

A Political Ecology of Bauxite Extraction at Atewa Forest, Ghana

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Foreword

*As I climb back into the company-sponsored minivan
and crane my neck backwards to watch the receding
ridgeline of the Santa Ritas, I am haunted by the economic,
intellectual and ideological conditions and contexts that make this plan,
to brutally tear open this serene corner of the earth,
seem ironically quite "logical."*

Paul Robbins (2011, 248)

It was a typical hot and humid day in Accra when I set off on a Trotro to Legon. I found myself alone in a wing of the university library, all windows wide open, looking for historical texts on bauxite-aluminum industry in Ghana. It was here that I came across a headline from the *West Africa Journal* from the year 1952: "*Aluminum: the metal of the future*". The President's speech on the 61st Independence Day from the previous year came to my mind in which he justified the plans to mine bauxite in order to develop a modern bauxite-aluminum industry: "*Aluminum is the metal of the future*," he said. However, throughout Ghana's history, the bauxite industry has never gained economic importance. In certain phases, the resource promised quick money and economic growth and it became a symbol of industrialisation. At other times, the interest was rather limited. Plans have come and gone.

Back in Germany, I gave a presentation on the current conflict between the Ghanaian government and local environmental organisations. The Atewa Forest, which is also a possible site for bauxite mining, stands at the centre of this dispute. Afterwards, I was asked by someone from the audience: *Isn't it logical to use bauxite in order to develop an industry and thus generate jobs and prosperity, what else should the government do?* This question leads me to Paul Robbins' quote at the beginning of this Foreword and a questionable logic when it comes to resource extraction. Namely, the assumption that nature is just *stuff-waiting-to-be-used* and making use of these resources is without an alternative. As a political ecologist, however, I take an opposite point of view. For me, nature is always political and therefore my aim is to deconstruct views that depoliticise nature. On the contrary, as the above mentioned example of the ever changing importance of the bauxite-aluminum industry in Ghana's history illustrates: Resources are not, they *become*.

Acknowledgements

I started writing this doctoral thesis on a completely different topic. In my master's thesis, I discussed *simultaneity* as a challenge for transformation processes in countries of the so-called Global South. For my PhD, I wanted to look at these aspects, i.e. simultaneity and temporality, in more depth by using a case study. But as time went on, I became more and more immersed in political ecological issues and was given the change to develop a topic in this field of research. Therefore, I would like to thank my supervisor **Matthias Schmidt** for emphasising this perspective for me, as it enriched my view on the world. I would also like to thank him for his comments and extensive feedback, but above all for his patience and trust in me to finish this work.

Even though I may speak of *my* work, I can never view it as entirely mine, since many people have contributed to it: some more so than others, some unconsciously, but all of them decisively. I would like to start with my colleagues who have had to listen to my presentations over the years. Our internal colloquia have always been characterised by a passionate enthusiasm for discussion, a great deal of expertise and many, many helpful comments. I would like especially to thank **Serge Middendorf**, **David Hölzel** and **Christina Walter**. The years would never have been the same without our endless discussions and discourses outside the box. Discussions I also had with **Lucas Schwarz** and **Jakob Kramer**, who I want to thank very much as well. In the last few years of my work, **Katharina Öttl**, **Maximilian Graf** and **Annette Straub** have also been a great support. Also many thanks to **Diana Tatu** and **Rike Schlenker** for taking the time to proofread parts of my work. Many thanks are extended to all of the above for their professional and emotional support.

It is a privilege as a white man from Europe to be able to conduct research in Ghana. I have always felt it to be so and without the help of many people on site, my research would never have come about. Many thanks therefore go to **Nana, Gidi** and his wife for their warm and open hospitality. Thanks also to **Lianne, Austin** and **Judith** for their emotional support in Ghana. Many thanks also to **Dary Bosu** from A Rocha Ghana, who was very open to my research and provided me with crucial contacts. One of many was **Terrence Neal**, who conducted a similar research and we had fruitful discussions during that time and thereafter. Finally, and no less importantly, I would like to thank **Nathan Otoo**. He was our guide during the two excursions we conducted with students in Ghana, my driver

during my fieldwork and my man for all seasons. Thank you for your professional, calm and excellent work.

Lastly, I would like to thank my friends and family. For me, they offered places of retreat in stressful times; they were motivators, listeners and helpers in every imaginable way. All of them were understanding and trusted me that I could do it. This work was a challenge and an exciting experience.

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Abstract

In 2018, Ghana's President Akufo-Addo announced "My government is going to implement an alternative financing module to leverage our bauxite reserves, in particular to finance major infrastructure programs across Ghana. This will probably be the largest infrastructure program in Ghana's history without any addition to Ghana's debt stock" (Akufo-Addo 2018). In the same year, the government signed a deal with the Chinese state firm *Sinohydro* in the form of a resource-backed loan with bauxite as collateral. Ghana's president highlighted the opportunity to develop an integrated bauxite-aluminum industry and stimulate nationwide industrialisation. Due to the lack of transparency and environmental concerns, however, the *Sinohydro deal* has increased a growing movement against bauxite mining in Ghana, especially in the Atewa Forest Reserve, which is not only a possible mining site, but also a protected biodiversity hotspot.

I analyse this dispute from a political ecology perspective. Political ecology examines the political dynamics surrounding material and discursive struggles over the environment. Additionally, political ecologists acknowledge that resources are relational assemblages which are in a constant state of becoming. In this regard, ecology is always political. During three fieldtrips in March 2018, 2019 and 2020, I observed this conflict with the empirical goal to contextualise it. The dynamics, actors and subjects of conflict are related to a variety of factors. Social environmental movements and disputes emerge at certain historical points, specifically in geographical and cultural contexts. Moreover, as I argue, they emerge as a specific set of relationships between structures, institutions, agency and narratives. Therefore, my empirical goal is to contextualise the dispute over the Atewa Forest and analyse how the bauxite reserves at Atewa Forest were and are politicised. For this empirical part, I refer to the framework provided by Dietz and Engels (2020) which examines structure, agency, institutions and narratives. This is done alongside actor-mapping, in order to identify key actors in this conflict. I demonstrate herein that the Ghanaian government is under a lot of pressure, not only from local NGOs, but also from international NGOs, intellectuals (or actors such as Leonardo DiCaprio) and major manufacturing companies that oppose mining in the Atewa Forest. In addition, Ghana has to meet the loan obligations of the *Sinohydro deal*, and it is yet to build any refineries.

Second, as part of my theoretical-conceptual goal, I argue to adapt temporalities to a political ecology of resource extraction. This involves temporalities of resources, temporality surrounding resource extraction and time as a political strategy. Activists have

for example urged for a decision to act immediately, but simultaneously they have tried to delay the mining project. By coupling the protection of the forest with global climate discourses, NGOs point out that in times of environmental crisis, it is essential that the forest is protected. They push this agenda forward via open letters, protests and social media campaigns. On the other hand, the delay they hereby produce gives rising attention to this topic. Additionally, by building more pressure, it makes mining at Atewa Forest unattractive to investors who cannot afford any delays. On the contrary, the government promotes imaginaries of future growth, jobs and prosperity. Creating such a historical momentum suggests that now is the right time to solve a long-lasting problem and to decouple seemingly fast economic benefits from long-term environmental pollution.

With the theoretical notions of becoming and temporalities in mind, an empirical contextualisation helps attain a detailed understanding on how nature is politicised. The decision to mine bauxite at Atewa Forest is not a given, or logical, per se. For a political ecologist, decisions are inherently political and therefore the result of power asymmetries. Meanwhile, as a result of the always recurring discussions on bauxite mining at Atewa Forest, the building of an extractive industry with its facilities and infrastructure, connected with the promise of fast and rapid industrialisation and prosperity, the forest is – at least currently – still standing.

Zusammenfassung

Im Jahr 2018 kündigte Ghanas Präsident Akufo-Addo an: *„Meine Regierung wird ein alternatives Finanzierungsmodul einführen, um unsere Bauxitreserven zu nutzen, insbesondere zur Finanzierung großer Infrastrukturprogramme in ganz Ghana. Dies wird wahrscheinlich das größte Infrastrukturprogramm in der Geschichte Ghanas sein, ohne dass der Schuldenstand Ghanas erhöht wird“* (Akufo-Addo 2018). Im selben Jahr unterzeichnete die Regierung ein Abkommen mit dem chinesischen Staatsunternehmen *Sinohydro* in Form eines ressourcengestützten Darlehens mit Bauxit als Sicherheit. Der ghanaische Präsident hob die Möglichkeit hervor, eine integrierte Bauxit-Aluminium-Industrie zu entwickeln und die landesweite Industrialisierung zu fördern. Aufgrund mangelnder Transparenz und ökologischer Bedenken hat der *Sinohydro deal* jedoch eine wachsende Bewegung gegen den Bauxitabbau in Ghana ausgelöst, insbesondere im Atewa-Waldreservat, das nicht nur ein möglicher Abbauort, sondern auch ein geschützter Hotspot der Biodiversität ist.

Diese Arbeit analysiert den Konflikt aus der Perspektive der Politischen Ökologie. Die Politische Ökologie untersucht die politische Dynamik im Zusammenhang mit materiellen und diskursiven Konflikten um die Umwelt. Darüber hinaus erkennen Politische Ökologen an, dass Ressourcen relationale Gebilde sind, die sich in einem ständigen Zustand des Werdens befinden, und dass Ökologie daher immer politisch ist. Auf drei Feldforschungsreisen im März 2018, 2019 und 2020 habe ich diesen Konflikt beobachtet, mit dem empirischen Ziel, ihn zu kontextualisieren. Die Dynamik, die Akteure und die Themen des Konflikts hängen mit einer Vielzahl von Faktoren zusammen. Soziale Umweltbewegungen und -konflikte entstehen zu bestimmten historischen Zeitpunkten, insbesondere in geografischen und kulturellen Kontexten. Darüber hinaus entstehen sie, wie ich behaupte, als ein spezifisches Beziehungsgeflecht zwischen Strukturen, Institutionen, Akteuren und Erzählungen. Mein empirisches Ziel ist es daher, den Streit um den Atewa-Wald zu kontextualisieren und zu analysieren, wie die Bauxitreserven im Atewa-Wald politisiert wurden. Für diesen empirischen Teil beziehe ich mich auf den von Dietz und Engels (2020) vorgegebenen Rahmen, in dem Struktur, Agency, Institutionen und Narrative untersucht werden. Dies geschieht in Verbindung mit einer Akteurskartierung, um die Hauptakteure in diesem Konflikt zu identifizieren. Ich zeige hier, dass die ghanaische Regierung nicht nur durch lokalen NROs, sondern auch von internationalen NROs, Intellektuellen (oder Schauspielern wie Leonardo DiCaprio) und großen Industrieunternehmen, die sich gegen den Bergbau im Atewa-Wald aussprechen,

unter großem Druck gesetzt werden. Darüber hinaus muss Ghana die Darlehensverpflichtungen aus dem *Sinohydro deal* erfüllen und muss zudem noch Raffinerien bauen.

Zweitens plädiere ich im Rahmen meines theoretisch-konzeptionellen Ziels dafür die Themen der Zeitlichkeit in die Politische Ökologie zu integrieren. Dabei geht es um die Zeitlichkeit von Ressourcen, die Zeitlichkeit des Ressourcenabbaus und die Zeit als politische Strategie. Aktivisten haben so beispielsweise auf eine sofortige Entscheidung gedrängt, aber gleichzeitig versucht, das Bergbauprojekt zu verzögern. Indem sie den Schutz des Waldes mit globalen Klimadiskursen verknüpfen, weisen die NRO darauf hin, dass es in Zeiten der Umweltkrise unerlässlich ist, den Wald zu schützen. Sie treiben diese Agenda durch offene Briefe, Proteste und Kampagnen in den sozialen Medien voran. Andererseits wird durch die Verzögerung, die sie dadurch erzeugen, die Aufmerksamkeit für dieses Thema erhöht. Außerdem wird der Druck erhöht, was den Abbau im Atewa-Waldreservat für Investoren unattraktiv macht, die sich keine Verzögerungen leisten können. Auf der anderen Seite fördert die Regierung Vorstellungen von zukünftigem Wachstum, Arbeitsplätzen und Wohlstand. Es wird ein Entwicklungspfad beschrieben, der erstrebenswert erscheint und bestimmte Handlungen in der Gegenwart legitimiert. Zudem wird ein historisches Momentum suggeriert, dass jetzt der richtige Zeitpunkt ist, um ein langjähriges Problem zu lösen und scheinbar schnelle wirtschaftliche Vorteile von langfristiger Umweltverschmutzung zu entkoppeln.

Die Entscheidung, im Atewa-Wald Bauxit abzubauen, ist nicht von vornherein gegeben oder logisch. Für einen politischen Ökologen sind Entscheidungen von Natur aus politisch und daher das Ergebnis von Entscheidungen und Machtasymmetrien. Während es im Laufe der Zeit in Ghana immer wiederkehrende Diskussionen über den Bauxitabbau im Atewa-Wald gab, alte und neue Pläne kamen und gingen, verbunden mit dem Versprechen einer schnellen und raschen Industrialisierung, steht der Wald scheinbar unbeeindruckt – zumindest derzeit – noch immer.

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1. Introduction

"We cannot in this modern era stumble twice in our journey of giving value to our significant natural resources of bauxite, and thereby accelerating our industrial development and transformation"

President Akufo-Addo (GhanaWeb 2019, n.p.)

The Atewa Forest is still standing, but underneath the surface of this forest reserve in the Eastern Region of Ghana, bauxite deposits have awakened dreams and visions of modernisation and industrialisation – visions almost within reach during when the country achieved independence, urged by Ghana's first president, Kwame Nkrumah in 1957. The so-called *Volta River Scheme* involved the production of hydro-electrical power by damming the river and applying the huge amount of resulting power to convert bauxite resources into aluminium. With this plan, the new republic would achieve not only political, but also economic independence. The *Akosombo Dam*, finished in 1965, created the largest man-made lake in the world according to surface area. However, plans for an integrated bauxite-aluminum industry remained unfulfilled and were brought to an end due to financial difficulties and a coup in 1966, following which there were no more significant developments in Ghana's bauxite and aluminum industry. Many decades later, reading the above statement of the current Ghanaian president Akufo-Addo, it seems almost logical to make use of these resources. A resource has thus been rediscovered and an old promise revived. President Akufo-Addo (2018) emphasised in his speech that marked the 61st anniversary of the country's independence from Britain: *"Fellow Ghanaians, we have huge infrastructure needs in the areas of roads, bridges, water, electricity, housing, hospitals, schools, etc. The problem has always been where to find the money. However, where there is a will, there is a way. My government is going to implement an alternative financing model to leverage our bauxite reserves, in particular to finance a major infrastructure program across Ghana. This will probably be the largest infrastructure program in Ghana's history, without any addition to Ghana's debt stock"* (Akufo-Addo 2018, n.p.).

