

Écoféminisme: The Importance of Including a Feminist Perspective in Achieving Sustainable  
Agriculture in Francophone Africa

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Honors Thesis

Spring 2023

**Abstract**

Environmentally sustainable practices benefit the environment as well as the people in the affected communities. Women have a unique experience in their relationship with environmental sustainability efforts and climate justice. The concept of ecofeminism highlights the dualism and connection between the oppression women face and the oppression of the planet. As many of the countries in Francophone Africa are at similar stages of economic development, due to their shared history of colonization by the French, they are comparable countries in terms of sustainability practices. This analysis uses case studies from Mali, Cameroon, and Senegal to look at how women are directly involved in and impacted by sustainability efforts in Francophone countries in Africa. The second part of this research is an empirical study of data from the World Bank and other sources, specifically looking at social indicators of gender equality in Francophone African countries as well as government attitudes towards investing in sustainable practices to investigate the relationship between these two variables. As women are uniquely impacted by environmental degradation and thus would be more positively affected by sustainable practices, there may be a relationship between gender equality and the attention sustainability.

**Keywords**

International Relations, French, ecofeminism, sustainability, economic development, Francophone Africa, agriculture, women

## Introduction

In the current state of the Earth's health and future projection, all efforts possible to move toward environmentally responsible and regenerative practices across the globe are crucial, however, countries at different stages of economic development have different experiences and capabilities in terms of prioritizing environmental sustainability. Developing and non-industrialized economies do not have always as many resources, including international investment or access to global financing and markets, to focus on the development of sustainable practices. Nations considered "developing" countries are held to a standard created by the Western and Global North. The concept does not acknowledge different variations of what development looks like for different countries. Not all countries must follow the same patterns of development, nor should they, in order to still achieve economic and sustainable development. While the goal of sustainable conversations is to recognize that economic development should be analyzed on each country's own basis rather than on a scale fitting for the Global North, this is the current system, and in order to change the system eventually, we must work within it in the present and use that space to be the changemakers. Many of the nations in earlier stages of development are former colonies that had suffered major economic disadvantages due to colonial rule. The effects of colonialism follow these countries into modern times. Countries with similar colonial histories are likely to be at similar points in development, such as the countries of West Africa, which were colonized by the French and therefore, experienced similar economic control as well as quests for independence (Nulambe and Eryigit 10071). As a result of the economic challenges often faced, these countries often focus more heavily on pressing issues affecting their populations like poverty rather than investing in renewable energy or other sustainable practices (Nulambe and Eryigit 10070). Despite this behavior from governments in Francophone Africa,

there are still significant projects that are being invested in that are having impactful results on the environment and communities around them. Many of these projects highlight the involvement of women-introducing the concept of ecofeminism - that connects the importance of uplifting women, and in turn protects the environment. Environmental sustainability is not possible without the empowerment of disadvantaged communities. We see this in the fact that governments prioritize fighting poverty over investing in environmentally sustainable projects. Women around the globe are frequently put in a position to be more vulnerable to environmental issues. It is possible that as women have been repeatedly associated with nature, from a Western perspective that separates humans from nature and thus allows more for the disrespect of nature and therefore women and girls continue to be marginalized across many cultures (Gaard 20). This presents the question: does the level of gender equality in a nation in Francophone Africa increase the likelihood that the nation will invest more in environmentally sustainable practices? Based on the pattern that countries with developing economies will prioritize issues like poverty before environmental justice, it follows that countries with higher levels of gender equality will be able to invest more in environmentally sustainable projects. This will be investigated in six countries in Francophone Africa: Mali, Senegal, Cameroon, Togo, Chad, and the Democratic Republic of the Congo.

There has been a recent shift to elevate women's voices in the work towards environmental justice, particularly in the United Nations' Agenda 21 and the corresponding Women's Agenda 21, as well as through organizations specifically focused upon women and the environment, like the Women's Environment and Development Organization (WEDO). Mottos like "It's Time For Women to Mother Earth" use the traditional roles women are associated with to integrate them more and highlight the ways women can add to the sustainability movement

(Gaard 119). With this being said, women are more highly susceptible to the impacts of environmental injustices making them key members in efforts for environmental sustainability. This study will highlight the different ways women are involved in sustainability practices in Francophone Africa as well as the ways they are uniquely affected by environmental degradation. More specifically, this study will determine if the level of gender equality present in a nation in Francophone Africa has an impact on the governmental involvement in promoting and investing in sustainable practices. Currently, this is a new field with little research previously conducted since the concept of ecofeminism and the strong relationship between gender equality and environmental sustainability are fairly new developments.

### **Literature Review**

Environmental sustainability is its own respective field of study and invention, although it cannot succeed without the support and involvement of other political and philosophical movements. Investing in practices that will benefit the Earth's ecosystem will impact the Earth as well as the social systems humans have developed. From this becomes apparent the "symbiotic relationship between man and the environment," which stresses the relevance of humans to the environment (Bodunde and Aliyu 285). This concept is especially important in reinforcing the idea that developing practices that will benefit the environment will, in turn, circle around and ultimately benefit humans as well. This is the foundation of what allows "ecofeminism" to form as its own philosophy and movement. It is built on the idea that actions taken for the good of the environment have a strong impact on the experience of women in the modern world, and that modern efforts towards gender equality must take environmental influence into consideration. Basically, there can be no feminist effort towards gender equality and women's rights without also looking into how the environment specifically affects women in everyday living. There is a

strong sense of intersectionality associated with this term. Crenshaw and Collins note that it began as a concept invented by Euro-western activists but has been even further developed by Black feminists to encompass a wider perspective bringing in nationalities and experiences from around the world (qtd. in Gaard 4). An important aspect of ecofeminism is its intersectionality, which highlights the different experiences and challenges associated with climate change among groups of varying genders, classes, races, sexualities, species, and nations. According to Probyn-Rapsy et al., ecofeminism promotes the idea that an environmentally sustainable solution must also be considered in how it impacts the “care and justice for other animals, women, people of color, queers, and other ‘others’” (qtd. in Gaard 17). The main goal of this theory is to promote more movement for environmental justice through collaboration (Gaard 4). The field of ecofeminism seeks to address the ways in which women are disproportionately impacted by environmental challenges due to traditional roles and assumptions imposed upon them (Bodunde and Aliyu 286). Overall, ecofeminism is the philosophy and movement in activism that intends to unite the two causes of fighting for environmental sustainability through the lens of gender as well as reinforcing gender equality.

In the field of ecofeminism, the term “sustainability” is used quite often to express the way in which ecofeminists and environmental activists fight for advancement. There are many different aspects whereby the term has relevance, so for the purpose of this study, the term sustainability refers to “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland 15). In other words, in order to achieve sustainable development, we must highlight the success and gauge for future success in three categories: ecology, economy, and society (Gaard 4-5). Another relevant definition of sustainability focuses more heavily on promoting intersectionality through

development, with which ecofeminism aligns strongly (Gaard 9). These definitions will be important to keep in mind as “sustainability” is the main topic of this discussion, and the term refers to more than just environmental development.

Within the foundations of ecofeminism is the concept of “duality.” There are multiple definitions of what dualism is and how it pertains directly to ecofeminism, which is why there must be a uniform definition for the purposes of this paper. The four main principles of ecofeminism, as identified by Susan Dobscha, recognize the connection between the oppression of nature and the oppression of women. When put together, the two separate binary oppositions of man vs. nature and male vs. female emerge. This is what brings dualism to have such relevance in the ecofeminist field. Dualism, as defined in this context by Warren, McGuire, and McGuire, is the worldview that takes a disjunctive pair between two concepts seen as oppositional and exclusive and assigns higher value to one but not the other, thus creating a power imbalance between the two dichotomies (qtd. in Bodunde and Aliyu 288-289). It is important to note that in dualism, the two concepts that are separated from each other are indeed connected and reinforce each other to the point where their exclusivity from each other is forced. For example, speciesism is the concept that humans and non-human animals are different, and humans are superior. This plays a major role in ecofeminism where male vs. female is the dualism, with males being the “superior” entity within the dichotomy, and human vs. nature. In this case, male and human are in the superior position, thus equating female to nature, further reinforcing the connection between women and the planet through traditional roles (Bodunde and Aliyu 289). These dualisms existing simultaneously highlights the way women are affected by sustainability practices, or the lack thereof, by the government. As both women and nature are in

the inferior position in their respective dichotomies, they both suffer from non-committed governments or those with major concerns other than the environment and gender equality.

