have the power to spawn large economic losses.

III. Socioeconomic Background

As shown in Figure 1, Ukraine's GDP per capita was more than three times that of Nigeria in 1990. However, following independence from the Soviet Union in August of 1991, GDP per capita fell

rapidly as a result of a recession that hit as soon as price controls were lifted and hyperinflation set in. It would not be until Ukraine floated their currency in 1996 that the situation would improve. Yet, many people still faced poverty in the early 2000s, and GDP per capita in 2017 (\$7,894) was still far below of what it was in 1990 (10,463). Especially the rural parts of Ukraine continue to struggle as an ongoing political hopscotch with Russia has left the economy mostly stagnant during the last decade.

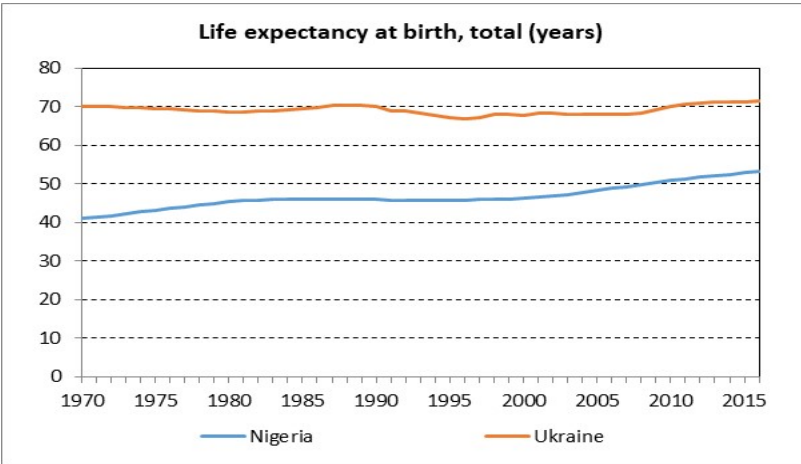
Figure 1: PPP-adjusted GDP per capita in Nigeria and Ukraine, 1990 to 2017



Source: Created by author based on World Bank (2019).

Nigeria struggled to increase its GDP per capita until 2003, having gone through colonial status under indirect rule, several civil wars, a series of dictatorships, before becoming the Federal Republic as it exists today. Nigeria’s volatile political history, which has been partly caused by a conflict over an abundance of oil resources, explains most of Nigeria’s economic stagnation. However, Nigeria then experienced significant growth from 2004 to 2015, largely due to high oil prices. However, GDP per capita has once again stagnated, even decreased, since 2015, reaching \$5,338 in 2017, which is about two thirds of Ukraine’s GDP per capita in 2017.

Figure 2: Life Expectancy in Nigeria and Ukraine, 1970-2016



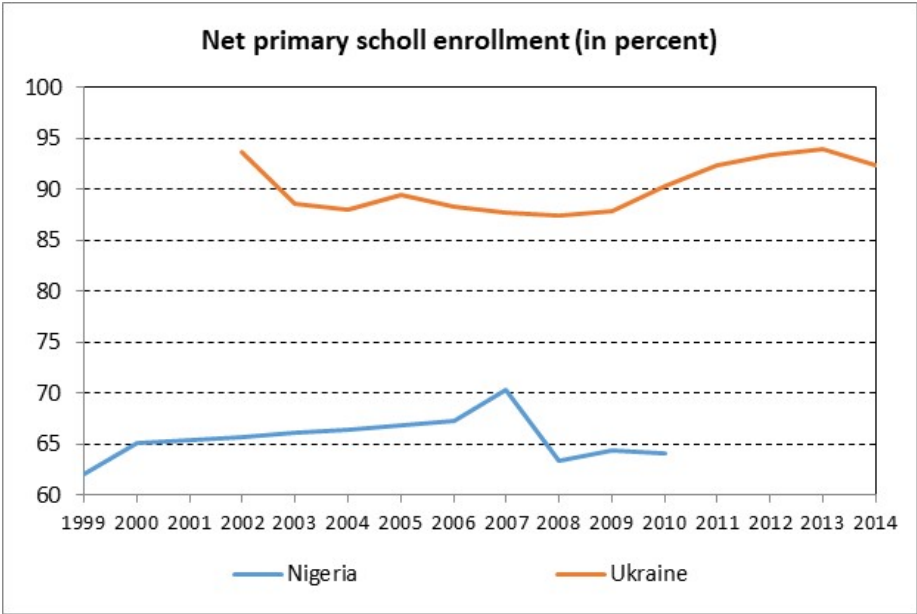
Source: Created by author based on World Bank (2019).