According to Gawu et al. (2012), Ghana's bauxite reserves are estimated at 554 million metric tons, and the country is currently the third-largest producer of bauxite on the African continent (Knierzinger 2018). However, the raw material has been mined in only one mine since 1942. Besides, its exports accounted for 0.6% of total mineral exports and 0.22% of total merchandise exports in 2014 (Oxford Business Group 2017). What was once described as *"Ghana's most useful resource"* (Hart 1977, 12) seems to have surprisingly little

economic importance to the country. In 2018, Akufo-Addo signed a Memorandum of Understanding between the country and China. As part of this agreement, the so-called *Sinohydro deal* meant that the Chinese state corporation would invest in infrastructure across Ghana and be paid with revenues from refined bauxite. However, Ghana needs to develop an integrated bauxite-aluminum industry, and since there is currently no competitor in the bauxite sector other than China, Ghana has “a unique opportunity to establish an integrated aluminum industry” (Amewu 2018, ii) by using its large bauxite reserves.

Ecological concerns and pressure from social movements are challenging these plans, because one possible mining site is a protected forest reserve, the Atewa Forest in the eastern region of the country, which is only one of the two reserves in Ghana with upland evergreen forest (Hall et al. 1981; Abu-Juam et al. 2003). Due to its uniqueness, the reserve has changed its status over the years, from a special biological protection area in 1994 and a hill sanctuary in 1995, into one of Ghana’s 30 globally significant biodiversity areas (GSBAs) in 1999. In 2001, *BirdLife International* listed Atewa as an ‘Important Bird Area’ (IBA) (Abu-Juam et al. 2003; McCullough et al. 2007).

Throughout the history of Ghana, bauxite resources beneath the surface of the Atewa Forest Reserve have remained untouched. In 2018, the question arise, if the forest reserve should become a national park, or should its bauxite reserves serve an integrated bauxite-aluminum industry? Political ecology provides a benefitting perspective to analyze this dispute, as political struggle over materiality, access and control, but also over meaning and imaginations. As the statements by president Akufo-Addo illustrate, bauxite is seen as something *given* and ready to *use*. Nevertheless, for a political ecologist, resources are *not*, they *become* (Zimmermann 1933), i.e. not only do they *become* symbols of modernisation and economic growth, but they are also connected to deforestation and pollution. Resources can become the subject of conflicts over distribution, access or future development. This notion of *becoming* is an underlying theme of this work, in that it examines how bauxite at Atewa Forest becomes political and becomes a symbol for modernisation and industrialisation, as well as who enforces his interests – and how. Therefore, my work uses a political ecological approach, which Robbins (2012, 12) defines as “an empirical, research-based exploration to explain linkages in the conditions and change of social/environmental system, with explicit consideration to relations of power”. Power is defined according to Bryant and Bailey (1997, 37) as the “ability of an actor to control” – in this case access to nature and natural resources, as well as the access of other actors to these

resources. In addition, Schmidt (2013) formulates the political ecology approach as follows: (a) identifying key actors and their relations, (b) detecting the different scales on which they act and (c) recognising what interests they follow.

1.1. The empirical research goal

Pijpers and Eriksen (2019) and Bridge (2019), argue that the recent growth in studies and publications on resource extraction indicates an ongoing concern to seek a better understanding of extractive practices and their social, economic, political and environmental effects around the world. However, according to Dietz and Engels (2017b), common explanations are linear, in that conflicts over land are a direct expression of global crisis tendencies, or even the crisis of capitalism itself. Arboleda (2020), for example, argues that such disputes are an expression of the changing character of capitalism in the twenty-first century. Political ecologists such as Brand and Wissen (2012) or Fairhead et al. (2012) describe land-grabbing or the expansion of the resource frontier as an expression of global crisis tendencies such as the financial crisis, accelerated change and the climate emergency.

However, regardless of how the expansion of extractive activities is explained theoretically, it is mostly pointed out that there is an increase in conflicts over land (land in this context includes resources, agriculture, forests, etc.). For example, Conde and LeBillon (2017) argued that due to growing demands for more material resources, mining projects have met with frequent resistance from local communities. They argue that resistance is an important dimension of the mining extraction political economy and shaping commodity frontiers. Pérez-Rincón et al. (2018, 2), for their part, contend that *“Conflicts are a result of the material causes associated to social metabolism”* and explain that *“conflicts can also be explained by World Systems Theory showing how the countries of the South play a role as raw material providers from the new ‘commodity frontiers’.”* Bebbington and Bury (2013) state in their study about new dynamics of mining in Latin America that any analysis of socio-environmental conflicts must consider an interpretation of the political economy of development in the Andes. Finally, in this regard, Ayelazuno and Mawuko-Yevugah (2019) reason in their case study that mining-related foreign direct investment in Ghana is the manifestation of ecological imperialism.

There is no doubt that the expansion of industrial mining and commodification is related to various crises centred around capitalism, as well as structural changes in the raw materials sector, as described above. In his book *Critical Political Ecology*, Forsyth (2008)

notes that it is crucial to investigate rather than assume an essential link between capitalism and environmental degradation. The dynamics, actors and subject matter associated with conflict are related to a variety of individual factors, albeit these are not necessarily linked to overarching global crisis processes. As argued before, this work contributes to a variety of studies seeking a better understanding of extractive practices and their social, economic, political and environmental effects. Therefore, the **empirical goal** of this work is to analyse the various actors, historical contexts and other factors that contribute to a conflict situation that is not necessarily linked to global crises – and therefore does not fit into a linear explanation. In order to draw a picture of the conflict as a result of specific sets of relationships between structures, institutions, agency and narratives, I therefore refer to the framework developed by Dietz and Engels (2020) that aims to be action-oriented, looks at structure and agency from a dialectical perspective and links historical materialism.

1.2. The theoretical-conceptual goal

Besides the empirical goal, this work also aims to contribute to an emerging discussion in political ecology, i.e. its **theoretical-conceptual goal**. Usually, when thinking of mining environments, they are interpreted as physical landscapes from which individuals or large-scale companies extract materials useful to the global economy by spatially modifying these same environments. In this regard, Fent and Kojola (2020, 820) note that “*there has been more focus on the spatial and territorial dynamics and struggles over access and control of land*”. However, D’Angelo and Pijpers (2018), Fend and Kojola (2020) and Bridge (2019) highlight the perspective of *temporalities*. Temporality and future as a category to analyse have recently been discussed among political ecologists (Knappe et al. 2019; Kojola 2020; Robbins 2020). Moreover, Nustad (2020) emphasised that the future and time as a category need to be considered. Along with other recent publications (Kojola 2020), he calls for paying closer attention to temporal processes in political ecological analyses, especially in the context of conservation and resource extraction. I will elaborate on this in chapter 2.4.

1.3. Research questions

The concrete struggle over land and resources is analysed in this work through a framework greatly influenced by Dietz and Engels (2014, 2020). They argue that while environmental conflict approaches lack a theoretical perspective on societal-nature relations, political ecology admittedly draws more attention to this issue, but it often lacks

a theoretically grounded understanding of conflict as such. The authors developed (through different papers over time) a guideline for analysing such conflicts, and they define four dimensions in this regard: **Agency**, **Narrative**, **Institutions** and **Structure**. These in turn form a template for looking at cases where conflicts over land occur. The framework is action-oriented, has a dialectical perspective on structure-agency relations and builds on theoretical assumptions from historical materialism. The four dimensions are developed not only from this theoretical perspective, but also from synthesising a broad range of empirical studies. Individuals or collective actions understand **structure** as representing the principles of society that can hardly be transformed, for example labour relations, gendered property, race or access relations based on caste. **Institutions** comprise unquestioned routines, practices, political rules, laws or regulations, thereby either constraining or enabling social action. **Agency** refers to the collective of actors that interfere through different forms of action, and finally, **narratives** are discursive strategies through which the actors ascribe meaning to, legitimate or challenge certain aspects – in this case, investments in mining and land. Besides the special focus on land, it is not the first framework to focus on these dimensions. For example, Moulaert et al. (2016) used a similar agenda to analyse urban and regional development and concluded that institutions can rival or complete the category structure. In line with Giddens (1979), I understand the structure as the median through which action is made possible, but at the same time structure is reproduced through social practice itself. Therefore, a dynamic and dialectical understanding of the relationship between structure and agency is adopted. Dowding (2008) correctly points out that, in theory, structure and agency do not privilege one over the other, but in practice agency is often privileged over structure, in order to look at a set of agents to explain structural change. Dietz and Engels (2020, 215), for instance, point out that the dimensions are “*not placed in a hierarchical relationship to one another, but are rather interwoven*”. However, they argue that depending on the studied case, not all dimensions are relevant. Nevertheless, they provide a “*more thorough understanding of how structural changes and social conflict action with respect to land are linked to each other*” (ibid.).

As pointed out previously, the four dimensions are interwoven, but they do provide anchor points around which I design my research questions. It is not the idea of this study to separate each dimension carefully and look at them individually (as argued before, for example, agency and structure are understood in a dialectic way); it is more the case that each *paper* leans more in a specific direction. However, in the end, the aim is to paint a

picture of the conflict as a result of specific sets of relationships between structures, institutions, agency and narratives.

(a) What actors are involved in this conflict, and what strategies and techniques does the alliance, which is against bauxite mining at Atewa Forest, use?

This question is very much based on the political ecology approach formulated by Schmidt (2013): (a) identifying the key actors and their relations, (b) detecting the different scales on which they act and (c) recognising what interests they follow. The aim is to elaborate on the *politicisation* of nature, and by using actor mapping to gain a differentiated perspective on involved actors.

(b) How does the government legitimise its plan to mine bauxite, and how is the narrative constructed to justify bauxite mining at Atewa Forest?

For the most part, the transformation from rock into ore is seen as something economically *logical* to do, because the ore is translated into benefits for society, such as jobs and infrastructure. However, mining can result in unwanted consequences and is quite difficult to plan or control. Therefore, certain actors propagate the notion that extraction is something mostly beneficial or logical; this construction of a narrative can then be used to legitimise mining. Narratives differ from frames or discourses, in that the former are certain presentations of a problem, discourses reflect competing views and benefits within the existing economic and political order and narratives refer to meaning-making and identity-building (Dietz and Engels 2020). Narratives are also stories about past events, future prospects and the actors themselves, in order to shape economic and political order (Moor and Wahlström 2019). Dietz and Engels (2020) claim that the key function of narratives is to suggest unity in an otherwise complex and confusing situation. However, this paper adds future-making practices as a beneficial perspective, since they create a certain teleology by divulging only one desirable future. Therefore, future-making and development practices are consequently closely related and must be understood as attempts to gain control over the future and reduce uncertainty (Müller-Mahn 2020).

(c) How is China's involvement defined through the Sinohydro deal with Ghana, and what characterises the investment contract between both parties?

In their framework, Dietz and Engels (2020) often refer to investments, but they do not suggest analysing the structure of investments. However, Bridge (2019) maintains that

political ecology needs more serious engagement with the investment processes if it is a matter of new geographies of extraction. To better understand the extent of Chinese influence, as well as the impact on the bauxite sector in Ghana, the third research question takes a closer look at these investment processes, by analysing the contract between the Government of Ghana and the Chinese company *Sinohydro*.

1.4. Structure

This thesis is cumulative and therefore consists of four papers, each of which stands alone but still links with the others. The papers contribute to the empirical goal described herein, and the research questions are each dealt with in separate papers. They are framed by theoretical discussions elaborating the perspectives of political ecology and addressing temporality and the notion of *becoming*. These segments contribute to the theoretical-conceptual goal. In the final chapter, the summary, all of these expositions are connected and discussed together. This concept and the common thread of the work are shown in Table 1.

Political ecology provides a lens through which every article (and this work) is seen. Therefore, in the following, I discuss the perspectives and approaches associated with political ecology. Furthermore, I draw particular attention to political ecology perspectives in terms of extraction, to illustrate the advantages of including the perspective of temporalities. After the theoretical discussions that formulate the basis of this work, I expand on the methods used to answer the research questions. Following this, I provide a brief overview of the focus area, namely the Atewa Forest, and explain some local contexts. Individual chapters, each of which represents an essay, follow this format (see also Table 1). Finally, I conclude and reflect on my empirical and theoretical-conceptual goals in the summary.

Table 1 Structure and overview of papers and research question

Title	Purpose / goal	Reference
<p><i>The (re-)discovery of Ghana's bauxite.</i></p>	<p><i>Contextualisation of the history of bauxite mining in Ghana.</i></p>	<p>Chapter 5 (Originally published in German)</p>
<p>In: Schmidt, Zapf [Hrsg]: <i>Environmental Humanities</i>; 161-177; V&R unipress.</p>	<p><i>Illustrating that resources are not, but become</i></p>	
<p>Licence: © 2021, Vandenhoeck & Ruprecht GmbH & Co. KG</p>		
<p><i>Bauxite mining at Atewa Forest Reserve, Ghana: a political ecology of a conservation-exploitation conflict.</i></p>	<p><i>Refers and contributes to the first research question:</i></p>	<p>Chapter 6.1.</p>
<p>Published; In: <i>GeoJournal</i>. 2020 Sep 24; 1-13. doi: 10.1007/s10708-020-10303-3</p>	<p><i>What actors are involved in this conflict, what strategies and techniques are used by the environmental movement, which is against bauxite mining at Atewa Forest Reserve</i></p>	
<p>Licence: CC BY 4.0</p>		
<p><i>“Come what may, we bring those resources to play” – Narratives, future-making and the case of bauxite extraction at Atewa Forest, Ghana.</i></p>	<p><i>Refers and contributes to the second research question; Addresses future-making and emphasises the aspect of temporality</i></p>	<p>Chapter 6.2.</p>
<p>Accepted; In: <i>AREA</i>. doi:10.1111/area.12765</p>	<p><i>How does the government legitimise its plan to mine bauxite, and how is the narrative constructed to justify bauxite mining at Atewa Forest?</i></p>	
<p>Licence: CC BY 4.0</p>		
<p><i>Same Same, but different: Ghana's Sinohydro Deal as evolved 'Angola Model'?</i></p>	<p><i>Refers and contributes to the third research question;</i></p>	<p>Chapter 6.3. (Manuscript version of the paper)</p>
<p>Submitted; (The appendix contains the final published print version of the paper)</p>	<p><i>How is China's involvement defined through the Sinohydro deal with Ghana, and what characterises the investment contract between both parties?</i></p>	
<p>In: <i>Insight on Africa</i> (SAGE) Licence: CC BY 4.0</p>		

2. Political ecology of resource extraction

Political ecologists study *resource extraction* (Bebbington 2015) as well as *extractivism* (Dietz and Engels 2017b). The latter term is more used in the context of Latin America, with a strong community expounding on mining and social movements. This chapter sets out to debate the *political ecology of resource extraction* by discussing three key aspects. First, I want to examine political ecology, its different approaches and how *resources* are understood, as this is a central subject of my research. Second, I want to untangle extraction from extractivism – on the one hand extraction as a concrete, physical practice, on the other extractivism as the cultural and ideological rationale that either motivates extraction or is the consequence thereof. The question arises, in what exact circumstances does extraction expand into an ideology of extractivism? The theoretical discussion of these terms is also important at this point, in order to once again work out what is meant by *becoming*. Finally, I bring together political ecology and resource extraction once again, discuss the recent work of political ecologists on resource extraction and highlight why the temporal dimension needs more attention.

