

**CHINA'S QUEST FOR RESOURCES IN AFRICA  
AND ITS IMPLICATIONS FOR  
ENVIRONMENTAL SECURITY: THE CASE OF  
GHANA**

**BY**

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## DECLARATION

I, ALFRED NII ANNAN HAMMOND, do hereby declare that this dissertation is the product of my own research under the supervision of Dr. Emmanuel Ken Ahorsu of the Legon Centre for International Affairs and Diplomacy (LECIAD), University of Ghana towards the award of a Master of Arts (MA) Degree in International Affairs and that, to the best of my knowledge, it neither contains materials previously published by another person nor materials which have been accepted for the award of any other degree by this or any other university except where due acknowledgement has been made in the text.

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## **DEDICATION**

*I dedicate this work to the Almighty God and my family for their immense contribution, sacrifice and prayers in seeing to it that, this work becomes a reality and a success.*

## **ACKNOWLEDGEMENTS**

My greatest and profound gratitude goes to the Almighty God for granting me the enablement, grace and favour to carry out this study successfully and in a grand style. His name be praised.

I cannot allude to the success of this study without acknowledging and appreciating the services and efforts of my supervisor; Dr. Ken Ahorsu who contributed greatly towards the success of the study.

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## ACRONYMS AND ABBREVIATIONS

African Union	AU
Bureau of National Investigations	BNI
China Council for International Cooperation on Computer Numeric Control	CNC
Convention on the Conservation of Migratory Ecological Footprint	CCM
Economic Community of West African States	ECOWAS
Environment and Development	CCICED
Environmental Impact Assessment	EIA
Environmental Justice Foundation	EJF
Environmental Protection Agency	EPA
European Union	EU
Foreign Direct Investment	FDI
Forestry Commission	FC
Forum on China-Africa Cooperation	FOCAC
Ghana Armed Forces	GAF
Ghana Police Service	GPS
International Convention for Regulating Whaling	ICRW
Member of Parliament	MP
Ministry of Environment, Science and Technology	MEST
National Environment Protection Policy	NEPP
New Partnership for Africa's Development	NEPAD
Provisional National Defense Council Law	PNDCL
Species of Wild Animals	CCMSWA
Timber Utilization Permit	TUP
United Kingdom	UK

United Nations	UN
United Nations Conference on Environment and Development	UNCED
United Nations Conference on Human Environment	UNCHE)
United Nations Development Programme	UNDP
United Nations General Assembly	UNGA
United States	US
University of Health and Allied Sciences	UHAS
West and Central Africa Region	WACAF

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## ABSTRACT

This study focuses essentially on analyzing China's quest for natural resources in Africa and its implications for Ghana's environmental security. It focuses on the extent to which best practices are being pursued by China in its exploitation of Ghana's resources. The study is purely qualitative and relies both on primary and secondary data for analysis. The primary data was obtained through interviews from key informants who have in-depth knowledge about the topic under study, whereas primary data was obtained through literature review from sources such as books, newspapers, journal articles and internet sources. Major findings from the study reveal that China's interest in Ghana's natural resources have contributed to the environmental security challenges confronting her, especially with respect to natural resource exploitation by the Chinese in Ghana. Paramount among such environmental security threats include water pollution, deforestation, air pollution, sound pollution or noise and land degradation. The study also reveals that Ghana, to a very large extent, has achieved some successes in ensuring that best practices are pursued by China in her quest for Ghana's natural resources as some Chinese engaged in illegal natural resource extraction in Ghana are arrested and deported. This sends a strong signal to the Chinese Government that Ghana is every intention of preserving its sovereignty in spite of the cordial bilateral relations between Ghana and China and the ever deepening economic cooperation between them. However, some few challenges confront Ghana in addressing environmental security challenges due to China's exploitation of Ghana's natural resources. Paramount among them include financial constraints, insufficient technical and expertise personnel, ineffective/poor collaboration sometimes between the GAF and GPS due to unnecessary competition and politics, corruption, difficulty in obtaining reliable information and economic hardship and insufficient job opportunities in the country. The study, therefore, concludes that all stakeholders need to be guided by international and national environmental laws to remain focus and proactive in the fight against the environmental security menace created especially by some Chinese in Ghana. Therefore, there should be proper coordination and dialogue at all levels for a formidable action towards curbing the natural resource exploitation by some Chinese in Ghana. It is therefore recommended that the government must take a bold step in the fight against corruption and should not interfere with the work of the Judicial systems so that culprits of natural resource exploitation, especially foreigners such as the Chinese who may be found guilty will be sanctioned accordingly, to serve as a deterrent to others.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Introduction**

Global Challenges faced in contemporary times are enormous and unprecedented. Population growth has more than doubled, energy use has tripled, leading to a surge in demand for natural resources in the face of resource scarcity. Three decades ago, environmental movements were more focused on issues such as air pollution, supply of safe drinking water and poor waste management.<sup>1</sup> Now the discourse has changed and at the forefront of the debate are problems of land degradation, land and natural resource scarcity, sea level rise and death of corals, warming in the arctic, and invasive species, among others.<sup>2</sup> Pertinent to the debate is unsustainable exploitation of natural resources, climate change and the emission of greenhouse gases leading to the gradual depletion of the ozone layer.

Scientists and environmentalists have raised concerns over the environmental impact of bad natural resource extraction methods, especially in developing countries because of the negative ramifications such practices have on the already weak natural cycle upon which all flora and fauna depends.<sup>3</sup> Africa is still one of the most viable sources of natural resources in the world and thus, leading to a renewed scramble for the continent's resources. Following the end of the Cold War and Africa's adoption of democratic rule, many Africans were expecting that the developed world, particularly the West will help initiate and accelerate Africa's development. Notwithstanding this, Africa remains poor despite its abundant natural resources. Although, endowed with such valuable resources like oil, gold, uranium, water, untilled arable land, timber, diamonds and bauxite, among

others, the continent has been the least beneficiary of its own natural resources since its resources are usually exploited as raw materials to feed industries in the developed world. Africa remains the only continent in the world that is not a net exporter of finished products. Global flow of Foreign Direct Investment (FDI) shows that Africa continues to be the least destination for FDI. And, the little FDI received is invested in exploiting natural resources. The situation is disturbing as resource extraction in Africa is mostly carried out in a manner that degrades the environment and thus, raising concerns about environmental security.

The preponderance of natural resources in Africa has made the continent susceptible to scramble for resources by the West and China in particular. However, China appears to be leading in the fight to gaining access to large resource deposits and reserves as compared to the West. The competition and surge in demand for natural resources in Africa particularly by China has led to the exploitation and depletion of some natural resource reserves.<sup>4</sup> Worse still, Developing countries are the most affected by the world's severe environmental problems and ecological conflicts such as air pollution, erosions due to deforestation and illicit lumbering, pollution of water bodies due to illicit mining, among others. However, efforts are being made by some developing countries to implement environmental governance policies that will safeguard their environment.

As stated earlier, there is a renewed scramble for Africa's resources largely because of the global economic downturn, population growth, and instability in the Gulf region. China is in dire need of natural resources and has demonstrated great interest in Africa's resources. Over the past decades, China has experienced tremendous economic development and perceived as the second largest

economy in the world, after the United States.<sup>5</sup> The International Energy Agency projected that by 2020, China could become the world's largest net importer of oil, with average net imports expected to reach an estimated thirteen million barrels per day by 2035.<sup>6</sup> Consequently, China is one of the world's leading consumers of cotton, rubber, iron ore, timber, wheat, coal, zinc, aluminum, palm oil and rice.<sup>7</sup> With a 6% share of global gross domestic product, China utilizes 30% of the world's iron, 31% of its coal, and 40% of total cement production.<sup>8</sup>

China has since become Africa's largest trading partner.<sup>9</sup> In 1977 trade relations between the aforementioned was estimated at US\$720 million, compared to US\$166 billion in 2003.<sup>10</sup> An important objective of China's Africa strategy is to capitalize on its strong relationship with the continent to secure access to Africa countries' natural resources which its industries are in need of to meet global demand. However, China's interest for natural resources in Africa, which has led to the exploitation of such resources on the continent has drawn condemnation from large sections of the international community including the European Union (EU), the United States (US) and even some African states due to concerns over their activities, particularly the natural resource exploitation and reluctance to promote democracy in the region. Most African governments are struggling economically and are not able to meet the needs of their people, and thus, by virtue of their bilateral relations with China they receive huge financial inflow and investments which enables them to provide physical infrastructural development and other essential projects. This support from China comes with little or no interference in their domestic affairs and high benchmarks as compared to the Bretton Wood Institutions (International Monetary Fund, World Bank). According to Sahr Johnny, Sierra Leone's Ambassador to China, in 2005:

“The Chinese are doing more than the G8 to make poverty history. If a G8 country had wanted to rebuild the stadium, we'd still be holding meetings! The Chinese just come and

do it. They don't hold meetings about environmental impact assessment, human rights, bad governance and good governance. I'm not saying it's right, just that Chinese investment is succeeding because they don't set high benchmarks."<sup>11</sup>

On the other hand, the expansion of China's footprint into Africa remains an issue of worry due to Climate Change, environmental degradation and how these are affecting livelihood among the population. China's coordinated investment strategy is well evident in Sudan. Following withdrawal of Western competitors due to public outrage over their involvement in Sudan's civil war in 1995, the China National Petroleum Corporation entered Sudan, and expanded its exploration.<sup>12</sup> In 2005, China became the largest importer of Sudanese oil since Sudan provided 5% of China's oil. To maintain this relation between the two states, China carried out series of investment in Sudan including the construction of several hydroelectric and thermal power plants including the Merowe Dam, a pipeline, an oil refinery and a railway.<sup>13</sup> China currently has increasing interest in other African states and is replicating similar investment packages in countries such as Ethiopia, Congo, Angola, Gabon, Zambia and Ghana.

China's economic investments in Africa are mostly focused on sensitive sectors (such as timber, mining, oil and gas exploration and hydropower) which have environmental security ramifications, and also in infrastructure projects such as transmission lines, railways and roads to help facilitate environmentally sensitive investments.<sup>14</sup> China's strategy of making previously inaccessible resources accessible, compounds environmental security risks associated with natural resource exploitation in most African states. Chinese investors are now developing projects in fragile and remote ecological regions in Africa countries with weak governance structures to implement and enforce environmental security polices and laws.<sup>15</sup>

Ghana is one of the countries in Africa in which China has increasingly become present. The Chinese have ventured into almost all sectors of the country's economy mainly agriculture,

hospitality, commerce and mining. While this seems to be beneficial to the development of Ghana, some argue that the manner in which the Chinese operate in the country promotes environmental degradation and poses a security threat. In the mining sector, the Chinese were identified as one of the main culprits involved in illegal small scale mining using alluvial mining methods ‘galamsey’ that degrades the land and pollutes water bodies. In the field of marine fishery, the illegal navigation of Ghana’s seas by Chinese fishing trollies are depleting fish stock, whilst the illicit lumbering of Rose woods by the Chinese has resulted in top soil removals and erosions.

There have been increasing global concerns since the 1990s on environmental challenges and protection of natural resources. In 1962, the UN adopted Resolution 1803 on Permanent Sovereignty over Natural Resources. This gives autonomy and control to utilize natural resources for the well-being and development of the people in a state. In view of this, governments were enjoined with the responsibility of utilizing their existing natural resources for the benefit of their citizenry and the entire international community. Notwithstanding this resolution, the international community through the UN had to ensure that global natural resource did not extinct or deplete due to over and illegal extractions of global natural resources. This is because such situations could have dire global environmental security consequences.

In 1972 the first UN Conference in Stockholm in Sweden addressed global environmental challenges. This led to adoption of Resolution 2398 to intensify national, regional and international efforts towards addressing global environmental challenges and safeguard natural environment including air, water bodies, flora and fauna for future generation. The international community under the auspices of the UN therefore adopted Conventions and principles geared towards renewable global natural resources. Despite this international Convention, some states, especially the global powers, sometimes adopt unlawful and unfair means in their quest to gain access to

natural resources in other states. China presents a typical evidence to this fact with special reference to the African continent and Ghana in particular. This necessitates this study to examine the environmental security challenges faced by Ghana in China's exploitation of the country's natural resources.

## **1.2 Statement of the Research Problem**

Though oil is the leading natural resource imported by the Chinese from the African continent, other natural resource imports such as iron metal, gold, cobalt, manganese and copper has also been heavily imported from the African continent by China. To gain access to such natural resources, China donates billions of dollars to African states for economic and infrastructure development in exchange for such natural resources. The financial assistance to African states by China becomes a bait which African leaders cannot refuse due to their eagerness to propel or initiate development in their respective countries. This has sometimes warranted improper, unlawful and unfair mineral extractions by Chinese from Africa which adversely affect and pollute the environments of most African countries.

There has therefore been a dichotomy among scholars on the relevance of Chinese presence and increasing economic investments on the African soil. Taylor for instance, has argued that the presence and interest of the Chinese Government in natural resources on the African soil has engineered and propelled massive economic developments due to increasing economic investments by the Chinese in most African states which would have been impossible without the support of China.<sup>16</sup> Contrary to Taylor's view, Alden argues that the ulterior motive for China increasing its Foreign Direct Investments (FDIs) to Africa and giving out loans and grants is not essentially to promote economic development, but to secure or gain access to some existing or

potential natural resource zones on the African continent, which in the long run do not in Africa's interest but rather the Chinese state's interest.<sup>17</sup>

Like many African countries Ghana seems to be forging closer diplomatic ties with China. This development was perfectly captured by the President of the Republic of Ghana. At the 73<sup>rd</sup> United Nations (UN) Assembly, the President of Ghana, Nana Addo Dankwa Akufo-Addo remarked that: "Ghana like many countries in Africa is forging relations with China to make arrangements to help address part of our infrastructure deficits."<sup>18</sup>

The above statement clearly demonstrates a favorable disposition of Ghana towards China. Although, this is the case, there is growing concerns as to the nature of this relationship. The point is that Ghana continues to struggle with environmental degradation due to the illegal mining or "galamsey" menace,<sup>19</sup> indiscriminate lumbering of Rosewood,<sup>20</sup> depletion of aqua resources as a result of illegal, unregulated and unreported fishing such as light fishing which mostly involve the use of chemicals and explosive in our territorial waters by some Chinese nationals, polluting of our water bodies.<sup>21</sup> Therefore, as much as there seems to be a closer tie between the two states, China's interest and exploitation of some natural resources in Ghana has contributed significantly to the environmental insecurity which confronts the country in recent times. This is particularly evident in the increasing phenomenon of illegal mining in the country, particularly by Chinese nationals.<sup>22</sup> Given this debate, this work seeks to find out the ecological impact or environmental security ramifications of China's exploitation of natural resources in Ghana.

### **1.3 Research Questions**

In conducting this study, the following research questions serve as guide.

1. What has been the nature and scope of Sino-Africa relations with emphasis on Ghana?
2. Under what conditions is China exploiting Ghana's natural resources?

3. To what extent, are the concept of best practices being pursued by China in its exploitation of Ghana's resources?
4. What environmental security challenges are faced by Ghana in China's exploitation of the country's resources?
5. What solutions can be proffered to the challenges confronting Ghana due to China's resource exploitation?

### **1.5 Research Objectives**

The main objective of the study is to examine China's quest for resources in Africa and the possible repercussion it is likely to have on Ghana's environment. The specific objectives however, are as follows: to,

1. Review contemporary drivers of Ghana-China relations;
2. examine the conditions and perceptions underpinning Sino-Ghana relations in terms of natural resource exploitation in Ghana;
3. examine the extent to which the concept of best practices is being pursued by China in its exploitation of Ghana's resources;
4. investigate the environmental security challenges faced by Ghana in China's exploitation of the country's resources;
5. make suggestions as solutions to the challenges posed by China in its exploitation of natural resources in Ghana if any.

### **1.6 Scope of the Study**

Though China-Ghana relations dates back to the 1960s, this particular study would be examined within the time period of 2008 to 2018. Over a decade period, Ghana has witnessed an environmental threatening security mainly posed by the engagement of some Chinese in illegal

small scale mining, lumbering of Rosewood and unregulated fishing practices such as light fishing which mostly involve the use of chemicals and explosive in the territorial waters of Ghana. Although, the Chinese are not solely responsible for this menace, they have significantly contributed to such acts of environmental degradation. The choice of 2008 as the opening date and 2018 as the terminal date allows the study to be situated within a period of Chinese increasing interest in Ghana's natural resources have impacted on Ghana's environmental security. This study concentrates essentially on the environmental insecurities posed by some Chinese in the mining industry due to some Chinese engagement in illegal mining activities in Ghana, in areas such as Gbane in Upper East Region, Dunkwa-on-Offin in the Central Region, the Wassa-Amenfi, Prestea-Huni Valley, Wassa-West and Nzema-East districts in the Western region and Obuasi in the Ashanti Region; unregulated and illegal fishing practices such as light fishing which mostly involve the use of chemicals and explosives in the River Ankobra basin in the Western Region, which lies between Tano and the Pra basins; indiscriminate lumbering of Rosewood, particularly in the Northern Savannah Woodland ecological zone of Ghana, including Central Gonja, West Gonja, North Gonja, Bole and East Gonja Districts as well as a few others in Upper West and Upper East Regions.

### **1.7 Rationale of the Study**

The study is very timely since it was carried out in a period which attracted increasing concerns by both the Government of Ghana and the general Ghanaian populace about the dire environmental insecurities posed by the increasing interest of the Chinese in the natural resources in Ghana. This interest has contributed significantly to the illegal mining activities, unregulated and illegal fishing practices and indiscriminate lumbering of Rosewood, usually by some Chinese in Ghana. The study therefore contributes to the larger debate on China's increasing industrial growth, its

relentless need for natural resources and the significant in-roads China is making into Africa, with specific reference to Ghana. More specifically, an intellectual exercise such as this which seeks to examine China's demand for natural resources in Ghana and its implications for Ghana's environmental security.

This study therefore aims at providing plausible recommendations which could be relied on by the Government of Ghana and other African states to encourage best environmental practices from the Chinese especially in their quest for natural resources in Africa. It also seeks to make plausible recommendations which states, policy makers, students, researchers, integration blocs and international organizations could rely on for future research on the topic to make interventions in case of Sino-African relation of this sort.

### **1.8 Hypothesis**

China's quest for natural resources in Ghana has significant environmental security ramifications and implications for Ghana.

### **1.9 Theoretical Framework**

This study utilizes the theory of Ecological Footprint (EF) in its analysis. The theory of EF was propounded by Mathis Wackernagel in 1990 but was given prominence in academia by William Rees in 1992, and is well known amongst ecological economists.<sup>23</sup> The Ecological Footprint (EF) theory assesses the demands by states and individuals on common global natural resources and the security implications such demands have on the ecology. The theory has turned out to be a standout amongst the most generally utilized theories of humankind's impact upon nature and has been utilized to analyze the clear unsustainability of current practices and the imbalances in resource consumption and utilization between and among states.<sup>24</sup> In other words, the theory examines the extent to which a population or group of people utilizes available natural resources to meet the

demands of a growing population and the impact such consumption has on the ecology. In this vein, the theory is used to analyze consumption or utilization of natural resources in meeting the growing demands of a population at the individual, regional and the global scales.

The theory is mostly used to measure the sustainability of natural resources in relation to environmental security amidst the growing demands of a given population. The theory assesses humanity's dependence on natural resources, i.e., the quantity of nature required to sustain the survival of an economy or people.<sup>25</sup> It also highlights the concept of ecological carrying capacity defined as the maximum population a given area can support without destabilizing the ecosystem in the territory.<sup>26</sup> The Ecological Footprint theory (EF) analyzes the profitable ocean and land territories expected to give unlimited resources that a populace consumes and to acclimatize the waste it creates, using existing best management practice and innovations, instead of endeavouring to choose what number of people a given land, region or the whole planet can support.<sup>27</sup> The theory also evaluates the necessities for productive zones (including croplands, marine areas for fisheries, grazing lands for animal products and forested land needed to absorb carbon dioxide emissions from energy consumption).<sup>28</sup>

The Ecological Footprint hypothesis (EF) gauges the profitable land and sea domain expected to give the inexhaustible assets that the masses devour and to acclimatize the waste it makes, using existing advancements and best administration practice, rather than attempting to choose what number of people a given land, district or the entire planet can support. It evaluates the necessities for beneficial zones (marine territories for fisheries, croplands, brushing lands for creature items, developed land for lodging and foundation forested zones to deliver wood items and forested land expected to ingest carbon dioxide emanations from vitality utilization).

The theory posits that the main reason for overdependence on existing natural resources which sometimes leads to their exploitation is due to the demands of a growing population which requires the need to diversify into new areas in satisfying human wants. The argument of the EF theory submits that overdependence or exploitation of natural resources in a given state or region could lead to environmental insecurities such as land degradation, erosion and extreme famine if caution is not applied in resource extraction or utilization. Therefore, when the exploitation of natural resources is perpetuated by foreign nationals in another region or state for self-enrichment which results in environmental insecurities in the resource region, it attracts grievances among local citizens or dwellers of the resource region which could instigate conflicts or civil wars.

The theory holds the argument that developed countries with their huge cities, growing middle class and sophisticated lifestyles tend to have a corresponding high demand for natural resources to meet their insatiable needs leading to an over-consumption of their resources.<sup>29</sup> The increase in demand for such resources sometimes engenders illegal practices to gain access to natural resource reserves, thereby leading to a degeneration in natural resource capital and therefore, causing a slow and inexorable ecological decline in their reserves which can impair the welfare of future generations.<sup>30</sup> The theory further argues that countries with such levels of over-consumption are ecologically deficit in terms of their carrying capacity, hence, to maintain the production capacity within their territory they have to resort to extra-territorial acquisition of resources from other parts of the world that have reserves.<sup>31</sup> Unfortunately, these developments deplete the reserves of those other countries with reserves which in turn reduces their ecological carrying capacity since their resources are fueling production in another territory.

Due to the economic might of these countries, they create demand and supply forces that tend to overburden other countries and voraciously take from them resources even if they do not have in

surplus, making their relationship more parasitic in nature and at the detriment of the partnering country.<sup>32</sup> China's insatiable demand for resources in Africa has a corresponding consequence on the continent's environmental security, the situation is same as far as China and Ghana is concerned. This is because the access to and exploitation of natural resources by Chinese nationals in Africa have often serve as a source of conflict between governments and the communities in which the resources abound in relation to benefit-sharing. This more than anything provides a justification for adoption of this theory for this study.