Due to continuous economic vulnerability (which is partly due to volatile resource prices and political instability), there is a struggle to improve the quality of life in both countries. As can be seen in Figure 2, life expectancy at birth has increased very little in Nigeria (from 41 years in 1970 to 53 years in 2016, which is an annual increase of 3.2 months) and overall stagnated in Ukraine (where life expectancy increased by only 1.3 years over the last 47 years, from 70.2 years in 1970 to 71.5 years in 2016). Low access to water has a significant impact on both countries' low progress in terms of increasing life expectancy.

Due to severe data constraints for literacy rates of Nigeria and Ukraine, Figure 3 shows the available data for net primary school enrollment for Nigeria (1999 to 2010) and Ukraine (2002 to 2014). While Ukraine has had a long history of well-funded education, with primary school enrollment close to 100 percent during the Soviet era, net primary school enrollment had dropped to 93.6 percent by 2002. Ukraine's net primary school enrollment continued to decline until 2004, when it reached 88.0 percent. The enrollment ratio then stagnated at around 88 percent for the next five years, before slowly increasing from 2009 to 2013 (reaching 93.9 percent). However, it then declined once again in 2014 to 92.4 percent.

Nigeria's school enrollment ratios are far lower than that of Ukraine, which is consistent with Nigeria's lower GDP per capita and lower life expectancy. In Nigeria, net primary school enrollment had been increasing from 1999 (62.0 percent) to 2007 (70.3 percent), but then declined drastically in 2008 to 63.4 percent, basically erasing all the progress made during the previous eight years. It then stagnated at about 64 percent in 2009 and 2010. Despite the limited data, these trends are still important for developing our understanding of the impact of not having access to water. Whereas most Ukrainian children attend primary school, many Nigerian children take on more active roles in the family, which includes walking hours and hours to retrieve water for domestic use.

Figure 3: Net Primary School Enrollment (in percent) in Nigeria and Ukraine, 1999-2014



Source: Created by author based on World Bank (2019).

IV. Analysis of Access to Safe Water and Sanitation

Water insecurity in Nigeria and Ukraine can be viewed from a multitude of angles, all of which help us to better understand the issue and how it impacts the population in these two countries. This section analyzes four aspects of water insecurity: access to safe water, access to sanitation, the way water is consumed, and the role of pollution and climate change.

IV.1. Access to Safe Water

There are plenty of water resources available in both Nigeria and Ukraine. Nigeria uses a combination of mostly surface water and some groundwater sources, pooling from the River Niger, River Benue, Lake Chad and the Oguta Lake, as well as several other tributaries and rivers.¹ Ukraine has seven major rivers (Desna, Dnipro, Dnister, Danube, Prypiat, Siverian Donets, and Southern Buh)² and over 3,000 lakes, which have a combined surface area of more than 2,000 square kilometers, constituting nearly 3.5 percent of the country's total land area.³ Like in Nigeria, most (80 percent) of Ukraine's water supply comes from surface water (rather than groundwater), with the Dnipro Basin covering about 65 percent of the country.⁴

Nigeria's total water withdrawals, measured as a percentage of the total available internal resources, totaled around 5.6 percent in 2014.⁵ That year, Ukraine's water utilization was around 27 percent.⁶ This means that far less than half of their renewable water resources were used. Still, both countries face problems with water scarcity, not in natural supply, but in terms of universal access to safe water by the people. Before discussing these statistics, it is important to understand the definitions of access to water. According to the World Health Organization (WHO), basic water supply is considered any supply of water that is less than 30 minutes away, and is either piped, or found in a borehole or well. A safely managed drinking water service, on the other hand, is considered to be an on-premise source that does not contain chemical or biological contamination.⁷

As shown in Figures 4 and 5, in 2015, 67 percent of Nigeria's people had access to a basic water supply, and only 19 percent of people had access to a safely managed drinking water service. By contrast, for the same year, Ukraine boasts almost 98 percent access to a basic supply, and 92 percent access to a safely managed drinking water service. Ukraine's supply, however, is contingent on both affordability and infrastructural strength. In certain oblasts, like Donetsk and Luhansk, conflict with the Russian Federation has led to the shelling of crucial systems that manage and clean water, leaving three million people thirsty.⁸ In rural areas like Kirovogradskaya and Luganskaya, economic struggles caused by unemployment and worker strikes have also made water inaccessible. In Kirovogradskaya and Luganskaya, access to cold water was only 39 percent and 71.4 percent, respectively.⁹ In other words, problems with access to water in Ukraine stems

¹ Hadejia and Boso (2017).