2.1. Political ecology

The conservation of biodiversity is an increasingly challenging endeavour. Hodgson et al. (2019) contend that conservation conflicts currently pose one of the most significant challenges to wildlife and biodiversity across the globe. The geographical overlap between mining sites and biodiversity hotspots often leads to serious social and ecological challenges over the short and the long term. Political ecology studies have developed several conceptions relating to ecological conflicts. Socio-ecological conflicts, for instance, can be defined as struggles associated with the unequal access to, distribution of and control over natural resources, as well as ecological benefits and risks (Peet and Watts 2004; Turner 2004; Alier 2009; Le Billon 2015; Pichler 2017). Political ecology evolved with a strong focus on how power manifests in both discursive and material struggles regarding the environment (Forsyth 2008; Robbins 2012), and it emerged as a way of criticising the reductionism of neo-Malthusian explanations of land degradation, or the notion of land degradation itself (Watts 1983; Blaikie 1985). This fusion of political-economic and cultural-ecological perspectives became known in Anglophone geography as *political ecology* (Blaikie and Brookfield 1987; Bassett 1988). Political ecology rejects the hypothesis that as a result of greater environmental scarcity or a lack of resources, conflicts will increase;

rather, it assumes that all human decisions are inherently political (Adams 2015). Relating to extraction and conservation conflicts, general question political ecology asks are: Who decides, and at what scale, how minerals, ores or metals are used and/or socially appropriated and to what ends, and whose interests do mining activities serve? (Dietz and Engels 2017a). Political ecology is about recognising the power that actors have at the moment of deciding what, how, and where to conserve (García-Frapolli et al. 2018). Ahlborg and Nightingale (2018) point out, that actors are not 'in power' nor do they 'hold power'. Power is exercised and only evident in relational, performative moments. In addition, Carpenter (2020), argues that power in Foucault's work, is not a question of *why* but rather by what *means* is it exercised, rather than whether people *have* power or not. The exercise of power is always situated, embodied and ambiguous. Effects are not often the expected or desired ones (Ahlborg and Nightingale 2018). However, power is fundamental to political ecology and Svarstad, Overå and Benjaminsen (2018) are highlighting three power theories in political ecology that emerged over time: (1) Actor-oriented power perspectives, (2) Neo-Marxist power perspectives and (3) poststructuralist power perspectives. Benjaminsen and Svarstad (2021) make a similar distinction, but highlight that the second and third perspective are structure-oriented. The latter much influenced by Foucault and Gramsci. However, Ahlborg and Nightingale (2018) argue that there are different and sometimes conflicting conceptualisations of power in political ecology studies. The understanding of power is quite different depending on the research topic and Svarstad, Overå and Benjaminsen (2018) argue the plurality of power conceptions is a strength within political ecology.

Svarstad and Benjaminsen (2020) highlight important influences on political ecology, for example Marxist political economy (Watts 1983), actor-oriented perspectives (Blaikie and Brookfield 1987), post-structuralist theory and analyses (Adger et al. 2001; Peet and Watts 2004; Escobar 2008) and science and technology studies (Robbins 2007; Goldman et al. 2011). Focusing on local case studies, cultural and anthropological approaches later influenced this field, identifying cultural patterns as a way of explaining environmental-human relations. Bassett and Peimer (2015) identified three main theoretical framings within political ecology: (1) the environmental/social dialectic, (2) environmental constructivism and (3) the co-production of socio-nature. The environmental/social dialectic perspective combines a structuralist view of society with a positivist view of ecology, the theoretical basis of which is commonly a historical materialist perspective. Such approaches use household surveys, multi-scale analyses as well as chains of

explanation. Blaikie (1985) is an important scholar of this approach. The environmental constructivist approach maintains that accounts of environmental change (e.g. forest loss in West Africa) legitimise knowledge claims about socio-ecological relations that simultaneously legitimise power relations (Fairhead and Leach 1996). The aim is to deconstruct narratives and to propose a counter-narrative. Many studies draw on discourse analysis to show how environmental knowledge and social order are co-produced (Bassett and Peimer 2015). The third approach, namely the co-production of socio-nature, is the most recent political-ecological approach and builds upon science and technology studies (STS) and actor-network theory (ANT), the latter of which is a method and theory for studying socioecological relations that requires the researcher to closely *follow actors* in order to explain the unfolding of socioecological processes (Latour 2005). Gabrielle Bouleau (2014) shows how the formation of watershed management plans in the *Seine* and *Rhône Rivers* basins can be attributed to the ways that scientists have differentially framed and studied water problems in the two watersheds. The approach assumes that socio-ecological relations are produced by both human and non-human actors. Robbins (2007) conceptualises in his study the process of creating lawns, where humans and non-humans interact in ways that co-produce one another. His research reveals that suburban lawn-owners, compelled by their neighbours, community, lawn chemical companies and turfgrass itself, attend to the needs of their lawns and, in the process, make themselves into who they are: lawn people. According to (Bassett and Peimer 2015), the co-production approach differs in two ways. First, co-production theory explicitly seeks to break ontological distinctions between science and society, which means that scientific knowledge is produced within specific socio-cultural contexts and influences societal goals. The second aspect is its focus on socioecological assemblages that are co-produced by both humans and non-humans.

All three approaches, namely the environmental/social dialectic, environmental constructivism and the co-production of socio-nature, share some common ideas, i.e. an emphasis on power relations, the notion that ecology is a social relation and an emphasis on the non-equilibrium character of socio-ecological systems. Socio-ecological relations are in flux and constantly *becoming*. Famously, Zimmermann (1933) posited that resources do not exist in a finite and a fixed state – they *become*. While Zimmermann's assumptions seem a bit quaint nowadays, the notion of resources as *becoming* remains critically important (Richardson and Weszkalnys 2014), especially against the backdrop of a technocratic thinking that reduces the impacts and challenges that accompany extraction as something

manageable. Political ecology, in contrast, argues against such depoliticising tendencies (Swyngedouw 2011). Resources have to be understood as a relational assemblage, which is in a constant state of *becoming*. In addition, they may revert to other states of being and be different things to different people at the same time. Furthermore, Richardson and Weszkalnys (2014) argue that resources *become* as resource materialities, understood as constitutive *of* and constituted *within* arrangements of substances, technologies, discourses and the practices deployed by different kinds of actors. Bakker and Bridge (2006) point out that the things that make a difference in the way social relations unfold are not pre-given substrates that variably enable and constrain social action. However, they are themselves historical products of material, representational and symbolic practices. The material turn introduced a series of conceptual and methodological frameworks for joining up ideas around discourse, representation and knowledge production with a renewed attention to matter, materiality and the material world. New materialists extend agency to everything that influences and interacts, as well as the processes by which interaction occurs. Therefore, within this concept of agency, there are no individuals per se – there are networks and assemblages (Bennett 2010). The material turn argues that resources are not simply technocratic things out there ready to be utilised. Furthermore, resources are not only passive objects, but are also characterised by affordance. Gibson (1977) reasons that the affordances of resources are what they provide. However, the *new* in new materialism matches more with political ecology influenced by post-structuralism. Materialist and poststructuralist forms of political ecology have emerged over time, each with their own different paradigmatic views. The materialist form of political ecology claims that all that exists is dependent on the natural environment, i.e. latter is prior to and independent of thought. In contrast, the poststructuralist-influenced political ecologist rests on the belief that ideas have the power to determine reality. These two perspectives must be understood more as a continuum, rather than two opposing schools of thought. However, the French poststructuralist school of thought that emerged in the 1960s and '70s challenged the political ecology that emerged from historical materialism, by arguing that all experience is mediated and interpreted through the symbols of language, looking at ideas and deconstructing discourses.

Blaikie (1999) finds a middle way between materialism and poststructuralism, by considering both the materialist and the symbolic dimensions of evolving nature-society relations and social conflicts. According to Schmidt et al. (2019), the strength of a political ecology approach lies (a) in the integration of political and ecological dimensions, as well

as material and discursive elements, (b) its calls for a normative perspective and (c) the idea that it must be more understood as a set of lenses through which conflicts can be analysed, rather than as a theory or a method. In his last chapter, Paul Robbins (2012, 252), precisely points out the following: “*Sadly, then, political ecology is not a roadmap, a recipe, or a theory or technique you can apply to solve whatever problem might be bothering you. Happily, it is a great deal more*”.

Studies using the political ecology approach focus on a variety of issues, and in this regard *water* especially has gained increasing attention (Bennett 2019; Dinko et al. 2019; Harnish et al. 2019; Kooy and Walter 2019). Other resources such as forests (Fent et al. 2019; Hein 2019; Ogden et al. 2019), agriculture (Ekers 2019; Giraldo 2019) and the general issue of extractivism (Gonzalez 2018; Hook 2019; Prieto et al. 2019) have also been addressed. However, publications in other fields, such as migration (Radel et al. 2018), urban studies (Xie et al. 2019) or feminist approaches (Bauhardt and Harcourt 2019; Behzadi 2019), have been examined from a political ecology perspective. While *radical political ecology* brings together actor-network theory (ANT) and eco-Marxism, it is influenced by authors who are in turn influenced by Marxism or neo-Marxism, by concepts offered by Donna J. Haraway (1991) and Sarah Whatmore (2002), and concepts from research conducted by scholars such as Bruno Latour and John Law. Blanchon and Graefe (2012) highlights the benefitting perspective to combine both: Studies on the global level where Marxist analysis of power relations and dynamics of global capitalism, as well as local studies where ANT is at best describing and understanding the game of local actors. Furthermore, *ibid.* (2012) point out, that *radical political ecology* is a revival of a Marxist approach. Prominent authors such as Noel Castree (1995, 26), referring to Peet and Watts (1993), point out that Marxism can contribute to taking “*the reality of those local environmental problems seriously while building a larger project which situates those problems and joins their antagonists into a more global view of struggle over nature (and society’s) creative destruction*”. Political ecology expands this view and the research to increasingly more fields. This is best illustrated by looking at recent perspectives on political ecology, to mention a few: towards a political ecology of the digital economy (Kostakis et al. 2016), towards a peri-urban political ecology (Karpouzoglou et al. 2018), towards a political ecology of climate change mitigation (Sovacool 2021), towards a modest political ecology of the future (Lawhon et al. 2021), towards an embodied political ecology of fat masculinities (Canoy 2021), towards a political ecology of conflict in the western Pacific (Allen 2013) and furthering post-human political ecologies (Margulies and Bersaglio 2018). Lawhon et al. (2021), building on

Robbins (2020), recently urged us to focus less on the *hatchet* and more on *seeds*. Erik Swyngedouw (2021, 7) stated that “Political ecologists have only affirmed, expanded, and reformulated classical political economic insights. What is now urgently required is a ‘Critique of (Urban) Political Ecology’ that opens up a terrain for the politicization of nature”. He furthermore pointed out that the struggle *over nature* operates along two axes: (i) over the material bases of life, access, control and the reproduction of non-human or more-than-human organic and inorganic matter and (ii) over the meaning of nature, i.e. the configurations through which nature is imagined and symbolised. His article in the context of current environmental debates calls for a progressive (urban) political ecology that explores the fantasies supporting the climate change narrative.

While some might describe this diverse range of topics and approaches in political ecology as *fuzziness* or *weakness*, it can also be seen as an indicator of the successful lenses political ecology provides. Political ecology examines the political dynamics surrounding the material and discursive struggles over the environment. Additionally, political ecologists acknowledge that resources are relational assemblages, each of which is in a constant state of *becoming*, believe that ecology is always political and seek to find answers to the questions: what changes? How? Why? and for whom? (see Swyngedouw 1997).

2.2. Extraction and extractivism

The way the term extraction is used nowadays expresses the underlying understanding of human-nature relationships and why social conflicts can be observed when it comes to extraction projects. At this point, it is therefore important to discuss briefly the origins of extraction, in order to separate it from extractivism.

2.2.1. Extraction

Dunlap and Jakobsen (2020) claim that to some extent people always need to consume, kill, eat and therefore extract non-human nature. Human byproducts, such as urine, faeces and even corpses, are important ecological resources and replenish the *web of life*. Similar argue Szeman and Wenzel (2021), by referring to Nelson Mandela’s once-upon-a-time vision of precolonial order in South Africa, which included democratic self-rule and resource sovereignty. Furthermore, it states that resources are collectively owned and extracted for

the benefit of society as a whole, without class stratifications. Both conceptions of extraction differ from what is usually imagined by this term. Dunlap and Jakobsen (2020) link extraction and colonialism and thereby highlight that when it comes to extraction, it is important to look at the scale of consumption as well as the produced byproducts. Moran (2017) argues similarly when he talks about the *web of life* and its destabilisation; it might be the starting point from which extraction becomes something different. In contrast, Szeman (2017) reasons that extraction is a one-way process, since what is extracted is used, leaving behind environmental degradation or toxic waste. However, for Dunlap and Jakobsen (2020), this would already be a colonial understanding of extraction, and how we use the term tells us about our human-nature relations.

At this point, I would like to briefly draw attention to Murray Bookchin's social ecology theory (1982), which explores the narrative of domination and hierarchy. His central argument, namely to explain the roots of the current environmental crisis, are the human domination of nature and the domination of humans by humans. Although Bookchin is mostly labelled as a social ecologist, his work also provides helpful insights for political ecology. Central to his conception is hierarchy as the primary principle of social organisation. For Bookchin (1982, 8), hierarchy is a "*state of consciousness, a sensibility toward phenomena at every level of personal and social experience.*" Furthermore, White (2003) argues, that Bookchin addresses notably the failure of Marxism to recognise that hierarchy and domination could easily continue to exist in a 'classless' society. Bookchin (1982, 4) highlights: "*I refer to the domination of the young by the old, of women by men, of one ethnic group by another, of masses by bureaucrats who profess to speak in their "higher social interest," of countryside by town, and in a more subtle psychological sense, of body by mind, of spirit by a shallow instrumental rationality and of nature by society and technology.*" He furthermore argues that the *objectification* of the human subject gave rise to the objectification of nature. The notion 'humanity is destined to dominate nature' is not a universal feature; it has emerged from the increased domination of humans by humans. Like Friedrich Engels, Bookchin refers in his work *The Ecology of Freedom* (1982) to a similar concept of primitive communism. Human relations are marked by intense social solidarity internally and with the natural world. He argues that organic societies are gradually shattered and then reworked to emerge as gerontocracies, patriocentric relations, priest castes and warrior societies. However, going back to the roots of domination, his idea of an 'organic society' is presented as a historical actuality and not as a hypothetical state. Bookchin rejected the idea that domination has its sources in economic conditions and needs. White (2003) points

out that Bookchin contended that roots are found in the tensions and ambiguities produced by age. However, there are doubts and criticism about his arguments on the roots of social hierarchy, and his explanations are often described as *naturalistic reductionism* (Benton 1994; White 2003). Furthermore, White (2003, 53) notes, “*this locating of the origins ‘where it all went wrong’ seems problematic, given that it seems unlikely there was ever a moment when ‘it all went right’.*” Nevertheless, Bookchin contributed to a debate highlighting hierarchy as a cause for an increasing imbalance in the human-nature relationship. Downey et al. (2010) suggest that today’s environmental challenges, or issues we term ‘Anthropocene’, would not occur without the extraction of minerals, fossil fuels and other natural resources from around the world. Products that are used and produced by societies, for example weapons systems, automobiles, solar panels or cell phones, originate in mines. Mumford (1934) made this point some years ago:

“On the one hand, mining stands as a triumph of human ingenuity and fortitude over the fickle reluctance of nature [...] Minerals are liberated from the earth, turning hostile and unproductive terrain into a fount of civilized wealth, freeing society from the drudgery of nature. On the other hand, the act of wresting minerals from the earth has historically required the subjugation and demeaning of both nature and humankind, as faceless pairs of hands and unseen laboring backs descend into the dark, inhuman hell of tunnels to strip away the organs of nature” (ibid., 241).