However, criticisms advanced against this theory are that it ignores technological change and does not factor in the use of environmental friendly technologies. Also, ecological footprint does not take into consideration the underground resources such as water and ocean. Even if sustainable development has been achieved, the theory lacks measures in dealing with equitable distribution of resources for current and future generations. Finally, the theory offers no policy prescription other than including more land, reducing population or reducing consumption per head.<sup>33</sup>

Notwithstanding the above criticisms made, the theory is suitable for analysis in this particular study. This is because the theory has gained wide recognition and acceptance in analyzing unsustainable consumption of natural resources through cooperation between and among states which has ramifications on the environment security of a state, region or entire globe. In addition, it provides useful indicators of sustainable natural resource use that is easy to communicate and understand.<sup>34</sup> In this vein, the theory analyzes significant environmental or ecological impacts which arises as a result of poor environmentally sustainable management practices in the extraction and utilization of natural resources. Towards this end, the EF theory has become the main model or concept adopted by the World Business Council for Sustainable Development for exploring

pathways toward achieving a “one-planet economy” by 2050.<sup>35</sup> Subsequently, a number of national governments including Japan, the United Kingdom, Switzerland, Wales, the United Arab Emirates, and the European Union have also considered or embraced the concept.<sup>36</sup> Based on the points the theory presents, it makes it suitable for the objectives of this research which is to understand China’s exploration for natural resources and its implications for Ghana’s environmental security.

### **1.10 Literature Review**

Some academic works have been done in recent times on Sino-Africa relations. In any case, the greater part of these works have overlooked China’s exploration for natural resources and its implications for Africa’s environmental security, with specific reference to Ghana. It is in this vein that some of these works will be reviewed to show how they contribute enormously to the subject matter of this study, and also identify some lacuna, which this study seeks to fill. To provide clarity to the review, the section is sub-divided into three main sections, namely; Sino-Africa Relations, Sino-Africa Natural Resources and Sino-Ghana Resource Relations.

Some academic works have been done as on Sino-Africa relations. In any case, the greater part of these works have overlooked China's investigation for characteristic assets and its suggestions for Africa's ecological security, with explicit reference to Ghana. It is in this vein a portion of these works will be investigated to show how they contribute altogether to the theme under examination, and furthermore distinguish a few holes, which this investigation endeavors to fill.

#### **1.10.1 Sino-Africa Relations**

In his study, *The Sino-Africa Relationship: Toward a New Strategic Partnership*, Zhang Chun reveals that Sino-Africa relations have significantly progressed following the end of the Cold War.<sup>37</sup> This assertion is evident in a declaration made in 2006 by the Chinese Government that:

China will “...unswervingly carry forward the tradition of China-Africa friendship, and, proceeding from the fundamental interests of both the Chinese and African peoples, establish and develop a new type of strategic partnership with Africa.”<sup>38</sup> This declaration has therefore fostered more enhanced social, political, intellectual and economic cooperation between China and Africa leading to new trends and engagements.

Chun asserts that changes in contemporary international systems and relations demands that on-going Sino-Africa relations move towards a new strategic partnership.<sup>39</sup> He explains that although relations may seem favourable especially to some African states, there is the need to consider with urgency long-terms strategic planning to sustain and promote future development of Sino-African relations. Towards this end, Chun provided some postulations to enhance future Sino-African relations. He recommends that China should promote institutional capacity building by particularly strengthening state institutions and civil society groups to nurture and regulate their relations. He also encourages China to promote public diplomacy between the two partners to showcase and enhance the transfer of shared values and cultures.<sup>40</sup> He recommends that China takes key interest in making significant contributions to African Peace and Security as most parts of the continent is bedeviled by civil wars, mass unemployment and epidemics which undermines the human security of most Africans.<sup>41</sup> He finally made an appeal for the promotion of interdependence between the two partners as this will foster long-terms enhanced cooperation, giving a bright future to future Sino-Africa relations.<sup>42</sup>

The above study by Chun contributes significantly to the topic under study by revealing the nature of contemporary Sino-Africa relations and how these relations could be improved in future. However, the study does not consider China’s exploration for natural resources and its implications

for Africa's environmental security, with specific reference to Ghana. This lacuna is what this study hopes to fill by relying on the theories of Cooperation and Ecological Footprint to analyze China's exploration for natural resources and its implications for Ghana's environmental security.

Ian Taylor in his study *Unpacking China's Resource Diplomacy in Africa* argues that China's foreign policy to Africa just like any part of the world rests predominantly on economic and strategic considerations.<sup>43</sup> He asserts that China in previous times has been criticized by the West for embarking on Isolationism. However, China's expansion to Africa seems to be its new form of Capitalism and openness, with the results not being too favourable to the West.<sup>44</sup> This is because China's foreign policies to Africa especially providing financial and economic assistance is not one which is conditioned on the promotion of good governance and protection of human rights. This posture by China has been criticized vehemently by the West as destabilizing global normative values. On the other hand, the same posture of China's foreign policy in Africa makes it extremely difficult for African states to escape the lures of accepting aids and loans from China in exchange for gaining access to rich natural resource, particularly oil fields on the continent.<sup>45</sup>

Taylor argues that if the West wishes to see best practices from China in terms of abiding to approved standards of International Relations, the West must cooperate with China in encouraging China to partake in UN Peacekeeping Operations in Africa, financing nascent African industries and mitigating damages and challenges of the environment on the African soil.<sup>46</sup> Far from this will attract a lackadaisical attitude from China to move according to the dictates of the West. Towards this end, Taylor concludes that he does not foresee the current status-quo in the Sino-African relations changing anytime soon. Nevertheless, Taylor suggests that in circumstances where China

demonstrates hesitance or reluctance to abide by broad best environmental and governance practices and standards, it is significant for noteworthy African leaders to ensure that Chinese activities or investments do not contradict the norms and policies of African initiatives such as the African Union (AU) and The New Partnership for Africa's Development (NEPAD).<sup>47</sup>

Taylor's study contributes significantly to the topic under study by revealing the nature of contemporary Sino-Africa relations and how these relations could be improved in future. However, the study does not consider China's exploration of natural resources and its implications for Africa's environmental security, with specific reference to Ghana. This lacuna is what this study hopes to fill by relying on the theories of Cooperation and Ecological Footprint to analyze China's exploration for natural resources and its implications for Ghana's environmental security.

### **1.10.2 China and Africa's Natural Resources**

Chris Alden and Christiana Alves in their work, *China and Africa's Natural Resources: The Challenges and Implications for Development and Governance*, argue that despite the cordial and friendly nature of Sino-Africa relations, China's interest in Africa since the 1960s has always been backed by the primary motive of making profit and gaining access to natural resources on the African continent.<sup>48</sup> This motive has seen China increasing its Foreign Direct Investments (FDIs) to Africa and giving out loans and grants for infrastructure and economic development in recent times, in exchange of securing or gaining access to some existing or potential natural zones on the African continent.

They posit that a worrying situation for African leaders to control or reshape this motive by China is their desperate desire to take advantage of their cooperation with China towards improvement or realization of economic development in their respective countries.<sup>49</sup> Consequently, African leaders are unable most at times to establish best practices which aligns with their policies and

traditions in their relations with China, especially in the area of trade, agriculture, mineral extraction, among others. This has caused China mostly to adopt bad or poor practices in its relations with most African countries (especially resource zones), which has attracted much international criticism and pressure from the West, especially by the United States calling on China to reform its foreign policy principles in Africa.<sup>50</sup> In order to absorb some of this pressure, China in recent times appears to be paying heed to some international frameworks and playing a responsible part in Africa especially with regards to addressing human security threats which bedevils the African continent.

Alden and Alves however assert that China's increasing interest and engagement in Africa's mineral sector has significant ramifications on good governance on the continent.<sup>51</sup> China's energy concerns in recent times influences its new foreign policy direction with specific reference to Africa.<sup>52</sup> So despite other sources of energy including natural gas, coal, nuclear energy and hydropower, China is poised to gain access to more oil fields in Africa as this represents its topmost priority on the African continent. In addition, China hopes to gain access to other natural resources from Africa including manganese, cobalt, copper, gold and iron ore.<sup>53</sup> This has induced China to give out billions of dollars to African countries as loans for infrastructure development in exchange for resources (often referred to as the 'Angola mode') with no strict conditionality attached.<sup>54</sup>

Alden and Alves concludes that China's foreign policy approach in Africa undermines their longstanding efforts to improve governance on the continent.<sup>55</sup> This is because most African leaders just compromise to secure loans from China without ensuring any best practices in their relations. Therefore, China's bad practices with reference to unsustainable extraction of natural resources may have huge environmental security ramifications in most African countries. Towards

this end, Alden and Alves propose that African governments should demonstrate effective critical thinking and leadership, which stems from best established practices from their own traditional experiences and cooperation with other states to integrate these with the insights and policies in their relations with China, particularly, in the extraction of natural resources in Africa.<sup>56</sup> They also encourage African leaders to adopt best natural resources-related policy choices and implementation strategies especially in their dealings with China. They also urge the entire international community to put in mechanisms geared toward ensuring effective surveillance, improved environmental regulations and labour standards. In this way, those resources which have been labeled as ‘curse’ especially on the African continent can truly act as the source for Africa’s growth and development.<sup>57</sup>

The work of Alden and Alves is relevant to this study as it reveals the reason behind China’s growing interest in the energy and mineral sectors of Africa and also postulates best practices to regulate China and Africa’s natural resources relations. However, their study has a gap since it does not cover China’s exploration of natural resources and its implications for Ghana’s environmental security. This gap is what this study seeks to fill.

Peter Bosshard in his study, *China’s Environmental Footprint in Africa*, argues that China has enormous strategic interest in Africa’s natural resources, and Africa will in return benefit significantly if it takes advantage by strengthening and regulating the continued cooperation it has with China.<sup>58</sup> Such South-South cooperation according to him would engender the needed investment needed to facilitate growth and development on the African continent.

With hindsight to China's domestic experience, Bosshard posits that economic development should not pose environmental security threats and risks. He establishes that in more recent times China has developed self-interest in strengthening the environmental impacts of its overseas projects and investments by heeding to international environmental policies and standards, but more needs to be done, especially in Africa.<sup>59</sup>

Bosshard therefore recommends that a prominent actor in China's investment in Africa which is China Exim Bank, should strengthen its environmental policies to help mitigate the environmental security threats posed by Chinese investments in Africa.<sup>60</sup> He also urged the civil society in Africa to take a keen in China's role in the continent, so as to continue to monitor the sustainability of Chinese investments on the continent.<sup>61</sup> He also urged the Chinese Government take the primary responsibility for addressing global environmental impacts, with special focus to promoting good governance on the African continent.<sup>62</sup>

Bosshard's study also corroborates the topic under study as it highlights key interest of China in Africa and how African states can take advantage of contemporary Sino-Africa relations to promote development on the African continent. It however, does not cover China's exploration of natural resources and its implications for Africa's environmental security with specific reference to Ghana. This gap is what this study hopes to fill.

### **1.10.3 The Sino-Ghana Resource Relations with reference to illegal resource extractions by some Chinese in Ghana**

In their studies, *The Hazardous Nature of Small Scale Underground Mining in Ghana*, Bansah, K. J., A. B. Yalley, and Dumakor-Dupey establish that small scale mining continues to contribute enormously to the economic development in Ghana. They however revealed that illegal mining activities predominantly featured by some Chinese nationals in Ghana pose dire health and

environmental security threats to Ghanaians.<sup>63</sup> The scholars identify that the illegal mining activities by some Chinese in Ghana result in the creation of deep pits and enclaves which have led to untimely deaths and severe injuries to some farmers, hunters and inhabitants who are unaware of such pits.<sup>64</sup> This is because some Chinese in Ghana who engage in illegal mining pay little attention to safeguarding the natural environment or ensuring the natural security of Ghanaians. Consequently, no regard is given to cover or reclaiming lands which were destroyed due to illegal mining activities. They also reveal that fumes and dust from illegal or unregulated mining activities by some Chinese in Ghana pose dire health security threats to inhabitants in areas where such threats occur.<sup>65</sup>

Bansah, K. J., A. B. Yalley, and N. Dumakor-Dupey reveal that insufficient regulatory enforcement coupled with inadequate monitoring of the operations by the Minerals Commission of Ghana are major contributing factors to the dire environmental security issues caused by the exploitation of natural resources by some Chinese in Ghana.<sup>66</sup> They therefore recommend that there should be strong enforcement measures by the all government stakeholders responsible for safeguarding the environmental security of Ghana, especially with respect to natural resource extraction by foreigners such as Chinese in the country.

Penney, Ryan, Wilson, and Rodwell in their study, *Managing Sino-Ghanaian fishery relations: A political ecology approach*, reveal that in analyzing conflict situations from an ecological security perspective in the fishing industry, reference is usually made to scarcity of fishes as a source of contestation and lack of cooperation between nationals of two countries fishing on the same territorial waters.<sup>67</sup> They however pointed out that in the case of Chinese illegal fishing activities in most territorial waters of Ghana, the desire to gain access and control fishery resources has

rather generated tensions between the two states, rather than scarcity of fishery resources.<sup>68</sup> They explain that most Chinese engaged in illegal fishing activities in Ghana operate on the industrial scale with large fishing boats whilst most Ghanaian fishermen rather operate as artisanal fishermen.

Penney, Ryan, Wilson, and Rodwell pointed out that the industrial method of illegal fishing by some Chinese involve fishing methods such as light fishing which mostly involve the use of chemicals and explosive, believed to be a major cause of river water contamination in Ghana.<sup>69</sup> This often lead to the death of fishes, which stinks and pollute major water bodies.<sup>70</sup>

The scholars explain that though the environmental insecurities generate tensions between some Chinese and Ghanaian fishermen, there is also a high level of cooperation between some Chinese and Ghanaian fishermen, with specific reference to Saiko fishing activities in Elmina. They reveal that the presence of Chinese fishing vessels, and their business in Saiko, is beneficial to local Ghanaian fishermen in the area as it helps fishermen catch fishes all year round even in the off-season to make enough money. Therefore, they concluded that other factors aside scarcity should be taken into consideration when analyzing conflict situations between two nations fishing on the same territorial waters. This could be done from a political economic perspective to encourage a high level of cooperation and adherence to environmental security and fishing policies of the home nation.<sup>71</sup>

In their study, *Tracing forest resource development in Ghana through forest transition pathways*, Oduro, Mohren, M. Pena-Claros, Kyereh, and Arts explain that deforestation poses great economic and environmental security threats to states especially in developing countries like Ghana, where timber are exported.<sup>72</sup> They emphasized that addressing tropical deforestation has attracted

international and national concerns due to the impact such phenomenon has on rural livelihood, carbon emission and biodiversity sustainability. However, they established that addressing tropical deforestation with specific reference to Ghana, requires effective implementation and enforcement of the immigration and environmental policies of the country to ensure that foreigners are not attracted by the rich timber resources in Ghana to come and exploit them which will have environmental security ramifications for the country.<sup>73</sup> They therefore concluded that though Ghana's forestry resources and reserves have not been significantly altered by deforestation, the increasing interest by some Chinese who engage in illegal lumbering of Rosewood in most parts of northern Ghana could adversely pose environmental security challenges to Ghana. They therefore recommend that to safeguard the environmental security of Ghana amidst growing Chinese interest in Rosewood in Ghana, the Ghanaian Government should adopt measures to reduce excessive lumbering and deforestation of Rosewood particularly, by some Chinese in Ghana, promote sustainable forest management and encourage forest reserve conversation.<sup>74</sup>

In her study, *Ghana, China, and the Politics of Energy*, Rupp argues that the discovery of the Jubilee oil field in the Gulf of Guinea in 2017 has drawn the attention of many foreign investors to the resource of which China is no exception.<sup>75</sup> This is because Ghana's oil is considered to be of high quality though not enough. On the flipside, energy supplies to the ordinary Ghanaian citizen in recent times is one characterized with frequent blackouts and erratic power supplies. Rupp argues that these conditions have influenced to a very large extent contemporary bilateral relations between China and Ghana to be anchored on proposals by China to finance the energy and oil sectors of the country.<sup>76</sup> This situation has however led to a power-play between Ghana and China where China wants to gain significant access and control of Ghana's resource and

energy sectors by providing financial and technical assistance whilst Ghana's firm stance to be in control of its own energy and oil sectors have been characterized by lack of transparency and accountability, attracting public concerns about the mismanagement of energy in the interests of political powers. This reality has seen some section of the population calling on government to accept the demands of China to develop the energy resources of the country by designing, funding and building infrastructure that transforms energy resources into electricity. However, the government is also resolute to develop the energy resources without heavily relying on foreign partners for technical assistance. This has caused recent bilateral relations between China and Ghana to be anchored largely on the two sensitive sectors of the economy which are oil and energy.<sup>77</sup>

Rupp's study also corroborates the topic under study as it highlights the key interest of China in Ghana's energy and oil sectors and how these have influenced to a larger extent bilateral relations between the two states. It however, does not cover how China's access and control of such natural resource sectors have environmental security implications for Ghana. This gap is what this study hopes to fill.

Hensengerth's study on *Chinese Hydropower Companies and Environmental Norms in Countries of The Global South: The Involvement Of Sinohydro In Ghana's Bui Dam*, examines the legally binding conditions and environmental policies under which Sinohydro constructed the Bui Dam.<sup>78</sup> He established that Government of Ghana ensured that the construction of the Bui dam by the Sinhydro company was based on strict adherence to international norms. The agreement was a turnkey contract, implying that Sinohydro was only expected to build the dam and not operate it. After construction of the dam, that Sinohydro handed over the project to the Bui Power Authority

to oversee its daily operation. This circumstance is unique in relation to what related in Cambodia, for example, where Sinohydro Bureau manufactures the Kamchay Dam as a Build-Operate Transfer (BOT) venture. With this, the company built and operated the project as a concession for about forty years before handing it over to the Cambodian government.<sup>79</sup>

Hensengerth asserted that despite the political pressure exerted by the populace for the Government of Ghana to ensure the construction of the Bui Dam, Ghana nevertheless did not compromise its environmental security for the Chinese investment.<sup>80</sup> This means that Ghana ensured that the Chinese Sinohydro company adhered strictly to international and domestic environmental security frameworks and policies in constructing the dam. He therefore concluded that the case of the Bui Dam shows that international norms specifically with regards to environmental security and sustainability are by no means irrelevant in Chinese foreign investment projects.<sup>81</sup>

Hensengerth's study is of great importance to this study as it supports the assertion made by Taylor that in situations where China shows reluctance to abide by broad governance standards, it is important for significant African leaders to ensure that Chinese activities or investments are not parallel to norms and policies of African initiatives such as the African Union (AU) and The New Partnership for Africa's Development (NEPAD).

Hensengerth's study demonstrated how Ghana took the lead to cause Sinohydro to conform to expected norms and initiatives in mind with much consideration to the environmental security of the country. However, the study does not analyze how Sinohydro construction of the Bui Dam may have had environmental security implications for Ghana. This gap is what this study hopes to fill by relying on the theories of Cooperation and Ecological Footprint to analyze China's exploration for natural resources and its implications for Ghana's environmental security.

## **1.11 Sources of Data and Study Methodology**

### **1.11.1 Sources of Data**

Data collection is an integral aspect of every research. This is because the method of data collected and analyzed determines the type of research being conducted.<sup>82</sup> In view of this, there are two main methods of data collection (i.e. primary and secondary data collection). Basically, the primary data collection is obtained through methods such as interviews, experiments, direct observation and survey whereas secondary data may be obtained from many sources which include books, journal articles, newspaper, magazines and internet sources.

#### **1.11.1.1 Primary Data**

According to Chan and Ahmed, primary data are data collected from direct first-hand sources which have not yet been published.<sup>83</sup> In this study, unstructured interviews were used by the researcher to collect primary data from officials of institutions who provided relevant data to the topic under study. These included Lawyer Kwame Gyan (Lecturer at Faculty of Law, University of Ghana and Former Chairman of Minerals Commission and Lands Commission in Ghana), Dr. Jesse Sey Ayivor (Senior Research Fellow at the Institute of Environment and Sanitation Studies, University of Ghana), Mr. Fredua Agyeman (Director of Environment at Ministry of Environment, Science, Technology and Innovation in Ghana) and an official of the Ghana Armed Forces (involved in Operation Vanguard to check illegal mining activities across the country). The aim for the consideration of these respondents was to collect relevant information that addresses the issues of environmental insecurities which confronts Ghana, due to China's growing interest for natural resources in Ghana, which has consequently resulted in natural resources exploitation by some Chinese in Ghana.

### **1.11.1.2 Secondary Data**

Secondary data refers to the existing or already published data which could be obtained from other researches.<sup>84</sup> Normally, the secondary data are obtained in the various ways such as through journal articles, books and internet sources. One disadvantage of secondary data is that data obtained may be outdated or altered as compared to primary data. This study utilized secondary sources from official documents, published books, journal articles, policy papers and reports such as Ghana Environmental Protection Agency's report on illegal extraction of natural resources by Chinese in Ghana. Also data was obtained from the internet on most headlines of Chinese illegal engagement in small scale mining, lumbering and fishing in Ghana.

This study utilized the purposive and convenience sampling methods to select respondents who provided vital primary data on the topic for analysis. The study has a purpose, which is to assess or investigate the environmental security challenges faced by Ghana in China's exploitation of the country's resources. Purposive sampling is based on the judgement of the researcher with regards to selection of respondents to provide relevant primary data for analysis. Convenience sampling is a non-probability sampling technique where respondents considered to provide primary data for a particular study are selected due to their convenient time schedules or proximity to the researcher.<sup>85</sup> These reasons justified the consideration of these sampling techniques for the selection of respondents who provided relevant primary data on the topic for analysis.

### **1.11.2 Methodology**

The study relied purely on qualitative research methods for data collection and analysis. Qualitative research is a form of systematic empirical inquiry into meaning. Qualitative research design is selected because the researcher seeks to conduct a detailed study in which reference and emphasis are placed on understanding China's presence in Africa, in this particular case, in search

of resources and how that could have an impact on Ghana's environmental security. The study utilized an exploratory and descriptive research designs. These methods helped in providing extra information where limited information exists and also helped in identifying gaps in existing literature.