In the world today, there are certain vulnerable groups that those in power are willing to put in more risky environments so they can achieve what benefits themselves the most. For example, for the highest level of comfort of the richest nations in the world, there is a sacrifice of the poorer ones whose natural resources and human populations are exploited and face the most environmental injustices. The groups that the most powerful groups choose to sacrifice, whether intentionally or not, are known as “sacrifice zones” (Gaard 15). The most common groups put into the sacrifice zones are animals, indigenous peoples, the Global South, and impoverished communities (Gaard 15). It is noted that these are typically the groups in the sacrifice zones because of the purposeful distancing put between these communities and those in power. To minimize this practice, there must be intentional effort in reducing the remoteness associated with these groups (Gaard 16). Women are often placed into this category because they typically, across the globe, do not hold the same political power as men, and thus, do not pose a threat to this system (Bodunde and Aliyu 290). In ecofeminism, there is a strong effort on acknowledging the presence of sacrifice zones in the fight towards gender and climate justice, especially in terms of the influence of sacrifice zones on women specifically, as well as reducing the existence of these sacrifice zones as a whole.

The global standard for what is considered a developed nation or economy has been dictated by the Western perspective. This means that despite the respective success of a nation and economy, if it does not reach the Western standard, it is not thought to be as successful and the Western perspective is reinforced. Through an effort to push economic development, sustainability is often sidelined. A similar concern should be kept in mind with versions of what



is sustainable since environmental sustainability originated as a Western concept, and the way this philosophy is put into practice around the world does not always happen in the most productive manner. It can be ignorant to existing practices that are good for the environment and society just because they are not the Western idea of sustainable practices. Therefore, when Western thought is pushed in these non-Western countries, whether the practices are reinforcing the Western perception of economic development or sustainability, they end up hurting more than they could have benefitted. This is particularly true in ways Western practices have been forced onto non-Western countries and result in more harm on women's quality of life, such as the focus on producing cash crops for more economic benefit despite it interfering with social organization and often separating men from their homes, which leaves women in a place of hardship to take care of everything in the community on their own (Bodunde and Aliyu 290). This concept, the negative effects of Western ideals of economic development, is known as maldevelopment, and is a result of neo-colonial politics playing a role in the interactions among nations and ideologies today (Bodunde and Aliyu 290). Ecofeminism remembers all of this within its philosophy and is attentive to not force Western ideologies onto non-Western countries. Instead, ecofeminism reinforces the idea that perceptions of what is sustainable should come from communities themselves and should include an intersectional mindset in which the environment, society, and the economy all benefit.

Social and economic indicators can be used to see the effects on the three main categories: environment, economy, and society, to track development and its sustainability. Social indicators can be used to note the difference in how practices affect women in the selected society and if there should be changes to the practices to benefit women more. To achieve overall

progress towards sustainability, there needs to be more effort put into different issues at different times, depending on what needs more attention at the moment (Vyas-Doorgapersad 405).

Women often do not have access to the same opportunities for personal and professional growth as men. Social indicators surrounding this reality include the gender digital divide, literacy rates, incomes, the ratio of girls to boys in schools, and drop-out rates at different ages comparing male students to female students (Vyas-Doorgapersad 408-410). To fix this issue, there must be specific efforts to promote technological education for women and girls.

Particularly, investments in early intervention programs in science and technology for girls can help even out the lack of women in technological fields (Vyas-Doorgapersad 406). While many of the reasons for these differences in gender fall into the issue of schools not having enough resources, this does not excuse the fact that women and girls are the ones facing the most consequences. For example, in Benin, there is a lack of educational resources, which impacts the gender inequality that exists in the information and technology sector (Vyas-Doorgapersad 409).

Other issues that disproportionately affect women are ones surrounding healthcare. Healthcare is harder to provide as well as keep records of in rural areas, where the gender divide is often exaggerated. As a result, it is harder for women in rural areas to get the care they need to remain healthy. Issues like early pregnancy and curable illnesses that go without treatment are ones that affect women much more and impact all aspects of their lives, thus the recordkeeping is important in noting the possibility for sustainable development or how the development is going (Lloyd et al. 3). Social indicators such as teen pregnancy rates, infant mortality rates, mortality rates during childbirth, life expectancy, fertility rates, abortion rates, etc., are all important indicators for determining the position of healthcare available to women specifically. To achieve greater tracking of health care records in Francophone Africa, a scientist in Mali produced a

health products dashboard called OPSANTE (Konduri et al. 9). As a result, healthcare reporting has gone from 10% in 2011 at the start of the implementation to 98% in 2015 (Konduri et al. 10). This demonstrates the success of this program and how beneficial it is to keep records of healthcare to receive the correct amount of funding and support from the government (Konduri et al. 13).

Political participation is another field where women are not accurately represented. By including women in policy-making, there will likely be more success towards sustainable development. Prioritizing intentional efforts to include women in leadership positions and have their voices heard in planning processes for new projects (Vyas-Doorgapersad 407). Although some francophone African countries have been really successful with the percentage of women in leadership, such as Rwanda, there still needs to be more effort in other countries that do not have such equal representation. The social indicators for political participation may include the percentage of women in politics, graduation rates of women in political fields, etc. It is widely thought that with more women in political power, there is more general peace and enhanced development. This is especially beneficial in regions that have long faced series of conflicts and untrustworthy governments such as dictatorships in many West African countries (Vyas-Doorgapersad 408). By increasing the participation of women in this field, there is more of a possibility for social restructuring that would bring more peace, and therefore more energy that could go into sustainable practices (Vyas-Doorgapersad 408). This is why the political involvement of women is so important to close the gender gap.

All together, these three areas: education, health, and political participation, contribute to how women are affected by policies in a country. Social indicators from these areas can be used

to track how development is progressing based upon the specific goals, needs, and desires of a nation and its peoples.

Despite the common belief that sustainable development exists outside of and separately from economic development, many sustainable practices have positive impacts on economic development as well. Economic and social development coincide with each other and are mutually beneficial when promoted in the right ways. There is specific research in Francophone Africa, which focuses on the study of how sustainable practices, like use of renewable energy and attention to ecological footprints, have an impact on economic growth (Nulambeh and Eryiğit 10069). Currently, the impacts of these sustainable practices do not represent a strong positive relationship with economic growth in francophone African countries. This can largely be attributed to weak efforts by governments and institutions and weaker political stability. As a result, sustainable practices only ultimately contribute to economic growth when partnered with strong institutions, at which point they supersede non-sustainable practices' effects on economic growth (Nulambeh and Eryiğit 10069). In economies that are at earlier stages of development, environmental degradation is not one of the main concerns as more effort is put into promoting the economy itself. As these economies reach higher levels of development, often using the GDP per capita as an indicator of growth, there is a resulting higher demand for environmental concern and investment in renewable or sustainable resources. Therefore, there is a tradeoff for environmental concern and economic growth at early stages of development, despite the possibility for sustainable practices to benefit economic growth (Nulambeh and Eryiğit 10070). One reason for the prioritization of economic growth at early stages is that there are more pressing issues affecting society that must be addressed first. For example, poverty levels are much higher at the early stages of a developing economy than at more advanced stages, requiring

governments to put more effort and investment into resolving this issue before being able to address the environment. Ultimately, investing in reducing poverty will have a positive impact on sustainability efforts because it opens the door for governments to switch their focus to the environment (Nulambeh and Eryiğit 10070). Francophone African countries experience long lasting effects of their direct colonial rule by the French through their economic setback. Many of these countries that are former French colonies are still at early stages of development and have governments that have not invested significantly in sustainable practices (Nulambeh and Eryiğit 10071). Similarly, studies have also shown that governments with lower levels of corruption and who manage their debts efficiently show a positive effect on economic growth (Nulambeh and Eryiğit 10075). This expectation puts former French colonies at a disadvantage since their experience with national rule and leadership has been controlled and manipulated by colonial rule, leaving them more susceptible to hostile governments like dictatorships. Overall, Francophone Africa is at a crucial point in the general stage of economic development where investing in environmentally sustainable practices could also be very beneficial for economic growth if combined with effective institutions.