Kirkpatrick Sale (1991 [1985]), referring to the works of Karl August Wittvogel, Lewis Mumford and Murray Bookchin, stated that “*Societies that dominate nature also dominate people. Where there is the idea that a massive dam should be built to control a river’s flow, there is the idea that people should be enslaved to build it*” (Sale 1991 [1985], 122). For Szeman and Wenzel (2021), it is essential to see it as the transformation of *use* to the *ab-use* of nature. Both authors, from an environmental humanities perspective, argue that the conception of nature as *stuff-waiting-to-be-sold-and-used*, or *standing-reserve*, makes way for a commonly used resource logic. Dunlap and Jakobsen (2020) reason that domination, inherent in the colonial system, brought imbalance to the circular and self-reinforcing *web of life*. Furthermore, they point out that nowadays, this might appear as a mythological and romantic conception. Referring to the work of Taussig (1980), the dominant politico-economic situation has so normalised that it appears natural, in contrast to other conceptions. Taussig (1980) points out the differences arising between societies endowed with a long capitalist heritage and societies just beginning to experience capitalism.

The excursion on *hierarchy* provides an important aspect for political ecology, because political ecology does not accept the simple *fact* that society overuses natural resources. Social relations of power and domination cause environmental problems, but simultaneously, power and domination control access to natural resources and the way nature is transformed. Wissen (2015, 17) points out that “*environmental problems in political ecology are thus seen through the lens of power and domination*”. In addition, as argued previously, political ecology seeks to de-naturalise the relations between people and nature, i.e. the idea about nature and making use of it are not *given*, they *become*. For Szeman and Wenzel (2021), it is essential to consider these questions surrounding the use and abuse of nature, or more precisely “*by what set of imaginative, cognitive, economic, and other material operations does nature become figured as a resource?*” (ibid., 4). I take up this aspect in my case study by highlighting the historical significance of the bauxite resource throughout the history of Ghana, in that it is evident that at certain times bauxite was assigned a strategic role (see chapter 5).

2.2.2. Extractivism

Szeman and Wenzel (2021) suggest that extractivism can mean “*either ruthless looting of the environment for the benefit of a distant few – in short, colonialism – or a developmentalist ideology of social welfare premised on the extraction of natural resources – in short, postcolonialism*”. Parks (2021) and similarly Acosta (2013) understand extractivism as a mode of economic production, whereby natural resources are taken from a peripheral area and utilised as ‘*raw materials*’, as inputs into industrial processes within an economic developed core. Furthermore, Acosta (2017) points out that extractivism is not limited to minerals or petroleum but it is a fundamental element of the modality of primary export accumulation, which implies that capitalist “*extractivism is [likewise] essentially predatory*” (ibid.). However, there is no consensus in the academic literature on the understanding of the term ‘extractivism’ (Martín 2017). Brand and Dietz (2015), for example, differentiate between old or *classic extractivism* and *new extractivism* by placing them in separate historical phases. However, the term is related not only to history, but also to geography. Bebbington (2015) highlights that a majority of studies analyse neo-extractivism in Latin America, as it is commonly used to describe certain circumstances that only occur in this part of the world, as seen, for example, in the rise of post-neoliberal regimes such as Bolivia, Venezuela or Ecuador. A characteristic feature of new extractivism is an expansion of state control and participation. In addition, the state has become the prime promoter of extraction projects

(Gudynas 2010). However, Brand et al. (2016) suggested that neo-extractivism might also be identified in resource-rich countries found in Eastern Europe, Asia and Africa, and Ayelazuno (2014) actually speaks of new extractivism in Ghana. These studies highlight the neoliberal policies implemented to promote FDI in mining. However, when it comes to extraction in African countries, scholars refer mostly to the *new development state model*. It seems most likely that neo-extractivism as a development model will continue in Latin America under conditions of commodity volatility. Nevertheless, translating neo-extractivism for the African continent is difficult. There has been no left-wing political shift (Pink tide) or a progressive movement that in Latin America also redefined human-nature relationships, on the African continent.

Acosta (2017) additionally introduced post-extractivism as the path to follow in order to overcome economic inequality and environmental degradation. The challenge, which is formulated by the term 'post-extractivism', is to rethink the capitalist economy from the perspective of *buen vivir*. Acosta (2017) proposed to overcome 'the religion of economic growth' and make room for new approaches. However, at the time he was President of the Constituent Assembly of Ecuador in 2007 and 2008, he also played a key role in shaping the character of the new Ecuadorian constitution, which anticipated a new development model for the country based on traditional indigenous principles. The vision to overcome extractivism remained unfulfilled. On the contrary, Szeman (2017) argues that extractivism is becoming the dominant paradigm of contemporary capitalism and neoliberalism at large. Additionally, Justin Parks (2021) posits that extractivism shows no signs of disappearing while "*underwriting the uneven logic of capitalist development over its longue durée*" (ibid., 353).

It is not easy to say whether a historical categorisation is adequate to catch all meanings attributed to extractivism, especially since other conceptions exist as well. For example, *urban extractivism* (mostly coined by Latin American academics) is a conception describing evolving forms of displacement and enclosure emerging from real estate speculations as well as urban rent extraction. Furthermore, Dunlap and Jakobsen (2020) recently introduced the *total extractivism* concept, understood as a "*twenty-first-century (re)turn to natural resource extraction as the motor of capitalist growth, with hyper-destructive ramifications that continues to position the Global South as the provider of raw materials in the international division of labor*" (ibid., 5). Furthermore, both authors refer to mythical conceptions such as 'World eater' or 'Leviathanic beast' to describe the global capitalist imperative, known as 'total extractivism'. In addition, from a Latin American context, Arsel et al. (2016)

introduced the term 'extractive imperative', contending that it was conducted by a number of factors as a result of the moral and political failure of neoliberalism leading to uneven economic development and doing little to reduce poverty. However, they stated that for left-leaning governments of Latin America, the extractive imperative became a challenge that could reduce poverty as well as inequality. According to Arsel et al. (2016), the extractive imperative combines three ideological positions. First is the suggestion that intensified extraction is indispensable to advancing through a (implicitly Rostowian) process of structural economic transformation. Second is the idea that such a transition away from primary commodity exports to higher value added needs to be orchestrated and, largely, executed by the state. Third is that poverty and inequality need to be addressed urgently throughout this transition and not put aside as the ultimate goal of development. While the concept of neo-extractivism is a kind of development politic, the imperative is "*an overall political zeitgeist*" that needs to take place under any circumstances ("*at all costs*") (ibid., 2). The extractive imperative manifests itself primarily through environmental and developmental policies that are simultaneously dependent on and reinforce extractive activities.

Martín (2017) criticises the understanding of extractivism mainly as a national development strategy, because it separates extractivism from the dynamics of global capitalism. Martín (2017, 26) argues, "*Extractive activities are neither disconnected from industrial production processes and technological innovations, nor are the latter disconnected from the availability of natural resources*". Furthermore, Szeman and Wenzel (2021) point out that extractivism is used increasingly more as an umbrella term, thereby losing conceptual bite, because it has become generalised and generalisable.

Therefore, to conclude, I refer to Szeman and Wenzel (2021, 12): "*The moment one adds the suffix -ism to the noun, extraction is transformed into a system or ideology, a representational and symbolic space linked to the use (and abuse) of nature-as-resource.*" Besides the beneficial perspectives the term *extractivism* offers, and the new debates emerging, for my case I refer to *extraction*. In the next part, I therefore draw attention to more recent discussions about extraction.

2.3. Circuits of extraction

The material turn, and influences by Harvey and Swyngedouw, has led to a political ecology that follows and reinterprets Marxist approaches. Essential in this regard is an understanding of capital from the point of view of its circulatory movement. Bridge (2019) suggests that ongoing and increasing extractions should be understood as an integral mode of contemporary capitalism in all its adaptations and varieties. Arboleda (2019) proposes that relations between extraction and other economic activities are organic and that there is a need for a more value-theoretical reading of extraction. Huber (2018) argues that it is important to analyse not only how value is produced, but also how it flows through economic space. In addition, understanding extraction as the circulation of capital reveals that contradictions not only emerge in production (the extractive practice), but they also arise in the processes of circulation and distribution (Harvey 1978). Arboleda (2019) therefore suggests thinking less about *spaces of extraction*, and more about *circuits of extraction*. This takes into account a relational understanding of how production, circulation, exchange and distribution come together. Martín Arboleda (2020) examines in this context the *explosion of the mine*. His *Planetary Mine* is very much a reinterpretation of the *explosion of urbanism* observed by Lefebvre, in that he exceeds the territoriality of the mine. The work is greatly influenced by Neil Brenner's (2013) 'planetary urbanisation' and the theorisation on planetary extraction by Mazen Labban (2014). Sites of extraction are connected to megacities, factories, financiers, fleets of dry-bulk carriers, technocrats, precarious migrants and industrial workers. In addition, the explosion of the mine on a planetary scale is seen in materials used in the construction of skyscrapers and the repurposing of mining technology such as the elevator shaft for urban ecosystems. Moreover, Arboleda (2020) analyses through the planetary mine the changing character of capitalism in the twenty-first century.

Arboleda (2020) rejects frameworks of resource curse, dependency theory and state imperialism scholarship, all of which focus on national economies, thus blurring – for Arboleda – the interconnections between global supply chains, sprawling urban systems and the (re)production of the mine itself. In addition, this – what he calls – *methodological nationalism* fails to connect the struggles of labour in host nations to those in manufacturing centres and beyond. He builds on the advanced Hegelian reinterpretation of Marx's conception of the world market, as outlined by Juan Iñigo Carrera (McNelly 2021). McNelly (2021) argues that in their understanding, the driving force of capitalism is the extended

reproduction of the social relation that produces value, not the pursuit of use values. In addition, and central to this analysis, is Moishe Postone (1993), who argued that capital is not an object but an alienated subject and the conception of the world market as a “*sociomaterial system organized in the form of national economies as its aliquot*” (Arboleda 2020, 20).

I emphasise these debates and believe Bridge (2009, 6) summed it up precisely: “*The hole is an essential feature of the extractive landscape, but the hole is just the start*”. Spaces of extraction, Bridge (2009) furthermore points out, extend in a rhizomatic structure that gets increasingly denser, reaching into urban networks and sustaining modern life. However, I would also follow Holtermann’s (2020) review of Martín Arboleda’s work, in which he points out that an additional beneficial perspective could be seen through the lens of temporality. In addition, Bridge (2009) highlights the temporal aspect, noting that *spaces of the hole* compress time. Resources, formed slowly underground, eject and gush to the surface – released and compressed in the time and space of modernity.

2.4. Temporalities

Usually, when thinking about a mining environment, it is interpreted as a physical landscape from which individuals or large-scale companies extract materials useful to the global economy by spatially modifying the same environment. Furthermore, Fent and Kojola (2020, 820) state that “*there has been more focus on the spatial and territorial dynamics and struggles over access and control of land*”. Edensor et al. (2020) note that, recently, human geographers have turned their attention to time and temporalities, especially concerning environmental change. In addition, Elaine Lynn-Ee Ho (2021) points out a renewed attention to temporality in social geography, for example in fields such as migration and social inequalities, as well as when it comes to human-nature relations in the past, present and future. Moreover, a temporal perspective, for Fent and Kojola (2020), includes nostalgia and future imaginaries around resources, as well as temporality in capital accumulation and environmental mitigation. In addition, D’Angelo and Pijpers (2018) discuss extraction from a temporal perspective, contending that one should understand the mine as a set of multiple temporal processes – as *mining temporalities*. Moreover, extractive landscapes are temporal landscapes, i.e. spatial materialisations of time. The concept of time in these concepts is much influenced by Adam (1998), who draws attention to nonlinear temporal dimensions of social life and the non-reversibility of ecological processes. In Adam’s work *Timescapes of modernity* (1998), he is concerned that *industrial*

time that created environmental degradation and hazards is used to solve the same problems it creates. What D'Angelo and Pijpers (2018) develop further is an understanding of resources as plural temporalities, such as the long-term environmental implications of mining activities, imaginaries centred on short-term and accelerated temporalities or extraction that aims to appropriate the millennial work done by the non-human component of the environment. D'Angelo and Pijpers (2018, 2) therefore interpret resources as time that has been materialised or is being materialised, and they also posit that extracting resources means "*extracting a multitude of non-human temporalities that have materialized in specific forms*".

Of course, geography has introduced concepts such as the *spatio-temporal fix* as a response to the spatial turn. Also, by building on *time-space compression* (see David Harvey (1990)), the importance of combining time and space has been addressed. Besides, Hägerstrand introduced time geography in 1985. Nevertheless, Lorenzo D'Angelo and Robert Pijpers (2018) criticise the dominance of *spatialised thinking*, especially in studies about extraction projects and struggles over land. In addition, Holtermann (2020), in his review of Arbolada's work '*Planetary Mine*', points out that an additional beneficial perspective could be through the lenses of temporality. Moreover, on the question "*when the particular space becomes a component part of the planetary mine*" (Holtermann 2020, 11). Harvey and Knox (2014, 13) point out that objects such as resources are the "*crystallisations of histories, projections into the future, powerful forbears of that which is to come and painful reminders of that which has been*". Therefore, following Lewis and May (2020), it is not *spatial* or *temporal*, but we need to pay attention to how materiality and temporality are interwoven.

The *mining encounters* (Pijpers and Eriksen 2019) framework highlights emerging frictions in the context of resource extraction projects as a result of accelerated change: the urgent need for resources to fuel the engine of economic growth, the rapid extraction of materials that have evolved over unimaginable eons (D'Angelo (2019) defines this as *deep time* of resources), strict agendas of states or companies, local livelihoods with their own temporalities as well as slow or rapid ecological changes. Pijpers and Eriksen (2019) draw attention to further aspects, such as developments in the market price, the influence of the seasons or competing resources. Leonard (2016) highlights in the context of oil production in Chad that the government's plans to provide infrastructure for managing oil revenues did not match with the speed with which the oil industry developed its facilities. In another context, Sandlos and Keeling (2016) introduce the concept of "*slow violence*," referring to pollution and contamination caused by extraction projects. Due to all these aspects, for

Pijers and Eriksen (2019), struggles over land and resources are diverging processes of acceleration and deceleration.