This study employed the exploratory qualitative research method due to its flexibility. This method allows for exploring other avenues of obtaining data without limitations to specificities and exactitudes as observed in most quantitative research methods. Exploratory design "most often relies on secondary research such as reviewing available literature or data and also conducting in-depth interviews, case studies and pilot studies."<sup>86</sup> This design helps in presenting a precise problem statement, as well as teasing out a good hypothesis due to the plethora of information that could be gathered from various sources.<sup>87</sup> The descriptive design also helps in researching into social phenomenon without explicit speculations.<sup>88</sup> This is because, the design helps in making thorough investigations without any prejudices or personal sentimentality based on data collected from various sources of data. The descriptive design was used in this study to establish facts and relationships between China's interest for natural resources in Africa and the exploitation of natural resources by some Chinese nationals in Ghana. This was done by describing in detail the scope and nature of contemporary Sino-Ghana relations with more prominent accentuation on China's quest for natural resources in Ghana and the consequences this has on Ghana's environmental security.

Data obtained from the interviews were used to supplement data obtained from the literature review in order to provide a progressive comprehensive analysis on the topic. This is because the phenomenon under study (i.e. China's presence in Africa (in the particular of case) in search of resources and how this impacts on Ghana's environmental security) is an on-going phenomenon

and will require most recent data for better analysis and recommendations. Data from the sources indicated will be analyzed through the theoretical frameworks of International Cooperation and Ecological Footprint to provide a better insight on the topic. This will be used to make recommendations based on the outcome of the study.

### **1.11 Organization of Study**

Chapter One: Constitutes the Introduction

Chapter Two: Provides an overview of Sino-Africa relations and environmental security.

Chapter Three: Assesses China's exploitation of Ghana's natural resources and its implications for environmental security.

Chapter Four: Constitutes the summary of findings, conclusions and recommendations.

## ENDNOTE

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- <sup>1</sup> Schorn, A. (2009). The Environmental Impact of China's Activities in Africa. *The China Monitor*, 45, 4-6.
- <sup>2</sup> Ibid,p.1
- <sup>3</sup> Ibid,p.1
- <sup>4</sup> Ibid
- <sup>5</sup> Marsh, J. (2015). Supplying the World's Factory: Environmental Impacts of Chinese Resource Extraction in Africa. *Tulane Environmental Law Journal*, 393-407.
- <sup>6</sup> Ibid,p.394
- <sup>7</sup> Ibid,p.394
- <sup>8</sup> Ibid,p.394
- <sup>9</sup> Ademola, O. T., Bankole, A. S., & Adewuyi, A. O. (2016). China-Africa trade relations: Insights from AERC scoping studies. In *The Power of the Chinese Dragon* (pp. 69-97). Palgrave Macmillan, London.
- <sup>10</sup> Lengyel, M., & Ventura-Dias, V. (Eds.). (2003). *Trade Policy Reforms in Latin America: Multilateral Rules and Domestic Institutions*. Springer.
- <sup>11</sup> Bosshard, P. (2007). China's role in financing African infrastructure. *International Rivers Network*, 14.
- <sup>12</sup> Downs, E. S. (2007). The fact and fiction of Sino-African energy relations. Available at [brookings.edu](http://brookings.edu).
- <sup>13</sup> Ibid
- <sup>14</sup> Bosshard, P. (2008). China's environmental footprint in Africa. *China in Africa Policy Briefing*, 3, 1-12.
- <sup>15</sup> Ibid
- <sup>16</sup> Taylor, I. (2007). Unpacking China's resource diplomacy in Africa. *China in Africa*, 35(10), 1-34
- <sup>17</sup> Alden, C. (2009). China and Africa's natural resources: The challenges and implications for development and governance. Available at [africaportal.org](http://africaportal.org).
- <sup>18</sup> GhanaWeb. 2018. Ghana's new path to development is the China way. Available at <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Ghana-s-new-path-to-development-is-the-China-way-Akufo-Addo-suggests-688078>.
- <sup>19</sup> Hilson, G., Hilson, A., & Adu-Darko, E. (2014). Chinese participation in Ghana's informal gold mining economy: Drivers, implications and clarifications. *Journal of Rural Studies*, 34, 292-303.
- <sup>20</sup> Dumenu, W. K., & Bando, W. N. (2016). Exploitation of African Rosewood (*Pterocarpus erinaceus*) in Ghana: a situation analysis. *Ghana J. Forestry*, 32, 1-15.
- <sup>21</sup> Afoakwah, R., Osei, M. B. D., & Effah, E. (2018). A Guide on Illegal Fishing Activities in Ghana. USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. Prepared by the University of Cape Coast, Ghana. GH2014\_SCI048\_UCC.
- <sup>22</sup> Ibid
- <sup>23</sup> Moffat, I. (2000). Ecological footprints and sustainable development. *Ecological economics*, 32(3) pp.359-362.
- <sup>24</sup> Hayden, A. 2019. Theory of Ecological footprint. Available at <https://www.britannica.com/science/ecological-footprint>.
- <sup>25</sup> Hayden, A., & Shandra, J. M. (2009). Hours of work and the ecological footprint of nations: an exploratory analysis. *Local Environment*, 14(6), 575-600.
- <sup>26</sup> Huang, Q., Wang, R., Ren, Z., Li, J., & Zhang, H. (2007). Regional ecological security assessment based on long periods of ecological footprint analysis. *Resources, Conservation and Recycling*, 51(1), 24-41.
- <sup>27</sup> Jorgenson, A. K., & Burns, T. J. (2007). The political-economic causes of change in the ecological footprints of nations, 1991–2001: a quantitative investigation. *Social Science Research*, 36(2), 834-853.
- <sup>28</sup> Hayden, A. 2019. Theory of Ecological footprint. Op Cit.
- <sup>29</sup> Miglietta, P. P., & Pastore, S. (2010). The ecological footprint: methodologies and applications. *Qual Access Success*, 11, 1150-1156
- <sup>30</sup> Ibid,p.4
- <sup>31</sup> Ibid,p.4

- 
- <sup>32</sup> Economy,op,cit,p.1
- <sup>33</sup> Moffat,op,cit,p.1
- <sup>34</sup> McManus, P., & Haughton, G. (2006). Planning with ecological footprints: a sympathetic critique of theory and practice. *Environment and Urbanization*, 18(1), 113-127.
- <sup>35</sup> Hayden, A. 2019. Theory of Ecological footprint. Op Cit.
- <sup>36</sup> Ibid
- <sup>37</sup> Chun, Z. (2013). The Sino-Africa relationship: Toward a new strategic partnership. *Emerging Powers in Africa*, 10-18.
- <sup>38</sup> Chinese MOFA. 2006. China's African Policy. Available at <http://www.fmprc.gov.cn/eng/zxxx/t230615.htm>.
- <sup>39</sup> Ibid
- <sup>40</sup> Ibid
- <sup>41</sup> Ibid
- <sup>42</sup> Ibid
- <sup>43</sup> Taylor, I. (2007). Unpacking China's resource diplomacy in Africa. *China in Africa*, 35(10), 1-34.
- <sup>44</sup> Ibid
- <sup>45</sup> Ibid
- <sup>46</sup> Ibid
- <sup>47</sup> Ibid
- <sup>48</sup> Alden, C. (2009). China and Africa's natural resources: The challenges and implications for development and governance. Available at [africaportal.org](http://africaportal.org).
- <sup>49</sup> Ibid
- <sup>50</sup> Ibid
- <sup>51</sup> Ibid
- <sup>52</sup> Ibid
- <sup>53</sup> Ibid
- <sup>54</sup> Ibid
- <sup>55</sup> Ibid
- <sup>56</sup> Ibid
- <sup>57</sup> Ibid
- <sup>58</sup> Bosshard, P. (2008). China's environmental footprint in Africa. *China in Africa Policy Briefing*, 3, 1-12.
- <sup>59</sup> Ibid
- <sup>60</sup> Ibid
- <sup>61</sup> Ibid
- <sup>62</sup> Ibid
- <sup>63</sup> Bansah, K. J., Yalley, A. B., & Dumakor-Dupey, N. (2016). The hazardous nature of small scale underground mining in Ghana. *Journal of Sustainable Mining*, 15(1), 8-25.
- <sup>64</sup> Ibid
- <sup>65</sup> Ibid
- <sup>66</sup> Ibid
- <sup>67</sup> Penney, R., Wilson, G., & Rodwell, L. (2017). Managing sino-ghanaiian fishery relations: A political ecology approach. *Marine Policy*, 79, 46-53.
- <sup>68</sup> Ibid
- <sup>69</sup> Ibid
- <sup>70</sup> Ibid
- <sup>71</sup> Ibid
- <sup>72</sup> Oduro, K. A., Mohren, G. M. J., Pena-Claros, M., Kyereh, B., & Arts, B. (2015). Tracing forest resource development in Ghana through forest transition pathways. *Land Use Policy*, 48, 63-72.
- <sup>73</sup> Ibid
- <sup>74</sup> Ibid
- <sup>75</sup> Rupp, S. (2013). Ghana, China, and the politics of energy. *African Studies Review*, 56(1), 103-130.

<sup>76</sup> Ibid

<sup>77</sup> Ibid

<sup>78</sup> Hensengerth, Oliver (2013) Chinese hydropower companies and environmental norms in countries of the global South: the involvement of Sinohydro in Ghana's Bui Dam. *Environment, Development and Sustainability*, 15 (2). pp. 285-300. ISSN 1387-585X

<sup>79</sup> Ibid

<sup>80</sup> Ibid

<sup>81</sup> Ibid

<sup>82</sup> Slideshare (2012). Primary & secondary data. Retrieved from <http://www.slideshare.net/hezel3210/primary-secondary-data>.

<sup>83</sup> Chan, Alvin M., and Farid A. (2006). The use of secondary data in unveiling the potential of ethnic markets. *Contemporary Management Research* 2.1: 31-42.

<sup>84</sup> Ibid

<sup>85</sup> Allison, T., Sainsbury, P., and Craig, J. (2007). "Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups." *International journal for quality in health care* 19.6: 349-357.

<sup>86</sup> Dellinger, Amy B., and Nancy L. Leech. (2007). Toward a unified validation framework in mixed methods research. *Journal of Mixed Methods Research* 1.4: 309-332.

<sup>87</sup> Shields, Patricia M., and Nandhini, R. (2013). A playbook for research methods: Integrating conceptual frameworks and project management. New Forums Press.

<sup>88</sup> Ibid



## **CHAPTER TWO**

### **AN OVERVIEW OF SINO-AFRICA RELATIONS AND ENVIRONMENTAL SECURITY**

#### **2.1 Introduction**

This Chapter reviews Sino-Africa relations, with greater emphasis on the impact on environmental security, specifically at the beginning of the Millennium. The reviews focus on the political history between Ghana and China, the economic relations between the two countries, and the foreign policy relations existing between China and Ghana, with central focus on the environmental security. The overview includes among other, China's foreign policy agenda towards Africa, Ghana-China's Relations, contemporary bilateral relations between Ghana and China, factors favoring the increasing bilateral relation between Ghana and China in contemporary times, international frameworks and standards for promoting global environmental security, frameworks and standards for promoting environmental security in Africa and West African sub-region, general status-quo of environmental security in Ghana, Chinese Environmental Practice and Law and finally Ghana's Environmental Protection Policy.

#### **2.2 China's foreign policy agenda towards Africa**

Montgomery established that foreign aid is the wheels on which international politics thrive

<sup>1</sup> He explains that foreign aid serves as the lubricant for the pursuance of foreign policy.<sup>2</sup> In relation to this, China's foreign policy on the African continent seemed to be geared towards establishing friendly relations with African states. This was to be achieved through the provision of foreign aid and accelerating economic growth and development on the continent. Premier Zhou Enlai of China was the first pioneer of the guiding economic principles which have influenced Sino-Africa

relations even to date.<sup>3</sup> These economic principles were built on enhancing economic and technological cooperation between Africa and China. The 1980s saw Chinese leaders establish four major principles on which China would establish relations with African States. These principles included realization of practical results, diversity in form, equality and mutual benefits and finally, acceleration of economic development.<sup>4</sup>

To strengthen and enhance long lasting relations between Africa and China, President Jiang Zemin of China, visited Africa in 1996 and proposed key areas that would shape relations between the two partners towards the 21st Century.<sup>5</sup> These include establishing genuine friendship relations, building strong cooperation and cohesion, being co-partners in economic development, and being concerned with addressing future developmental challenges on the African continent.<sup>6</sup>

To develop stronger cooperation between Africa and China, President Jiang Zemin hinted that China would not meddle in domestic issues of Africa unless it posed threat to the international community at large. In addition, China committed to maintaining internal peace and order and to also encourage social advancement in African states.<sup>7</sup> Also, China was committed in boosting diplomatic relations with African states and encouraged the latter to resort to diplomatic means of resolving especially external disputes instead of violence and aggression.<sup>8</sup> China committed to encouraging African states in achieving the goals of New Partnership for Africa's Development (NEPAD) and for increased visitations between China and African states to exchange ideas for addressing mutual developmental challenges.

China's topmost priority however was to increase governmental aid to African states to accelerate economic development on the continent.<sup>9</sup> In addition, China committed to aiding in the construction of huge infrastructural projects which African countries lack the economic capabilities to carry out. Furthermore, China committed to promoting industrialization of the

African continent.<sup>10</sup> Towards this end, China committed to accelerating investments and commerce on the African continent. This was expected to lead to a more accelerated economic partnership between African states and China. China also collaborated with African states in areas of stability and development.<sup>11</sup> This was accomplished through the readiness and will power of African leaders to accept new Security cooperation with China to help address security dangers and issues confronting the African continent from fully realizing its mandate and potential as a viable resource hub in contemporary international system.

Following from the above, China established strong ties with most African countries through the Forum on China-Africa Cooperation, usually referred to as FOCAC Summits.<sup>12</sup> Consequently, almost all African countries believed in the One-China Policy and 46 out of 53 countries in Africa established diplomatic relations with China by establishing Chinese Embassies and Consulates in their countries.<sup>13</sup> During the 2018 Forum on China-Africa Cooperation (FOCAC) held in Beijing, President Xi disclosed that:

“China would finance infrastructure in Africa with \$60 billion as a way of promoting economic development on the continent. He emphasized that the financial assistance will be provided to African governments with no strings and conditions attached. The financing includes \$15billion grants, interest-free loans and concessional loans, \$20billion of credit lines, the setting-up of US\$10billion special fund for development financing, and \$5billion special funds for financing imports from Africa. Chinese companies are also urged to input at least \$10billion of investments into Africa over the next 3 years. In the area of education, China has extended a \$60million grant to Ghana in support of the second phase of work on the University of Health and Allied Sciences (UHAS). China has also pledged to increase its scholarship support to Africa to about 50,000 students this year.”<sup>14</sup>

In relation to the above, Khan in his work *India, America and China's oil politics in Africa* reveals that China sees Africa to possess a good business climate due to its preponderant natural resources and readily available labour force as a result of high populations on the continent, which is good

for China and the world.<sup>15</sup> As such, China has shown increasingly great interests particularly in natural resource zones in Africa.<sup>16</sup> The motive for China's foreign policy agenda however is not clear to some African leaders as it seems like a subtle move to gain access to natural resource reserves and control major energy sectors on the African continent.<sup>17</sup> This perception may have influenced Ghana-China relations from the beginning of the Millennium to date.

### **2.3 Ghana-China's Relations**

Relations between Ghana and China dates backs to the Cold War era. Both countries were identified with the non-aligned movement. More cordial relations existed between the two states after 1958 when a Chinese Acrobatic group put up a performance to honour the First Anniversary of Ghana's independence. Following this, formal diplomatic relations begun in 1960 when Ghana became a state in the Sub-Saharan Africa to officially recognize Chinese Government in Beijing. This caused China to allow Ghana establish an embassy in China, with Ghana reciprocating with the same diplomatic gesture. This led to sending of an Ambassador from Ghana to China and vice versa to facilitate cooperation, military assistance and mutual development agenda between the two states.

However political upheavals within both countries hindered very cordial relations between China and Ghana, especially between 1958 and 1966. Notwithstanding this, President Kwame Nkrumah in 1961 signed the Three (3) Compartment Deal with China which provided free loans and grants to Ghana to embark on, facilitate and accelerate Industrialization in Ghana.

However, diplomatic relations between Ghana and China was short-lived from 1966 when Beijing abandoned Nkrumah's Seven Year Development Plan and halted the support for the constructions of major projects in Ghana including the Accra-Tema Motor Way. This was due to tensions which developed between Nkrumah and the Chinese Government. Therefore, between 1966 and 1972,

no diplomatic relations existed between Ghana and China. However, the period between 1972 and 1975 saw the restoration of diplomatic relations between China and Ghana.

From the 1980s, the poor economic environment and predicaments in Ghana prevented her from receiving much economic and financial support from the World Bank. This led Ghana to embark on Economic Recovery Programmes which were heavily supported by China. This has facilitated strong economic diplomacy and relations between China and Ghana even to date.

#### **2.4 Contemporary Bilateral Relations between Ghana and China**

China and Ghana have delighted in a solid bilateral relationship since 1960 which have involved high level official visits between the two states. Consequently, President Nkrumah visited China during this period which was reciprocated by Premier Zhou Enlai.<sup>18</sup> Subsequently, in 2002, President John Kufuor of Ghana visited China, which induced China's President Hu Jintao to reciprocate a visit to Ghana in 2003. Also, in 2007, Chinese Premier Wen Jiabao visited Ghana and in September 2010, Ghana's President John Evans Atta Mills also reciprocated a visit to China to enhance bilateral relations between the two states<sup>19</sup>. The Vice Chairman of the Standing Committee of the National People's Congress of China Zhou Tienong also reciprocated a visit to Ghana and met with Ghana's then Vice President John Dramani Mahama in November 2011.<sup>20</sup>

In 2018, President Akufo-Addo was invited as one of the African leaders to the Beijing Summit on China Africa Cooperation (FOCAC).<sup>21</sup> In this Summit, President Akufo-Addo urged his Chinese counterpart to enhance cooperation between the two states, remarking that “we want your help fully, so that we can remove this impediment to the strong co-operation between Ghana and China.”<sup>22</sup> This led to the signing of eight Co-operation Agreements and Memoranda of Understanding between Ghana and China, in different sectors of their respective economies.

The agreements are the “One Belt One Road Memorandum of Understanding”, “Memorandum on Regional Aviation Co-operation”, “Agreement for Co-operation in the peaceful use of nuclear energy”, and “Co-operation to carry out Maternal and Child Health Project”.<sup>23</sup> The rest are “Framework Agreement on Financing Insurance Co-operation” (\$2 billion Sino-Hydro deal), “Economic co-operation on Phase 2 Project of the University of Health and Allied Sciences, Ho”, “Co-operation on the expansion of the Cape Coast Stadium”, and “Co-operation on the supply of police vehicles to the Ghana Police Service.”<sup>24</sup>

President Akufo Addo asserted that China has been Ghana’s biggest trading partner and highlighted that China’s investment and cooperation with Ghana has significantly contributed to the economic development and welfare of the Ghanaian people.<sup>25</sup> Nonetheless, President Akufo-Addo emphasized the determination of his administration to fight against the menace of illegal mining, popularly referred to as “galamsey,” which some Chinese nationals feature predominantly as foreign nationals engaged in such illegalities.<sup>26</sup> President Akufo Addo was therefore concerned about the increasingly involvement of Chinese nationals in natural resources exploitation in Ghana and his determination to address the menace .

President Akufo-Addo however, emphasized that his administration would not hesitate to put in measures towards restoring the sanity and purity of Ghana’s water bodies and the environmental security of Ghanaians in general.<sup>27</sup> He therefore bid to the Chinese Government to coordinate viably in ensuring that the human security is safeguarded, with special reference to tackling illegal mining by Chinese nationals in Ghana. Following this, the Minister for Foreign Affairs and Regional Integration, Hon. Shirley Ayorkor Botchwey (Member of Parliament - MP) on January 15, 2019, received the Ambassador of the People’s Republic of China to the Republic of Ghana, His Excellency Mr. Shi Ting Wang and officials of the Chinese Embassy in Ghana.<sup>28</sup> This was

intended to fortify bilateral relations and cooperation between the two states. Currently, Ghana tops with international student enrollment into China, with about 7,000 Ghanaians schooling in China.<sup>29</sup>

## **2.5 Factors favoring Increasing Bilateral Relation between Ghana and China in**

### **Contemporary Times**

The Investment Climate is an essential factor China considered deciding best location for its long term bilateral relations and investments in Africa. China expects to have a conducive environment and facilities where its key stakeholders including investors could operate efficiently and effectively. Therefore, careful consideration induced China to choose Ghana for increasing bilateral relation in recent times though Nigeria and South Africa have proven to be the most viable economic Giants on the African continent. The factors which favor the increasing bilateral relation between China and Ghana include Political criteria, economic state, security relations and strategic location.

#### **2.5.1 Political Criteria**

The relative peace and stability enjoyed by Ghana has encouraged its long term bilateral relations with China since the 60s to date. China, which desires to wield global political power would love to invest in a country with a peaceful socio-political environment coupled with abundant natural resource reserves. This will serve as an incentive to attract Chinese investors. In other words, China would establish and maintain a long term bilateral relation with an African nation which proves to possess a good business climate in terms of peace and security and abundance of natural resources. This will encourage cooperation between China and the State to be able to effectively carry out the mission and vision of China's foreign policy on the African continent.

Considering most states on the African continent in recent times, Ghana appears qualified for this criterion. This is because, though some states are bedeviled with conflicts and wars in Africa, Ghana, since 1992, has enjoyed relative peace and stability, following the adoption of a new democratic constitution.<sup>30</sup> In addition, every government which comes into power tries as much as possible to uphold the principle of democracy and defend the constitution.<sup>31</sup> Currently, Ghana is perceived as the most serene state in West Africa. This serves as an incentive to attract foreign investors including Chinese nationals and companies.