² https://en.wikipedia.org/wiki/Geography_of_Ukraine

³ <http://www.encyclopediaofukraine.com/display.asp?linkpath=pages%5CL%5CA%5CLakes.htm>

⁴ Food and Agriculture Organization of the United Nations (FAO) (2015).

⁵ World Bank (2019).

⁶ World Bank (2019).

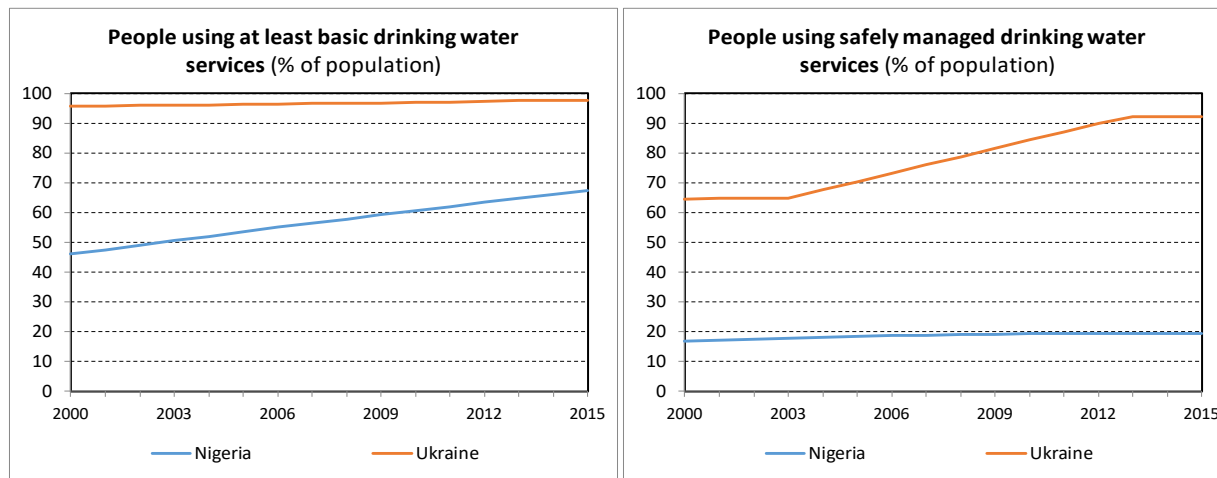
⁷ World Bank (2019).

⁸ Frankhauser, Rodionova and Falcetti (2008).

⁹ Frankhauser, Rodionova and Falcetti (2008).

more from current struggles that damage infrastructure, whereas in Nigeria, a history of political and economic struggles have prevented the development of water infrastructure to begin with.

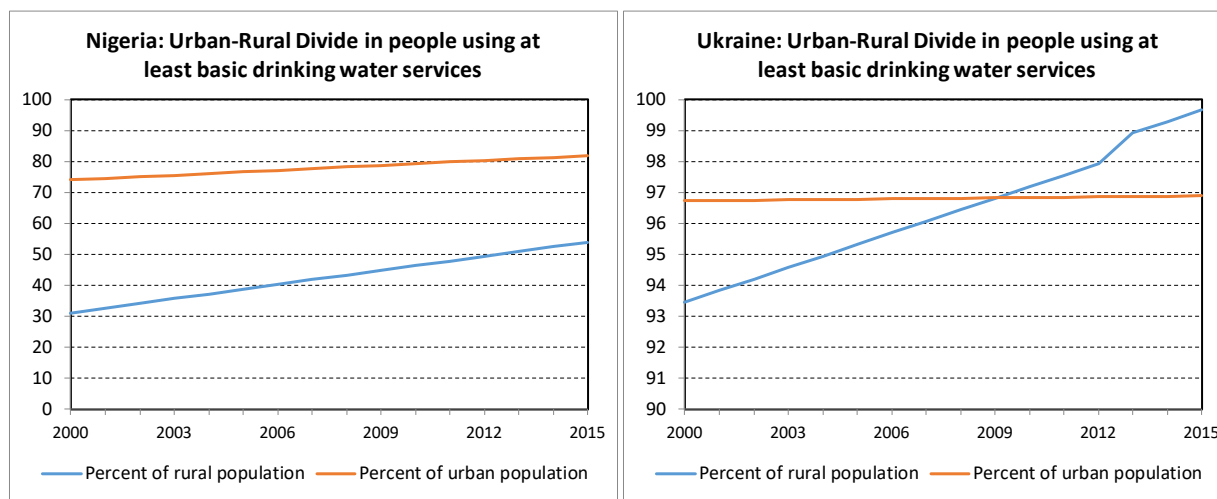
Figures 4 and 5: People using at least basic drinking water services (% of population) and people using safely managed drinking water services (% of population), 2000-2015



Source: Created by author based on World Bank (2019).