Women are involved in environmental practices and efforts towards sustainability in a multitude of ways that are not intentionally rooted in environmentalism but have major effects on the sustainable mindset. As previously mentioned, women are often in a societal position that makes them more susceptible to feeling the effects of environmental crises. In times of crises, women come together to discuss opportunities for change as well as to exchange stories about their current struggles that they may all relate to. One of the most prevalent examples of the impact that women's groups can have is in the humanitarian crisis between ethnic nationalities caused by oil companies' exploitation of resources in Nigeria, a country in Western Africa that

shares a border with Francophone African nations, and therefore, whose interests and stories may often overlap with those of Francophone African countries (Bodunde and Aliyu 294-295). The Niger Delta Region, where this crisis took place, overlaps into its neighboring Francophone countries. Its proximity to Francophone countries is the reason this specific case is taken into consideration in this study. These multinational oil companies, as well as multiple administrations of the Nigerian government, created a false antagonism between the variety of ethnicities that coexist in the region: the Itshekiri, Izon, and Urhobo tribes (Bodunde and Aliyu 294). These groups began to pit themselves against each other with the perception that one was trying to oppress the others, thus creating suspicion and distrust, which ultimately resulted in the understanding that each group was committing crimes against the others (Bodunde and Aliyu 295). In this situation, it was the women who first realized that all the ethnic groups were at a loss because the government was not protecting any of them and they all had victims (Bodunde and Aliyu 295). It was the women who recognized their shared marginalization from the government and the suffering it would cause for each individual, regardless of ethnicity. They were able to overlook the differences in their ethnicities to come to a common understanding when that was exactly the opposite of what the situation at the time would allow. This can be attributed to the fact that women rely on each other for information sharing, personal connection, and support through community building. In this case, women had been affected individually by environmental degradation in very personal ways, for example, having trouble conceiving, having malformed babies, unexplainable health issues, the incompetence of men, reduced morality standards, etc. (Bodunde and Aliyu 295). As women came together to resolve the humanitarian issue across the ethnic groups, they not only worked together to achieve a common solution towards their common goal, but they also formed a strong bond across warring ethnic

groups. They created the Women of the Delta Forum (WODE-FOR) that became a powerful association that demanded a safer environment in their region (Bodunde and Aliyu 295). In this case, the women of the Niger Delta Region were the backbone of change during a significant humanitarian crisis affecting multiple ethnic groups in the region which was caused by environmentally degrading actions by large oil corporations.

As women are so highly impacted by environmental issues, they feel the burden even more than other groups of identities, and as a result, are often the leaders for environmental change, like in the Niger Delta Region example. The women there demonstrated unity and activism towards a better future for themselves and their communities, first highlighting the impacts they have felt as individuals from the harmful environmental degradation from the oil companies. This was not a unique scenario where women were the leaders for encouraging sustainable practices, and their actions did not stop at an interpersonal level. Women-led protests against these major oil corporations was not a single occurrence. Women found the WODE-FOR group, and they were also the founders of the Federation of Ogoni Women (FOWA) in the Niger Delta Region. This group's protests shut down oil production from these large companies for eleven days, which forced the company to hold an open discussion with the women of the affected communities, thus leading to negotiations (Bodunde and Aliyu 293). There is a unique power women hold in African societies that enhances the power that their forms of protesting bring. One example of this is the Nude March that the women of the Niger Delta Region organized and participated in, using the importance and power of the message their nude bodies hold in deep-rooted African cultural and spiritual beliefs (Bodunde and Aliyu 296). The implication is that this is a last resort action to be taken when there is a severe complication, in this case, the mistreatment of the communities by the oil companies. It acts as a curse, reserved

for only the most serious of times. For the women of the Niger Delta Region, the threat of this was enough to force the companies into negotiations with the communities, achieving their goal without having to fully carry out the protest. Their forms of activism and protest in this experience were much stronger than anything men were a part of (Bodunde and Aliyu 297).

Women prove to be the keepers of peace around the world, so much so, that the United Nations Security Council Resolution 1325 of 2000 specifically mentioned that the “significant involvement of women” would help improve the peace and development in West Africa and should be heavily considered in the restructuring process (Vyas-Doorgapersad 408). With more female leadership, especially in West African countries where the gender inequality is significant, there is more attention brought to issues that specifically affect women and girls more. For example, access to education and poverty are highly linked, and as girls are often not given the same access to higher levels of education as boys, they are more at risk to live in poverty. This creates a cycle in which women cannot experience the same economic opportunities as men (Vyas-Doorgapersad 408). With this said, having more women in politics and leadership positions would bring more attention to issues that directly affect women, which would, as a result, lead to more policies that would promote sustainable economic development and quality education. Additionally, women have differing attitudes than men towards climate change and climate policy, according to studies by Ergas and York 2012, Albert and Roehr 2006, and McCright 2010, which were cited in *Critical Ecofeminism* (qtd. in Gaard 135). Ergas and York claim that with women in positions where they can make policy changes, the climate problems would become more relevant to policy decisions since women prove to “perceive environmental risks as more threatening than men” (qtd. in Gaard 135). Furthermore, Alberta and Roehrer state that “women are more skeptical about the effectiveness of current climate



change policies in solving the problem,” and they are more open to the idea of changing their lifestyle to become more environmentally-friendly (qtd. in Gaard 135). These study conclusions express how climate change perception differs greatly in men and women and how the inclusion of women in the climate conversation would present new ideas that would further the efforts. The difference in perception of climate change and climate policy between men and women is also remarkably visible when comparing the Women’s Agenda 21 (1991) to the UNCED Agenda 21 (1992). Both of these discuss ways to promote sustainable development and protect the environment, although their focuses differ greatly in their attention to the roles of women in sustainability. Bistuer and Cabo point out that where the Women’s Agenda 21 emphasizes in the Technology section that technology can be destructive to the environment and is inaccessible to people in poverty, especially women, focusing heavily on the ethical implications of technology, the UNCED Agenda 21 promotes only that the use of technology is beneficial and should be more heavily relied on (qtd. in Gaard 120). Bistuer and Cabo also acknowledge that in the Population section of the agendas, the Women’s Agenda 21 explains that it is military and industrial pollutants thriving under the capitalist economic systems that have the most impact on environmental degradation while the UNCED Agenda 21 blames population growth and fertility rates for being a major contributor to environmental degradation (qtd. in Gaard 120). Instead of focusing on large-scale contributors like the Women’s Agenda does, the UNCED Agenda puts the blame for large-scale destruction on individual women. While their resolution to focus on promoting girls’ education and family planning is important, the environmental degradation that currently exists cannot be solely attributed to these causes, and doing so reinforces the mentality of reproductive control. It is important to consider women’s voices in the context of environmental sustainability since they provide a different perspective from men and challenge

the current system. Women have also proven to be the leaders of environmental protection efforts and in promoting peace, like in the Niger Delta Region example. Women are strong leaders towards sustainability and contribute greatly to environmentally sustainable practices.

### **Research Design Methods**

The data for this research design is two-fold. We will conduct an analysis of select case studies in various Francophone African countries, paying specific attention to the involvement of and effect on women. The second part of the research design will be an empirical study of the correlation between two variables: the equality of women and the amount of environmentally sustainable practices the government invests in.

Selecting case studies is particularly important as the few cases must represent an overall theme in Francophone Africa. The examples for this research come from the book *Sustainable Intensification : Increasing Productivity in African Food and Agricultural Systems*, which highlights different sustainability projects in various African countries that are specifically linked to agricultural sustainability. Certain traits were necessary to be present in the cases selected for this study so that the cases would be the most relevant and representative as possible. Firstly, the projects must take place in a francophone country, meaning that French is an official language acknowledged by the government. Secondly, the impact on women in the affected communities must be intentional. The case studies selected all have specific efforts to involve women, which increases their impact on influencing gender equality engaging ecofeminist efforts. Finally, for the purposes of this analysis, three case studies is the proper amount to give examples of ecofeminism in practice while supplementing the second part of the research design. These case studies will be explained in great detail with attention to their impacts on women as well as economic results, giving an insight into the reality of these practices being implemented.

Women's vulnerability to environmental crises is due to the many inequalities they face in a variety of realms, not only those directly related to the climate. The main reasons for women to be most affected by climate injustice is because they are already in a vulnerable position in society due to "gendered social roles, discrimination, and poverty" (Gaard 123). As a result of this connection, various social indicators can be used to determine the level of gender equality in the nation and relate it to the possibility for attention sustainability by the nation. The empirical design of this study takes into account the two variables mentioned above: the social oppression of women and the government's practice of environmentally sustainable projects, although much more goes into each of these individual variables. In order to measure gender equality within a country multiple indicators will be taken into account, specifically: CPIA gender equality rating (1=low to 6=high), Fertility rate, total (births per woman), Literacy rate, adult female/male (% ages 15 and above), and Women who were first married by age 18 (% of women ages 20-24). These indicators will give an image of the vulnerability women experience and the amount of power they have in the cultural context of their country in policy making and socially in their daily lives. These indicators will be used to support the independent variable: the level of gender inequality or equality in a given country. Education levels as well as marriage ages and the number of children someone has contribute greatly to poverty levels and, as a result of poverty, are more susceptible to the impacts of environmental issues. For this reason, these are very relevant to the conversation of oppression based on gender and vulnerability to the environment. These factors also contribute to varying levels of economic independence women experience and thus their own range of possibilities for contributing to sustainable movements themselves. The dependent variable: the government's environmentally sustainable practices, can also be measured using indicators from the World Bank DataBank. These indicators include:

Employment in agriculture (% of total employment) (modeled ILO estimate), Level of water stress: freshwater withdrawal as a proportion of available freshwater resources, PM2.5 air pollution, population exposed to levels exceeding WHO guideline value (% of total), Renewable energy consumption (% of total final energy consumption), and Total greenhouse gas emissions (kt of CO<sub>2</sub> equivalent). These environmental indicators acknowledge effects on the environment that are heavily affected by governmental policies and give insight into the efforts the government prioritizes regarding the environment. Often, specific governmental policies have direct impacts on the ways individuals and businesses can interact with the environment. Accordance with global guidelines demonstrates the importance of contributing to the global sustainability movement and its priority within a government. Governments have many various issues to confront, and in countries where more immediately pressing issues, like natural disasters, government corruption, and poverty, efforts to promote environmental sustainability can be pushed to the side despite the proof that these issues go hand in hand and impact each other directly.