### **2.5.2 Economic criteria**

An African state which qualifies to attract Chinese investments and supports, as well as increasing bilateral relations should be economically buoyant in the region where it is found. This will allow the country not to only receive economic supports from China but also be in the position to engender development in surrounding countries or regional integration blocs. This also allows such country to encourage and influence other countries on the continent to better understand and appreciate the vision of China's foreign policy on the African continent if they are to expect more development and appreciable level of stability.

Ghana qualifies for this position by acting as one of the economic Giants in West Africa. This is because, out of the sixteen (16) member countries which form ECOWAS, only four (4) including Ghana, Nigeria, Cote d' Ivoire and Senegal are considered developing countries, the rest of the twelve (12) countries are considered least developed countries.<sup>32</sup>

### **2.5.3 Cultural/Security Relations**

An African state which qualifies for effective and long lasting bilateral relations with China should have had a long standing history with the China. The history could be cultural, social or security

relations particularly, concerning military operation and assistance as well as dealing with other merging or existing security threats. An African state where China may wish to invest should have engaged in exchange programmes with China over a long period of time. This could be achieved through educational programmes or tourism. Also, the country should have section of its populace speaking Chinese. This will allow for easy dissemination and promulgation of the ideologies, vision and mission behind China's foreign policy in Africa. Also, the country should also have engaged in counterterrorism operations aimed at promoting global peace and security and also on the continent. Ghana meets all these requirements since Ghana has maintained a long term cordial relationship with China since the 60s, has inculcated the Chinese language in its educational curriculum to be learned by some Ghanaian nationals<sup>33</sup>, helping to promulgate the Chinese culture in Ghana, the West African sub-region and on the African continent as a whole.

#### **2.5.4 Strategic Criteria**

An African state which meets all necessities for suitable and strong respective relations with China should be strategically situated so as to inure to the more important ideal position of achieving easily the mission and vision of China's foreign policy in that nation and on the African continent in general. The country ought to be situated in an area where the surrounding nations are allies of China to some appreciable level. Furthermore, the nation ought to have an international airport, improved physical framework, improved security offices and faculty, and ought to likewise have a populace where natives are not unfriendly towards the China.

Ghana is additionally strategically situated. Bounded south to the Gulf of Guinea, Ghana could fill in as an inspiring power to help the smooth undertakings of the Naval Force of China. Also, it has a standard international airplane airport to encourage aviation activities and processes with China. All the more in this way, Ghana has one of the most formidable standing armed forces in the West

African sub region and played the leadership role in tackling security threats and issues in the sub-region, the continent and the international level particularly through effective security and intelligence cooperation with states such as China.<sup>34</sup> The eminent Tema Harbor in Ghana aids commitments between Ghana and the outside world, consequently boosting economic development of the nation. Besides, some sections of the Ghanaian populace are familiar with Chinese language and societies hence making Ghana a suitable location for Chinese investors. Ghana's neighboring countries are Togo to the East, Cote d' Ivoire to the West and Burkina Faso to the north. These are all allies of China to some extent.

## **2.6 International Frameworks and Standards for Promoting Global Environmental Security**

The environment consists of all, or any of the following media in the physical surrounding, including both the natural and man-made things such as the air, water bodies, land and humans.<sup>35</sup> To protect and promote the environment, the concept of environmental development has been developed in improving global environmental security. Environmental development involves making people conscious about their environment and embracing good practices to protect the environment for prosperity.<sup>36</sup> On the other hand, Environmental security as stipulated by the United Nations Development Programme (UNDP) connotes avoiding practices which lead to the deterioration of the natural environment and its associated consequences.<sup>37</sup> In view of this, some international standards frameworks, conventions and standards have been adopted by the UN aimed at promoting global environmental security. Paramount among such international frameworks include the following:

In 1946, the world adopted the International Convention for Regulating Whaling (ICRW) which came into force in May, 1959.<sup>38</sup> This was aimed at regulating the fishing of whales in waters where whaling takes place. In 1962, there was the adoption by United Nations General Assembly

(UNGA) of Resolution 1803 on Permanent Sovereignty over Natural Resources. This gave authority to states to have jurisdiction and control over all natural resources found within their territories either, in the air space, territorial waters or land. In addition, states were enjoined with the responsibility to utilize such natural resources towards the development of their people and also ensure that such resources' extractions do not deplete or degrade the global natural environment.

In 1972, there was the Declaration of the United Nations Conference on Human Environment (UNCHE) which focused on the dire need by the international community to strengthen actions at both the national and international levels as necessary conditions for social and economic development to significantly reduce degradation of the natural environment and exploitation of natural resource which could pose threats to global environmental security. This led to the adoption of the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Waste and other Matter and the 1973 International Convention for the Prevention of Pollution from Ships.

In 1979, the world adopted the Convention on the Conservation of Migratory Species of Wild Animals (CCMSWA), which came into force in 1983.<sup>39</sup> This international framework was geared towards lowering the use of taxon on wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries.

The 1985 Vienna Convention on the Protection of the Ozone Layer was adopted by the International Community to curtail and minimize the emission of toxic gaseous substances into the atmosphere which consequently leads to a gradual depletion of the ozone layer. In 1992, the United Nations Conference on Environment and Development (UNCED), which was held in Rio led to the adoption of the Convention framework on Climate Change which was signed and ratified by 153 states. There was also the adoption of the Convention on Biological Diversity signed by

153 states. The Rio Conference also saw the adoption of Agenda 21 which was an Action Plan for the international community as far as integrating environment with development in the 21<sup>st</sup> Century is concerned. This has been the predominant international framework which has garnered global efforts towards improving and ensuring global environmental security in the 21<sup>st</sup> Century era.

Despite the above stated international Conventions, some states, especially the global powers, sometimes adopt unlawful and unfair means in their quest to gain access to global natural resources in other states. China presents a typical evidence to this fact with special reference to the African continent and Ghana in particular. The next chapter will examine the extent to which China abides by or deviates from international norms in its quest for natural resources in Ghana and how such quest has affected the environmental security of Ghana.

## **2.7 Frameworks and Standards for Promoting Environmental Security in Africa and the West African Sub-Region**

To be able to achieve the goals of the international frameworks for promoting global environmental security, African states have collectively adopted and implemented policies aimed at safeguarding their natural resources and protecting the natural environment. Paramount among them include the following;

The 1968 African Convention on Nature and Natural Resources. The 1968 African Convention is the current applicable framework governing environmental conservation on the African continent. To address these shortcomings, a more comprehensive version of the African Convention was adopted in 2003. The Maputo African Convention on the Conservation of Nature and Natural Resources, adopted in 2003, which became effective in 2016. This was aimed at conserving and

protecting the natural environment in Africa as well as addressing other environmental challenges which bedevils natural species.

In relation to the above, there was the adoption of the 1981 Abidjan Convention known as The West and Central Africa Region (WACAF) Action Plan. This came into force in August, 1984. The Convention was to garner sub-regional efforts through effective cooperation for the protection and development of the Marine and Coastal Environment of the West and Central African Region (Abidjan convention) and in combating pollution in Cases of Emergence. In most recent times, the West African sub-region in 2008, adopted the West Africa Environmental Policy. This was to improve the management of the environmental heritage to support development in the West Africa sub-region.

In spite of the above stated international Conventions, most states in Africa and especially West Africa have not been able to resist global powers, especially China whose quest for the natural resources on the African continent sometimes adopts unlawful and unfair means in exploiting such natural resources. The next chapter will examine the extent to which China abide by or deviate from African standards of protecting and promoting the natural environment on the continent.

## **2.8 General Status-quo of the Environmental Security in Ghana**

Generally, the security climate in Ghana is very conducive to attract investors into the country. Ghana in West Africa is noted to be a peaceful country which has conducted herself relatively well in the sub-region with regards to electioneering processes and democratization. Hence Ghana is noted to enjoy relatively satisfactory level of security with respect to the law and order prevailing in the country. However, research on the environmental security management in Ghana is however very scanty.

There is no country in the world today which enjoys hundred percent (100%) security atmosphere. However, the security level in Ghana is relatively satisfactory. This means there are structures, systems and mechanisms to maintain the relative peaceful security level enjoyed in the country. The general populace knows and respects the mechanism of security management in the country, hence limiting the risk of intra-state violent situation in the country.<sup>40</sup>

The above assertion is reiterated by Tankebe who asserts that the mechanism that ensures effective security management in Ghana include the Constitutional order, Institutional order and National Psyche.<sup>41</sup> The constitutional order connotes the existence of the highest national law which governs all the conducts of individuals and institutions in accordance to the Rule of law. The institutional order implies the existence of state institutions and personnel responsible for the maintenance of peace and security in the country. Paramount among such institutions include the Ghana Armed Forces (GAF), the Ghana Police Service (GPS), the National Security, the Courts, the Bureau of National Investigations (BNI), the Research Department of Foreign Ministry, among others. The National Psyche suggests that the citizenry adhere to and respect both the Constitutional and Institutional Orders responsible to ensure security management, as well as law and order in the country. Ghana's security level could be said to be positive or favourable because the needed structures exist to ensure law and order. However, the snag to security management in the country arises due to some inefficient personnel who run state security apparatuses, most of whom are politically influenced or manoeuvred.

In view of the above, though Ghana is considered a peaceful country in the West Africa sub-region, pockets of environmental security threats have characterized some portions which are much evident especially by poor sanitation in most parts of the country including the capital city, Accra<sup>42</sup> and also due to increasing Chinese engagement in illegal natural resource extractions in Ghana.<sup>43</sup>

However, such security threats or risk though have the potential to, have been effectively managed from escalating into a civil war.

In terms of domestic security provision and management, the Presidents, Vice Presidents and other officials of government institutions, politicians, some members of the clergy, traditional leaders and some affluent or famous people such as celebrities in the country are provided maximum security and safety by the state security agencies and officials. On the contrary, trickling down to the ordinary Ghanaian citizen, the security provision and management is very vulnerable and minimal. This induces some citizens to adapt to other alternatives, both legal and illegal, to provide for their own security, including the security of family and community. Such alternatives include the use of dogs, or joining hard-core groups such as vigilante groups or armed robbery gangs, which sometimes rather worsen the security of an area or region in Ghana. Typical reference could be made to the security management by ordinary citizens as it pertains in areas like Ashaiman and Nima in the Greater Accra region.

The environment is the physical surrounding which includes water, air and land to sustain life and particularly human existence. Literature reveals that natural resource extraction if not properly managed could have negative ramifications on the environmental security and sustainable development of a nation. The crucial importance of safeguarding the human security in Ghana necessitated the establishment of Environmental Protection Agency in 1994 which was intended to create increasing awareness among the citizenry about the need to observe good environmental practices and management. This notwithstanding, the influx of Chinese nationals and companies to Ghana, who focus on illegal natural resource extraction and exploitation has posed dire humanitarian threats to the Environmental security of Ghana, which shall be analysed in the next Chapter.

## 2.9 Chinese Environmental Practice and Law

A fundamental understanding of China's ecological practice and law is significant in understanding China's relations with Ghana especially with regards to natural resource extractions, since Beijing's domestic policies are replicated across the globe including Africa, and Ghana for that matter. Compagnon and Alejandro assume that "Chinese organizations found in Africa attempt to actualize ecological practices and arrangements they had routinely grasped at home."<sup>44</sup> Therefore, most Chinese state-owned organizations extend these policies overseas in their dealings with other states<sup>45</sup> Yi Yimin, an official at Moving Mountains (a global improvement philanthropy situated in Northern Ireland), asserted that to understand the environmental impacts of China's interests in Africa, one needs to understand the effects of Chinese interest in China.<sup>46</sup>

Benjamin Shobert, founder of a private strategy group and senior partner at the National Bureau of Asian Research, explained that China's ecological concerns have achieved a crucial point that these concerns influence domestic policies in manners that have significant ramifications for public health with specific reference to environmental security, energy sector improvement, and endeavors to address global climate change.<sup>47</sup> He underlined that these ecological issues add to the various human security threats that are confronting China.<sup>48</sup>

There has been an ongoing mobilization of masses in China creating increasing awareness of the environmental security risk which confronts the country and the urgent need to stand up to them. In 2008, China promoted the State Environmental Protection Administration to the Ministry of Environmental Security and set it under the control of the State Council, which is equivalent to the American cabinet.<sup>49</sup> In 2012, the Eighteenth National Congress of the Communist Party of China embraced "environmental development" as one of the five driving pillars of its policy.<sup>50</sup> At the end of 2012, the National People's Congress authorized ten ecological laws also, thirty resource

protection laws.<sup>51</sup> The Local Peoples' congresses and governments embraced in excess of 700 nearby environmental rules and regulations, what's more, the branches of the State Council issued many ecological guidelines.<sup>52</sup> China's first ecological non-legislative association showed up in 1994.<sup>53</sup> By the finish of 2012, nearly 8,000 environmental non-governmental organizations had enrolled with the Service of Civil Affairs.<sup>54</sup>

The China Council for International Cooperation on Environment and Development (CCICED) is a high-level advisory body approved by the Chinese government.<sup>55</sup> Its administering body joins a few non-Chinese officials, and it gets some external funding.<sup>56</sup> CCICED presumes that transformative change concerning environmental security is in advancement in China, though expected outcomes will not be achieved until there are extra opportunities, technologies, capacities, and financing sources.<sup>57</sup>

So far, the accentuation and attention has been focused on controlling fundamental air, water, and soil pollution.<sup>58</sup> While advancement is being made on certain issues, new ones rise. For example, more extensive groundwater contamination, also, the changing sources and complexities of air pollution.<sup>59</sup> Notwithstanding all these environmental laws and practices by Chinese in China, China's ongoing endeavors to accomplish "global hegemonic economic power" additionally have significant environmental security ramifications on Africa. This is because China's quest for resources in Africa, with specific reference to Ghana, has resulted in exploitation of natural resources with dire environmental security consequences on Ghana.

## **2.10 Ghana's Environmental Protection Policy**

Environment Protection Policy is a codified document which is aimed at addressing environmental threats and issues pertaining to a specific geographical region. In Ghana, the Environmental Protection Agency (EPA) is the main governmental agency responsible for the implementation of

Ghana's National Environment Protection Policy (NEPP). The policy consists of regulations and legislations geared toward environment, pollution, sanitation and waste management in the country. The Environment Protection Policy basically adopt the Preventive Approach, which takes into the consideration the socio-economic concerns of Ghanaians to address environmental problem, threats and issues in the country.<sup>60</sup>

In this way, the EPA ensures that the extraction of both renewable and non-renewable resources in the country does not jeopardize the developmental agenda of the Government.<sup>61</sup> This is because the Government of Ghana seeks to develop strategies and procedures for the utilization of the natural resources in the country in the best possible way to avoid or minimize environmental insecurities which would be detrimental to the general populace.<sup>62</sup> The policy also seeks to institute and implement environment quality control programmes and initiatives by requiring impact assessment of all new investments deemed to affect the quality of environment in Ghana.<sup>63</sup> Ghana's Environmental Protection Policy also ensures that appropriate measures are taken to protect the critical eco-system from harmful or destructive environmental practices which degrade or deteriorate the quality of environment in the country.<sup>64</sup> The primary role of the EPA is to supervise, co-ordinate, implement and enforce legislations and regulations essential for safeguarding and maintaining sound ecological systems in the country. In addition, the EPA is responsible for the dissemination of emerging environmental security in any part of the country and providing coherent frameworks and interventions aimed at addressing them. In order words, the EPA ensures stakeholder consultations and grassroots participation in addressing environmental issues and threats in the country.

Unfortunately, most projects and investments undertaken in the country, especially by foreign nationals like the Chinese do not have Environmental Impact Assessment (EIA) prior to their

permits. This is partly because some of these foreign nationals operate under illegal or unfair means which mostly lead to the degradation or deterioration of the natural environment of Ghana. Such practices have consequently affected the environmental security of Ghana to a very large extent.

### **2.11 Conclusion**

Ghana is not the only country on the African continent in which China has shown greater concern since the beginning of the Millennium. However, the investment climate in Ghana including its political and security atmosphere, cultural ties with China, economic prospects and strategic location of Ghana has made it such a desirable country for increasing bilateral relations with China in recent times. China's interest or quest for natural resources in Ghana may have influenced the continuous bilateral relations it has with Ghana to date. Such interest may have contributed to the environmental security challenges confronting Ghana especially with respect to illegal mining. To help address some of these issues, there exists international, continental, sub-regional and national policies and frameworks to help streamline China's illegal or unfair environmental practices with regards to natural mineral extraction from the African continent, with particular reference to Ghana. However, China has mostly flouted or ignored most of the international standards and frameworks aimed at promoting global environmental security, due to its never ending quest to gain access to the natural resources on the African continent, especially in Ghana. It is in this vein that the next chapter is predominantly devoted to analyzing China's quest for resources in Ghana and its implications for Ghana's environmental security.

## ENDNOTE

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- <sup>1</sup> Montgomery, J. D. (1963). *The Politics of Foreign Aid: American Experience in Southeast Asia*. Praeger.
- <sup>2</sup> Ibid
- <sup>3</sup> Aidoo, R. (2010). *China-Ghana Engagement: An Alternative Economic Liberalization in Sub-Saharan Africa* (Doctoral dissertation, Miami University).
- <sup>4</sup> Alden, C., & Alves, C. (2008). History & identity in the construction of China's Africa policy. *Review of African political economy*, 35(115), 43-58.
- <sup>5</sup> Alden, C. (2005). China in Africa. *Survival*, 47(3), 147-164.
- <sup>6</sup> Ibid
- <sup>7</sup> Ibid
- <sup>8</sup> Ibid
- <sup>9</sup> Ibid
- <sup>10</sup> Ibid
- <sup>11</sup> Ibid
- <sup>12</sup> Taylor, I. (2010). *The Forum on China-Africa Cooperation (FOCAC)*. Routledge.
- <sup>13</sup> Ibid
- <sup>14</sup> GhanaWeb Online News . Tuesday, 22 January 2019. China's President to visit Ghana this year. Available at <https://www.ghanaweb.com/GhanaHomePage/business/China-s-President-to-visit-Ghana-this-year-717104#>.
- <sup>15</sup> Khan, M. (2013). India, America and China's oil politics in Africa. *International Journal of Physical and Social Sciences*, 3(8), 124-141.
- <sup>16</sup> Ibid
- <sup>17</sup> Ibid
- <sup>18</sup> Deng, S. (November 12, 2011). "Visiting senior Chinese official lauds Ghana for political stability, national unity". "Xinhua." Retrieved March 26 2019.
- <sup>19</sup> Ibid
- <sup>20</sup> Ibid
- <sup>21</sup> GhanaWeb Online News . Tuesday, 22 January 2019. China's President to visit Ghana this year. Op Cit.
- <sup>22</sup> Government of Ghana. 2018. Ghana, China sign cooperation agreements. Available at <http://www.ghana.gov.gh/index.php/news/4959-ghana-china-sign-cooperation-agreements>.
- <sup>23</sup> Ibid
- <sup>24</sup> Ibid
- <sup>25</sup> Ibid
- <sup>26</sup> Ibid
- <sup>27</sup> Ibid
- <sup>28</sup> Ministry of Foreign Affairs and Regional Integration. 2019. "Ambassador of China to Ghana pays Courtesy call on Minister for Foreign Affairs and Regional Integration." Available at <https://mfa.gov.gh/index.php/ambassador-of-china-to-ghana-pays-courtesy-call-on-minister-for-foreign-affairs-and-regional-integration/>
- <sup>29</sup> GhanaWeb Online News . Tuesday, 22 January 2019. China's President to visit Ghana this year. Op Cit.
- <sup>30</sup> Abdulai, A. G., & Crawford, G. (2010). Consolidating democracy in Ghana: progress and prospects? *Democratization*, 17(1), 26-67.
- <sup>31</sup> Crawford, G. (2009). 'Making democracy a reality'? The politics of decentralization and the limits to local democracy in Ghana. *Journal of Contemporary African Studies*, 27(1), 57-83.
- <sup>32</sup> Gyimah-Boadi, E. (2009). Another step forward for Ghana. *Journal of Democracy*, 20(2), 138-152.
- <sup>33</sup> Larbi, F. O., & Fu, W. (2017). Practices and challenges of internationalization of higher education in China; international students' perspective: A case study of Beijing Normal University. *International Journal of Comparative Education and Development*, 19(2/3), 78-96.