As Figures 6 and 7 show, there is also a significant difference in water access between rural and urban communities. In the case of Nigeria (the left figure below), the percentage of the urban population has a far higher access rate to at least basic drinking water services than the rural population, though the urban-rural gap has been reduced from 43 percentage points (in 2000) to 28 percentage points (in 2015). In Ukraine (the right figure below), the urban population had a higher percentage of using at least basic drinking water than the rural population, though only from 2000 to 2008. In 2009, the urban-rural divide had disappeared, and since 2010, the rural percentage continued to increase, while the urban percentage has stagnated.

Figures 6 and 7: Urban-Rural Divide in Nigeria and Ukraine (for people using at least basic drinking water services), 2000-2015



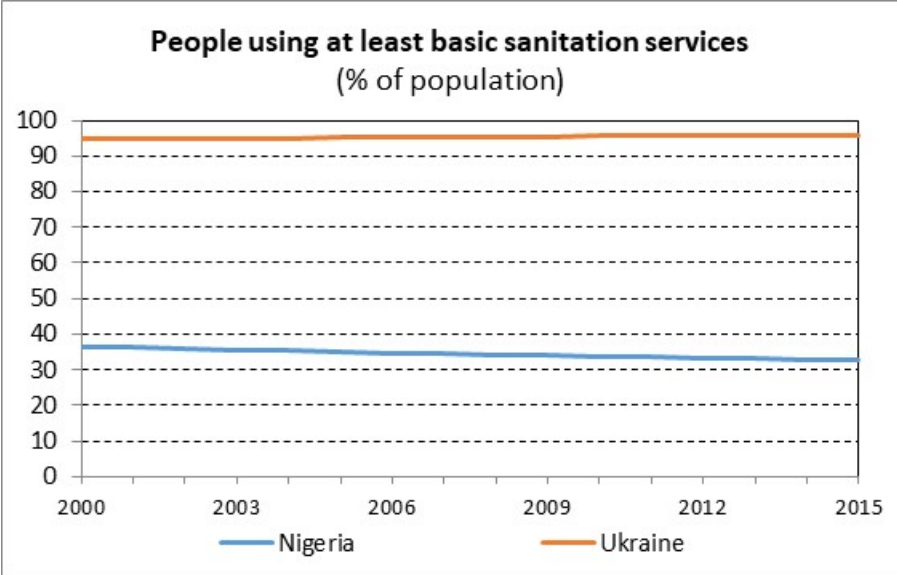
Source: Created by author based on World Bank (2019).

Furthermore, there is a divide between poorer areas and more wealthy areas. According to Frankhauser, Rodionova and Falcetti (2008, p. 8), “poorer agricultural areas in Western Ukraine such as Ivano-Frankovskaya and Zakarpatskaya oblasts tend to have low connection rates.” Specifically, Ivano-Frankovskaya and Zarkarpatskaya have access rates of 28.7 percent and 30.9 percent for cold water, respectively; and access rates of 20.6 percent and 7.1 percent for hot water, respectively for Ivano-Frankovskaya and Zarkarpatskaya.

IV.2. Access to Sanitation

Although the World Bank (2019) has no data on safely managed sanitation services in Nigeria and Ukraine, it has data on the percentage of people using at least basic sanitation services. As Figure 8 shows, while less than 40 percent of Nigerians use at least basic sanitation services (with access rates declining over time), nearly the whole population of Ukraine is using at least basic sanitation services (and there have been some improvements over time). Like for drinking water, there is also an urban-rural divide for using at least basic sanitation services in both countries. Though not shown here, the World Bank (2019) data show an increasing urban-rural divide over time for Nigeria and a decreasing urban-rural divide for Ukraine.