In addition, political strategies from a temporal perspective provide beneficial inputs. In political conflicts, time can be used strategically, and control over time is a medium of hierarchic power and governance (Munn 1992). Nonetheless, activists as well as corporations also often work to delay mining developments (see Chapter 6.1) by mobilising the politics of time to their advantage (Kirsch 2014). Fent (2020), for example, takes a closer look at local actors opposing a mining project in Senegal, where activists intervene to produce delays. For corporations on the search for fast money or with huge investments, such delays can be disruptive. Governments or companies can use time to distance extractive practices from potential environmental pollution (Kojola 2020). Mining companies can make use of time to delay recognition of their environmental impacts (Kirsch 2014). Also, when it comes to negotiating in cases of friction, cultivating a sense of public trust and security is a temporal process. Szolucha (2018) states that *“Extraction is a process in which time and temporality are as important as the very materiality of the resource for determining its value and creating wealth for some while depriving others.”* Similarly, Kesselring (2018) shows in his studies about a smelter road in Zambia that even when plans are still uncertain, they may already affect social behaviours, and actors may start to act in anticipation of future events. In addition, Childs and Hearn (2017) argue that the analysis of political imaginaries can strengthen the study of (neo-)extractivism and how legitimisation takes place.

3. Methodology

In order to answer the research question, I used several methods typical for political ecology studies. The document analysis and archive work provide details on the historical context and *becoming* of bauxite between 1914 and up to 2017. The document analysis and qualitative fieldwork helped me to contextualise the current dispute during the first term of the Akufo-Addo presidency, running from 2018 until 2020. Data was collected throughout three fieldtrips, in March 2018, March 2019 and March 2020. The fieldtrip in 2018 was used as an exploratory phase, by getting in contact with NGOs such as *A Rocha Ghana* as well as visiting the Atewa Range and doing archive work to understand the history and political context of bauxite mining. In March 2019 and March 2020, most of the interviews and document analyses were finished. However, due to the Covid-19 outbreak, I had to curtail it a bit earlier than planned.

During my fieldtrips, no bauxite mining was taking place at Atewa Forest. Therefore, it was not necessary to ask the local population about their concerns or any environmental problems they might perceive. As political ecology analyses power, more emphasis was placed on investigating the social movement as well as the government's decisions. The focus was therefore on *who* – and *how* – actors craft narratives which in turn evoke certain reactions and vice versa.

3.1. Interviews and informal interviewing

Informal interviews are unstructured, and according to Bernard (2006) they are also framed in social science as *unstructured interviewing* and *ethnographic interviewing*. Burgess (1984, 102) refers to this method as "*conversations with a purpose*". In addition, Swain and Spire (2020) highlight that informal interviews provide opportunities to add *context* and *authenticity* to other collected data. However, this method is also commonly used to gain trust and set up relationships with involved actors. Since my research object is a conflict of interests, I used this method to enter the field and get to know actors as well as the conflict arena. With several questions already in mind, as well as background information collected beforehand, I could develop questions afterwards for a formal interview. The following is a summary of the actors or institutions considered (see table 2). However, because the issue is very sensitive, I only refer to their position or institutions and avoid actual names as much as possible.

Table 2 Overview of interviewed Actors / Institutions

Actor/Institution	Function
Minerals Commission	<p>Responsible for the regulation and management of Ghana's mineral resources, as well as developing and coordinating mineral sector policy.</p> <p>Responsible for the implementation activities of the Ministry of Land and Natural Resources.</p>
Forestry Commission	<p>Responsible for regulating the utilisation of forest and wildlife resources, conservation and management.</p> <p>Responsible for the implementation activities of the Ministry of Land and Natural Resources.</p>
Ministry of Land and Natural Resources	Policy formulating, coordinating, monitoring and evaluation organisation. Responsible for all land resources in Ghana.
Ministry of Environment, Science, Technology and Innovation	Responsible for the development of the environment & science in the country.
Environment Protection Agency (EPA)	<p>Agency under the Ministry of Environment, Science, Technology and Innovation.</p> <p>Responsible for overseeing implementation of the National Environment Policy.</p>
Ghana Geological Survey Authority	Responsible for the implementation of activities of the Ministry of Land and Natural Resources.
A Rocha Ghana	National office of the international NGO A Rocha; an environmental NGO with a Christian ethos.
A Rocha Ghana, local office at Kibi	Local office of A Rocha Ghana.
Concerned Citizens of Atewa Landscape	Local civil group, which consists of several other groups, such as youth groups, inter-faith groups, farmer-based associations, opinion leaders and community leaders from the Atewa region.
VALCO Aluminium Company	Ghana's only aluminium company based in Tema and owned by the government.

I conducted an interview with a representative of *A Rocha Ghana* at the organisation's head office in Accra. Furthermore, I conducted two informal interviews with representative of the local *A Rocha Ghana* office at Kibi. In addition, I did a walking interview (or a go-along interview) with members of the *Forestry Commission* at their local office in Keybi through the Atewa Forest Reserve (almost a 3-hour hike). A go-along interview is often used for understanding and engaging in participatory research. It allows observation while walking through the area and is characterised by a more free-flowing dialogue, moving from topic to topic. Beside the interview with some individuals from the civil group *Concerned Citizens of Atewa Landscape*, I also conducted a group interview. Additionally, I participated in a meeting of the *Concerned Citizens of Atewa Landscape* as an observer. Finally, I considered to interview Dr. Jesse Sey Ayivor from the University of Ghana (Legon), who is an expert in nature conservation and local livelihood conflicts in Ghana and an important author about environmental changes in Atewa Forest.

In addition, Dr. Ayivor, *A Rocha Ghana*, the *Geological Survey Authority*, the *Mineral Commission* and *VALCO* provided me with additional documents; I shall elaborate later on their analysis. Furthermore, I was in contact with groups that either had no time for a conversation or transferred me to other contacts, including *Friends of the Earth Ghana*, The Office of the Vice-President of Ghana, *Ghana Integrated Aluminium Development Corporation* (GIADEC) and several individuals who I contacted because of their engagement in writing as journalists or commenting as economists as well as politicians on the case. Following the political ecology approach formulated by Schmidt (2013), I identified the key actors and their relations through actor mapping.

3.2. Document analysis

An additional method included the collection and interpretation of documents and statements from NGOs, the government or responsible ministries. Furthermore, I collected data and documents about the history of bauxite mining in Ghana, to frame my research within the political as well as the historical context. Therefore, I did some archive work at the University of Ghana, Legon. While the archive work was not an essential part of the results of my research, I considered it important to have a historical background, in order to understand the politicisation of the resource bauxite. I conducted archive work in March 2018 and in March 2019, thereby providing me with a stringent and coherent overview of bauxite mining in the country from the very beginning until 2019. Finally, the archive work helped me gain a fundamental understanding of the historical context.

Certain documents I received were not publicly available at that time. For example, in relation to documents for the *Sinohydro deal*, the Appendix included infrastructural projects and costs. In addition, with a copy of the *Ghana Integrated Aluminum Development Corporation Act*, both documents provided crucial inside information on financial structures. This is an important part of Chapter 6.3 when it comes to the links between bauxite mining at Atewa and the *Sinohydro deal*.

Documents contain words that have been recorded without a researcher's intervention. Atkinson and Coffey (2011) refer to documents as *social facts*, which are produced, shared and used in socially organised ways. In addition, Bowen (2009, 31), points out that they are stable, "*non-reactive*" data sources that enable the researcher to read and review them multiple times while they remain unchanged by the researcher's influence or research process. Document analysis helps in a variety of ways as part of a research undertaking. In my case, it (a) provided data on the context within which research participants operate, (b) helped generate new interview questions, (c) provided supplementary research data and (d) offered a means of tracking change and development.

However, documents do not provide all of the necessary information required to answer research questions. In addition, especially policy documents are written with a certain purpose and are never neutral. When using policy statements or speeches by the president, the very subjective language and arguments used were important factors in understanding the underlying narrative of the government, for example. According to Carreon and Svetanant (2017), political speeches or statements can be considered primary means of influencing others. Furthermore, these speeches can provide insights into how ideas and beliefs are revealed in argumentative contexts. Speeches are used to convince and transform or deepen a particular phenomenon (Al-Majali 2015). Especially when looking at the conflict surrounding bauxite mining at Atewa Forest, I consider it important to understand what arguments the government uses in public to justify its policy to develop the territory (see Chapter 6.2).

3.3. Concluding thoughts on the methodology

The conflict became more critical and gained public attention when Ghana and China signed a Memorandum of Understanding in June 2018. Around that time, I started with my research and embarked on the first fieldtrip back in March 2018. Since then, I have not only undertaken interviews during additional fieldtrips, but I have also collected

secondary data, such as policy documents as well as media reports, and analysed speeches/statements. I covered the conflict for three years until April 2020. Fieldtrips in March 2018, March 2019 and March 2020 helped acquire further information about the conflict and involved actors. These methods were used simultaneously to collect data and information about the conflict surrounding bauxite mining at Atewa Forest, in order to contextualise it. Nevertheless, it was a challenging undertaking to observe a conflict that is still ongoing.

Finally, I wish to point out the issue of sensitivity in terms of the conflict. While Ghana is a country with a free press and free speech, a local NGO fighting the government is naturally a sensitive subject. According to Lee (1993), the sensitivity of a research is defined by its threats, and conflicts between powerless groups and powerful organisations, or the government, are characterised by political threats. However, this is a highly dynamic – and yet very organised – process. When, for example, activists meet and discuss their strategies and future plans, they normally do this in a safe space. However, by participating in group discussions, in the sense of Spencer (1973, 93), I was “[...] a relatively uncontrollable element in an otherwise highly controlled system,” since a participant may reveal information that is unfavourable. This led to some restrictions and challenges for my research. As already mentioned, the initial challenge was whether or not to reveal the purpose and details about my research. In addition to the described issues with interview partners, this also related to entering the actually geographical *field*, namely Atewa Forest Reserve. Since there was no definitive source information about current bauxite mining or activities around and in the forest, I used observations in order to gain some insights. However, it is necessary to have permission from the Forestry Commission in order to go into a forest reserve. Also sensitive was the issue of finding information about current developments or discussions, which were not meant to be publicly known. Beside the president Akufo-Addo, no actual names were used in the papers, only the organisation/institution and in some case the position of that person. While it may in some way be possible to find names by searching NGOs’ websites, I nonetheless decided to keep the interviews anonymous.

4. Focus area and the bauxite resource

Bauxite, an aluminum ore found mainly in a belt north and south of the equator, is the most important raw material in the production of aluminum. In the tropics, bauxite is stored in horizontal layers a few meters below the surface of the earth. These layers are mixed with different clay minerals, iron oxides and titanium oxides and must first be washed out for further processing (see figure 1). Bauxite deposits are usually covered by tropical forest, which implies that the forest needs to be logged completely if open pit mines are to be built (Schep et al. 2016). Like most extractive industries, bauxite mining – usually in the form of opencast mines – has significant effects on the natural environment, such as the degradation of or severe disruption to local wildlife and rivers. Bauxite is heated in a sodium hydroxide solution, and an iron-rich residue (red mud) is then filtered. Aluminum oxide (alumina) remaining after this so-called *Bayer process* is smelted at about 1000°C and reduced down to metallic aluminum (Knierzinger 2016). About 4-7 metric tons of bauxite running through the Bayer process will produce two metric tons of alumina through the Hall–Héroult electrolytic smelting process, and then one metric ton of aluminium (Acheampong and Mensah 2018). Aluminium production is a highly energy-intensive industrial process.

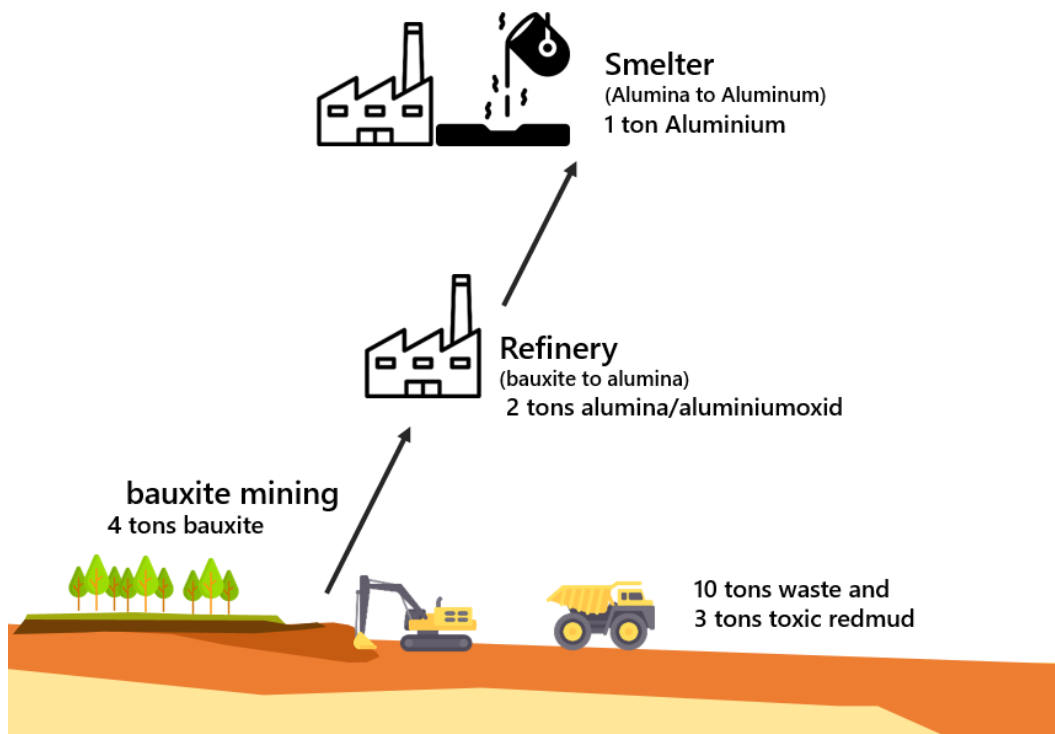


Figure 1 Value chain of the integrated bauxite-aluminium industry

One of the by-products of refining bauxite into alumina is *red-mud* (Ingulstad et al. 2013). Alkaline constituents in this material pose severe and alarming environmental problems, e.g. soil or water pollution (Rai et al. 2017). According to Ingulstad et al. (2013), the mining process generates 10 tons of waste rock and 3 tons of toxic red mud in order to produce 1 ton of aluminium. Refineries are located close to the bauxite mine, or the nearest harbour, where the alumina can be easily shipped to aluminium production plants. In Ghana, refineries are placed near the mines, thereby increasing environmental risks.