The countries for the empirical data research portion of this study will be three different Francophone countries in Africa than the three included in the case study portion so that the study has a more vast representation of Francophone Africa's movement towards environmental sustainability. The nations in the case study are Mali, Senegal, and Cameroon. While Mali and Senegal are both to the very west in the Saharan Desert, Cameroon is more to the South and East in comparison. For a more well-rounded analysis of Francophone Africa, the countries for the empirical analysis will have locations connecting the various regions included in Francophone Africa. These countries of analysis will be Togo, Chad, and the Democratic Republic of the Congo (DRC). The nations are all considered low income countries, and as Francophone

countries that were once under the colonial rule of France, their historical and economic backgrounds align to make them good comparisons (World Development Indicators). The data on the variables mentioned above will be taken from the World Bank DataBank from the years 2000 to 2021, although the years vary depending on when data from the selected countries and indicator have been collected. Since analyzing multiple indicators for a single variable makes the direct comparison more difficult, each country will be given a certain number of points ranging from 0-10 for their data for each variable. Under the gender equality variable, 0 will represent complete gender inequality while 10 will represent complete gender equality. For the environmentally sustainable practices variable, 0 will represent the worst environmental condition while 10 will represent the healthiest environmental condition. These numbers will then be added together to give a total score to each country, making the correlation more strongly observable. The information from this data will then be used to observe trends surrounding levels of gender equality and levels of importance governments place on environmental issues.

### **Analysis- Case Studies**

Important sustainable projects are being developed in Francophone African countries that are leading the way for sustainable agriculture and a healthier relationship between humans and the environment. These projects would benefit the environment, economy, and people living in the affected communities. Thus, these projects fulfill the three sectors that ecofeminism highlights: ecology, economy, and society. The countries with the most relevant practices to this discussion are Mali, Cameroon, and Senegal. While there are multiple projects occurring in these countries at once, some are more strongly connected to ecofeminism, rather than environmental sustainability itself. This is to say, the projects mentioned here are not by any means the only

sustainable projects taking place in these countries, but they are the ones that have the most involvement by or impact on women.

One of the major efforts towards sustainable development in Mali is through Oxfam's Strategic Cotton Program, which promotes rural entrepreneurship to benefit their economy from a bottom-up strategy. As the Malian economy is most heavily driven by the primary sector, agriculture, the efficacy of crop production holds the utmost importance (Traore and Bickersteth 82). This project, specifically, focuses on the social capital agricultural producers gain through their services, with special emphasis on social inclusion in terms of governance and gender issues (Traore and Bickerteth 85). This means that the number of women in leadership positions is crucial to the success of the project. This project addresses agricultural production as well as literacy rates and the presence of women on formal committees. The Djinina Djiguiya cooperative has shown huge improvements to the number of women in important positions. Of the 93 members, 72 are women and 21 are men after only two years of this initiative's intervention. This strong presence of women is directly connected to the literacy training that is now taking place through this project, in which 1500 women have participated. With this training, women are able to improve their roles in the cooperative as well as apply strategically for student loans or fundraise to cover their membership fees to the cooperative. In this way, they are able to stay a part of the cooperative and gain higher positions. Additional results are that households involved in this initiative have shown an increase in income by an average of 8%. The agricultural benefits from the initiative are also substantial. Organic cotton production has increased by more than 40%, which has brought the community to only 200kg/ha away from their long-term goal. Organic cotton producers have benefited greatly from this initiative, as they have received over 23% more for their cotton production (Traore and Bickersteth 87). Over

35,000 producers have been impacted by this program, including 3,000-4,000 women (Traore and Bickersteth 89). This project had a major impact on the lives of thousands of agricultural producers and their families through direct initiatives to promote sustainable agricultural practices as well as efforts to promote the empowerment of women in the community as decision-makers.

In the forested areas of Cameroon, natural resources are depleted due to modern agricultural practices that take advantage of and destroy natural life systems. To combat the destruction of sustainable agricultural practices and knowledge, a three-step initiative project has been launched in the west and northwest regions of the country. The targeted efforts are 1. To rehabilitate degraded land, thus increasing food security through improved crop yields, 2. To generate opportunities for increased income through tree nurseries and increased local trade of domesticated products, and 3. To encourage more production and marketing of food crops and tree products, which will increase employment and entrepreneurship. The ultimate goals of this project are to help the affected communities become more self-sufficient and become information hubs for their surrounding communities (Asaah et al. 110). This project highlights the importance of domesticating indigenous plants, which can improve the situation of poverty, malnutrition, and hunger and help achieve sustainable agriculture and development for the economy, environment, and society (Asaah et al. 111). Addressing environmental degradation and harmful agricultural practices will cycle around to help achieve the eradication of malnutrition and hunger because of the interconnectedness of the issues. This idea is heavily present in this initiative in Cameroon. One of the changes in practices has been to use fertilizer trees to naturally benefit their crops. The results have been significant as farmers have reported their crop yields increasing by two or three times (Asaah et al. 115). This has now become a

standard practice. Women are intentionally involved in this project through the nursery they maintain that has produced 15 different species of plants that are marketable and can generate significant income (Asaah et al. 116). The women of the communities involved in this initiative have developed four companies that have generated approximately 3,000 USD per woman annually (Asaah et al. 117). This provides economic independence for women as well as promoting environmentally-friendly farming practices. Some of the general impacts on the communities from this project include increased knowledge and success, a pathway out of poverty, career opportunities in the villages, which attracts the younger generations to stay, improved health, better nutrition, access to schooling, etc. (Asaah 118). This project is a prime example of how efforts to modify agricultural practices to become more environmentally sustainable also directly affect the human side of communities and create a positive cycle of influence.

The effort towards sustainable agricultural development in Senegal and the Niger River Basin comes from approaches recommended by the farmer field school (FFS), which teach the most productive agricultural practices to achieve the most output. It reinforces the idea that the variety of farming methods interact differently with the natural processes of certain plants, for example, specific types of fertilizer or soil may enhance or impede growth and the ecosystem. This FFS model was originally used in Southeast Asia, but was shifted to accommodate situations in multiple francophone African countries in 2001, specifically Senegal, Mali, and Burkina Faso. Since then, the program has continuously added other countries while also expanding its field of impact to include environmental and human health components (Settle and Hama Garba 173). This project aims to enhance soil fertility and nutrient flows in order to have the most efficient forms of production and harvest (Settle and Hama Garba 171). One of the main



ways this project is being implemented is through community-based agricultural education in which farmers can understand their own impacts on the ecosystem as well as how micro-ecosystems, like the soil they use, can influence plant growth (Settle and Hama Garba 172). They can then use this enhanced knowledge about their farming techniques to grow their profit. As a result of the efforts of the program, communities have developed greater food security and more reliable income as they have had more agency over the services they receive (Settle and Hama Garba 175). There have also been significant learning opportunities for farmers that have resulted in new practices and successful results, such as the market garden systems that are very common in West African agriculture. These are very sensitive to pests and disease and have presented challenges towards sustainable practices, although using the knowledge from FFS, farmers were able to improve their pest management practices (Settle and Hama Garba 180). FFS also applies unique attention to literacy rates and promoting the involvement of women. Some situations experience high success rates, while others do not find themselves so successful with women, which can be largely attributed to traditional associations of women with certain cropping systems and not others (Settle and Hama Garba 183). During phase two, according to Table 5, there is a mean across crops of 35% women involvement. The highest percentages of women are seen in vegetable, cowpeas, and karité production with 58%, 40%, and 95%, respectively (Settle and Hama Garba 183). The attention to sustainable agriculture education and promoting access to education through efforts to increase literacy rates empowers the community and allows for more opportunities for economic independence and growth.

### **Analysis-Empirical Data**

By using the data collected for the aforementioned indicators in World Bank DataBank, the information for each variable could be carefully analyzed. The three countries, Togo, Chad

and the Democratic Republic of the Congo, demonstrate close, but varying data. For each indicator, one country may rank higher than others, but they each exchange places in this order. For this reason, the points scale in proportion to their data values was very beneficial in seeing an actual comparison among countries that could be used more effectively in creating claims. When the points were all totaled together, it was clear which country had the highest or lowest level of gender equality and environmentally sustainable policies overall.