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- <sup>34</sup> Annan, N. (2013). Providing peace, security and justice in Ghana: the role of non-state actors. Available at [africaportal.org](http://africaportal.org)
- <sup>35</sup> Förstner, U., & Wittmann, G. T. (2012). *Metal pollution in the aquatic environment*. Springer Science & Business Media.
- <sup>36</sup> Knox, P., & Mayer, H. (2013). Small town sustainability: Economic, social, and environmental innovation. *Walter de Gruyter*.
- <sup>37</sup> Human Security Centre. 2005. *Human security report 2005: war and peace in the 21st century*. Oxford University Press, USA.
- <sup>38</sup> Epstein, C. (2008). *The power of words in international relations: birth of an anti-whaling discourse*. MIT Press.
- <sup>39</sup> Lyster, S. (1989). The convention on the conservation of migratory species of wild animals (The Bonn convention). *Nat. Resources J.*, 29, 979.
- <sup>40</sup> Interview with the Academy Director at the Ghana Armed Forces Command and Staff College (GAFSCS), in Accra at his office on the 25th October, 2018 at 12:00pm.
- <sup>41</sup> Tankebe, J. (2010). Public confidence in the police: Testing the effects of public experiences of police corruption in Ghana. *The British Journal of Criminology*, 50(2), 296-319.
- <sup>42</sup> Azuliya, D. (2017). Sanitation in Ghana: What Government Must Do. Modern Ghana News. Retrieved at <https://www.modernghana.com/news/765905/sanitation-in-ghana-what-government-must-do.html> on April 5, 2018.
- <sup>43</sup> Hilson, G., Hilson, A., & Adu-Darko, E. (2014). Chinese participation in Ghana's informal gold mining economy: Drivers, implications and clarifications. *Journal of Rural Studies*, 34, 292-303.
- <sup>44</sup> Bosshard, P. (2008). China's environmental footprint in Africa. *China in Africa Policy Briefing*, 3, 1-12.
- <sup>45</sup> Power, M., Mohan, G., & Tan-Mullins, M. (2012). *China's resource diplomacy in Africa: powering development?* Palgrave Macmillan.
- <sup>46</sup> Ibid
- <sup>47</sup> Shobert, B. A. (2014). The Key Drivers of China's Environmental Policies. Andrews-Speed, Philip et al.
- <sup>48</sup> Ibid
- <sup>49</sup> China Council for Int'l Cooperation On Env't & Dev. (2014). Policy Research Report On Environment and Development: Environment and Society for Green Development 2013 44.
- <sup>50</sup> Ibid
- <sup>51</sup> Ibid
- <sup>52</sup> Ibid
- <sup>53</sup> Ibid
- <sup>54</sup> Ibid
- <sup>55</sup> Ibid
- <sup>56</sup> Ibid
- <sup>57</sup> Ibid
- <sup>58</sup> Ibid
- <sup>59</sup> Ibid
- <sup>60</sup> Environment Protection Agency (EPA). 2019. Ghana's Environmental Protection Policy: 40 Years of Environmental Protection Agency - Government of Ghana. Available at [www.ghana.gov.gh/index.php/.../801-40-years-of-environmental-protection-agency](http://www.ghana.gov.gh/index.php/.../801-40-years-of-environmental-protection-agency).
- <sup>61</sup> Ibid
- <sup>62</sup> Ibid
- <sup>63</sup> Ibid
- <sup>64</sup> Ibid



## **CHAPTER THREE**

### **CHINA'S EXPLOITATION OF GHANA'S NATURAL RESOURCES AND ITS IMPLICATIONS FOR ENVIRONMENTAL SECURITY IN GHANA**

#### **3.1 Introduction**

This Chapter analyzes the effects of China's exploitation of Ghana's natural resources taking into consideration implications on environmental security dimensions in Ghana. The analyses include the nature and legal conditions under which China exploits natural resources in Ghana, causes for China's adherence to standards of good practices or otherwise and its implications for Ghana's environmental security. It also examines the conditions and perceptions of Sino-Ghana relations in terms of natural resource exploitation in Ghana, the environmental security implications of China's exploitation of Ghana's natural resources, the extent of best practices pursued by China in its quest for Ghana's natural resources, successes achieved by the Government of Ghana in ensuring that best practices are pursued by China in its quest for Ghana's natural resources and finally challenges confronting Ghana in addressing environmental security challenges due to China's exploitation of Ghana's natural resources.

#### **3.2 The nature and legal conditions under which China exploits natural resources in Ghana**

China's quest for natural resources across the globe is not a new phenomenon but has gained increasing attention in Africa in recent times. China's interest in natural resources in Africa at the beginning of the Millennium was concentrated in East Africa due to the abundance of natural resources in the region.<sup>1</sup> Though bilateral relations between China and Ghana dates back to the 1960s, China's attention to gain access to natural resources in Ghana begun from 2008 when hikes

in gold prices on the international market led to a veritable gold rush and the arrival of significant numbers of Chinese miners in Ghana.<sup>2</sup> Subsequently, especially after 2010, the Chinese have also shown interest in the fishing and forestry industries, with special interest in Rosewood in Ghana. Following this, a Chinese newspaper in 2013 reported that an estimated 50,000 miners had left China for Ghana.<sup>3</sup> Although this figure might be misrepresented, it indicates the size and noteworthiness of the influx of Chinese to Ghana to gain access to natural resources in the country. By 2013, the size of Chinese resident in Ghana who are engaged in casual gold mining in Ghana had developed to such extents, with progressively threatening media coverage of 'unlawful Chinese excavators' and cases of environmental insecurities, that the Government of Ghana was compelled to act.<sup>4</sup> This led to the formation of a state Inter-Ministerial Task Force by the President at the time, John Dramani Mahama on 5 May 2013 to address the challenges illicit small scale mining, particularly by the Chinese.

### **3.2.1 Mining**

Legitimately, all natural resources including minerals in Ghana are the property of the state, which are under the custodian of the President: "Every mineral in its natural state ... is the property of the Republic and is vested in the President in trust for the people of Ghana."<sup>5</sup> Small scale mining in Ghana was illegal to citizens until 1989, when the Mining Law 1989 (PNDCL 218) regularized and sanctioned the licensing system to make it lawful for Ghanaian citizens to legally partake in such action.<sup>6</sup> This was furthered solidified in the current Minerals and Mining Act 2006 (Act 703) which makes it possible for miners to register and acquire a maximum of 25 acres for mining activities sanctioned by the Minerals Commission.<sup>7</sup> Nevertheless, it is estimated that less than 30 percent of miners currently engaged in small scale mining in Ghana are registered with the Minerals Commission, whilst majority of small scale miners including foreigners such as the

Chinese, do so unlawfully.<sup>8</sup> Most illegal small scale miners are unable and unwilling to register with the Mineral Commission because they claim the system is costly, time consuming and bureaucratic.<sup>9</sup> The laws of Ghana do not permit foreigners to engage in small scale mining activities in the country. Therefore, all foreigners, particularly the Chinese who do so are engaged in such activities illicitly. This is because they do so as illegal employment of foreign nationals, contrary to the Immigration Act, 2000 (Act 573).<sup>10</sup>

### **3.2.2 Fishing**

The main legal framework which regulates fishing practices in the territorial waters of Ghana is the Fisheries Regulations (2010). The law forbids anyone in engaging in any industrial or semi-industrial fishing activities unless licensed by the Ministry of Fisheries and Aquaculture. Anyone who violates this law is liable to a three years and more prison sentence. Also, the Act prohibits:

*“Anyone within the fishery waters of Ghana from using any fishing method that aggregates fish by light attraction including use of portable generator, switchboard, bulbs beyond 500 watts or bulbs whose cumulative light intensity attracts fish and long cable to facilitate light production or any other contrivance for the purpose, of aggregating fish by light; use bamboo for the purpose of aggregating fish; use explosives, obnoxious chemicals and any other prohibited fishing methods which render fish more easily caught; or operate pair-trawling.”<sup>11</sup>*

Though The Fisheries Regulations Act (2010) does not prohibit foreigners from fishing in the territorial waters, it nonetheless does not permit the use of negative fishing practices which may pose negative environmental security threats to Ghanaians.

### **3.2.3 Lumbering**

There exists some legislative provisions in Ghana which regulates activities in the timber industry. These laws ensures that the cultivation, harvesting, processing and transporting of timber resources are done according to the laws of Ghana to prevent negative ecological impacts in the

country with respect to timber resource exploitation.<sup>12</sup> The main laws regulating the forestry and timber industry from indiscriminate deforestation and lumbering are Competitive Bidding, Timber Utilization Permit (TUP) and Salvage Felling. The harvesting and trade of Rosewood in Ghana is regulated through the Salvage Felling. Currently, the Salvage Felling permit or license, forbids foreigners from Harvesting Rosewood in Ghana but permits the issue of grant for Ghanaians for rescuing trees from a zone of land experiencing advancement, for example, street development, extension of human settlements or development of farmlands.<sup>13</sup> Therefore, any foreigner such as Chinese engaged in harvesting of Rosewood are doing so under illegal conditions.

Though some Chinese come to Ghana through approved routes thus acquiring proper immigration, those who usually come to engage in illicit natural mineral extraction in the country enter through unapproved routes or illegally. The Ghana Immigration Service reported that an estimate of 4,592 Chinese nationals were identified and deported for either coming to Ghana illegally or being engaged in illegal mining activities.<sup>14</sup> The Chinese were identified to have entered Ghana with fake documents or through illegal means through Togo or the Sahara into Ghana.<sup>15</sup> These Chinese are mostly believed to have migrated exclusively from Shanglin County in Guangxi province and therefore usually referred to as the “Shanglin gang” who have come to settle in rural areas with preponderant natural resources in Ghana.

Due to their interest in natural resources, some Chinese engaged in illegal mining activities in Ghana are usually located or concentrated in areas such Gbane in Upper East Region, Dunkwa-on-Offin in the Central Region, The Wassa-Amenfi, Prestea-Huni Valley, Wassa-West and Nzema-East districts in the Western region and the Obuasi in the Ashanti Region. Similarly, some Chinese who are engaged in illegal fishing in Ghana are concentrated near the River Ankobra basin in the Western Region which lies between the Tano and Pra basins. The major tributaries of the

Ankobra River are the Fure, Mansi and Bansa. The area serves a favourable area for the Chinese to engage in fishing but sometimes using illegal or poor standards of good practices. The interest in Rosewood has also made some Chinese to be located in wooded savannah and open forest mostly in the forest savannah transitional zone and parts of the northern savannah woodland ecological zone of Ghana, including Central Gonja, West Gonja, North Gonja, Bole and East Gonja Districts as well as a few others in Upper West and Upper East Regions.

The presence of some Chinese nationals and companies in Ghana has resulted in the increasing phenomenon of activities such as illegal mining, indiscriminate lumbering of Rosewood, as well as illegal and unregulated fishing methods such as light fishing by some Chinese nationals which mostly involve the use of chemicals and explosive in major water bodies in Ghana, which have dire environmental security consequences on Ghana. These environmental security threats have become more pronounced and conspicuous in the Fourth Republic of Ghana that if effective security measures are not taken to curb them, they could plunge the country into chaos and eventually civil unrest in the near future.

There have been some patterns and changing trends of environmental security threats posed by China's quest for natural resources in Ghana in recent times. These environmental security threats as manifested in Ghana are now assuming complex dynamics with varying degree of actors. Lawyer Kwame Gyan reveals in an interview that *"Illegal mining, indiscriminate lumbering of Rosewoods and chemical fishing methods by Chinese are becoming more daring, pronounced and sophisticated, as Chinese are changing their modus operandi and now employ more high technologies and intelligence in their operations."*<sup>16</sup>

Prior to the increasing of Chinese to Ghana's natural resources, the small scale mining methods used by Ghanaians for small scale mining included the "Anomabo method," dish and wash

method, chisel and hammer method and underground “ghetto” method. The nature of the mineral deposit generally dictates the mining method employed for exploitation. However, in more recent times, the use of “changfa”, “more blade”, dredge, excavators and alluvial washing plant methods have been introduced by the Chinese which is more expensive and sophisticated machinery. These recent methods have dire environmental security consequences on Ghana compared to the localised Ghanaian methods used for mineral exploitation.

The Anomabo method is a dredging method used in the mining of gold bearing gravel from river beds. With this method, a miner dives and scoops the gold bearing gravel from the river bed.<sup>17</sup> The dish and wash method is used for mining alluvial gold deposits that occur on the banks of rivers, in old valleys, on terraces, or in the tailings dumps of old mine workings. Tools such as spades, shovels and pickaxes are used to dig the materials.<sup>18</sup> The dug material is then transported and usually stockpiled along the banks of nearby streams or water bodies where they are subsequently washed.<sup>19</sup> The Chisel and harmer method is employed for mining hard rock (lode) formations occurring mainly as outcrops. The vegetation and the top soil are removed either manually or mechanically to expose the rock. Chisels and hammers are used to fragment the gold bearing rock. This method involves mining of hard rock from underground workings. The workings are mostly in old and abandoned mines and are accessed mainly by shafts.<sup>20</sup> The fragmented gold bearing rock is carried to the surface in bags by the miners for processing. The underground method employed by small scale miners is labour intensive and also involves high risks due to possibility of stope collapse in poorly supported stopes.<sup>21</sup>

The changfa method originated from the name of a Chinese-made (changfa) diesel powered rock crusher that is used for crushing excavated auriferous deposits.<sup>22</sup> The unit is mostly fabricated and welded or assembled locally in Ghana by Chinese entrepreneurs. The method typically involves

excavating ore deposits manually with simple tools such as pickaxes, shovels or spades. Head-loads of the materials are then carried (by women in most instances) or in wheelbarrows (by men) to the changfa location for processing. The materials are re-handled by shoveling into the crusher. A water pump connected to the crusher continuously pumps water, mostly from a sump onto a sluice board connected to the crusher chute for washing.<sup>23</sup> The Chinese also employ the use of alluvial washing plant made of two excavators and a mini washing plant. The two excavators work in tandem: the first, excavating the auriferous deposit and stockpiling it adjacent to the second excavator; and the second, re-handling the excavated materials onto the washing plant for washing. This method has high output and typically involves a 9-person crew.<sup>24</sup> The environmental nightmare caused by the localized Ghanaian methods of small-scale mining is often minimal except during flooding situations. However, the changfa, excavator and alluvial washing methods introduced by the Chinese have dire environmental consequences on Ghana.

It is estimated that about 90 percent of Ghana's industrial fishing fleet is linked to Chinese ownership, according to an investigation by the Environmental Justice Foundation (EJF).<sup>25</sup> As a result, about 90 percent of industrial trawl vessels licensed in Ghana currently were found to be built in China and 95 percent were captained by Chinese nationals.<sup>26</sup> The traditional modes of fishing before the infiltration of the Chinese in Ghana's fishing industry include the use of canoes, boats, nets, hook and line among others. These have minimal environmental consequences. However, in more recent times, Ghana's coastal waters have long been looted by Chinese fleets, fishing illegally sometimes involving the use of Light fishing which comes with the use of chemicals and explosives for mostly harvesting fingerlings even before the mature.<sup>27</sup> All these posed environmental security threats in Ghana.

In addition, the indiscriminate lumbering of Rosewood by the Chinese in the hinterlands and northern Ghana who used Computer Numeric Control (CNC) and chain saws<sup>28</sup> as compared to the axe usually employed by Ghanaians has greatly contributed to the environmental challenges faced in Ghana as a result of Chinese insatiable interests in Ghana's Rosewood.

As revealed by Lawyer Kwame Gyan:

Prior to the Fourth Republic, environmental security threats witnessed in Ghana were usually minimal and were perpetuated predominantly by Ghanaian citizens, compared to foreigners, especially in reference to illegal mining activities. However, contemporary trends in environmental security threats and crimes in Ghana reveals that the current economic hardship in the country has led to crimes being perpetuated by Chinese males and females, especially in natural resources zones.

*Also, most Chinese nationals in Ghana often induce Ghanaians including children, youths and adults in all manner of crimes such as illegal mining, fishing methods such as light fishing which mostly involve the use of chemicals and explosive in the territorial waters of Ghana and indiscriminate lumbering of Rose woods.<sup>29</sup>*

More recent scenarios in Ghana reveal crimes being committed by Ghanaians usually motivated by some Chinese nationals and companies. This is mostly evident in the phenomena of illegal mining activities. Some Chinses also perpetuate some dreadful crimes in the country all in the name of business. Typical examples include some Chinese engagement in illegal mining and killing Ghanaian citizens who try to confront them.<sup>30</sup> This means some Chinese nationals and companies in Ghana now engage in illegal activities with impunity and there people in high places shielding them to continue with such acts.

### **3.3 Causes for China's Adherence to Standards of Good Practices or Otherwise and its Implications for Ghana's Environmental Security**

There are several causes which create fertile grounds for deteriorating standards of good practices by Chinese in Sino-Ghana relations, which have implications on Ghana's environmental security. However, this section analyses some of the causes including the nature of politics and politicking in the contemporary Ghanaian society, Ghana's cash-trap amidst the quest for economic development, poverty coupled with extreme economic hardships, institutional deficiencies and inefficiencies and corruption.

#### **3.3.1 The Nature of Politics and Politicking in the contemporary Ghanaian society**

The nature of politicking as witnessed in Ghana has led to the monetization of politics and indiscipline. This among other things has given much impunity to a section of the population to disregard the rule of law and perpetuate criminal activities with such great impunity.<sup>31</sup> In other words, most politicians in Ghana usually pursue political agenda to promulgate and safeguard the interests of foreign nationals including the Chinese.<sup>32</sup> As such some Ghanaian politicians usually employ all means possible including the use of force, violence and aggression to sometimes intimidate or oppress other citizens who do not align to their political party. Some Chinese in Ghana have taken advantage of the current socio-political environment to connive with some politicians, security personnel and government officials to propagate their clandestine operations which usually have ramifications on the environmental security of Ghana. This has given rise to the proliferation of several illegal natural resource exploitations by the Chinese in most areas where natural resources could be located in Ghana hence creating fertile grounds for security threats in the country, particularly on environmental security.

### **3.3.2 Ghana's cash-trap amidst quest for economic development**

The globalized nature of the current international system has made it possible for the movement of people from geographical region to another or one country to another. Ghana's quest for economic development has made her open her doors for foreign investors including Chinese investors and China is ever ready to provide the needed funds to accelerate economic development in Ghana without meddling in the internal affairs of Ghana. Some Chinese nationals and companies have taken advantage of the situation to penetrate into core natural resource and energy sectors of Ghana.<sup>33</sup> Some of these Chinese illegally enter Ghana which has rich natural resource deposits, to engage in illegal natural extractions to feed growing demands back home in China. This has led to exploitation of the natural resources by Chinese in Ghana to feed local Chinese industries back home.

Tackling such phenomena requires much revenue to acquire sophisticated surveillance equipment and security personnel or intelligence at the ports and harbours, airports and borders to ensure that Ghana is not taken by surprise by the magnitude of Chinese who illegally enter Ghana to engage in illegal mineral extractions which are not in accordance with the laws of Ghana.<sup>34</sup> Unfortunately, the porous nature of our borders coupled with insufficient governments' revenue towards the cause of fighting illegal mineral extraction by foreign nationals, specifically the Chinese, as well the pervasive culture of corruption among personnel of our state security agencies have paved way for the prevalence of Chinese illegally exploiting some vital natural resources in Ghana as witnessed in the country today.

### **3.3.3 Poverty coupled with extreme economic hardships**

Poverty is one of the major causes of the prevalence of security threats including environmental threats in Ghana. According to the World Bank, 48% of Ghanaian youth are unemployed.<sup>35</sup> Those

youths including tertiary graduates who cannot cope with such situation have resorted to all sorts of unlawful ways to survive. Some of these unlawful ways sometimes pose great national security threats to the country, as well as human security threats to the citizens.

Mr. Fredua Agyeman revealed that *“more often than not, background information of people who have been arrested by the Police are people from poor backgrounds who are desperate to do anything possible, including engaging in unlawful ways as a means of coping with harsh economic conditions they experience.”*<sup>36</sup> The current economic hardship in most parts of Ghana, coupled with mass unemployment among youths (especially graduates), has forced some chiefs, communities, politicians, government officials, opinion leaders and youths (who usually act as vigilante groups) in entering and promoting illegal business transactions and negotiations with some Chinese in Ghana, as a lucrative avenue or livelihood strategy to make ends meet. These transactions sometimes include illegal natural resource exploitation with dire environmental security ramifications on the country. This situation has contributed significantly to the increasing phenomenon of environmental security threats posed by Chinese engagement in illegal mining, fishing and lumbering in Ghana.

### **3.3.4 Institutional Deficiencies and Inefficiencies**

Institutional deficiencies and inefficiencies in some government institutions and state security apparatuses have been a contributing factor to the increasing exploitation of natural resources by some Chinese companies and nationals in Ghana. There are several state institutions in Ghana which are responsible for promoting the environmental security of Ghana, especially relating to natural resource extraction in Ghana. For instance, Ministry of Lands and Natural Resources has the overall responsibility for the mining industry. It is responsible for granting mining and exploration licenses and ensures that all individuals and organizations who engage in mining and

exploration activities without license are prosecuted by law since they will be doing so illegally. However, there are challenges for the Ministry in identifying some Chinese engaged in illegal mining activities in Ghana, to be sanctioned.

Also, the Minerals Commission is responsible for legislation that affect mining and mining explorations in Ghana. Therefore, the Commission ensures that mining and exploration policies safeguard the health needs of the people, and are carried out in an environmentally friendly manner and also done in a way that will increase the revenue base of the government for development. Towards this end, it recommends to government to help curb the incidence of illegal mining since it is environmentally unfriendly, poses health threats to surrounding inhabitants and also deprives the government of substantial revenue for development. Notwithstanding this function by the Commission, there are some foreigners, particularly some Chinese who are still engaged in illegal mining in areas such as Gbane in Upper East Region, Dunkwa-on-Offin in the Central Region, The Wassa-Amenfi, Prestea-Huni Valley, Wassa-West and Nzema-East districts in the Western region and the Obuasi in the Ashanti Region which pose great environmental security risks in such areas.

The Environmental Protection Agency (EPA) ensures that the activities of Public and Private companies or operators do not harm the environment and water bodies to pose health threats to surrounding inhabitants. The Ministry of Fisheries and Aquaculture Development also acts as an advisory body to encourage fishermen to adopt reliable, disciplined, manageable and sustainable fishing practices on the territorial waters of Ghana. Notwithstanding the above institutions' efforts to prevent water pollution in Ghana, illegal mining and fishing activities by some Chinese continue to pose dire environmental consequences in areas such as the River Ankobra basin in the Western Region which lies between Tano and the Pra basins.

The Forestry Commission (FC) bring under the Commission the main public bodies and agencies implementing the functions of protection, development, management and regulation of forests and wildlife resources and to provide for related matters. The Ministry of Environment, Science and Technology (MEST) also ensures that the lumbering activities in Ghana are consistent with the country's environmental policies and objectives. Notwithstanding the functions of the above institutions, illegal lumbering of Rosewood by some Chinese in areas such as Central Gonja, West Gonja, North Gonja, Bole and East Gonja Districts is still on the rise.

An official of the Ghana Armed Forces (involved in Operation Vanguard to check illegal mining activities across the country) revealed in an interview that, *“where there is deficiencies in state's institutions to maintain law and order, it is more likely for some section of the population as well as foreign nationals to sprout and cause mayhem and threats to the peaceful nature of security enjoyed in the country as compared to situations where state's institutions are functioning effectively to ensure law and order at all times.”*<sup>37</sup> Where state institutions fail to perform their functions effectively to provide adequate security for all individuals in the country, it creates avenue for even foreigners to pursue illegalities with impunity as observed in the illegal mineral extraction by some Chinese in Ghana. Similarly, where the court or justice system is incapacitated to sanction foreign nationals such as Chinese who engage in illegal activities, it gives impunity for such foreigners to continue in their illegal activities which have negative consequences on the environment.