The states of Guinea, Ghana and Sierra Leone are home to the most important bauxite mining areas in Africa. In 2014, Guinea, the fourth largest producer in the world, produced 17.3 million tons of bauxite, Sierra Leone 1.16 million tons and Ghana about 837,000 tons (USGS 2016). In the public debate, especially in the news and information provided by the government, the bauxite reserves for Ghana are commonly estimated at 960 million metric tons, according to the US Geological Service (USGS). Furthermore, columnist Amodani (2018) reports 960 million metric tons of bauxite reserves at Atewa Forest alone, referring to USGS. However, when I got in contact with USGS, I was told that their data came from a news article, which quoted an economic adviser for Ghanaian Vice President Mahamudu Bawumia. The origin of the data thus remains unclear. Therefore, when working with this number, it is important to keep in mind that USGS only quoted a governmental advisor. The United Nations Economic and Social Council (1980) identified 580 millions of tons for Ghana. However, the *Ghana Integrated Bauxite and Aluminium Development Authority Bill* (Parliament of Ghana 2018) refers to 900 million tons. Compared to other data about bauxite reserves in Ghana, it is the highest number and used to calculate potential benefits. However, these numbers are quite vague. Similarly, when it comes to the question about how many tons of bauxite sit beneath the surface of the Atewa Forest, according to Schep et al. (2016), the Atewa Range hosts the second largest bauxite deposit in Ghana. The range of hills on which the bauxite occurs consists of flat or nearly flat-topped hills stretching 14.5 km from Apinamang in the west to Kyebi in the east. Depending on the source that is used, the numbers on possible reserves vary. The following table 3 shows an overview of the various data that can be found.

Table 3 Overview of different source concerning bauxite reserves at the Atewa Range

Source	Bauxite reserves at Atewa Forest (in million tons)
Patterson (1967)	60
Michell (1972)	120
International Bauxite Association (1977)	241
Kesse (1984)	166
United Nations Economic and Social Council (1980)	120
McEldowney Roland (2003)	132

The Atewa Range (see figure 2) is an ecologically important forest reserve (17,400 hectares) established in 1926, since then Ghana has lost roughly 80% of its forested habitat (Clever 1992). Ownership of the reserve is vested in the President of Ghana, while the entire reserve falls within the jurisdiction of the Akyem Abuakwa Traditional Area (McCullough et al. 2007). The head of this area is known as *Okyenhene*, i.e. the title of the king of Akyem Abuakwa, an ancient kingdom in the eastern region of the country (with the capital Kyebi or also written Kibi). The chieftaincy is officially accepted in Ghana, and politicians ask chiefs/kings for their advice, because usually they are closer to the people. Chiefs in Ghana are traditional and powerful heads of a community, and their role was further strengthened in the 1992 Constitution of the Fourth Republic. Chiefs' main functions include dispute settlement, the codification of customary law, the organisation of rituals, ceremonies and festivals, custody of land, the organisation of communal labour and the promotion of socioeconomic development. Their responsibilities thus include both statutory and non-statutory aspects, such as promoting development (Kleist 2011).

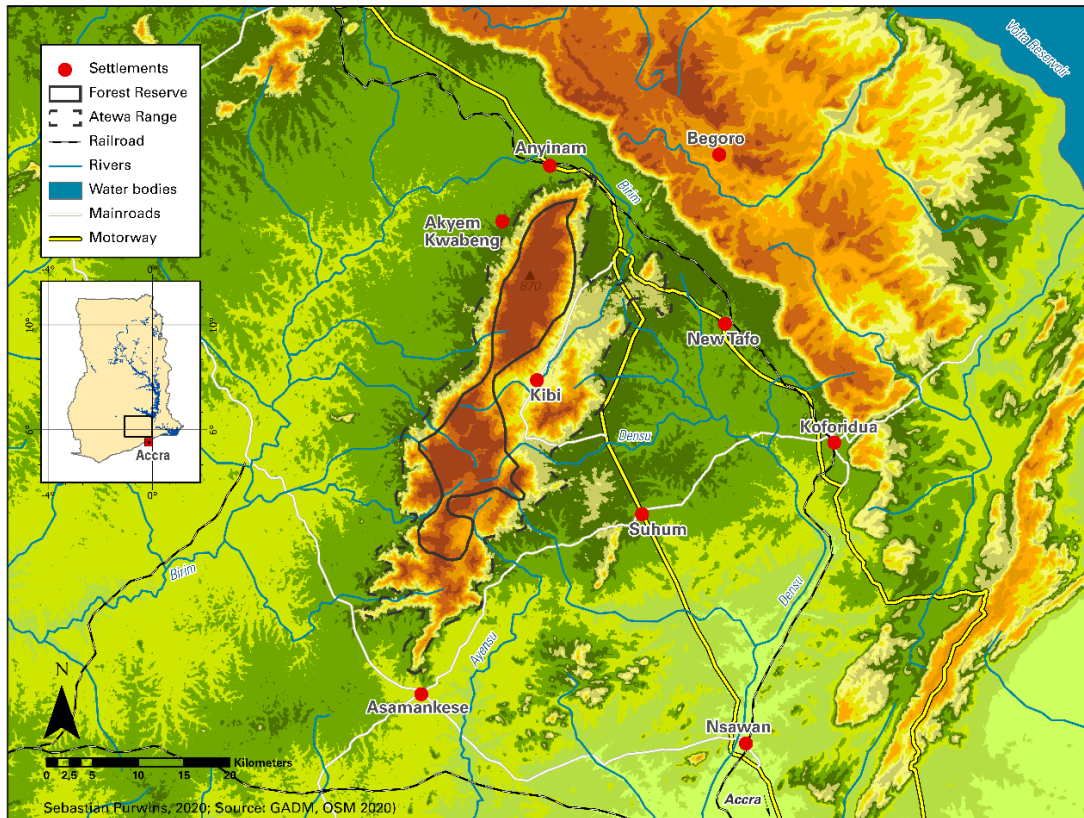


Figure 2 Focus Area: Atewa Forest Reserve, Ghana

Since the area is declared as a forest reserve, some communal rights are granted: farming within the reserve (admitted farms), collecting forest products (including building materials, canes, vines, ropes, pestles, palm trees, snails, mushrooms, chewing sticks, medicinal plants, game and wildlife), receiving a share in timber royalties resulting from forestry on privately owned land, accessing sacred places, establishing hunting camps and washing for gold (McCullough et al. 2007). The Atewa Range represents some of the highest forest-covered hills in Ghana (along with the hills of the Southern Scarp and the Nyinahin Range; (Swaine and Hall 1977), peaks at 842 m and runs from north to south. It is characterised by a series of plateaus, which are remnants of a tertiary peneplain (McCullough et al. 2007). Vegetation across the mountain range is very diverse with elements of upland evergreen forest; in addition, the forest is an important watershed from where three important rivers, namely the Densu, Ayensu and Birim, take their sources. Atewa Range Forest Reserve is not only recognised as a watershed, but it is also known to constitute the largest and most intact patch of upland evergreen forest in Ghana (Ayivor and Gordon 2012). The reserve is only one of two in the country with upland evergreen forest (Hall and Swaine, 1981; Abu-Juam et al., 2003). Due to its uniqueness, it has changed status over the years as a special biological protection area in 1994, a hill sanctuary in 1995

and as one of Ghana's 30 globally significant biodiversity areas (GSBAs) in 1999. In 2001, *BirdLife International* listed Atewa as an 'important bird area' (IBA) (Abu-Juam et al., 2003; McCullough et al. 2007). According to Schep et al. (2016) around the forest reserve, there are ecological risks due to legal and illegal gold-mining activities. While gold concessions lie outside of the reserve, there are emerging concerns about small-scale operations (*galamsey*) within the forest. Such small-scale activities can be permitted as part of larger gold concessions, or they are illegal. However, there is little information on this topic, because observation is difficult and minor operations are not always recorded. In addition, intensive farming and illegal logging cause further problems with erosion (Ayivor and Gordon 2012). The Atewa Forest Reserve is therefore exposed to several stressors, such as small-scale illegal gold mining and illegal logging activities. Nevertheless, the possible bauxite deposits are in the high peaks of the forest reserve, and so their mining would cause deforestation and erosion on a large scale. Figure 3 provides an overview of bauxite explorations in 2019 and highlights possible mining sites.

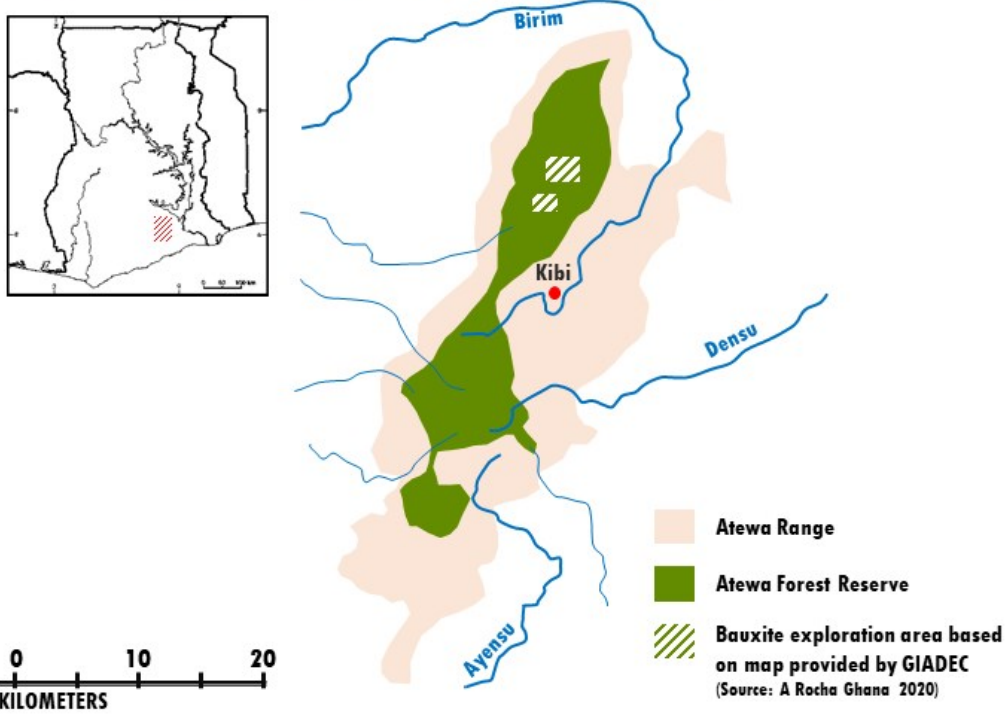
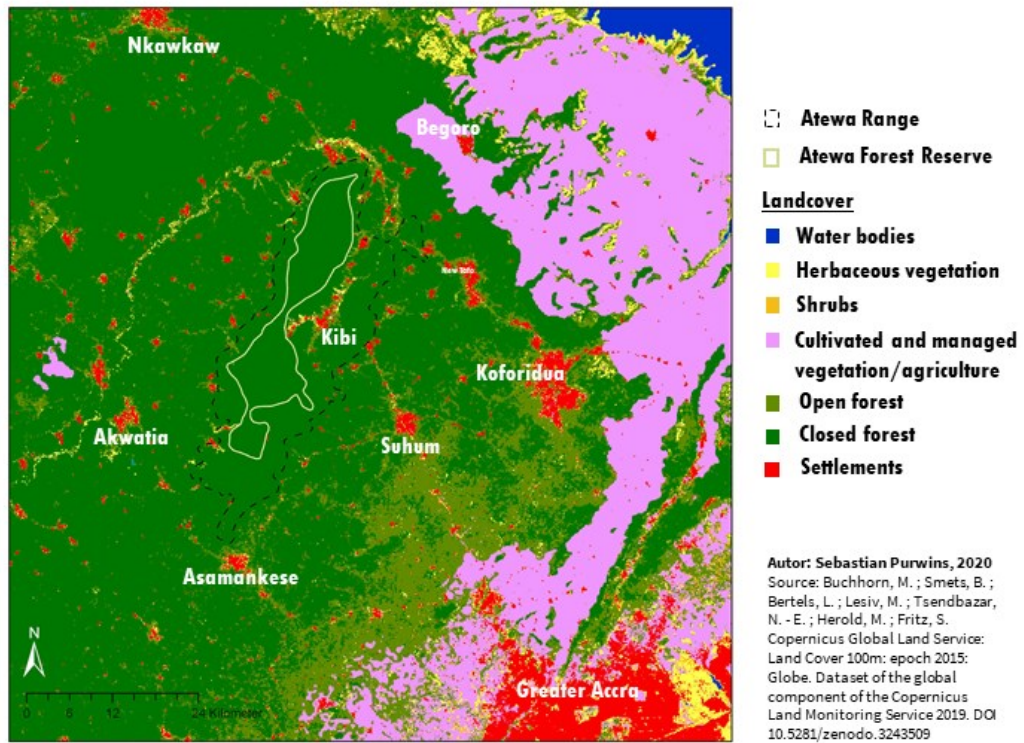


Figure 3 Focus area, the Atewa Forest Reserve; above, a map illustrating land cover, and below a map with bauxite explorations.

5. The (re-) discovery of Ghana's bauxite

Ingulstad et al. (2013) suggest that scholars have largely neglected bauxite as a resource, when analysing the aluminium value chain, being more concentrated on the end product aluminium. In addition, Knierzinger (2018, 14), who studied Guinea's bauxite sector, notes that "*detailed information on bauxite mines in Africa is scarce.*" Gendrom et al. (2013) deal in their anthology *Aluminium Ore – The Political Economy of the Global Bauxite Industry* with several aspects of the resource on a global scale. Nevertheless, when it comes to Ghana, most of the literature is focused on the Volta River Project, which includes the development of the integrated bauxite-aluminium industry (Moos 1948; Davison 1954; Hilton 1966; Hart 1977; Metzmeier 1989; Miescher and Tsikata 2009; Hove 2013; Perchard 2013; Miescher 2014; Amankwah-Amoah and Osabutey 2018; Whitfield 2018). A perspective on Ghana's bauxite sector, linking historical development with the current dynamics, is indeed scarce, presumably because bauxite seems to have played no significant role until recently.