Figure 8: People using at least basic sanitation services (% of population), 2000-2015



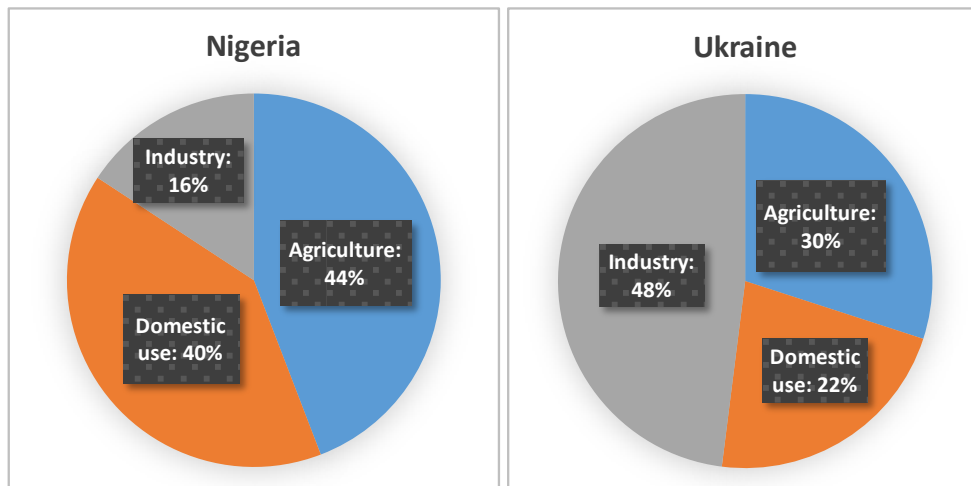
Source: Created by author based on World Bank (2019).

IV.3. Water Use

Nigeria and Ukraine also differ greatly in how their water withdrawals are used for agriculture, domestic use, or industry, as can be seen in Figures 9 and 10. As Ukraine is an industrialized country, water use for industry comprises a significantly higher percentage of the total, almost half. By contrast, Nigeria’s water use is primarily split between agriculture and domestic use, as the country’s agricultural sector focuses on water-intensive grain production. This difference in water use also reflects a difference in economic vulnerability. As Nigeria’s economy is predominantly reliant on oil exports and agricultural production, it may be subject to price

fluctuation and unfavorable yields, which both negatively impact economic long-term development. The more industrial-based economy of Ukraine does not have this issue.

Figures 9 and 10: Freshwater Withdrawals by Sector in Nigeria and Ukraine in 2010



Source: Created by author based on World Bank (2019).

IV.4. Role of Pollution and Climate Change

One aspect of water scarcity that affects both Nigeria and Ukraine is the impact of pollution. Some people within both countries end up drinking water without knowing that it is contaminated, with most of the contamination being the result of anthropogenic environmental pollution. Water pollution does not only contribute to safe water scarcity, it also creates public health issues that further strain these countries' economic capacities.

According to Vystavna and Diadin (2015), there are three main environmental concerns that affect Ukraine's ability to sustain water development. First, climate change intensifies the evaporation processes and decreases water availability as a result of eutrophication and groundwater contamination, which occur because of garbage dumping and industrial agriculture respectively. Second, high levels of contamination occur as a result of trace metals and other pollutants, which are not taken seriously by the Ukrainian legislature. Lastly, climate change increases competition over water, which makes it even less accessible for the least wealthy.

In Nigeria, the pollution of certain bodies of water goes largely undetected. Broken or leaking pipes, source proximity to septic tanks, and unsafe sanitation facilities such as pit latrines contribute to pollution which jeopardizes groundwater and is responsible for straining public health systems (Abubakar, 2017). Aside from these environmental concerns, there is also the worry that children in Nigeria are not finishing school because of disease that is spread through improper sanitation and pollution. Cholera, for example, spreads through the ingestion of fecal matter, usually by means of untreated water.¹⁰ As a result, symptoms like diarrhea prevent children from attending school, which makes development much harder.

¹⁰ Adagbada, Adesida, Nwaokorie, Niemogha and Coker (2012).

V. Ethical Analysis

V.1. Ethical Origins and Current Structures

Most initiatives in Ukraine stem from independent moral entrepreneurship at the national level. Alina Bocharnikova is the Coordinator for Development of Social Entrepreneurship at the Agency for the Development of the Future, which is a nonprofit organization in Ukraine dedicated to collective management of human resources in order to increase the quality of life. In March 2020, Ms. Bocharnikova participated in a panel discussion conducted by American University about Ukrainian perspectives surrounding Corporate Social Responsibility. She explained that the culture of mobilizing collective action for change she recommends is based on a five-step process: identification of a social problem, the prioritization of said problem on institutional agendas, the redirection of institutional profits for the sake of human needs (rather than stakeholder greed), democratic management, and transparency.¹¹ According to Bocharnikova (2020), in order for any initiative aimed at solving water shortage to be successful, these requirements must be met.