### **3.3.5 Corruption**

Most Chinese nationals who engage in illegal activities have their agents and accomplices among a wide spectrum of Ghanaian officials, including top diplomats, government officials, politicians, high ranking church officials, Customs Officers, Military personnel, Airport Security officials,

ordinary Ghanaian citizens, the police, among others. The palms of such of people are usually ‘greased’ to help facilitate and sustain the activities of such criminals. Lawyer Gyan posits that, “*the very moral fibre of the Ghanaian society especially, among the government institutions is gradually collapsing.*”<sup>38</sup> This is so because, some Chinese in the country undermine state security institutions and personnel and make most become corrupt. This is because some government institutions and personnel, as well as ordinary Ghana citizens allowed themselves to be influenced by the dictates of such foreign criminals including Chinese nationals due to harsh economic conditions of the country to bend the law in their favour.<sup>39</sup>

Lawyer Gyan reveals that “*under the Minerals and Mining Law 2006 (Acts 703), no foreign nationals in Ghana can engage in small scale mining in the country.*”<sup>40</sup> However, some Ghanaian nationals who have been licensed to do so, cooperate illegally with some Chinese nationals or companies in Ghana to exploit Ghana’s natural resources. This is generating a culture of corruption as a way of life for survival in contemporary Ghanaian society. Consequently, the prevalence of environmental security threats in the Fourth Republic of Ghana due to natural resource exploitation by Chinese in Ghana is due to the pervasive culture of corruption in the country.

### **3.4 The conditions and perceptions under Sino-Ghana relations in terms of natural resource exploitation in Ghana**

In contemporary times, especially in the Fourth Republic, environmental concerns have attracted greater attention in the Ghanaian public space, as public awareness of the pervasive exploitation of Ghana’s natural resources by some Chinese in Ghana feature predominantly in almost all print and electronic media. The following are also a few news report headlines from the media on Chinese exploitation or illegal extraction in Ghana: ‘9 Chinese illegal miners arrested as ban on small-scale mining ends,’<sup>41</sup> ‘Aisha Huang and four other Chinese illegal miners deported,’<sup>42</sup>

‘Operation Vanguard arrests 15 suspected Chinese illegal miners,’<sup>43</sup> ‘59 Chinese foreign nationals arrested for illegal mining in Western,’<sup>44</sup> ‘Chinese Killer nets: Depleting fish stocks in Ghana's waters,’<sup>45</sup> ‘Paradox at sea: More Chinese trawlers on Ghana's waters against dwindling stocks,’<sup>46</sup> ‘Illegal fishing by foreign trawlers costs Ghana \$50m a year,’<sup>47</sup> ‘Helena Huang, Chinese woman arrested in Tamale for illegally transporting rosewood,’<sup>48</sup> ‘How Chinese illegal rosewood logging is destroying lives in rural communities,’<sup>49</sup> ‘Helena Huang, Chinese woman in Rosewood saga deported.’<sup>50</sup>

Relating to the theory of Environmental Footprint, the above media headlines or reports are enough evidence to make Ghanaians perceive that the overpopulation in China has induced an influx of Chinese nationals to Ghana to exploit Ghana's natural resources amidst the growing demands by China. By so doing, Ghanaians (including the Government of Ghana and the general Ghanaian populace) hold the perception that the overdependence or exploitation of natural resources by the Chinese in Ghana has led to dire environmental security risks on Ghana, such as land degradation, air pollution, destruction of soil quality and extreme famine. Therefore, if urgent caution and measures are not applied now to address the natural resource exploitation by the Chinese in Ghana, the situation may be worse off in future than witnessed today.

The media is a key factor which influences perceptions of Ghanaians particularly on security issues, with specific reference to environmental security, through conscious sensitisation and education. Unfortunately, the media reports on China's interest in Ghana's natural resources has made most Ghanaians develop the perception that Chinese Government through its nationals and companies have exploited Ghana's natural resources for China's self-enrichment or gratification rather than Ghana. This has also resulted in environmental insecurities in Ghana, which has attracted grievances among Ghanaian citizens or dwellers which could further instigate conflicts

and tensions between Ghanaians and Chinese and even impair diplomatic relations between Ghana and China.

### **3.5 The Environmental Security Implications of China's Exploitation of Ghana's Natural Resources**

Utilizing the theory of Ecological Footprint (EF), this section analyzes some dire environmental security threats which bedevil Ghana due to Chinese exploitation of Ghana's natural resources. Paramount among such environmental security threats include water pollution, deforestation, air pollution, sound/noise pollution and land degradation.

#### **3.5.1 Water Pollution**

From the perspective of the Ecological Foot Print theory, Chinese interest in Ghana's natural resources, particularly gold and bauxite has resulted in the illegal mining practices by some Chinese nationals in Ghana. This has also led to the pollution of major water bodies in Ghana including River Oti, Pra, Birim, among others.<sup>51</sup> These contaminations usually arise due to the release of cyanide, mercury and metal rich tailings into streams of major water bodies or catchment territory from illegal small scale mining activities usually perpetuated by the Chinese. Because of the digging exercises and the washing of alluvial gold in the water by some Chinese in Ghana, siltation is regular in major rivers and streams where the excavators work. These activities have additionally changed some water courses of streams and rivers sometimes, denying neighbouring communities their major source or only source of water.<sup>52</sup>

Similar to the above, illegal fishing practices by some Chinese in Ghana such as light fishing which mostly involve the use of chemicals and explosive is believed to be a major cause of river water contamination in Ghana such as River Ankobra basin in the Western Region which lies between

Tano and the Pra basins. Sometimes, these illegal methods used by some Chinese in fishing on the territorial waters of Ghana usually lead to the death of fishes, which stinks and pollute major water bodies.

Also, light fishing activities by some Chinese on the major streams, river bodies and the territorial seas of Ghana which mostly involve the use of chemicals and explosive causes death of fishes and other aquatic organisms, denying citizens of essential nourishment altogether.<sup>53</sup> Therefore, communities which rely predominantly on major rivers and streams for food and employment, which may be contaminated as a result of illegal mining or fishing practices by the Chinese are compelled to desert such sources of water due to environmental security threats which confront them. Unfortunately, those communities which do not have alternative sources are left with no other choice than to continue relying on the contaminated rivers and streams which induce other human security risks such as health and economic security risks. This confirms the assertion by Penney, Ryan, Geoff Wilson, and Lynda Rodwell that Chinese engagement in illegal industrial fishing methods such as light fishing which mostly involve the use of chemicals and explosive, believed to be a major cause of river water contamination in Ghana.<sup>54</sup> This often leads to the death of fish, which stinks and pollute major water bodies.

### **3.5.2 Deforestation**

Deforestation is a significant environmental risk which confronts Ghana due to the insatiable interests of the Chinese in Ghana's natural resources.<sup>55</sup> Vast vegetation cover is usually destroyed, with no regard for safeguarding the flora or fauna during illegal mining activities practiced by some Chinese in Ghana. Usually, considerable areas of land and vegetation are cleared to make way for illegal surface mining activities by Chinese in Ghana, with no regard to ensuring environmental security.<sup>56</sup> This has significant adverse impact on the land and vegetation, the main

sources of livelihood of the people. Examples of the impact of deforestation abound in areas such as such Gbane in Upper East Region, Dunkwa-on-Offin in the Central Region, The Wassa-Amenfi, Prestea-Huni Valley, Wassa-West, Nzema-East districts in the Western region and Obuasi in the Ashanti Region. The deforestation that has resulted from surface mining has long-term effects even when the soil is replaced and trees are planted after mine decommissioning. The new species that might be introduced have the potential to influence the composition of the topsoil and subsequently determine soil fertility and fallow duration for certain crops. In addition, frequent erosion occurs when surface vegetation is destroyed.

Deforestation due to illegal mining activities result in the deterioration in the viability of the land for agricultural purposes and loss of habitat for birds and other animals. This has culminated in the destruction of the luxuriant vegetation, biodiversity, cultural sites and water bodies. For instance, Dr. Jesse Sey Ayivor revealed in an interview that “*in most parts of Prestea and Wassa-Amenfi, the land and vegetation is undergoing rapid dreadful conditions and its immense economic value is dwindling from year to year, due mainly to the heavy concentration of illegal mining activities by Chinese in the area.*”<sup>57</sup> Agricultural lands are not only generally degraded, but the loss of soil fertility for agricultural production has also led to a shortening of the fallow period for efficient farming practices.

Similarly, deforestation due to excessive lumbering of Rosewood in the hinterlands and northern parts of Ghana has made areas such as Central Gonja, West Gonja, North Gonja, Bole and East Gonja Districts susceptible to erosion during heavy rainfalls.<sup>58</sup> No consideration is given to embark on afforestation programmes by the Chinese in their unlawful engagement of lumbering of Rosewood in Ghana. The only concern of the illegal Chinese operators in such instances is to get

the minerals and send them to their home country, with no regards to safeguarding the environmental security of Ghanaians.

### **3.5.3 Air Pollution**

Air contamination arises particularly due to illegal mining and lumbering of Rosewood by Chinese in Ghana. Illegal mining activities especially by some Chinese in Ghana usually result in the generation of dust and emission of mine gases especially during cutting, crushing, drilling, blasting and pulverizing of the mineral ore. There is high propensity of air quality deterioration in areas such as due to particles discharged from the sieving of crushed rocks acquired from illegal small scale mining practiced by the Chinese in Ghana.<sup>59</sup> This supports assertion by Bansah, K. J., A. B. Yalley, and Dumakor-Dupey who establish that illegal small scale mining some Chinese nationals in Ghana pose dire health security threats to Ghanaians since such activities result in the creation of dust and fumes which pose breathing challenges to inhabitants in areas where such activities take place.

Dust is usually produced during illegal lumbering of Rosewood. This often pollutes the air quality and leading to breathing problems in areas such as Central Gonja, West Gonja, North Gonja, Bole and East Gonja Districts where illegal lumbering of Rosewood still persists, posing severe health consequences to residents in surrounding communities.

### **3.5.4 Sound Pollution (Noise)**

Illegal small scale mining, as well as lumbering of Rose woods practiced by the Chinese in Ghana usually create boisterous commotion or excessive noise that can bring about hearing challenges to miners, lumbers or inhabitants in surrounding communities. Dr. Ayivor explains that “*the use of the changfa for instance, causes loud noise that can affect the hearing abilities of operators and*

*inhabitants in surrounding communities in Obuasi due to absence of adequate hearing protection.*”<sup>60</sup> In this vein, illegal mining activities practiced by some Chinese in Ghana become a nuisance and annoyance to individuals who live in proximity to sites where such operations take place. For instance, “*inhabitants at Nkanponase, a mining area situated near the University of Mines and Technology in Tarkwa grumble about irritation from blasting activities by Illegal Chinese small scale miners who work in the area.*”<sup>61</sup> This is because sometimes such illegal mining activities by the Chinese cause frightening and regular sleepless nights to residents around mining sites due to the loud noise.

Similarly, the unexpected effects of illegal lumbering practices by Chinese in Ghana results in intermittent loud sounds, associated with panics and shocks to residents in areas where such practices take place. This also causes regular palpitation of the heart, hence affecting the well-being of inhabitants in such areas including Central Gonja, West Gonja, North Gonja, Bole and East Gonja Districts.<sup>62</sup> Therefore, illegal mining and lumbering activities by Chinese in Ghana do not only have environmental consequences but also poses threats to the personal security of inhabitants in the areas where such activities are practiced.

### **3.5.5 Land degradation**

Regarding illegal mining activities practiced by some Chinese in Ghana, deep shafts or openings are mostly created to extract mineral ores, with no regard for reclamation after extraction. These openings have the propensity of collapsing and trapping or killing miners, hunters and farmers and other wildlife creatures. This confirms views by Bansah, K. J., A. B. Yalley, and Dumakor-Dupey who assert that illegal small scale mining some Chinese nationals in Ghana pose dire health and environmental security threats to Ghanaians since such activities result in the creation of deep pits holes and enclaves which have led to untimely deaths and severe injuries to some farmers, hunters

and inhabitants who are unaware of such pits.<sup>63</sup> For instance, in July, 2019, seven people were reported trapped and dead in a Galamsey pit in Obuasi.<sup>64</sup> Water may also likewise collect in pits and openings, making them potential breeding zones for mosquitoes. More often than not, mosquitos and other wild animals find these openings or shafts habitable to breed which also pose further security threats to neighbouring communities such spread of Malaria.

In addition to the above, the utilization of mercury by Chinese for preparing of mineral has unfriendly consequences for soil fertility to support human life and the biological system. Mercury amalgamation method is vigorously depended on for preparing gold-bearing minerals since mercury is reasonable and promptly accessible to Chinese excavators. In view of this, most Chinese illegal small scale mines use mercury for extricating the gold. The method essentially includes blending of washed metal with mercury. This destroys soil fertility to support agricultural activities, hence contributing to famine or food shortages.

### **3.6 The Extent of Best Practices Pursued by China in its Quest for Ghana's Natural Resources**

The role of adherence to international environmental norms in Chinese overseas investments has attracted global attention, particularly the West, as the West usually criticize China for breaching most global environmental security frameworks in her overseas investments. Contrary to the Western view that China do not adhere to global environmental security frameworks in her overseas investments, coupled with the general Ghanaian perceptions that the Chinese Government through its nationals and companies have exploited Ghana's natural resources for China's self-enrichment or gratification rather than Ghana, with dire environmental security consequences on Ghana, Lawyer Kwame Gyan with an opposing view asserted in an interview that:

*The Chinese Government yearning to become a global economic Giant usually adhere[s] to international environmental security frameworks in her overseas investments. It is rather some individual Chinese nationals or companies who are not supported by the state, who take advantage of institutional lapses and deficiencies in Africa states to exploit natural resources in African countries, including, Ghana. He emphasized that, in the Bui dam construction contract with the Chinese Sinohydro company for instance, Ghana did a thorough visibility study and made sure the Chinese Sinohydro company adhered strictly to environmental security guidelines before awarding the contract, although Ghana was in dire need of the dam. He therefore stressed that the extent of best practices from the Chinese with reference to natural resource extraction in African states like Ghana, will only make sense when the enforcement of the laws of the recipient country.<sup>65</sup>*

The above assertion is supported by Hensengerth who posits that the case of the Bui Dam shows that international norms specifically with regards to environmental security and sustainability are by no means irrelevant in Chinese foreign investment projects.<sup>66</sup> The assertions by Lawyer Gyan and Hensengerth is also supported by Taylor who explains that in instances where China does not abide by broad governance standards, it is important for significant African leaders themselves to take a lead and point out the disjuncture between Chinese activities and the norms expected and promoted by the recipient state. It seems therefore that though there may be varying scenarios of the Chinese Government exploiting natural resources, with dire environmental security risks across most parts of Africa. However, the situation as it pertains to Ghana is slightly different. From the Ghanaian perspective, the Chinese Government adheres to environmental security norms of Ghana and does not interfere with or deviate from them. The adherence of the Sinohydro company to the environmental policies of Ghana during the construction of the Bui dam is an evidence to this fact. This is partly because China's foreign policy to African abstain from interference in the domestic affairs or laws of African states. It is rather some individual Chinese nationals or companies who are not supported by the state, who take advantage of institutional lapses and deficiencies in Ghana to exploit natural resources in Ghana.

### **3.7 Successes Achieved by the Government of Ghana in ensuring that Best Practices Are Pursued by China in its Quest for Ghana's Natural Resources**

The interagency collaboration between the Ghana Armed Forces (GAF) and the Ghana Police Service (GPS) with other stakeholder institutions concerning environmental security management has also helped in salvaging the natural environment from further deterioration or depletion due to the illegal activities by predominantly Chinese nationals such as illegal mining, indiscriminate lumbering of Rosewood and illegal fishing practices, hence protecting and preserving the natural resources of Ghana to a very large extent.<sup>67</sup> This goes a long way to reinforce the determination of the state security apparatuses in promoting and preserving the environment security of the country, which goes a long way to inure to the human security of citizens.

Without the collaborative or cooperative efforts between the GAF and GPS with relation to security management to Joint Operations such 'Operation Halt' and 'Operation Vanguard' to curb illegal lumbering and illegal mining respectively, natural resources such as gold, bauxite and Rosewood would be extremely exploited by some Chinese nationals in Ghana and the natural environment in most parts of the country would have been depleted beyond salvage. This could have further repercussions on the health and other security areas of citizens. However, Ghana to a very large extent has achieved some successes in ensuring that best practices are pursued by China in China's quest for Ghana's natural resources as many Chinese engaged in illegal natural resource extraction in Ghana are arrested and deported. This sends a strong signal to the Chinese Government that Ghana is intent on asserting its sovereignty in matters of environmental security despite good bilateral relations and economic development assistance from China.

### **3.8 Challenges confronting Ghana in addressing environmental security challenges due to China's exploitation of Ghana's natural resources**

Notwithstanding the above successes by Ghana in ensuring that best practices are pursued by China in China's quest for Ghana's natural resources as discussed above, there are some few challenges which confronts Ghana in addressing environmental security challenges due to China's exploitation of Ghana's natural resources. Paramount among them include financial constraints, personnel constraints, ineffective/poor collaboration sometimes between the GAF and GPS due to unnecessary competition and politics, corruption, difficulty in obtaining reliable information and economic hardship and insufficient job opportunities in the country.

#### **3.8.1 Financial Constraints**

The cost of providing security is expensive as more equipment and personnel are required to clamp down on the prevailing or emerging security threats. In an interview with an official of the Ghana Armed Forces (involved in Operation Vanguard to check illegal mining activities across the country), it was revealed that, *"the United States, for instance uses about \$4 billion to fight the drug world and this is about twenty times what Ghana is expending in its fight against drug trafficking both in the country and in the West African sub-region."*<sup>68</sup> Similarly, tackling environmental security threats posed by some Chinese nationals engaged in illegal natural resource extraction in Ghana requires much revenue to acquire sophisticated surveillance equipment and security personnel or intelligence towards addressing the menace. Though, the GAF and the GPS collaborate, as well as stakeholder institutions such as the Environmental Protection Agency (EPA) to ensure effective environmental security management, insufficient financial rewards and benefits for officials of these agencies makes most of them susceptible to bribery and corruption. Hence militating against the collaborate efforts to achieve their objective. In addition to the above,

governments' revenue and resource challenges towards the course of fighting or addressing internal or domestic environmental security threats posed especially by some Chinese nationals in Ghana is insufficient to meet the changing patterns and trend of such threats in the country.

### **3.8.2 Personnel Constraints**

Security management to tackle crimes including illegal natural resource extraction by some Chinese nationals to safeguard natural resources and the natural environment in Ghana requires a large number of trained or expert security personnel due to the changing pattern or dynamics of some of environmental security threats and the modus operandi adopted by the Chinese who perpetuate such illegalities in contemporary times in Ghana. However, The Capacity of the Ghana Police Service as revealed by an official of GAF is “*a little above 30,000 personnel, whereas that of the GAF is a little 20, 000 personnel.*”<sup>69</sup> This is not good considering Ghana's population of about 30 million people. This is because per average the ratio of police personnel to citizens at the worst should be 1:3 citizens.<sup>70</sup> However, considering the personnel capacity of both the GAF and the GPS, even with the best of collaboration that could exist between them to ensure effective environmental security management, personnel constraint will always be a snag to their efforts. This makes it very difficult for them to carry out their core mandates they are enjoined to.

### **3.8.3 Ineffective/Poor collaboration sometimes between the GAF and GPS due to unnecessary competition and politics**

Environmental protection is an essential duty contributing to the health, productivity and welfare of the people of Ghana. To achieve this goal, Ghana has certain objectives governing the operations of the above institutions. Paramount among such objectives includes acting in liaison and cooperating with other government agencies, collaborating with foreign and international agencies, as necessary; conducting investigations into environmental issues; coordinating the

activities of bodies concerned with the technical aspects of the environment for the purpose of controlling the generation, treatment, storage, transportation and disposal of industrial waste; ensuring compliance with environmental impact assessment procedures; issuing environmental permits and pollution abatement notices; making recommendations to the government for the protection of the environment; prescribing standards and guidelines related to the pollution of the air, water and land; protecting and improving the quality of the environment and security, control and prevention of discharge waste into the environment among several other functions. Notwithstanding the above stipulated objectives, there are some lapses in some of the institutions in liaising efficiently and effectively cooperating with other government and foreign nationals to help curb incidences such as the prevalent engagement of Chinese in illegal extraction of natural resources in the country.

The establishment of Operation Vanguard to curb illegal mining across the country, for instance, led to leadership, coordination and capacity crisis. The roles and responsibilities of the various commanders in the stabilization tasks were clear on paper but created some challenges on the field. This was because the GAF was authorized by the President to play the lead role in the operation whilst the GPS supports or plays a secondary role, which was somewhat an aberration to domestic or internal security management where the GPS always plays the lead role in cooperation with any other security agency.<sup>71</sup> The immediate change in command of the leadership in Operation Vanguard angered some management and even lower rank personnel of the GPS and this reflected on the field where they did not want to receive any command or directives from the Chain of Command of the GAF in the operation. This resulted in several tensions between personnel of both agencies, some resulting in tensions and physical attacks. This attests to the fact that unnecessary competition between agencies could hamper the realization of the goals and objectives of effective

inter-agency collaboration. For smooth command and control, it is necessary for Government to take into account the traditional roles of both the GAF and GPS before appointing mission or operation leadership.

### **3.8.4 Corruption**

Corruption has been a major snag to effectively addressing environmental security issues or threats due to China's interest in Ghana's natural resources. Lawyer Gyan identified that,

*“due to government's intervention or politics coupled with widespread corruption in the country, it sometimes becomes difficult for both GAF and GPS and other stakeholder institutions to collaborate effectively to be able to carry out their mandate of ensuring effective environmental security management amidst Chinese exploitation of natural resources in Ghana.”<sup>72</sup>*

This is because some top officials of some government and state security institutions in Ghana, sometimes rather give updates to some Chinese engaged in the illegal natural resource extraction in Ghana on every move of the government to arrest them, instead of providing each other with relevant information to arrested these Chinese engaged in illegal activities which pose threats to the environmental security of Ghana.