For the gender equality variable analysis, the first indicator, CPIA gender equality rating, automatically gave a strong idea of what gender equality looked like in general in these countries. The three countries were within a one point range of each other on the scale from 1-6, with 1 being the lowest gender equality and 6 being perfect gender equality. As Table 1 demonstrates, Togo, Chad and the DRC ranged from 2.5 to 3.5 from the years 2000 to 2020. Chad maintained its score of 2.5 throughout the entire 20 year period, while the other countries fluctuated slightly. The DRC had a 9 year drop from 3.0 to 2.5 in the years 2009 to 2018, but finished the 20-year period off at 3.0. Togo had the highest gender equality rating of the three, maintaining a steady 3.0 until 2019 when it reached 3.5 (World Development Indicators). This indicator acted as a strong predictor for the results that all the indicators together would show about gender equality in the countries.

Each of the countries showed a significant drop in the fertility rate over the 20 years, from 2000 to 2020, which can be noted in Table 2. Togo and Chad both showed a drop close to 1 child per woman while the DRC decreased by 0.5 births per woman on average. The fertility rate in Togo in 2000 was 5.3 births per woman while in 2020, it was 4.3 births per woman, a drop of 1.0 births per woman. The fertility rate in Chad in 2000 was 7.2 and 6.3 in 2020, a drop by 0.9 births per woman over the two decades. The DRC's 0.5 births per woman drop was from 6.7 in

2000 to 6.2 in 2020 (World Development Indicators). While these numbers are still much higher than countries in the Global North, the decrease shows that women are gradually moving to positions where they have more autonomy over their own bodies and more time to do work or other activities outside the home away from child-related chores and responsibilities.

Looking only at the female literacy rate would not give a thorough understanding of the position of women relative to men. For this reason, both the female and male literacy rates were taken into consideration, and the difference between the two was used on the 10 point scale to portray the gender inequality. The larger the difference, the more gender inequality was shown. Because of this, and the fact that on the 10 point scale, 10 would represent the most gender equality, the percentage difference in literacy rates was subtracted from 100 and then converted into a fraction of 10. For example, if the difference was 20% between male and female literacy rates, 20 would be subtracted from 100 to get 80, which would become an 8 on the 10-point scale. This allows for smaller differences in literacy rates to get a higher score on the 10-point scale, demonstrating more gender equality. The years of data availability for this indicator vary slightly, but are in close enough range for comparison. In 2000, the difference in literacy rates in Togo was 30.2%, as seen in Table 5. In 2019, when the data was last collected, the literacy rate difference was 24.9%. In Table 3, we see that in Chad in 2000, the difference was 28% and decreased to 17.2% in 2021. The data for the DRC are noted in Table 4, beginning in 2001 when the difference in literacy rates was 26.8%. By 2021, the difference in literacy rates was 18.7% (World Development Indicators). The literacy rate is a strong indicator for gender equality because it addresses education levels as well as quality of education. When there is a larger difference in literacy rates between males and females, it can be inferred that girls are not getting

the same quality education or number of years invested in their education as their male counterparts.

The final indicator that was considered under the gender equality variable for this study was the percentage of women married by age 18. This indicator is significant in the context of gender equality since marriage at an early age often takes girls out of school and is accompanied by having children shortly after marriage. This makes girls economically dependent on their husbands and more susceptible to domestic violence. Getting married at later ages allows for women to have more economic independence and achieve goals outside of marriage and family life. The data in the World Bank was very dispersed across years, as data was not collected in the same years in these three countries; however, there is data in years one after another that can be used for close comparisons. These data are available in Table 6. In Togo, the first year of data collection between 2000 and the present was in 2014 when the percentage of women married before 18 was 37.3%. The most recent year is 2017 when the percentage was 24.8%. Despite these years being very close together, there was still a significant drop in marriage rates before 18 years old among women. In the Democratic Republic of the Congo, the first year of data collection was 2007 with a percentage of 39.1%. In 2014, the percentage was 21.8%, and finally, in 2018, the most recent year of data collection, the percentage was at 29.1%. The DRC shows an interesting trend, where it decreased overall but had an increase since 2014 (World Development Indicators). Chad follows a trend of a slight but consistent decrease in the percentage of women married before 18. In 2004, the first year of data collection in the years accounted for in this study, 72% of women got married before they entered adulthood. By 2019, 60.2% of women fell under this category (World Development Indicators). Among the three countries considered in this section of the study, Chad is the only one that had the majority of

women married by the age of 18. Similarly to the difference in male and female literacy rate indicator, the points given to each country were based on the difference between 100 and the percentage and then converted to a 10-point scale. This ensured that countries with the lowest percentage of young marriages were given the most points, as more points represented more gender equality.

Based on the indicators, each country was given points for their level of gender equality reflected in the indicators. Togo earned the most points overall for the gender equality variable. Using their data from the earliest years of collection and last years of collection, Togo had 23.75 points to represent their gender equality starting point and 26.53 to represent their most recent gender equality level. The Democratic Republic of the Congo started with 21.71 points and ended with 24.02 points for gender equality. Finally, Chad held 16.9 points based on its earliest data values and ended with 20.2 points to represent its most recent data values. According to these numbers, Togo reflects the highest level of gender equality overall, after taking each indicator into consideration. The DRC follows behind, and Chad shows the lowest levels of gender equality among these three countries in Francophone Africa.

The investment in environmental sustainability variable follows a similar analysis pattern as the gender equality variable. The data values for each of the relevant indicators were then converted into proportionate values on the 10-point scale like in the gender equality variable to be evaluated.

While the agricultural sector of an economy does not automatically equal harmful practices to the environment, countries that rely most heavily on agriculture to sustain their economy do often use fertilizers and pesticides that contribute negatively to the environment. A large agricultural sector is also important to consider in this study because it is the economic

sector that would contribute greatly to the overall sustainability movement. Enacting sustainable practices in agriculture is greatly possible in the Francophone African countries and have significant positive impacts on their affected communities. The case studies demonstrated the extent to which sustainable agriculture is important in moving towards an overall more sustainable nation, in terms of economy, ecology, and society (Gaard 4). As agriculture is so relevant to the conversation of sustainability overall, it was important to include the employment in the agricultural sector of the economy as an indicator of the government's sustainable practices. With more investment in the agricultural sector, the sustainable agricultural practices would have a greater proportional impact on the overall sustainability of the country. It is important to consider, however, that the size of the agricultural sector itself does not determine the investment in sustainability by the government. As a result, this indicator will solely be used in this study to give context to the importance of implementing sustainable agricultural practices, rather than using this data to determine the country's investment in sustainability. The overall trends in the agricultural sector are that the DRC and Chad are both heavily reliant on agriculture, as Table 7 shows. They both maintain the majority of the employment of eligible workers in their respective economies. In the Democratic Republic of the Congo, the employment in agriculture in 2000 was 73.5% of the economy. By 2019, the employment in agriculture decreased to 64.3%, although remaining quite high. In Chad, the employment in agriculture in 2000 was 82.2% and decreased slightly to 75.1% in 2019. Togo has significantly less employment in the agricultural sector of their economy with it being under 50% since 2000. In 2000, the percentage of employment in agriculture as opposed to the industrial and service sectors was 48% in Togo. By 2019, it had decreased to only 32.4% of the total employment (World Development Indicators). These numbers show which countries are most reliant on

agriculture and which may rely more heavily on other sectors to sustain their economy. Togo, as only about one third of their total employment is within the agricultural sector, must rely on other sectors for economic growth. In the cases of the DRC and Chad, the vast majority of employment is in agriculture, meaning that the economy heavily depends on agricultural output for economic growth. By investing in environmentally-friendly agricultural practices, these countries can increase their contribution to the global sustainability movement proportionately to the size of their agricultural sector.

The level of water stress in a country is often the result of unfair water practices, impacting people living in poverty and other vulnerable populations the most. Water stress is measured as a proportion of the freshwater available for use out of the total freshwater existing as a resource. When the number is lower, the amount of water stress is higher, since the amount of water available for use is more restricted. Water stress is an important factor to consider when investigating sustainable practices by a government since it may imply polluted freshwater that would otherwise be available for consumption as well as restricted and unequally distributed water sources. Countries with less water stress represent more productive use of their water sources as well as more protective policies for their water. All three of these countries demonstrate serious levels of water stress, especially compared to countries in the Global North, like France. Table 8 shows that over the period from 2000 to 2019, the Democratic Republic of the Congo had a water stress level of 0.2. Meaning 0.2 was the portion of water available for use out of the freshwater available. This is an extremely high level of water stress on the community and indicates that water needs for the vast majority of the population are not being met. Despite having a relatively much lower level of water stress in Togo and Chad compared to the DRC, the level is still incredibly high when compared to a country outside of the Francophone African

region, like France. In Togo, the water stress level in 2000 was at 2.6 and changed to 3.4 by 2019. As the number increases, it shows lower levels of water stress since a larger proportion of freshwater is available for consumption. Chad has the highest proportion of water available for use out of the quantity of freshwater available, meaning the least amount of water stress on the population. In 2000, the proportion was 3.8 and demonstrated less stress by 2019 when the proportion was 4.3 (World Development Indicators). For a better understanding of what these numbers mean, it is helpful to compare them to France. As these are all countries in Francophone Africa that had previously been colonized by France, the difference in the level of water stress speaks to the lasting effects of colonization and the environmental stress in the western and central regions of Africa that make up Francophone Africa. While the level of water stress does increase in France over the 19 year period from 2000 to 2019, the water stress in France remains over 5 times less than that in each of the three Francophone African countries. With less water stress, people and the governments can focus more on tasks that will benefit them in the long run rather than only working on tasks for immediate relief and survival.