These requirements build on Risse's (2014) framework in that with collective ownership, comes stakeholder responsibility, and thus communal mobilization. The philosophy of group effort to produce a socially optimal resource allocation was present in Ukraine in 2009, when 260,000 people returned to Ukraine after being displaced by the Stalin regime, and water shortages were rampant.¹² A particular community in Crimea pooled community resources in order to install meters, build reservoirs, and find water.¹³ Recognizing both the need for these people to have water, and the conceptual framework of collective ownership led to the level of social mobilization and entrepreneurship that allowed this effort to prevail.

In Nigeria, on the other hand, solutions to water scarcity have long been tied to assistance from the international community. For example, WaterAid (a British non-governmental organization) advocates for sustainable sanitation practices and equally accessible water. In 2011, WaterAid led a "community-led total sanitation" campaign, which helped promote and market sanitation and hygiene facilities. Social events and other promotions were focused on sanitation and encouraging the sale of improved latrine.¹⁴

This campaign began to focus on an empowerment-based approach to solving and addressing certain issues regarding practices like open-defecation. According to the WaterAid website,¹⁵ the ideas and materials were met with 100 percent excitement by the Nigerian people. However, there has been some controversy on the ethical aspects of a British NGO going to Nigeria (a former British colony) and imposing western traditions, like using toilets, on people who have their own traditional practices. While this may be unethical from a sociological standpoint, the legitimacy of these concerns is overshadowed by the improvements made based on these interventions. Without abolishing unhealthy practices of disposing human urine and feces, it would be very difficult for Nigeria to improve living standards.

One aspect of water scarcity, which particularly affects Nigeria, involves the perpetuation of traditional gender roles. Based on Nigerian gender roles, water retrieval is delegated to mostly

¹¹ Bocharnikova (2020).

¹² Video made and distributed by Infobase (2010).

¹³ Infobase (2010) video, at 15:45.

¹⁴ See: <https://washmatters.wateraid.org/blog/marketing-and-pride-to-improve-sanitation-in-nigeria>.

¹⁵ See: <https://washmatters.wateraid.org/blog/marketing-and-pride-to-improve-sanitation-in-nigeria>.

women and children. Olufemi and Ojo (2013) conducted a study, which interviewed 50 Nigerian women belonging to the Ibadan community about their experiences with water scarcity. According to Olufemi and Ojo (2013, p. 51), “most of these women work in the informal sector and live in a patriarchal hegemonic cultural setting.” In other words, because the task of retrieving water is so tedious, it is delegated to women. Tedious, however, might be an understatement. The study showed that when water is scarce in rural communities, 96 percent of women traveled over an hour to get the water they needed for their families.

This aspect of water insecurity is not widespread in Ukraine. The social order of Nigeria is far more traditional than that of Ukraine. Although still an underprivileged group, Ukrainian women have far more opportunities than Nigerian women. The issue of water scarcity in Ukraine is mostly relegated to particular communities that are either ignored because of their rural status or plagued with political conflict. The impact of armed conflict, in fact, lowers transportation fatigue in Ukraine since it acts preventatively rather than as a nuisance. For example, landmines and broken ceasefires deter people from leaving their homes to get water, and active fighting destroys infrastructure like pipes and pumping stations.¹⁶ While Nigeria has had a long history of politically motivated armed-conflict, and terrorism continues to riddle the country, conflict is only one of many contributing factors to water insecurity.

V.2. Ethical Frameworks

As detailed in Risse (2005), two major theses have emerged as to why the global south is so far behind the developed world:

- The institutional thesis proposed by Douglass North (1991) argues that the development status of a particular country is determined by the strength of their domestic institutions.
- The geography thesis, presented by Gallup, Sachs and Mellinger (1998), argues that a country’s natural resource endowment determines its path of development.

These two theses allow us to understand international development programs from an ethical perspective. In the case of Nigeria, the institutional argument is both valid and invalid. In a sense, yes, the Nigerian political institutions are quite poor, which is why they have had issues with providing safe water to everybody. However, these institutions were under indirect colonial rule until 1960, the impact of which is so significant that even Nigeria’s state borders are a colonial legacy. This is not to say that Nigerians are not to blame for the development of their own institutions, but that the infighting and instability that followed independence was in part a result of colonialism.