### **3.8.5 Difficulty in obtaining reliable information**

Closely related to the above, the success of stakeholder institutions to effectively address environmental security threats posed by Chinese exploitation of natural resources in Ghana thrive on informants. However, there is difficulty in obtaining reliable information on the clandestine moves and tactics of Chinese criminals who engage in illegal mining, lumber of Rosewood and fishing in Ghana.<sup>73</sup> Mr. Fredua Agyeman revealed that, *“out of about 100 informants that could be received in a year, only 2 out them will be genuine or reliable. Also, there is limited in-flow of information.”<sup>74</sup>* Most of the stakeholder institutions, particularly the GAF and the GPS, usually rely on tip-offs from other security agencies before they act, instead of ability to access first-hand

information for their environmental security management processes. This makes it difficult for better interagency collaboration between these institutions in ensuring effective environmental security management in the country, with specific reference to Chinese exploitation of Ghana's natural resources.

### **3.8.6 Economic Hardship and Insufficient Job Opportunities in the Country**

As already identified in the study, the World Bank asserts that, the current unemployment rate among the youth in Ghana is 48 per cent. Dr. Ayivor revealed that *“if the situation is not tackled by the government now and becomes worse, most of youth who find themselves in the unemployed category would resort to all manner of activities (mostly, illegal natural resource exploitation by some Chinese in Ghana) for survival.”*<sup>75</sup> This will escalate the menace created by some Chinese due to natural resource exploitation in Ghana. Therefore, notwithstanding efforts from the Ghanaian Government, crimes perpetuated by Chinese nationals in Ghana with regards to natural mineral exploitation will continue to be prevalent in the country if the government does not take austerity measures to address the challenge of harsh economic conditions, extreme poverty and joblessness which most youths find themselves.

### **3.9 Conclusion**

Generally, China's quest for natural resources in Ghana has implications for Ghana's environmental security. Though Ghana has achieved some successes in ensuring that best practices are pursued by China amidst China's quest for Ghana's natural resources, there still exist exploitation of Ghana's natural resources due to some Chinese nationals and companies in Ghana who are engaged in illegal mining, fishing and lumbering of Rosewood. It also increases the rate of environmental crimes and security threats to the country. Enforcement of Ghana's

environmental laws is the surest way Ghana can ensure that best practices are pursued by China amidst China's quest for Ghana's natural resources. This will prevent Chinese exploitation of Ghana's natural resources and also safeguard the Ghana's environmental security. Therefore, all stakeholders need to be guided by international and national environmental laws to remain focused and proactive in the fight against the environmental security menace created by the Chinese in Ghana. There, should be proper coordination and dialogue at all levels for a formidable action towards curbing the illegal natural resource exploitation by Chinese in Ghana.

## ENDNOTES

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- <sup>1</sup> Shinn, D. H. (2016). The Environmental Impact of China's Investment in Africa. *Cornell Int'l LJ*, 49, 25.
- <sup>2</sup> Crawford, G., Agyeyomah, C., Botchwey, G., & Mba, A. (2015). The impact of Chinese involvement in small-scale gold mining in Ghana. London: International Growth Centre (IGC).
- <sup>3</sup> South China Morning Post. (August, 23, 2013). Ghana Takes Action Against Illegal Chinese Miners. Available at [www.issafrica.org/iss-today/ghana-takes-action-against-illegal-chinese-miners](http://www.issafrica.org/iss-today/ghana-takes-action-against-illegal-chinese-miners).
- <sup>4</sup> Ibid
- <sup>5</sup> Schwelb, E. (1960). The Republican Constitution of Ghana. *The American Journal of Comparative Law*, 634-656.
- <sup>6</sup> Kessey, K. D., & Arko, B. (2013). Small scale gold mining and environmental degradation, in Ghana: issues of mining policy implementation and challenges. *Journal of Studies in Social Sciences*, 5(1).
- <sup>7</sup> Ibid
- <sup>8</sup> Ibid
- <sup>9</sup> Ibid
- <sup>10</sup> Kottoh, E. D. (2017). The Effects of Ghana's Immigration Act 573 on the Employment and Residence of Foreign Personnel (Doctoral dissertation, University of Ghana).
- <sup>11</sup> Yamoah, K. K. (2012). Identification of Effective Strategies for the Enforcement of the Fisheries Regulation 2010 (LI 1968). Report prepared for Ghana National Canoe Fishermen's Council (GNCFC)–Western Region.
- <sup>12</sup> Bosu, D. 2014. Rosewood: Most expensive, fastest selling commodity in Ghana today. Available at <https://www.ghanaweb.com/GhanaHomePage/features/Rosewood-Most-expensive-fastest-selling-commodity-in-Ghana-today-313635>.
- <sup>13</sup> Ibid
- <sup>14</sup> Crawford, G., Agyeyomah, C., Botchwey, G., & Mba, A. (2015). The impact of Chinese involvement in small-scale gold mining in Ghana. Op Cit.
- <sup>15</sup> Ibid
- <sup>16</sup> Interview with Lawyer Kwame Gyan (Lecturer at Faculty of Law, University of Ghana and Former Chairman of Minerals Commission and Lands Commission in Ghana) in Accra at his office on the 25th June, 2019 at 12:00pm.
- <sup>17</sup> Bansah, K. J., Yalley, A. B., & Dumakor-Dupey, N. (2016). The hazardous nature of small scale underground mining in Ghana. *Journal of Sustainable Mining*, 15(1), 8-25.
- <sup>18</sup> Ibid
- <sup>19</sup> Ibid
- <sup>20</sup> Ibid
- <sup>21</sup> Ibid
- <sup>22</sup> Ibid
- <sup>23</sup> Ibid
- <sup>24</sup> Ibid
- <sup>25</sup> The Maritime Executive. 2018. EJF Alleges Chinese Involvement in Illegal Fishing Practices in Ghana. Available at <https://www.maritime-executive.com/article/ejf-alleges-chinese-involvement-in-illegal-fishing-practices-in-ghana>
- <sup>26</sup> Ibid
- <sup>27</sup> Nunoo, F. K. E., Asiedu, B., Amador, K., Belhabib, D., & Pauly, D. (2014). Reconstruction of marine fisheries catches for Ghana, 1950–2010. Vancouver (Canada): Fisheries Centre, University of British Columbia.
- <sup>28</sup> Dumenu, W. K., & Bandoh, W. N. (2016). Exploitation of African Rosewood (*Pterocarpus erinaceus*) in Ghana: a situation analysis. *Ghana J. Forestry*, 32, 1-15.
- <sup>29</sup> Ibid
- <sup>30</sup> Ibid

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<sup>31</sup> Ibid.

<sup>32</sup> Crawford, G., & Botchwey, G. (2017). Conflict, collusion and corruption in small-scale gold mining: Chinese miners and the state in Ghana. *Commonwealth & Comparative Politics*, 55(4), 444-470.

<sup>33</sup> Interview with Dr. Jesse Sey Ayivor (Senior Research Fellow at the Institute of Environment and Sanitation Studies, University of Ghana) in Accra at his office on the 10<sup>th</sup> June, 2019 at 12:00pm.

<sup>34</sup> Hess, S., & Aidoo, R. (2016). Charting the impact of subnational actors in China's foreign relations: The 2013 Galamsey crisis in Ghana. *Asian Survey*, 56(2), 301-324.

<sup>35</sup> World Bank. 2016. 48% Ghanaian youth jobless – World Bank. Available at <http://citifmonline.com/2016/05/12/48-ghanaian-youth-jobless-world-bank/>.

<sup>36</sup> Interview with Mr. Fredua Agyeman (Director of Environment at Ministry of Environment, Science, Technology and Innovation in Ghana), in Accra at his office at on the 5th July, 2019 at 4:00pm.

<sup>37</sup> Interview with an official of the Ghana Armed Forces (involved in Operation Vanguard to check illegal mining activities across the country) in Accra at his office on the 15th April, 2019 at 12:00pm.

<sup>38</sup> Interview with Lawyer Kwame Gyan (Lecturer at Faculty of Law, University of Ghana and Former Chairman of Minerals Commission and Lands Commission in Ghana). Op Cit.

<sup>39</sup> Aning, K., & Pokoo, J. (2013). Drug Trafficking and Threats to National and Regional Security in West Africa. Center on International Cooperation. Available at [works.bepress.com](http://works.bepress.com).

<sup>40</sup> Interview with Lawyer Kwame Gyan (Lecturer at Faculty of Law, University of Ghana and Former Chairman of Minerals Commission and Lands Commission in Ghana). Op Cit.

<sup>41</sup> MyJoyOnline News. (December, 17, 2018). 9 Chinese illegal miners arrested as ban on small-scale mining ends today. Available at <https://www.myjoyonline.com/news/2018/December-17th/nine-chinese-illegal-miners-arrested-as-ban-on-small-scale-mining-ends-today.php>.

<sup>42</sup> Graphic Online News. (Dec, 19, 2018). Aisha Huang and four other Chinese illegal miners deported. Available at <https://www.graphic.com.gh/news/general-news/aisha-huang-and-four-other-chinese-illegal-miners-deported.html>.

<sup>43</sup> Graphic Online News. (Jan, 24, 2019). Operation Vanguard arrests 15 suspected Chinese illegal miners. Available at <https://www.graphic.com.gh/news/general-news/ghana-news-operation-vanguard-arrests-15-suspected-chinese-illegal-miners.html>

<sup>44</sup> MyJoyOnline News. (March, 20, 2019). 59 Chinese foreign nationals arrested for illegal mining in Western. Available at <https://www.myjoyonline.com/news/2019/March-20th/59-foreign-nationals-illegal-miners-arrested-in-western-region.php>.

<sup>45</sup> Graphic Online News. (March, 8, 2019). Chinese Killer nets: Depleting fish stocks in Ghana's waters. Available at <https://www.graphic.com.gh/features/features/killer-nets-depleting-fish-stocks-in-ghana-s-waters.html>

<sup>46</sup> Graphic Online News. (March, 10, 2019). Paradox at sea: More Chinese trawlers on Ghana's waters against dwindling stocks Available at <https://www.graphic.com.gh/features/features/paradox-at-sea-more-trawlers-on-ghana-s-waters-against-dwindling-stocks.html>.

<sup>47</sup> MyJoyOnline News. (June, 18, 2019). Illegal fishing by foreign Chinese trawlers costs Ghana \$50m a year – Researchers. Available at <https://www.myjoyonline.com/business/2019/June-18th/illegal-fishing-by-foreign-trawlers-costs-ghana-50m-a-year-researchers.php>.

<sup>48</sup> Graphic Online News. (May 7, 2019). Helena Huang, Chinese woman arrested in Tamale for illegally transporting rosewood. Available at <https://www.graphic.com.gh/news/general-news/ghana-news-chinese-woman-arrested-in-tamale-for-transporting-rosewood.html>.

<sup>49</sup> MyJoyOnline News. (June, 10, 2019). How Chinese illegal rosewood logging is destroying lives in rural communities. Available at <https://www.myjoyonline.com/news/2019/June-10th/how-illegal-rosewood-logging-is-destroying-lives-in-rural-communities.php>.

<sup>50</sup> Graphic Online News. (July 3, 2019). Helena Huang, Chinese woman in Rosewood saga deported. Available at <https://www.graphic.com.gh/news/general-news/ghana-news-chinese-woman-in-rosewood-saga-deported.html>.

- 
- <sup>51</sup> Bansah, K. J., Yalley, A. B., & Dumakor-Dupey, N. (2016). The hazardous nature of small scale underground mining in Ghana. *Journal of Sustainable Mining*, 15(1), 8-25.
- <sup>52</sup> Ibid
- <sup>53</sup> Ibid
- <sup>54</sup> Penney, R., Wilson, G., & Rodwell, L. (2017). Managing sino-ghanaian fishery relations: A political ecology approach. *Marine Policy*, 79, 46-53.
- <sup>55</sup> Armah, F. A., Luginaah, I. N., Taabazuing, J., & Odoi, J. O. (2013). Artisanal gold mining and surface water pollution in Ghana: have the foreign invaders come to stay? *Environmental Justice*, 6(3), 94-102.
- <sup>56</sup> Ibid
- <sup>57</sup> Ibid
- <sup>58</sup> Dumenu, W. K., & Bandoh, W. N. (2016). Exploitation of African Rosewood (*Pterocarpus erinaceus*) in Ghana: a situation analysis. *Ghana J. Forestry*, 32, 1-15.
- <sup>59</sup> Bansah, K. J., Yalley, A. B., & Dumakor-Dupey, N. (2016). The hazardous nature of small scale underground mining in Ghana. *Journal of Sustainable Mining*, 15(1), 8-25.
- <sup>60</sup> Interview with Dr. Jesse Sey Ayivor (Senior Research Fellow at the Institute of Environment and Sanitation Studies, University of Ghana). Op Cit.
- <sup>61</sup> Ibid
- <sup>62</sup> Ibid
- <sup>63</sup> Bansah, K. J., Yalley, A. B., & Dumakor-Dupey, N. (2016). The hazardous nature of small scale underground mining in Ghana. *Journal of Sustainable Mining*, 15(1), 8-25.
- <sup>64</sup> GhanaWeb News. (July, 8 2019). Seven ‘galamseyers’ trapped as mining pit caves in near Obuasi. Available at <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Seven-galamseyers-trapped-as-mining-pit-caves-in-near-Obuasi-764775?gallery=1>
- <sup>65</sup> Interview with Lawyer Kwame Gyan (Lecturer at Faculty of Law, University of Ghana and Former Chairman of Minerals Commission and Lands Commission in Ghana). Op Cit.
- <sup>66</sup> Hensengerth, O. (2013) Chinese hydropower companies and environmental norms in countries of the global South: the involvement of Sinohydro in Ghana’s Bui Dam. *Environment, Development and Sustainability*, 15 (2). pp. 285-300. ISSN 1387-585X
- <sup>67</sup> Adonteng-Kissi, O., & Adonteng-Kissi, B. (2018). Precarious work or sustainable livelihoods? Aligning Prestea's Programme with the development dialogue on artisanal and small-scale mining. In *Natural Resources Forum* (Vol. 42, No. 2, pp. 123-137). Oxford, UK: Blackwell Publishing Ltd
- <sup>68</sup> Interview with an official of the Ghana Armed Forces (involved in Operation Vanguard to check illegal mining activities across the country). Op Cit.
- <sup>69</sup> Ibid
- <sup>70</sup> Ibid
- <sup>71</sup> Ibid
- <sup>72</sup> Interview with Lawyer Kwame Gyan (Lecturer at Faculty of Law, University of Ghana and Former Chairman of Minerals Commission and Lands Commission in Ghana). Op Cit.
- <sup>73</sup> Nunoo, F. K. E., Asiedu, B., Amador, K., Belhabib, D., & Pauly, D. (2014). Reconstruction of marine fisheries catches for Ghana, 1950–2010. Op Cit.
- <sup>74</sup> Interview with Mr. Fredua Agyeman (Director of Environment at Ministry of Environment, Science, Technology and Innovation in Ghana). Op Cit.
- <sup>75</sup> Interview with Dr. Jesse Sey Ayivor (Senior Research Fellow at the Institute of Environment and Sanitation Studies, University of Ghana). Op Cit.

## **CHAPTER FOUR**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **4.1 Introduction**

The study was essentially concerned with analyzing China's quest for natural resources in Africa and its implications for Ghana's environmental security. The main objective of the study was to examine China's quest for resources in Africa and the possible repercussion it is likely to have on Ghana's environment. The specific objectives however, were as follows: to, review contemporary drivers of Ghana-China relations; examine the conditions and perceptions under Sino-Ghana relations in terms of natural resource exploitation in Ghana; examine the extent to which the concept of best practices is being pursued by China in its exploitation of Ghana's resources; investigate the environmental security challenges faced by Ghana in China's exploitation of the country's resources, and finally, make suggestions as solutions to the challenges posed by China in its exploitation of natural resources in Ghana if any.

This chapter provides the summary of findings, the conclusions and recommendations.

#### **4.2 Summary of Major Research Findings**

In summarizing the major findings, there is the need to look again at the main questions that guided the study:

1. What has been the nature and scope of Sino-Africa relations with emphasis on Ghana?
2. Under what conditions is China exploiting Ghana's natural resources?
3. To what extent, are the concept of best practices being pursued by China in its exploitation of Ghana's resources?

4. What environmental security challenges are faced by Ghana in China's exploitation of the country's resources?
5. What solutions can be proffered to the challenges confronting Ghana due to China's resource exploitation?

The following are summaries of the major findings based on the research questions asked.

- ❖ The study identified that relations between Ghana and China dates back to the Cold War era when both countries were identified with the non-aligned movement. However, formal diplomatic relations began in 1960 when Ghana became a state in the Sub-Saharan Africa to officially recognize the Chinese Government in Beijing. This relation has been maintained to date.
- ❖ The study showed that Ghana is not the only country on the African continent in which China has shown greater concern since the beginning of the Millennium. However, the investment climate in Ghana including its political and security atmosphere, cultural ties with China, economic prospects and strategic location of Ghana has made it such a desirable country for increasing bilateral relations with China in recent times. China's interest or quest for natural resources in Ghana may have influenced the continuous bilateral relations it has with Ghana to date.
- ❖ The study also found that China has mostly been criticized across the globe, particularly by the West and Africa countries to flaunt or ignore most of the international standards and frameworks aimed at promoting global environmental security, due to its never ending quest to gain access to the natural resources on the African continent, especially in Ghana.

- ❖ The study revealed that such interest by China in Ghana's natural resources have contributed to the environmental security challenges confronting Ghana especially with respect to natural resource exploitation by the Chinese in Ghana.
- ❖ The study also revealed that there are several factors that have accounted for the deteriorating standards of good practices by the Chinese in Sino-Ghana relations which have implications on Ghana's environmental security. These include the nature of politics and politicking in the contemporary Ghanaian society, Ghana's cash-trap amidst the quest for economic development, poverty coupled with extreme economic hardships, institutional deficiencies and inefficiencies and corruption.
- ❖ With reference to conditions pertaining to Sino-Ghana relations in terms of natural resource exploitation in Ghana, the study revealed that above media headlines or reports are enough evidence to make Ghanaians perceive that the overpopulation in China has induced an influx of Chinese nationals to Ghana to exploit Ghana's natural resources amidst the growing demands by China. By so doing, Ghanaians (including the Government of Ghana and general Ghanaian populace) hold the perception that the overdependence or exploitation of natural resources by some Chinese in Ghana has led to dire environmental security risks on Ghana, such as land degradation, air pollution, destruction of soil quality and extreme famine.
- ❖ The study also showed that from the perspective of the theory of Ecological Footprint (EF), some dire environmental security threats bedevils Ghana due to some Chinese exploitation of Ghana's natural resources. Paramount among such environmental security threats include water pollution, deforestation, air pollution, sound pollution or noise, and land degradation.

- ❖ Regarding the extent to which the concept of best practices are being pursued by China in its exploitation of Ghana's resources, the study revealed that contrary to the Western view that China do not adhere to global environmental security frameworks in her overseas investments, coupled with the general Ghanaian perceptions that the Chinese Government through its nationals and companies have exploited Ghana's natural resources for China's self-enrichment or gratification rather than Ghana, with dire environment security consequences, the situation is slightly different in Ghana.
- ❖ The study showed that from the Ghanaian perspective, the Chinese Government endeavours to adhere to environmental security norms of Ghana and does not interfere or influence them. This is partly because China's foreign policy to African abstains from interference in the domestic affairs or laws of African states. It is rather some individual Chinese nationals or companies who are not supported by the state, who take advantage of institutional lapses and deficiencies in Ghana to exploit natural resources in Ghana.
- ❖ In relation to the above, the study revealed that Ghana to a very large extent has achieved some successes in ensuring that best practices are pursued by China in China's quest for Ghana's natural resources as more Chinese engaged in illegal natural resource extraction in Ghana are arrested and deported. This sends a strong signal to the Chinese Government that Ghana is no way ready to compromise its environmental security for bilateral relations and economic development assistance from China.
- ❖ Notwithstanding the above successes by Ghana in ensuring that best practices are pursued by China in China's quest for Ghana's natural resources, the study unearthed that there are some few challenges which confronts Ghana in addressing environmental security challenges due to China's exploitation of Ghana's natural resources. Paramount among

them include financial constraints, personnel constraints, ineffective/poor collaboration sometimes between the GAF and GPS due to unnecessary competition and politics, corruption, difficulty in obtaining reliable information and economic hardship and insufficient job opportunities in the country.

### **4.3 Contribution of the Study to Theory, Policy Making and Practice**

#### **4.3.1 Contribution to Theory**

- ❖ This study contributes to theory by revealing how the theory of Environmental Footprint could be utilized in explaining how that the overpopulation in China has induced an influx of Chinese nationals to Ghana to exploit Ghana's natural resources amidst the growing demands by China. The theoretical application of the study also shows how exploitation of a state natural resources by the Chinese could result in dire environmental security risks on the recipient country.
- ❖ It appears to be the first study to have utilized the theory of Environmental Footprint to show the relational order that could be maintained by a natural resource endowed state to ensure effective synergy between the resource endowed state and foreign nationals to avoid resource exploitation by foreign nationals in resource endowed regions across the globe. The theoretical application of this study is very essential because it helps in understanding the threats, efforts and challenges of addressing natural resource exploitation by Chinese nationals in Ghana through the reliance on the theory of Ecological Footprint. It also helps in explaining how the socio-political environment in a developing country could shape the extent of tackling or addressing the challenges of natural resource exploitation by foreigners.

#### **4.3.2 Implications to Research, Practice and Policy**

- ❖ This study facilitates better insight and understanding of Sino-African relations, with specific reference to natural resource exploitation by Chinese in Ghana. Most studies on addressing natural resource exploitation by the Chinese in Africa and Ghana, in particular, have given little or no attention to the extent to which the Chinese pursue good practices with regards to environmental security of the recipient African state. By dealing extensively on the topic from the Ghanaian perspective, this study calls for several scholarships to broaden the scope of study on the topic to look into the partnerships, negotiations, awareness and campaigns as well as budgetary allocations for implementation of measures for addressing the challenges of environmental security in developing countries, with particular reference to Chinese exploitation of natural resources in Africa.
- ❖ This study also offers a number of practical implications for international and local guidelines and frameworks, as well as government institutions in charge of promoting environmental security in Ghana. The implications include: (1) states who wish to implement policies towards addressing the challenges of poor environmental security due to China's exploitation of natural resources in such states could rely on recommendations from this study.
- ❖ In terms of policy implications, the study calls for the need for states in developing countries, particularly those in West Africa to promote clearly defined regulatory frameworks conducive to addressing the environmental security threats posed by Chinese exploitation of natural resources on the African continent.