5.1. Of the highest imperial importance

Bauxite has always been used to make beads and ornaments; however, in 1914, Sir Albert Kitson was the first European to discover this raw material in a British colony, namely the Gold Coast. Kitson (1925) made his discovery on a mountain on the Kwahu Plateau, while further deposits were unearthed through a geological survey at and near the summit of Mt. Ejuanema on the Kwahu Plateau, two miles to the west of Mpraeso and about one mile to the south of Obomen. In the *Annual Report of the Colonial Office of the Gold Coast Colony* (Colonial Reports 1917, 48), Kitson's discovery was declared "*to be of the highest Imperial importance*". During the following years, Kitson was travelling along the Volta River and noted that it flowed through a gorge and into a large region surrounded by hills. The finding of bauxite and the possible site for a dam became the starting point for an integrated bauxite-aluminium industry, especially since a lot of energy is needed to produce alumina (Hart 1977). Kitson first made this idea public at the First World Power Conference in 1924 by presenting the paper *The possible source of power for industrial purpose in the Gold Coast, British West Africa* (Kitson 1925). This paper and another publication, which was printed one year later (Kitson 1925), promoted the idea that processing bauxite and the construction of a dam were inextricably linked. Kitson discussed not only the idea of exporting bauxite in a crude state, but also the possibility of using hydroelectricity for mines and other industries, as well as railways. The scheme not only embraced the

construction of a system of railways and roads to interconnect the principal elements of the project with existing towns and communications, but it also included the creation of an entirely new port to support the aluminium industry (Special Correspondent 1956). Between 1915 and 1921, Kitson relentlessly pursued, together with the Colonial Office, the notion of expanding the plans for bauxite mining and, in combination with a dam, constructing a fully integrated primary aluminium operation. The discovery came at a time when aluminum was an important raw material for the production of aircraft for the British Empire (Perchard 2013). However, the colonial government did not have the necessary resources to support Kitson's plan to build an aluminum industry.

After World War I, the *British and Colonial Bauxite Company* was formed and finally registered in 1927. The company was a subsidiary of the *British Aluminum Company* (BACo), along with two other subsidiaries: the *Aluminum Company Ltd.* and the *Gold Coast Bauxite Company Ltd.* (Moos 1948). In 1928, BACo sought and was granted all mining rights around Awaso, but it did not start to develop any mines. The company had to renew its licences in 1931. Two years later, in 1933, BACo established its subsidiary, the *Gold Coast Bauxite Company*. In the 1930s, bauxite began to rival gold in terms of economic importance in the Gold Coast (Graham 1982). However, the company again did not develop any bauxite mines until the British Ministry of Aircraft Production instructed it to do so in 1940 (Perchard 2013). Around 1940, a few additional players held concessions on bauxite in the Gold Coast; among them: *Aluminium Ltd. of Canada* (Alcan), the *West African Electrical Development Company*, *Reynolds Metals* and *West Africa Aluminium*. However, at that time, the British government remained hostile to foreign capital. Furthermore, neither BACo nor Alcan were immediately keen to develop an integrated aluminium industry in the Gold Coast colony (Graham 1982). In 1941, with direct assistance from the British government, BACo started mining bauxite at Awaso, sending the material to its alumina plant in Burntisland (Scotland) (Barcewell 1962). The rise of the bauxite industry on the Gold Coast was the direct result of the urgent call of the British aircraft industry for more aluminium in 1942 and 1943. During World War II, Britain rapidly expanded its exploitation of Ghana's bauxite. During 1941-42, 6,300 tons of bauxite were produced, in 1942-43, 55,000 tons and in 1943-44, 147,500 tons (Graft Johnson 1955, 9).

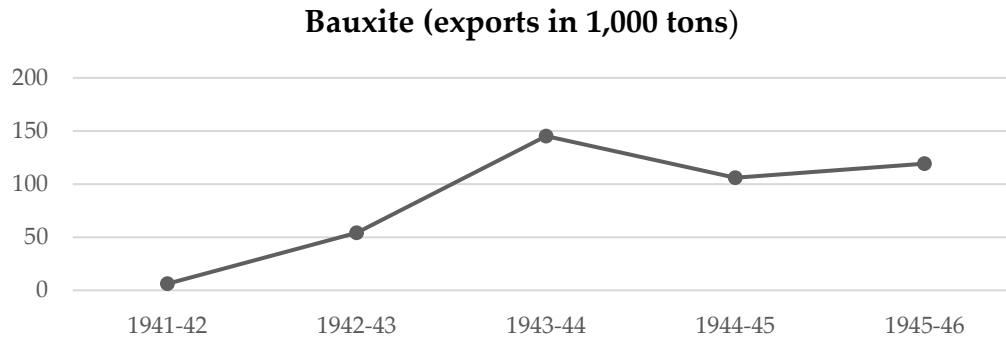


Figure 4 Bauxite exports (in 1,000 tons) from the Gold Coast between 1941 and 1946.

(Sources from Archive Work at University Library Accra.)

The Gold Coast bauxite industry owed its emergence almost entirely to the Second World War. However, high mining costs and the long railway to the port made the operation somewhat unattractive. A further problem for shipping bauxite from West Africa during WWII was that it had to be shipped through a U-boat operating area (Perchard 2013). Britain's prime supplier during the war became the northeast coast of South America (Dumett 1985).

5.2. Changing players after WW II

During 1940 and 1950, the Volta River Project became a vast development scheme, which involved the Gold Coast colonial government, the British government as well as the Commonwealth aluminium companies Alcan and BACo (Hove 2013). By May 1946, cheap Canadian aluminium influenced the competitiveness of BACo and could have made the Volta River Project uncompetitive. However, two events changed the seemingly hopeless prospects of the Volta River Project: (1) In July 1946, the Canadian government revalued its dollar currency and (2) Alcan became interested in the scheme (Hove 2013). In 1947, Alcan secured bauxite concessions in the Gold Coast. At this point, both the post-war shortage of aluminium and Britain's pound sterling crisis made it more interesting for the British government to have Alcan, as a forex source, on board. The development of an integrated bauxite-aluminium industry fitted well with the plans of the British government to develop the colonies, and therefore the companies could rely on funds that would finance development programmes (ibid.). While Britain was ready to develop the Volta River Project, it was the colonial government that disagreed on the responsibility for its management. Initially, the colonial government claimed responsibility for any aluminium project taking place in the colony, while the British Treasury argued that the scheme was

not a colonial matter but rather for colonial development. However, this dispute showed how Britain appropriated the project and intended to control it (ibid.). In 1948, the *British and Colonial Bauxite Company* sold all of its leases to the *Plantation Bauxite Company*, which was owned and controlled by Alcan. They originally retained a major shareholding, but it was subsequently sold when the *British and Colonial Bauxite Company* went into liquidation in 1957-58 (Perchard 2013).

5.3. The Volta River Project and Ghana's independence

In February 1951, the *Convention People's Party* (CPP) won the first majority election in the Gold Coast. Kwame Nkrumah, leader of the CPP, became head of the first African government under British rule (Miescher 2014). The new government not only adopted the British 'Ten-Year Plan for the Economic and Social Development of the Gold Coast, 1951' with several additions, but it also had the ambition to implement it in five years instead of ten (Ewusi 1973). At that time, according to the 1960 census, Ghana had a population of 6.7 million and an annual population growth rate of 2.5 to 3.0, thus making it one of the most densely populated countries in Africa and one of the most rapidly growing nations (in terms of population) in the world (Hart 1977). Cocoa exports accounted for 60-70 million dollars of Ghana's total exports, making it the world's leading producer of cocoa and highly dependent on the crop (ibid.).

The Volta River Project performed an increasingly more strategic role in the five-year modernisation programme that promised rapid industrialisation and the reduction of the country's dependence on cocoa exports. According to Biney (2011), it was essential for leaders such as Nkrumah in the postcolonial environment to demonstrate competence, confidence and innovativeness. While there had been a shortage of aluminium production in 1952, there was a surplus by 1956 (Birmingham and Omaboe 1966). The parties interested in the Volta River Project were now prepared to get involved only on very favourable terms. The British government wanted financial support from the World Bank, while Alcan claimed it needed cheap electricity (Moxon 1969). However, neither international actor was very keen to see the development of an integrated aluminium industry in what was soon to become an independent nation (Hart 1977).

In 1953, the government established the *Volta River Preparatory Commission*, under Commander Jackson, with the aim of harnessing the power of the Volta for development (GhanaWeb 2014). British architects planned a new harbour and the village Tema with the

aim of relocating its population. Ninety per cent of the power generated at Ajena would be transmitted to a site near Kpong, where an alumina plant would transform bauxite through a chemical process into alumina. A smelter would then further convert alumina through electrolysis into aluminium (see figure 5). The two factories would employ 15,000 people. Costs were estimated at 130 million pounds. The British government would provide 80 million and Alcan and BACo the rest. The Ghanaian government would own and operate the power plant, railways, electricity grid and the Tema port, while the aluminium companies would hold mining rights, run factories and build the factory town of Kpong (Special Correspondent 1956). Kpong was chosen because of its proximity to an ample source of fresh water and to an existing source of labour. The creation of this new industry was calculated to result in the growth of a new town of some 50,000 inhabitants (Special Correspondent 1956). Furthermore, new railway lines connecting the bauxite mines with Kpong and the new harbour at Tema were planned (Miescher 2014), while cheap electricity, delivered to southern cities, would stimulate industrial growth and serve a domestic use. The dam at Akosombo, the New Village and New Town of Tema were keystone interventions for the massive resettlement of approximately 80,000 Ghanaians, which was undertaken between 1956 and 1969 (d'Auria and de'Meulder 2010).

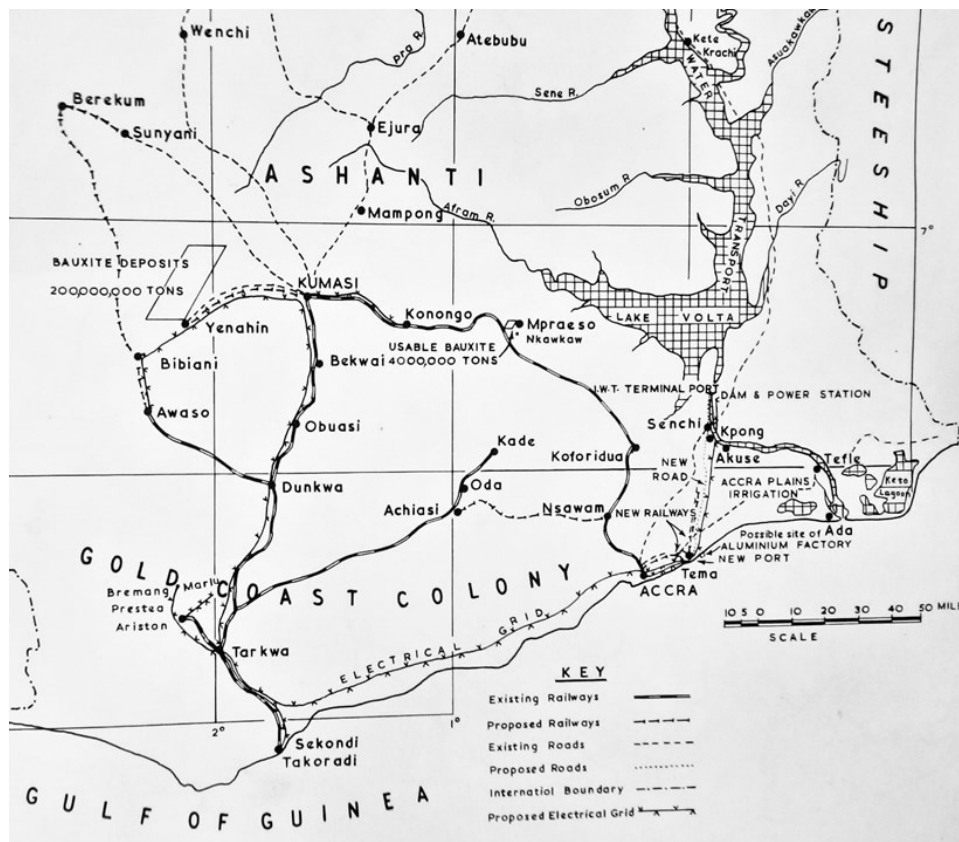


Figure 5 The 'Volta River Aluminium Scheme' for the Gold Coast. (Special Correspondent 1956)

5.4. After independence

In 1957, political independence from British rule generated unprecedented enthusiasm, which promised to satisfy the need for accelerated development (Amankwah-Amoah and Osabutey 2018). However, the aluminium market was oversaturated, and BACo was forced to drop out in 1956 because of capital overdrafts (Hove 2013). In 1958, *Reynold* and *UK Tube Investment* took over BACo (King 2001). Meanwhile, the U.S. government saw a great opportunity in the *Volta River Project* to have more influence in Africa, especially because of President Truman's development programme, which was shaped by modernisation theory and was a response to communist influence on other continents (Cullather 2002; Ekbladh 2011). After Eisenhower and Nkrumah agreed on private U.S. funding, *Kaiser Engineers* (part of the U.S. *Kaiser Industries*) proposed a scaled-down version of the *Volta River Project*, including the construction of the Akosombo Dam and an aluminium smelter in Tema in 1959. *Kaiser Aluminum* formed a consortium with four other companies and created the *Volta River Aluminium Company* (VALCO) to run Ghana's smelter in 1959. After some difficulties with *Kaiser*, the U.S. government and the political opposition (both in Ghana and in the United States), the project was on the verge of collapse (Miescher 2014). *Kaiser Engineers* initially planned to produce aluminium out of Ghanaian bauxite; however, it postponed the idea of an integrated aluminium industry. *Kaiser* presented an unrealistic financial plan and was not able to provide funds for the construction of the dam, either (Knierzinger 2018). As John F. Kennedy came to office, he changed U.S. policy and was more accommodating in terms of the Third World neutralism in the Cold War conflict. In February 1961, funding was lined up with loans from the World Bank (47 million dollars), from the U.S. government (37 million dollars) and the British government (14 million dollars) (Mahoney 1983). In the same year, the Italian consortium *Impregilo*, which had just completed the Kariba Dam (between Zimbabwe and Zambia), won the contract and carried out the dredging of the riverbed and dewatering of the channel. In addition, the Ghanaian government established the *Volta River Authority* (VRA) through the passage of the Volta River Development Act. The VRA's primary task was to manage the development of the Volta River Basin. The dam was built between 1961 and 1965 (Whitfield 2018). However, in his ambition to see the project become reality, Nkrumah accepted a suboptimal deal: despite very definite reports about the acceptability of Ghana's bauxite, *Kaiser* and Alcan agreed that the smelter should use imported alumina. In addition, the companies acquired electricity well below the rate that would make the dam profitable (Hart 1977). And so, by 1966, the country was massively in debt (Whitfield 2018).

The *Gold Coast Bauxite Company* changed its name to *Ghana Bauxite Company* in 1962 and became a joint venture with the Ghanaian government in 1974 with a 55% holding (Perchard 2013; Asamoah 2014).