Risse (2005, pp. 352-353) defines “harm” as the violation of one’s rights, in other words, the revocation of an entitlement. Building on this definition, Risse (2005, p. 366) then forwards the idea that because the developed world often enjoys the benefits of natural resources (like water) at the expense of the developing world, the rights of those without the resources (for which they both share ownership and rely on for life) are being violated. This principle of “uncompensated exclusion” is based on the same idea that was mentioned earlier of collective resource ownership.

Even though Risse (2005) does not consider the principle of “uncompensated exclusion” as being one which exemplifies how the global order harms the poor, there is still an argument to be made

¹⁶ Gates, Hegre, Nygård, and Strand (2010).

that because of the geography thesis, value is attached to a country's natural resources, the relevancy of which is best explained in how national institutions in Nigeria could not develop as a result of the resource exclusion that came alongside colonial rule. If humankind owns the earth collectively, to deprive one of these resources is unethical in the sense that their moral rights are being violated at the very least because they then become unable – as a result of the deprivation – to strengthen institutions to distribute those resources equally.¹⁷

The ethics of water is also discussed in Groenfeldt and Schmidt (2013). They analyze the ethics of water governance at large by describing four approaches to water governance, which are relevant in our current discussion: management, institutional, sustainability-based, and values-based. According to Groenfeldt and Schmidt (2013), all four of these approaches share common ideas, which ultimately depend on the values of a particular society. Specifically, the “values approach identifies the reasoning used to support laws, policies, and practices; it seeks to describe and explain those values; and it considers how alternate categories for defining the human–water relationship affect the ethic of governance.”¹⁸

This framework is very similar to the Markkula center's framework,¹⁹ which lays out a foundational process for ethical decision making. Currently, institutions must undergo this process in how they tackle the current issues facing water scarcity. In empowering women and eliminating patriarchal practices surrounding domestic water retrieval (which society has now identified of being problematic), Nigeria must rework and formulate alternative frameworks and organizations. In order to develop more ethical systems, we must remove traditional stigmas surrounding sanitation and instill pride in preserving the integrity of natural resources. For addressing urban/rural inequality, it is important for the water-rich urban politicians to create programs that extent access to safe water to rural areas in a more sustainable way.

VI. Conclusion

Water is imperative to development due to its interdependence to other aspects such as poverty, environmental sustainability, gender empowerment, urbanization, and public health. Ukraine still suffers frequent problems with consistent water access, especially in the rural and war-torn regions. In Nigeria, the situation should not be considered anything but dire. Until Nigeria develops specific, targeted, and integrated solutions to water access, almost all areas of development will continue to struggle. After looking at specific socioeconomic factors, not only is the link between poverty and access to sustainable water clear, but so is the setting.

Furthermore, the facts examined in this article show that in a purely empirical sense, the situation in both Nigeria and Ukraine goes beyond harm. It would be one thing if the resource allocation was at full capacity, but with water withdrawals as low as 6 percent of available resources in Nigeria, there is an inexcusable problem. The resources are there, and there needs to be a more ethical approach to respect every human's right to water and hence, life.

Social responsibility cannot be underestimated when it comes to solving the unequal water distribution. Economically speaking, entrepreneurship exists when a need is not being met and someone takes it upon herself to go the extra mile to provide that need. This entrepreneurship

¹⁷ Risse (2005).

¹⁸ Groenfeldt and Schmidt (2013), p. 5.

¹⁹ Markkula Center for Applied Ethics (2015).

based on social responsibility includes compensating the excluded for the action of those who make the problem worse. While the foundation for this kind of social entrepreneurship is set in Ukraine, the initiatives still need to get their feet wet. In Nigeria, such social entrepreneurship may not even come from within the country. Although it would be ideal if this kind of infrastructure could develop on its own, current Nigerian institutions continue to force people into water poverty.