#### **4.4 Conclusions**

Following the findings obtained from the study, the researcher reached the following conclusions;

Generally, China's quest for natural resources in Ghana has implications for Ghana's environmental security. Though Ghana has achieved some successes in ensuring that best practices are pursued by China amidst China's quest for Ghana's natural resources, there still exist exploitation of Ghana's natural resources due to some Chinese nationals and companies in Ghana who are engaged in illegal mining, fishing and lumbering of Rosewoods. It also increases the rate of environmental crimes and security threats to the country. Enforcement of Ghana's environmental laws is the surest way Ghana can ensure that best practices are pursued by China amidst China's quest for Ghana's natural resources. This will prevent Chinese exploitation of Ghana's natural resources and also safeguard the Ghana's environmental security. Therefore, all stakeholders need to be guided by international and national environmental laws to remain focused and proactive in the fight against the environmental security menace created by the Chinese in Ghana. The study concludes that China's quest for natural resources in Ghana has significant environmental security ramifications and implications on Ghana.

#### **4.5 Recommendations**

Based on findings from this study, the researcher proposes some key recommendations which includes the following;

- ❖ First and foremost, there should be recruitment of competent staff and management in terms of skills and qualifications in government security institutions charged with the responsibility of environmental security management in the country. This will ensure effective, efficient and viable policies are formulated and implemented and defaulters

including foreign nationals such as the Chinese are sanctioned accordingly when they violate such environmental security policies.

- ❖ More so, government should ensure that its state security institutions for ensuring security environmental security management across the country should be adequately financed, well-resourced and equipped since it a major challenge faced by the institutions in providing quality service delivery.
- ❖ To achieve effective environmental security management across the country, citizens should also become environmental security conscious to know the human security and national security implications of involving, supporting or not reporting certain crimes acts perpetuated by close friends, relatives, foreigners and other members of society. Such attitudes by citizens will provide readily available information to mitigate, clamp down or eliminated environmental security threats completely, to safe guard natural resources for sustainable development, rather than being exploited by foreigners such as the Chinese.
- ❖ Of much relevance, more research should also be carried out on the prevailing and emerging environmental security threats in particular. This will enable policy makers, security organizations and the government to use the outcomes of such research work as planning tools to know the changing trends of the causes, implications and suitable solutions for addressing such environmental security threats in the country.
- ❖ The government should take a bold step in the fight against corruption and should not interfere with the work of the Judicial systems so that culprits of natural resource exploitation, especially foreigners such as the Chinese who may be found guilty will be sanctioned accordingly, to serve as a deterrent to others.

- ❖ Environmental security management in the country should not be meshed with partisan politics. In this regard, people with little or no environmental security management skills and knowledge should not be recruited or promoted to occupy management positions of state institutions just as political favours. This hampers the objective of achieving effective environmental security management in the country even if there exists inter-agency collaboration among all the stakeholders in the country. There should be proper coordination and dialogue at all levels for a formidable action towards curbing the illegal natural resource exploitation by Chinese in Ghana.
  
- ❖ The last but not least, there should be a clearly defined National Environmental Security Strategy framework, which should be reviewed every two years as seen in the United States (US). This will serve as a guide to all environmental security management action plans or measures adopted in addressing prevailing or emerging environmental security threats in the country, with specific reference to natural resource exploitation by foreigners which may have dire environmental security consequences on Ghana.

## BIBLIOGRAPHY

### Books

- Ademola, O. T., Bankole, A. S., & Adewuyi, A. O. (2016). China-Africa trade relations: Insights from AERC scoping studies. In *The Power of the Chinese Dragon* (pp. 69-97). Palgrave Macmillan, London.
- Adonteng-Kissi, O., & Adonteng-Kissi, B. (2018). Precarious work or sustainable livelihoods? Aligning Prestea's Programme with the development dialogue on artisanal and small-scale mining. In *Natural Resources Forum* (Vol. 42, No. 2, pp. 123-137). Oxford, UK: Blackwell Publishing Ltd.
- Epstein, C. (2008). *The power of words in international relations: birth of an anti-whaling discourse*. MIT Press.
- Förstner, U., & Wittmann, G. T. (2012). *Metal pollution in the aquatic environment*. Springer Science & Business Media.
- Human Security Centre. 2005. *Human security report 2005: war and peace in the 21st century*. Oxford University Press, USA.
- Knox, P., & Mayer, H. (2013). *Small town sustainability: Economic, social, and environmental innovation*. Walter de Gruyter.
- Lengyel, M., & Ventura-Dias, V. (Eds.). (2003). *Trade Policy Reforms in Latin America: Multilateral Rules and Domestic Institutions*. Springer.
- Montgomery, J. D. (1963). *The Politics of Foreign Aid: American Experience in Southeast Asia*. Praeger.
- Power, M., Mohan, G., & Tan-Mullins, M. (2012). *China's resource diplomacy in Africa: powering development?* Palgrave Macmillan.
- Shields, Patricia M., and Nandhini, R. (2013). *A playbook for research methods: Integrating conceptual frameworks and project management*. New Forums Press.
- Taylor, I. (2010). *The Forum on China-Africa Cooperation (FOCAC)*. Routledge.

### Journal Articles

- Abdulai, A. G., & Crawford, G. (2010). Consolidating democracy in Ghana: progress and prospects? *Democratization*, 17(1), 26-67.
- Afoakwah, R., Osei, M. B. D., & Effah, E. (2018). *A Guide on Illegal Fishing Activities in Ghana*. USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal

Resources Center, Graduate School of Oceanography, University of Rhode Island.  
Prepared by the University of Cape Coast, Ghana. GH2014\_SCI048\_UCC.

- Alden, C. (2005). China in Africa. *Survival*, 47(3), 147-164.
- Alden, C., & Alves, C. (2008). History & identity in the construction of China's Africa policy. *Review of African political economy*, 35(115), 43-58.
- Allison, T., Sainsbury, P., and Craig, J. (2007). "Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups." *International journal for quality in health care* 19.6: 349-357.
- Armah, F. A., Luginaah, I. N., Taabazuing, J., & Odoi, J. O. (2013). Artisanal gold mining and surface water pollution in Ghana: have the foreign invaders come to stay? *Environmental Justice*, 6(3), 94-102.
- Bansah, K. J., Yalley, A. B., & Dumakor-Dupey, N. (2016). The hazardous nature of small scale underground mining in Ghana. *Journal of Sustainable Mining*, 15(1), 8-25.
- Bosshard, P. (2007). China's role in financing African infrastructure. *International Rivers Network*, 14.
- Bosshard, P. (2008). China's environmental footprint in Africa. *China in Africa Policy Briefing*, 3, 1-12.
- Chan, Alvin M., and Farid A. (2006). The use of secondary data in unveiling the potential of ethnic markets. *Contemporary Management Research* 2.1: 31-42.
- China Council for Int'l Cooperation On Env't & Dev. (2014). Policy Research Report On Environment and Development: Environment and Society for Green Development 2013 44.
- Chun, Z. (2013). The Sino-Africa relationship: Toward a new strategic partnership. *Emerging Powers in Africa*, 10-18.
- Crawford, G. (2009). 'Making democracy a reality'? The politics of decentralization and the limits to local democracy in Ghana. *Journal of Contemporary African Studies*, 27(1), 57-83.
- Crawford, G., & Botchwey, G. (2017). Conflict, collusion and corruption in small-scale gold mining: Chinese miners and the state in Ghana. *Commonwealth & Comparative Politics*, 55(4), 444-470.
- Crawford, G., Agyeyomah, C., Botchwey, G., & Mba, A. (2015). The impact of Chinese involvement in small-scale gold mining in Ghana. London: International Growth Centre (IGC).

- Dellinger, Amy B., and Nancy L. Leech. (2007). Toward a unified validation framework in mixed methods research. *Journal of Mixed Methods Research* 1.4: 309-332.
- Dumenu, W. K., & Bandoh, W. N. (2016). Exploitation of African Rosewood (*Pterocarpus erinaceus*) in Ghana: a situation analysis. *Ghana J. Forestry*, 32, 1-15.
- Gyimah-Boadi, E. (2009). Another step forward for Ghana. *Journal of Democracy*, 20(2), 138-152.
- Hayden, A., & Shandra, J. M. (2009). Hours of work and the ecological footprint of nations: an exploratory analysis. *Local Environment*, 14(6), 575-600.
- Hensengerth, O. (2013) Chinese hydropower companies and environmental norms in countries of the global South: the involvement of Sinohydro in Ghana's Bui Dam. *Environment, Development and Sustainability*, 15 (2). pp. 285-300. ISSN 1387-585X
- Hess, S., & Aidoo, R. (2016). Charting the impact of subnational actors in China's foreign relations: The 2013 Galamsey crisis in Ghana. *Asian Survey*, 56(2), 301-324.
- Hilson, G., Hilson, A., & Adu-Darko, E. (2014). Chinese participation in Ghana's informal gold mining economy: Drivers, implications and clarifications. *Journal of Rural Studies*, 34, 292-303.
- Huang, Q., Wang, R., Ren, Z., Li, J., & Zhang, H. (2007). Regional ecological security assessment based on long periods of ecological footprint analysis. *Resources, Conservation and Recycling*, 51(1), 24-41.
- Jorgenson, A. K., & Burns, T. J. (2007). The political-economic causes of change in the ecological footprints of nations, 1991–2001: a quantitative investigation. *Social Science Research*, 36(2), 834-853.
- Kessey, K. D., & Arko, B. (2013). Small scale gold mining and environmental degradation, in Ghana: issues of mining policy implementation and challenges. *Journal of Studies in Social Sciences*, 5(1).
- Khan, M. (2013). India, America and China's oil politics in Africa. *International Journal of Physical and Social Sciences*, 3(8), 124-141.
- Larbi, F. O., & Fu, W. (2017). Practices and challenges of internationalization of higher education in China; international students' perspective: A case study of Beijing Normal University. *International Journal of Comparative Education and Development*, 19(2/3), 78-96.
- Lyster, S. (1989). The convention on the conservation of migratory species of wild animals (The Bonn convention). *Nat. Resources J.*, 29, 979.

- Marsh, J. (2015). Supplying the World's Factory: Environmental Impacts of Chinese Resource Extraction in Africa. *Tulane Environmental Law Journal*, 393-407.
- McManus, P., & Haughton, G. (2006). Planning with ecological footprints: a sympathetic critique of theory and practice. *Environment and Urbanization*, 18(1), 113-127.
- Miglietta, P. P., & Pastore, S. (2010). The ecological footprint: methodologies and applications. *Qual Access Success*, 11, 1150-1156.
- Moffat, I. (2000). Ecological footprints and sustainable development. *Ecological economics*, 32(3) pp.359-362.
- Nunoo, F. K. E., Asiedu, B., Amador, K., Belhabib, D., & Pauly, D. (2014). Reconstruction of marine fisheries catches for Ghana, 1950–2010. Vancouver (Canada): Fisheries Centre, University of British Columbia.
- Oduro, K. A., Mohren, G. M. J., Pena-Claros, M., Kyereh, B., & Arts, B. (2015). Tracing forest resource development in Ghana through forest transition pathways. *Land Use Policy*, 48, 63-72.
- Penney, R., Wilson, G., & Rodwell, L. (2017). Managing Sino-Ghanaian fishery relations: A political ecology approach. *Marine Policy*, 79, 46-53.

## Reports/Documents

- Rupp, S. (2013). Ghana, China, and the politics of energy. *African Studies Review*, 56(1), 103-130.
- Schorn, A. (2009). The Environmental Impact of China's Activities in Africa. *The China Monitor*, 45, 4-6.
- Schwelb, E. (1960). The Republican Constitution of Ghana. *The American Journal of Comparative Law*, 634-656.
- Shinn, D. H. (2016). The Environmental Impact of China's Investment in Africa. *Cornell Int'l LJ*, 49, 25.
- Shobert, B. A. (2014). The Key Drivers of China's Environmental Policies. *Andrews-Speed, Philip et al.*
- Tankebe, J. (2010). Public confidence in the police: Testing the effects of public experiences of police corruption in Ghana. *The British Journal of Criminology*, 50(2), 296-319.
- Taylor, I. (2007). Unpacking China's resource diplomacy in Africa. *China in Africa*, 35(10), 1-34
- Taylor, I. (2007). Unpacking China's resource diplomacy in Africa. *China in Africa*, 35(10), 1-34.

Yamoah, K. K. (2012). Identification of Effective Strategies for the Enforcement of the Fisheries Regulation 2010 (LI 1968). Report prepared for Ghana National Canoe Fishermen's Council (GNCFC)–Western Region.

## Websites

Aidoo, R. (2010). China-Ghana Engagement: An Alternative Economic Liberalization in Sub-Saharan Africa (Doctoral dissertation, Miami University). Available at [rave.ohiolink.edu](http://rave.ohiolink.edu).

Alden, C. (2009). China and Africa's natural resources: The challenges and implications for development and governance. Available at [africaportal.org](http://africaportal.org).

Aning, K., & Pokoo, J. (2013). Drug Trafficking and Threats to National and Regional Security in West Africa. Center on International Cooperation. Available at [works.bepress.com](http://works.bepress.com).

Annan, N. (2013). Providing peace, security and justice in Ghana: the role of non-state actors. Available at [africaportal.org](http://africaportal.org).

Bosu, D. 2014. Rosewood: Most expensive, fastest selling commodity in Ghana today. Available at <https://www.ghanaweb.com/GhanaHomePage/features/Rosewood-Most-expensive-fastest-selling-commodity-in-Ghana-today-313635>.

Chinese MOFA. (2006). China's African Policy. Available at <http://www.fmprc.gov.cn/eng/zxxx/t230615.htm>.

Downs, E. S. (2007). The fact and fiction of Sino-African energy relations. Available at [brookings.edu](http://brookings.edu).

Environment Protection Agency (EPA). (2019). Ghana's Environmental Protection Policy: 40 Years of Environmental Protection Agency - Government of Ghana. Available at [www.ghana.gov.gh/index.php/.../801-40-years-of-environmental-protection-agency](http://www.ghana.gov.gh/index.php/.../801-40-years-of-environmental-protection-agency).

GhanaWeb. 2018. Ghana's new path to development is the China way. Available at <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Ghana-s-new-path-to-development-is-the-China-way-Akufo-Addo-suggests-688078>.

Government of Ghana. 2018. Ghana, China sign cooperation agreements. Available at <http://www.ghana.gov.gh/index.php/news/4959-ghana-china-sign-cooperation-agreements>.

Hayden, A. 2019. Theory of Ecological footprint. Available at <https://www.britannica.com/science/ecological-footprint>.

Kottoh, E. D. (2017). The Effects of Ghana's Immigration Act 573 on the Employment and Residence of Foreign Personnel (Doctoral dissertation, University of Ghana). Available at [ugspace.ug.edu.gh](http://ugspace.ug.edu.gh).

Ministry of Foreign Affairs and Regional Integration. 2019. "Ambassador of China to Ghana pays Courtesy call on Minister for Foreign Affairs and Regional Integration." Available at <https://mfa.gov.gh/index.php/ambassador-of-china-to-ghana-pays-courtesy-call-on-minister-for-foreign-affairs-and-regional-integration/>

Slideshare. (2012). Primary & secondary data. Retrieved from <http://www.slideshare.net/hezel3210/primary-secondary-data>.

South China Morning Post. (August, 23, 2013). Ghana Takes Action Against Illegal Chinese Miners. Available at [www.issafrica.org/iss-today/ghana-takes-action-against-illegal-chinese-miners](http://www.issafrica.org/iss-today/ghana-takes-action-against-illegal-chinese-miners).

The Maritime Executive. 2018. EJF Alleges Chinese Involvement in Illegal Fishing Practices in Ghana. Available at <https://www.maritime-executive.com/article/ejf-alleges-chinese-involvement-in-illegal-fishing-practices-in-ghana>.

World Bank. 2016. 48% Ghanaian youth jobless – World Bank. Available at <http://citifmonline.com/2016/05/12/48-ghanaian-youth-jobless-world-bank/> .

## Newspapers

Azuliya, D. (2017). Sanitation in Ghana: What Government Must Do. Modern Ghana News. Retrieved at <https://www.modernghana.com/news/765905/sanitation-in-ghana-what-government-must-do.html> on April 5, 2018.

Deng, S. (November 12, 2011). "Visiting senior Chinese official lauds Ghana for political stability, national unity". "Xinhua." Retrieved March 26 2019.

GhanaWeb News. (July, 8 2019). Seven 'galamseyers' trapped as mining pit caves in near Obuasi. Available at <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Seven-galamseyers-trapped-as-mining-pit-caves-in-near-Obuasi-764775?gallery=1>

GhanaWeb Online News. Tuesday, 22 January 2019. China's President to visit Ghana this year. Available at <https://www.ghanaweb.com/GhanaHomePage/business/China-s-President-to-visit-Ghana-this-year-717104#>..

Graphic Online News. (Dec, 19, 2018). Aisha Huang and four other Chinese illegal miners deported. Available at <https://www.graphic.com.gh/news/general-news/aisha-huang-and-four-other-chinese-illegal-miners-deported.html>.

Graphic Online News. (Jan, 24, 2019). Operation Vanguard arrests 15 suspected Chinese illegal miners. Available at <https://www.graphic.com.gh/news/general-news/ghana-news-operation-vanguard-arrests-15-suspected-chinese-illegal-miners.html>

Graphic Online News. (July 3, 2019). Helena Huang, Chinese woman in Rosewood saga deported. Available at <https://www.graphic.com.gh/news/general-news/ghana-news-chinese-woman-in-rosewood-saga-deported.html>.

Graphic Online News. (March, 10, 2019). Paradox at sea: More Chinese trawlers on Ghana's waters against dwindling stocks Available at <https://www.graphic.com.gh/features/features/paradox-at-sea-more-trawlers-on-ghana-s-waters-against-dwindling-stocks.html>.

Graphic Online News. (March, 8, 2019). Chinese Killer nets: Depleting fish stocks in Ghana's waters. Available at <https://www.graphic.com.gh/features/features/killer-nets-depleting-fish-stocks-in-ghana-s-waters.html>

Graphic Online News. (May 7, 2019). Helena Huang, Chinese woman arrested in Tamale for illegally transporting rosewood. Available at <https://www.graphic.com.gh/news/general-news/ghana-news-chinese-woman-arrested-in-tamale-for-transporting-rosewood.html>.

MyJoyOnline News. (December, 17, 2018). 9 Chinese illegal miners arrested as ban on small-scale mining ends today. Available at <https://www.myjoyonline.com/news/2018/December-17th/nine-chinese-illegal-miners-arrested-as-ban-on-small-scale-mining-ends-today.php>.

MyJoyOnline News. (June, 10, 2019). How Chinese illegal rosewood logging is destroying lives in rural communities. Available at <https://www.myjoyonline.com/news/2019/June-10th/how-illegal-rosewood-logging-is-destroying-lives-in-rural-communities.php>.

MyJoyOnline News. (June, 18, 2019). Illegal fishing by foreign Chinese trawlers costs Ghana \$50m a year – Researchers. Available at <https://www.myjoyonline.com/business/2019/June-18th/illegal-fishing-by-foreign-trawlers-costs-ghana-50m-a-year-researchers.php>.

MyJoyOnline News. (March, 20, 2019). 59 Chinese foreign nationals arrested for illegal mining in Western. Available at <https://www.myjoyonline.com/news/2019/March-20th/59-foreign-nationals-illegal-miners-arrested-in-western-region.php>.

## **Interviews**

Interview with Lawyer Kwame Gyan (Lecturer at Faculty of Law, University of Ghana and Former Chairman of Minerals Commission and Lands Commission in Ghana) in Accra at his office on the 25th June, 2019 at 12:00pm.

Interview with Dr. Jesse Sey Ayivor (Senior Research Fellow at the Institute of Environment and Sanitation Studies, University of Ghana) in Accra at his office on the 10th June, 2019 at 12:00pm.

Interview with Mr. Fredua Agyeman (Director of Environment at Ministry of Environment, Science, Technology and Innovation in Ghana), in Accra at his office at on the 5th July, 2019 at 4:00pm.

. Interview with an official of the Ghana Armed Forces (involved in Operation Vanguard to check illegal mining activities across the country) in Accra at his office on the 15th April, 2019 at 12:00pm.

## **APPENDIX**

### **INTERVIEW GUIDE**

#### **TOPIC: CHINA'S QUEST FOR RESOURCES IN AFRICA AND ITS IMPLICATIONS FOR ENVIRONMENTAL SECURITY: THE CASE OF GHANA.**

**NB: THE PURPOSE OF THIS INTERVIEW IS SOLEY FOR AN ACADEMIC PURPOSE AND NOTHING ELSE.**

1. What is your perception about the current status quo of Sino-Africa relations?
2. What has been the nature and scope of Sino-Ghana relations?
3. What conditions or factors are responsible for current status quo of Sino-Ghana relations?
4. How do you evaluate the general status quo of Ghana's environmental security with reference to natural resource extractions?
5. Which natural resources in Ghana have been the main target for Chinese investors and the Chinese Government?
6. Under what conditions and perceptions is China exploiting Ghana's natural resources?
7. What are the main issues or causes for the deteriorating standards of good practices by Chinese in Sino-Ghana relations which have implications on Ghana's environmental security?
8. To what extent, is the concept of best practices being pursued by China in its exploitation of Ghana's resources.
9. Which institutions are responsible for ensuring effective regulation of quality environmental security in Ghana?
10. What has been the extent of cooperation between Ghana and China in promoting environmental security in Ghana amidst China's increasing quest for natural resources in the country?
11. What measures and initiatives have been put in place by both China and Ghana to promote environmental security in Ghana with reference to China's increasing quest for natural resources in the country?
12. What environmental security challenges are faced by Ghana in China's exploitation of the country's resources?
13. How bleak or bright is the future of Sino-Ghana relations with reference to China's increasing quest and exploitation of natural resources in Ghana?

14. What do recommend as the way forwarded for addressing the challenges which bedevils Ghana amidst China's increasing quest for natural resources in Ghana?