Another indicator of the pertinence of environmental protection policies in a country is the level of air pollution. The World Health Organization (WHO) sets a limit for what is an acceptable amount of air pollution to be present that still allows good quality air for people to be exposed to. This indicator measures the percentage of the population that was exposed to levels of air pollution over the limit set by the WHO. Table 9 demonstrates that in the years when data in these three countries was collected from 2000 to 2021, 100% of the population was exposed to levels of air pollution over the WHO limit each time (World Development Indicators). This creates health stress on the entire population and can impact people's ability to complete daily tasks. It also harms the environment to tremendous levels since plants and animals are taking in



the toxins in the air. Reducing air pollution is a crucial investment for these countries to support sustainability for their environment and people. On the 0-10 point scale, each country received zero points for this indicator since the data showed 100% of people living in conditions over the WHO limit of air pollution, meaning the worst environmental conditions.

Contrary to the air pollution indicator, the three countries showed consistently high levels of renewable energy consumption. This indicator was measured as a percentage of total energy consumption in the country. All of the countries recorded over 50% of the energy consumption to be from renewable sources from the years 2000 to 2019, the last year of data collection, as demonstrated in Table 10. In fact, each country's renewable energy consumption percentage remained over 75% except for four years in Togo between 2009 and 2012 when it dropped to percentages in the 60s. Interestingly, they all showed slight decreases in the amount of renewable energy consumption, despite remaining still high percentages of the total. In 2000, Togo recorded 77.1% of its total energy consumption coming from renewable sources. In 2019, this percentage was 76.2%. In the Democratic Republic of the Congo, the renewable energy consumption percentage was 97.9% in 2000 and 96.2% in 2019. Chad had the lowest percentages of renewable energy consumption overall, with 88.7% in 2000 and 77.8% in 2019 (World Development Indicators). The DRC was consistently the highest in renewable energy consumption, maintaining percentages in the 90s. Points were awarded to each country to total comparison based on the percentages recorded. The percentages were then divided by 10 to make them equivalent to the 10-point scale.

The final indicator considered in the environmentally sustainable practices variable was the levels of greenhouse gas emissions. Table 11 shows that the three countries have relatively low levels of greenhouse gas emissions, especially when compared to countries in the Global

North, like France. Overall, the DRC and Chad had remained very similar in their emissions until 2010 when Chad began having higher levels of emissions and continuing increasing more than the DRC. Togo remains consistently much lower in their greenhouse gas emissions at only about 1/10 the emissions of the DRC and Chad. The emissions were measured in kilotons of CO<sub>2</sub> equivalent. Because the range for this was infinite, as it was not measured as a percentage or proportion, the range was too large to demonstrate in the 10-point scale. Thus, measurements below 100,000 kt of CO<sub>2</sub> equivalent were given points based on their proportion of 100,000 while anything about 100,000 kt, for example France and the United States, would be considered equal. Additionally, in the point scale, more points were given to countries with lesser emissions. Once the quantities were converted into portions of 10, they were then subtracted from 10 to give points that reflect better or worse environmental impacts.

Overall, Togo earned the most points for the environmentally sustainable practices variable, demonstrating the most attention to sustainable efforts or practices that benefit the environment. The DRC was in the middle, and Chad earned the least amount of points. While Togo was not consistently recording the best results of the three countries in terms of environmental impact, it did have consistently good results while the other two countries fluctuated more across indicators. Togo having the smallest agricultural sector leaves it in the best position to produce the least amount of agricultural pollution but more susceptible to pollution in the industrial and service sectors. Additionally, faster and greater amounts of economic growth occur in the industrial and service sectors, due to higher wages and more expensive products, allowing more attention to be allocated to sustainability issues rather than solely to economic growth issues. This circles back to the agricultural sector where these sustainability initiatives can then be implemented and still have a significant impact.

These data show trends relating the level of gender equality within a nation to the level of implementation of environmentally sustainable practices by a government. The hypothesis that countries in Francophone Africa with higher levels of gender equality will also demonstrate more practices that benefit the environment implemented by the government was supported by data.

### **Conclusion**

The results of this study demonstrate that there is a strong connection between environmental sustainability and gender equality. The term ecofeminism reinforces this concept by highlighting the duality of humans and nature and men and women. This is visible through the case studies of sustainable agricultural practices being implemented in communities in varying regions of Francophone Africa as well as in the empirical data collected by the World Bank.

The case studies in Mali, Cameroon, and Senegal demonstrate that when efforts are made to increase sustainable production in an agricultural community, women are directly affected and experience many direct benefits, including increased literacy rates, higher wages, more roles in leadership positions, more investment in education, and more economic opportunities and independence.

The trend was also supported by the empirical data, as they prove that countries in the Francophone community of Africa with higher levels of gender equality also show higher levels of environmentally sustainable practices. By combining the data from each indicator for their respective variables, it was more possible to conduct a comparison among the three countries selected for the empirical analysis part of the study, Chad, the Democratic Republic of the Congo, and Togo. Chad shows overall the lowest levels of gender equality of the three countries.

The CPIA gender equality index was the most telling for this, as Chad remained steadily at a value of 2.5 out of 6, with 6 being the highest level of gender equality. Chad also showed the lowest levels of environmentally sustainable practices when putting all the indicators together. The Democratic Republic of the Congo represented the middle ground for gender equality as well as for its sustainable contributions. Togo was found to be the country of the three with the highest levels of gender equality over all the indicators as well as the country with the highest level of environmental sustainability shown through the indicators used in this study. Based on the information collected in this research, the hypothesis and ecofeminist theory are both supported. Women are uniquely affected by environmental concerns as they are a more vulnerable population across the globe and often have traditional roles that put them in closer relation to nature. Thus, efforts to promote environmental sustainability will impact women in a more dramatic manner than other groups that interact less with nature on a daily basis.

There are several limitations to this study. The case studies were selected from one book, which had already done the fieldwork necessary to come to these conclusions. With proper funding and involvement, this research could be extended to conduct our own fieldwork investigations for new case studies, although these were sufficient for the context of this research in particular. Additionally, the data from the World Bank DataBank was at times sporadic in terms of years of collection. For certain indicators, the years of data collection per country varied and comparison across countries was not consistent by year. To minimize the impacts of this limitation, the data used for comparison was intentionally chosen from years as close together as possible, for example 2019 and 2020, to represent starting or ending data points. Another limitation is that there are many more indicators relevant to both gender equality and environmentally sustainable practices in the World Bank DataBank. For the purposes of this

study, only 4 to 5 indicators were selected for each variable. It would be beneficial for future studies to use other indicators for each variable to gain an even deeper understanding of the connection between the variables.

Overall, this was a successful study to demonstrate the ways in which women benefit greatly from the investment in environmentally sustainable practices. These practices should not be overlooked as investments that do not address immediate issues like poverty and low levels of education as they bring economic prosperity and more opportunities for investment in education along with them. Governments should note the importance of empowering women through environmental care, and vice versa, as more investment is put into promoting more equality of women, there will be a reciprocal promotion of environmental sustainability. Empowering women to have a place to use their voices is crucial in the global movement towards climate justice, and a growing investment in sustainable agriculture in Francophone Africa is an important and necessary start.