References

- Abubakar, Ismaila Rimi (2017). Access to Sanitation Facilities among Nigerian Households: Determinants and Sustainability Implications. *Sustainability*, Vol. 9, Article No. 547; available at: <https://doi.org/10.3390/su9040547>.
- Adagbada, Ajoke Olutola; Solayide Abosedede Adesida; Francisca Obiageri Nwaokorie; Mary-Theresa Niemogha; and Akitoye Olusegun Coker (2012). Cholera Epidemiology in Nigeria: An Overview. *The Pan African Medical Journal*, Vol. 12, Article No. 59; available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3428179/>.
- Bocharnikova, Alina (2020). Statement made at the Panel Discussion on “Corporate Social Responsibility, Perspectives from Ukraine” at American University on March 2, 2020.
- Fankhauser, Samuel; Yulia Rodionova; and Elisabetta Falchetti (2008). Utility Payments in Ukraine: Affordability, Subsidies and Arrears. London, UK: University College London (UCL), School of Slavonic and East European Studies (SSEES), Centre for the Study of Economic and Social Change in Europe (CSESCE), *Economics Working Papers*, No. 87 (February); available at: <http://discovery.ucl.ac.uk/17458/1/17458.pdf>.
- Food and Agriculture Organization of the United Nations (FAO) (2015). AQUASTAT Country Profile – Ukraine. Rome, Italy: Food and Agriculture Organization of the United Nations (FAO); available at: <http://www.fao.org/aquastat/en/countries-and-basins/country-profiles/country/UKR>.
- Franks, Tom; Hassan Bdliya; and Lawrence Mbuya (2011). Water Governance and River Basin Management: Comparative Experiences from Nigeria and Tanzania. *International Journal of River Basin Management*, Vol. 9, No. 2 (June), pp. 93–101.
- Gallup, John Luke; Jeffrey D. Sachs; and Andrew D. Mellinger (1998). Geography and Economic Development. Cambridge, MA: National Bureau of Economic Research (NBER), *NBER Working Paper* No. 6849 (December); available at: <https://www.nber.org/papers/w6849>.
- Gates, Scott; Håvard Hegre; Håvard Mokleiv Nygård; and Håvard Strand (2010). Consequences of Civil Conflict. Washington, DC: The World Bank, World Development Report 2011 *Background Papers*; available at: <http://hdl.handle.net/10986/27502>.
- Groenfeldt, David and Jeremy J. Schmidt (2013). Ethics and Water Governance. *Ecology and Society*, Vol. 18, No. 1, Article 14; available at: <http://dx.doi.org/10.5751/ES-04629-180114>.
- Hadejia, Isma’ila Abdullahi and Babagana Boso (2017). Local Capacity Building and Partnership Development for Sustainable Water Resources Management in the Hadejia Jama’are Komadugu Yobe Basin - Lessons from the Activities of HJKYB Trust Fund, Damaturu, Yobe State. *Asian Research Journal of Arts & Social Sciences*, Vol. 3, No. 4,

- pp. 1–11; available at:
<https://www.journalarjass.com/index.php/ARJASS/article/view/11234/20336>.
- Infobase (2010). *Conflict on a Local Scale*. New York, NY: Infobase, video.
- Markkula Center for Applied Ethics at the University of Santa Clara (2015). *A Framework for Ethical Decision Making*. Santa Clara, CA: University of Santa Clara, Markkula Center for Applied Ethics; available at: <https://www.scu.edu/ethics/ethics-resources/ethical-decision-making/a-framework-for-ethical-decision-making/>.
- North, Douglass C. (1991). *Institutions, Institutional Change and Economic Performance* (New York: Cambridge University Press).
- Olufemi, Olusola and Olajide Ojo (2013). A Threat to Women’s Food Work and Livelihood. *Canadian Woman Studies*, Vol. 30, Nos. 2/3, pp. 49–59.
- Risse, Mathias (2005). How Does the Global Order Harm the Poor? *Philosophy & Public Affairs*, Vol. 33, No. 4 (Autumn), pp. 349–376.
- Risse, Mathias (2014). The Human Right to Water and Common Ownership of the Earth: Human Right to Water. *Journal of Political Philosophy*, Vol. 22, No. 2 (June), pp. 178–203.
- Slaughter, Andrew and Nelson Odume (2017). How Nigeria is Wasting its Rich Water Resources. *The Conversation*, September 5; available at: <http://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110>.
- Vystavna, Yuliya and Dmytro Diadin (2015). Water Scarcity and Contamination in Eastern Ukraine. *Proceedings of the International Association of Hydrological Sciences*, Vol. 366 (April), pp. 149–150; available at: <https://piahs.copernicus.org/articles/366/149/2015/>.
- World Bank (2019). *World Development Indicators / International Debt Statistics database* (Washington, DC: The World Bank); as posted on the World Bank website: <http://data.worldbank.org/data-catalog/> (downloaded on January 16, 2019).