## Index

Table 1: CPIA gender equality rating (1=low to 6=high)

	2005	2010	2015	2020
Chad	2.5	2.5	2.5	2.5
The DRC	3.0	2.5	2.5	3.0
Togo	3.0	3.0	3.0	3.5

Table 2: Fertility rate, total (births per woman)

## Fertility rate, total (births per woman)

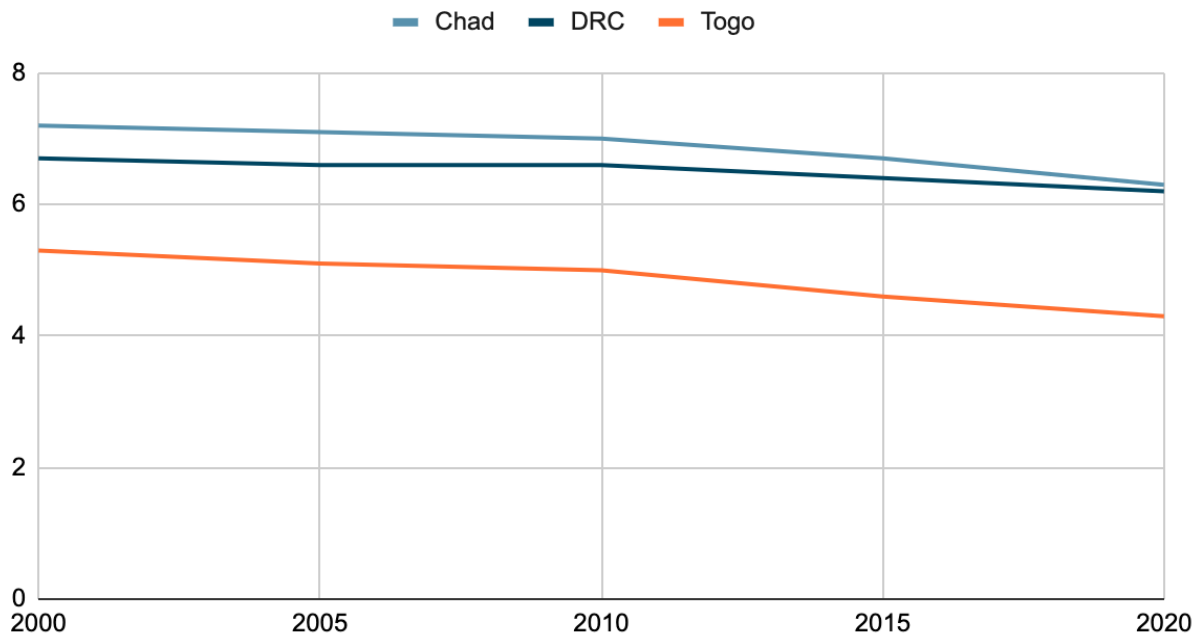


Table 3: Chad literacy rate comparison (female to male) (% ages 15 and above)

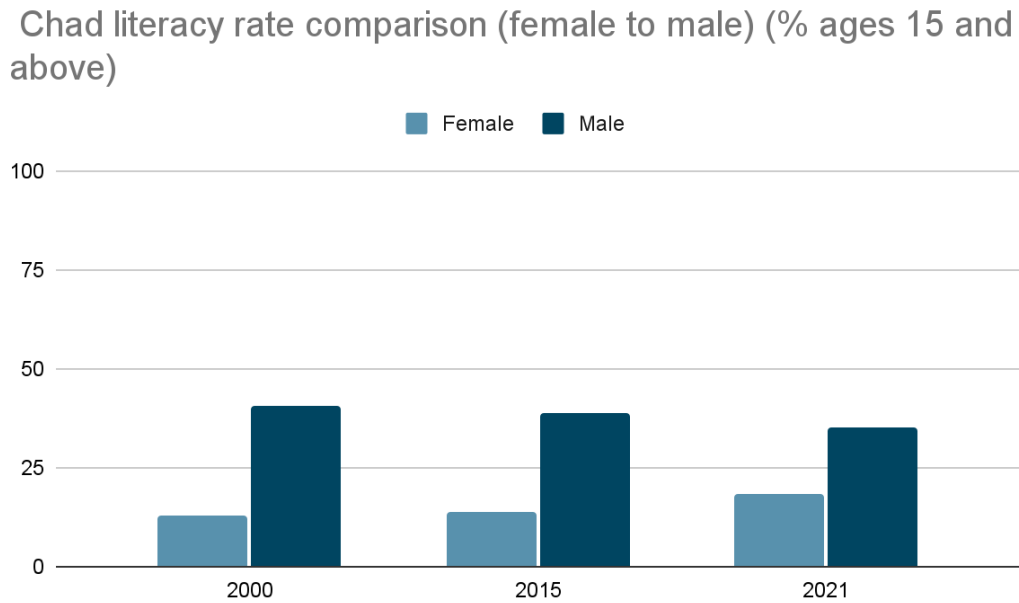


Table 4: The Democratic Republic of the Congo literacy rate comparison (female to male) (% ages 15 and above)

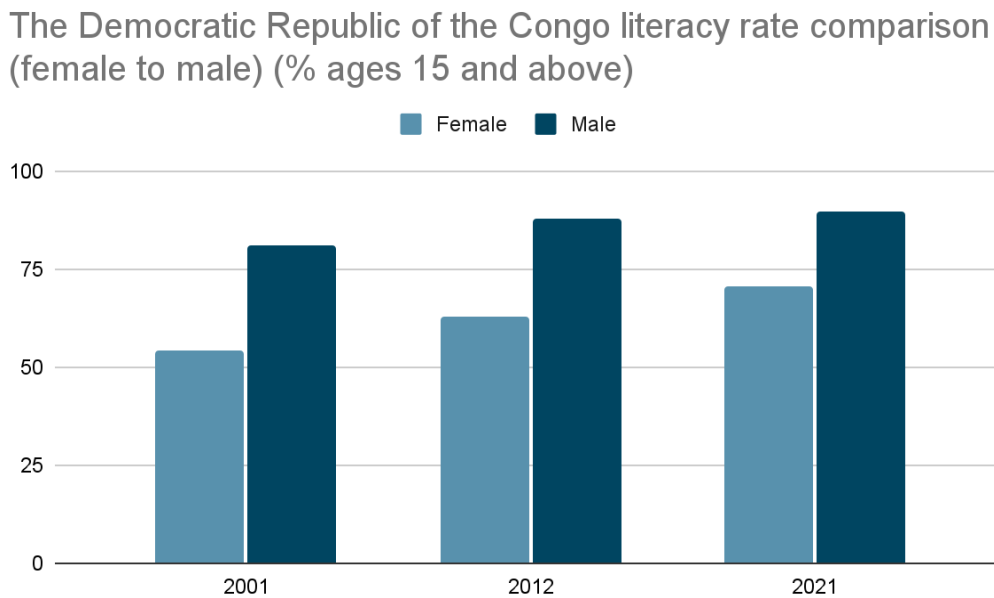


Table 5: Togo literacy rate comparison (female to male) (% ages 15 and above)

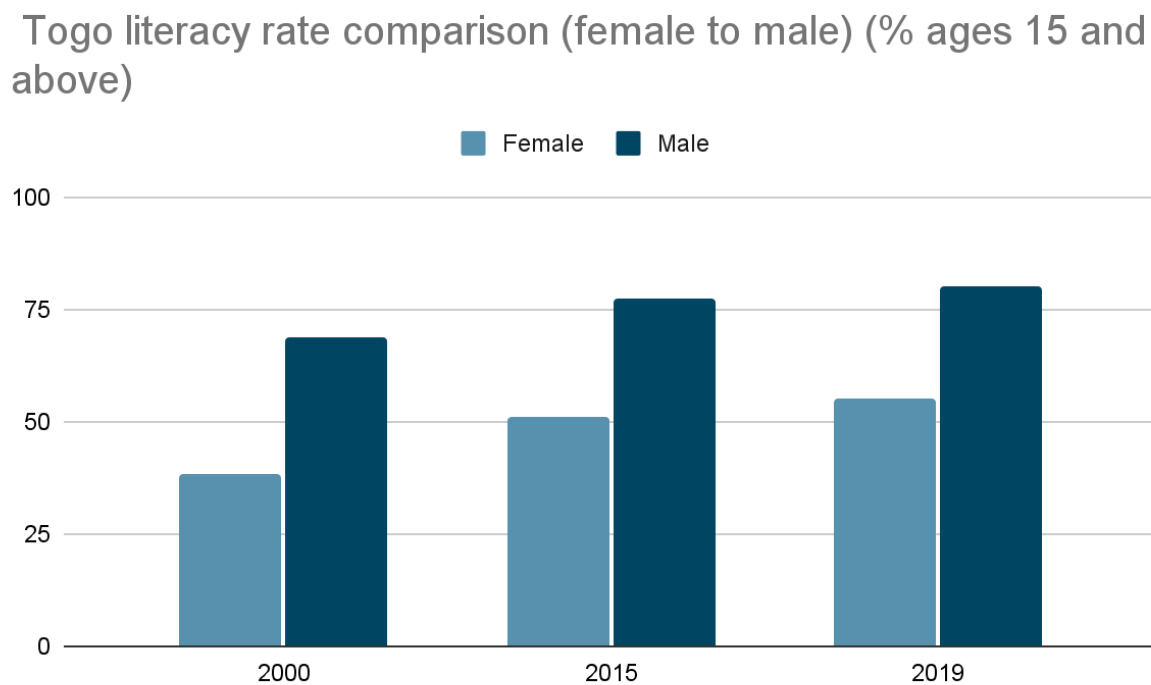


Table 6: Women who were first married by age 18 (% of women ages 20-24)

	2004	2007	2014	2015	2017	2018	2019
Chad	72.0	-	-	66.9	-	-	60.6
The DRC	-	39.1	37.3	-	-	29.1	-
Togo	-	-	21.8	-	24.8	-	-



Table 7: Employment in agriculture (% of total employment) (modeled ILO estimate)

Employment in agriculture (% of total employment)  
(modeled ILO estimate)

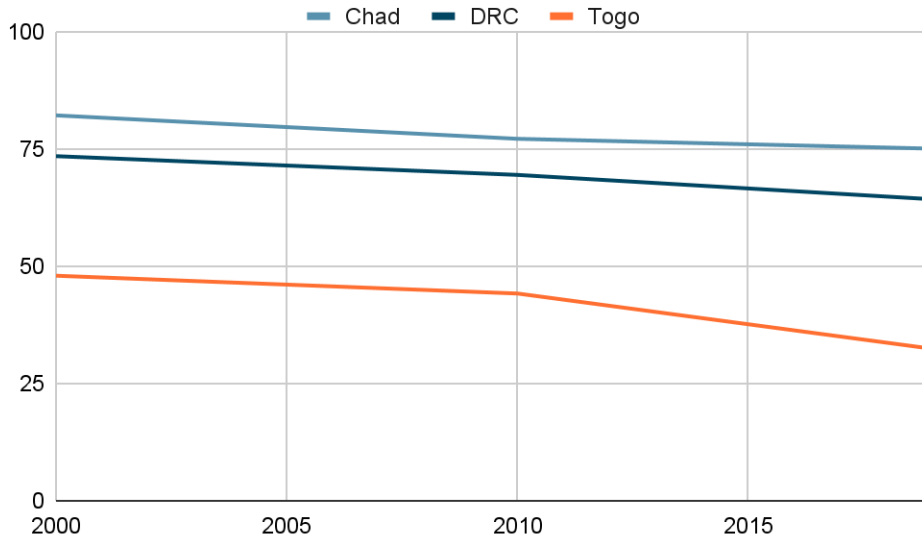


Table 8: Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

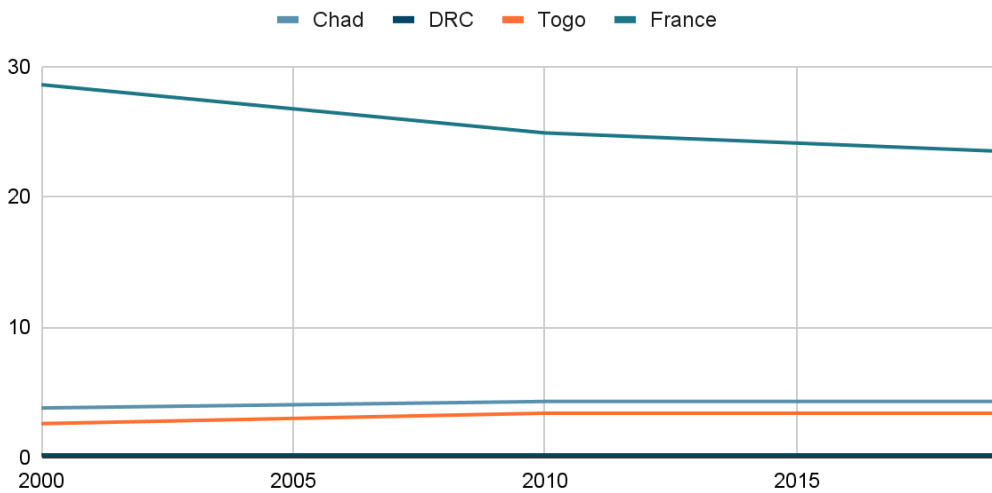


Table 9: PM2.5 air pollution, population exposed to levels exceeding WHO guideline value (% of total)

PM2.5 air pollution, population exposed to levels exceeding WHO guideline value (% of total)

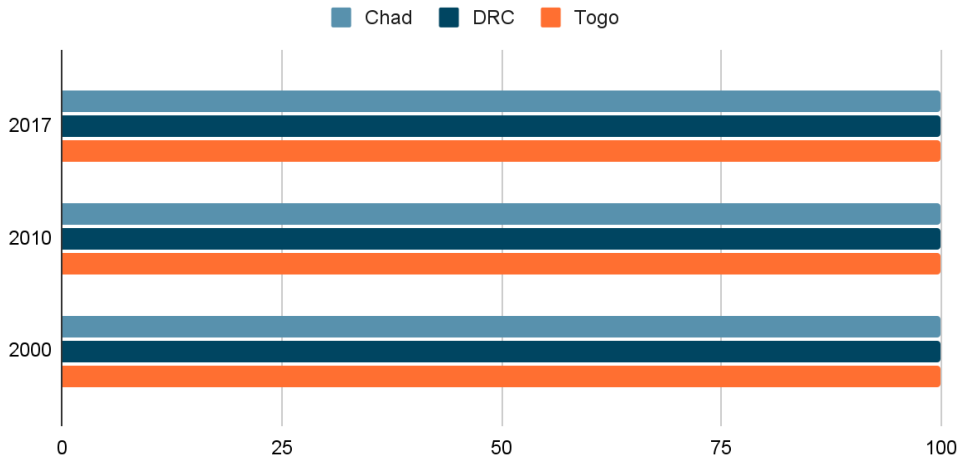


Table 10: Renewable energy consumption (% of total final energy consumption)

Renewable energy consumption (% of total final energy consumption)

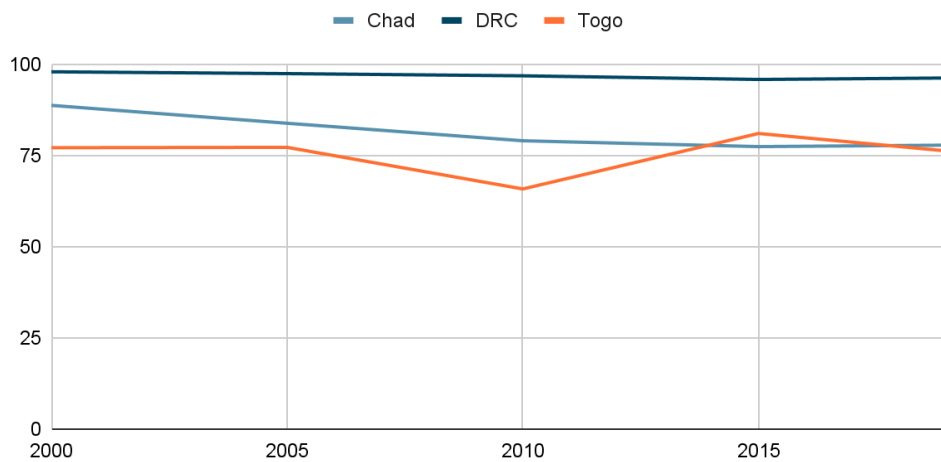
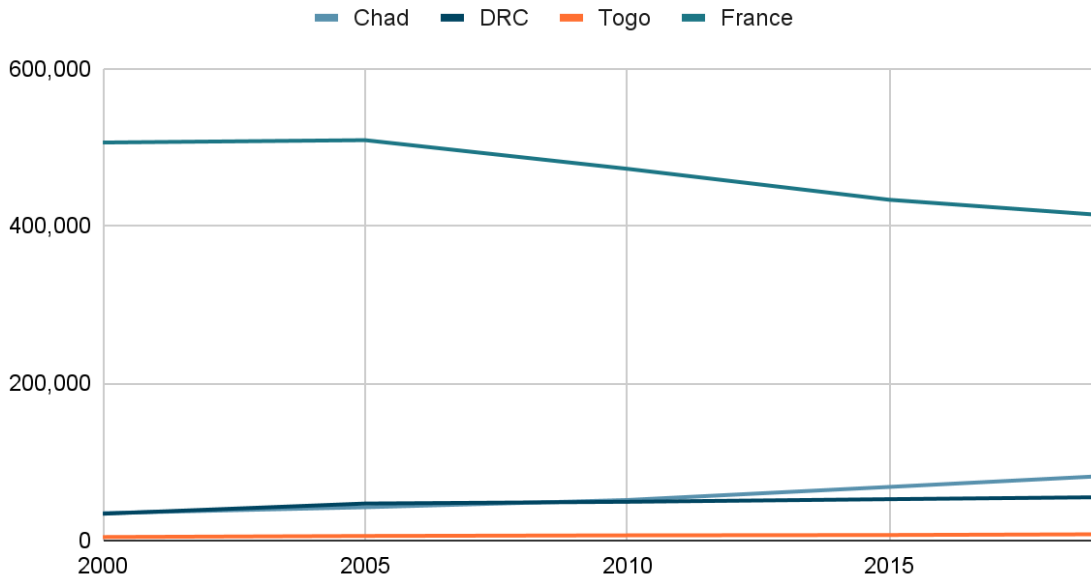


Table 11: Total greenhouse gas emissions (kt of CO2 equivalent)

Total greenhouse gas emissions (kt of CO2 equivalent)



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