5.5. Difficulties and the end of Nkrumah's vision

In 1961, construction of the dam began before any steps towards resettlement had been taken. Under pressure due to a revised timetable, the VRA took over the task of resettling about 70,000 people within a brief period of only two and a half years. The migration of people from villages scheduled for flooding (by the Volta Lake) into new areas was initiated in August 1963. In all, 10,000 people chose to resettle themselves (Miescher and Tsikata 2009; Amankwah-Amoah and Osabutey 2018). The Akosombo resettlement programme failed to fulfil the promises made by the planners; however, Nkrumah was convinced that it was the right policy to produce more energy in order to transform Ghana into a modernised and industrialised country, and therefore he relied strongly on the construction of large dams. Meanwhile, the development of an integrated bauxite-aluminium industry fell into the background. While Nkrumah was still negotiating with *Kaiser Industries* and the U.S. government on securing funding for Akosombo, he continued to pursue the Bui Dam project. He regarded dams as a necessary means to induce Ghana's shift from a *traditional* to a *modern* nation, and at the same time, he tried to balance the country's position in the Cold War as well as relationships with the East and West. After negotiating with the USA, Nkrumah entered into an agreement with the Soviet Union for technical cooperation in the Bui Dam project. In 1965, the VRA recognised the technical feasibility of the projects but called into question the high costs associated the power site. However, Akosombo would provide enough energy, and Kpong would be a more economical and reliable site (Miescher and Tsikata 2009; Hausermann 2018). Despite this comment made the VRA, the government of Ghana decided to initiate an immediate start on the Bui Dam project. Miescher and Tsikata (2009) argue that this decision completely ignored the financial situation and power needs of the country. Moreover, it ignored Ghana's agreement with the World Bank, i.e. not to fund any additional major power projects. Nkrumah pointed out that the dams were not just for Ghana's benefit, and he expressed his willingness to supply hydropower to Togo, Dahomey, the Ivory Coast and Upper Volta (Miescher 2014). While Nkrumah was in East Asia for a peacekeeping mission, a military coup supported by the CIA brought to an end to the Bui and *Volta River Project* in February 1966 (ibid.; Knierzinger 2016). The smelter was commissioned in 1967 and built

one year later, but the project was no longer pursued with great enthusiasm. In 1971, the CIA (1971, 3) reported on the “*largest development efforts ever undertaken in tropical Africa*” and rated them as a limited success. However, Nkrumah sought to balance foreign influences and played both sides of the Cold War. The USA still funded the project to avoid further influence from the Soviet Union. For both superpowers, supporting large-scale infrastructural projects became an opportunity to increase their presence in a rapidly changing Africa (Miescher 2014). The new government was cooperative and continued to provide subsidised energy (Knierzinger 2018).

5.6. Years of Stagnation

After the failure of the Volta River Project, aligned with the aforementioned military coup, Ghana exported bauxite and primary aluminium, and it imported rolled aluminium and alumina to fabricate it into aluminium products. This situation was economically suitable for the companies, but it did not fit in terms of the economic interests of Ghana (Hart 1977). However, Ghana was placed in a weak position against multinational companies, in that it sold cheap bauxite to the world market and offered cheap electricity for aluminium production. This fragmentation of the value chain led to a double dependency on the world market and international companies. According to Knierzinger (2018), Ghanaian bauxite has primarily been exported to Germany, Greece, the UK, Canada and China in the last 20 years, while the smelter in Tema has imported alumina from Latin America (mostly Jamaica) and Europe. In 1982, *Reynold* sold its bauxite mine to Alcan, while Ghana’s bauxite sector grew moderately, albeit with some difficulties. At that time, the share of bauxite in terms of total national exports was 1.4 % (Akabzaa and Darimani 2001; Knierzinger 2018). In 1998, the government reduced its shareholding in the Ghana Bauxite Company from 55% to 20% (Akabzaa and Darimani 2001).

However, Ghana produced about 837,000 tons of bauxite in 2014 compared to Sierra Leone’s 1,161,000 tons, whilst Guinea, as the fourth largest producer worldwide at 17,258,000 tons, produced twenty times more than Ghana (USGS 2016). Compared with the other exported goods, the importance of bauxite decreased rapidly. According to the Oxford Business Group (2017), bauxite exports accounted for 0.6% of total mineral exports and 0.22% of total merchandise exports in 2014.

In May 2003, the VALCO smelter closed completely, due to an unreliable electricity supply (Bergstresser 2004). In July 2004, *Kaiser* sold its 90% stake in VALCO to the government,

while the remaining 10% stayed with ALCOA (Ekpe 2016). In August 2004, ALCOA and the government announced that they had finalised an agreement to restart the smelter in Tema. The plan, which included the restarting of three potlines representing 120,000 metric tons per year (mtpy), was to be implemented in the first quarter of 2006 (Business Wire 2005).

In 2005, the Ghanaian government signed two separate memoranda of understanding (MOU) with *Aluminium Company of America* (ALCOA) and Alcan to explore the feasibility of developing a bauxite mine and a refinery with a production capacity of about 1.5 to 2 million tons of alumina per annum (Gawu et al. 2012). However, energy shortages continued to plague the plant, which operated at a limited capacity of 30% until it was closed again in 2007. In June 2008, ALCOA sold its 10% stake to the government of Ghana (Bermúdez-Lugo 2008; Kpodo 2018). Due to the lack of infrastructure (mostly the rail network), energy deficits and the loss of interested investors, the promise of an integrated bauxite-aluminium complex was not pursued further (Kpodo 2018). In 2010, the Canadian company *Rio Tinto* (until 2007 Alcan) encountered severe difficulties transporting bauxite on the outdated railway network without bearing high costs (Knierzinger 2016); therefore, in 2010, the company sold its stake in *Ghana Bauxite Company Limited*, which owned the only mine at Awaso, to the *Bosai Minerals Group* (Bertolli 2010). When the *Bosai Group* took over, difficulties with transportation led to a decrease in production by 21%. In 2012, the company decided to transport bauxite by road and not via the rail network (Oxford Business Group 2013). In early 2011, the smelter facility started operations again, albeit at about 20% of its full capacity, producing 3,000 tons per month, mostly for local consumption (Knierzinger 2016). Over the years, Western companies withdrew more and more from the bauxite and aluminium sector, because of the economic situation and inadequate infrastructure, and new investments failed because of the high economic risks involved. Knierzinger (2016) states that a central risk minimisation strategy prevents nationally concentrated production capacities, which is exactly what the government of Ghana did for over 50 years. Many corporations therefore withdrew from the bauxite business, with China the only remaining player in this niche market.

5.7. Rediscovery and a new player

Since 2011, the governments of Ghana and China have been the only remaining actors in Ghana's bauxite-aluminium industry, with mining mostly controlled by a Chinese firm and the smelter being operated by the Ghanaian state. The only company left is *Vimetco*

Ghana (Bauxite) Ltd., a subsidiary of the company *Vimetco*, founded in 2002. With major production assets in Romania, Sierra Leone and China, and a holding company in the Netherlands, the company is a globally integrated aluminium group (Vimetco 2011). According to Knierzinger (2014), *Vimetco* refines African bauxite in Romania and transfers alumina further afield to China. In 2011, the company received several prospecting licences in Kibi and Nyanahin. Officials from *Vimetco* planned to process bauxite into alumina and then export it to their subsidiaries in China, where it would be smelted (Vimetco 2011). In *Vimetco's* Annual Report (2016), the future of the project was described as uncertain, and due to China's involvement, the exploration stopped.¹ China, by far the most important global player in the aluminium business currently, has played a relatively minor role in Africa to date. Except for a small mine in Ghana, mostly western companies are involved in the continent's bauxite and aluminium sector (Knierzinger 2016) and in Ghana itself, China's role is limited to the exploration and purchase of bauxite. Following the global financial crisis and the critical state of commodities markets, bauxite production is now recovering, in line with the Chinese company taking over the bauxite mine since 2010. Likewise, the smelter, now 100% state-owned enterprises, has begun to produce small quantities of aluminium again. The map below (Fig. 6) shows the current situation. The railway network has not been expanded, many sections are not passable and the smelter was built contrary to the original plans at the port Tema.



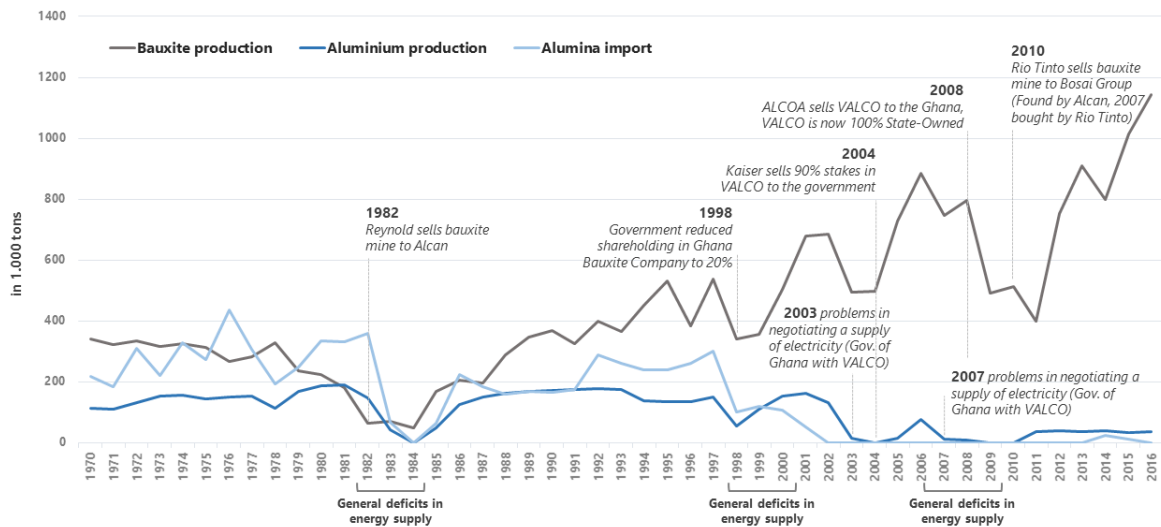
Figure 6 Ghana's bauxite deposits, mining and its infrastructure in 2018

¹ However, a senior research officer from the Ghana Chamber of Mines responded that they were unaware of any activity of *Vimetco Ghana (Bauxite) Ltd.* in Ghana.

During the 2016 presidential campaign, the *New Patriotic Party* (NPP) garnered the attention of the electorate by promising to develop an integrated aluminium industry, in order to add value to the country's bauxite deposits: *"The establishment of the Integrated Aluminium Industry, Nana Akufo-Addo explained, will provide thousands of jobs for the teeming masses of unemployed Ghanaian youth resident in the Eastern Region and across the country"* (NPP 2016; Emmanuel 2016). Following the plans made by the first Republic of Ghana, bauxite deposits in the country would be further developed and an integrated aluminium production unit built. The proceeds from this project would serve to finance many needs such as infrastructure, electricity, schools and water supply and realise a Ghana Beyond Aid: *"My government is going to implement an alternative financing module to leverage our bauxite reserves in particular to finance major infrastructure programme across Ghana. This will probably be the largest infrastructure programme in Ghana's history without any addition to Ghana's debt stock"* (Akufo-Addo 2018, n.p.).

Following the NPP taking office, the bauxite and aluminium sector received major stimulus. In March 2017, the Ministry of Finance outlined a six-point strategy for developing the industry. The plan included opening new bauxite mines in Awaso, Nyinahin and Kyebi, the construction of an alumina refinery and the development of energy and rail infrastructure to power the industry and cut transport costs (Ministry of Finance Ghana 2018). In addition, the VALCO smelter would be upgraded and an industrial park for the development of value-added aluminium products established. The Memorandum of Understanding signed in June 2017, would provide the necessary funding to turn the project into reality, with the Chinese Development Bank providing funding and contracting out construction work to companies, including *China Railway* (Oxford Business Group 2018). In July 2018, the Ghanaian parliament justified a bauxite deal with *Sinohydro Group Limited of China*, in order to bridge the estimated USD 30 billion infrastructural gap. *Sinohydro Corporation Limited* would in turn receive refined bauxite in the form of alumina or aluminium over a fifteen-year period (inclusive of a three-year grace period) from the Republic of Ghana, which would therefore establish a refinery for bauxite over the following three years. However, the minority leader in parliament sought a view from the International Monetary Fund on the deal with *Sinohydro*, mostly due to possible debt risks (Kpodo 2018). In August 2018, the Ghanaian parliament passed the Ghana Integrated Bauxite Development Authority Bill, described as an Act *"to establish the Ghana Integrated Bauxite and Aluminium Development Authority to promote and develop an integrated bauxite and aluminium industry and to provide for related matters"*. (Parliament of Ghana 2018,

3). The *Ghana Integrated Bauxite and Aluminium Development Authority Bill* set the legislative framework for the established *Ghana Integrated Aluminium Development Cooperation* (GIADEC) to undertake the preparatory work, manage bauxite resources, negotiate with investors, take reasonable measures to settle with people who may have to be displaced and collaborate with the *Environmental Protection Agency* and communities affected by the operation. The corporation would also be allowed to enter a joint venture if it holds at least 25% of shares in the company. In addition, the bill secured the Cabinet’s approval for special power purchase rates from the *Volta River Authority* (ibid.). In its memorandum, the bill refers back to the 1960s *Volta River Project* and its failure, pointing out that with the takeover of VALCO, Ghana now has a “*unique opportunity to establish an integrated aluminium industry*” (Amewu 2018, 2). The graph below (Fig. 7) shows the production volumes for Ghana's bauxite and aluminium industry, as well as the volume of imported alumina. In addition, important events between 1970 and 2017 for the bauxite aluminium sector are highlighted, in order to show clearly past development, structures and networks of actors, as well as current dynamics.



Overview: Ghana's Bauxite and Aluminium Industry

Figure 7 Ghana's bauxite and aluminium sector: past developments, structures and networks of actors, as well as dynamics between 1970 and 2017.

(Bank of Ghana 2003; British Geological Survey 2007; Ministry of Finance Ghana 2015; Anafo 2017; British Geological Survey 2018)

6. Political ecology of bauxite mining at Atewa Forest Reserve

6.1. Bauxite mining at Atewa Forest Reserve, Ghana: a political ecology of a conservation-exploitation conflict

Abstract

Atewa Forest Reserve in the Eastern Region of Ghana represents one of only two reserves with upland evergreen forests in Ghana but is also a possible site for bauxite mining. The Government of Ghana deployed an infrastructure in anticipation for a refined bauxite agreement with China. Ghana's Government seeks to develop an integrated Bauxite-Aluminum Industry; however, several NGOs try to protect the Atewa Forest and propose that the area should be upgraded to a National Park. In this study, this conservation-exploitation conflict is analysed from a political ecology perspective elaborating on who are the involved key actors, their relations and what strategies are used. Political ecology is about recognising the power that actors have at the moment of deciding what, how and where to conserve nature. Based on interviews done during fieldtrips in 2018, 2019 and 2020 complemented by an analysis of political documents, the identified strategies the NGOs are using in this conflict, can be described as demonstration and upscaling. The aim of this paper is to draw attention on the politicisation of nature, in particular Atewa Forest reserve and its bauxite resources.

Introduction

Extraction spaces, even without actually mining taking place yet, are spaces where power relations are destabilised, existing livelihoods are challenged, inequalities emerge and the territorial development is contested. Frequently, these spaces and the processes are marked by tension, friction and accelerated change. Pijpers and Eriksen (2019) point out that just as the extractive sector is expanding, so is the interest among social scientists in the implications of this expansion. The recent growth in associated research indicates that there is considerable ongoing concern to seek a better understanding of extractive practices and their social, economic, political and environmental effects around the world. For political ecology, a research approach that specifically engages with the causes and consequences of uneven power relations over natural resources and the environment, understanding conflicts is a prime focus (Le Billon and duffy 2018). In addition, political ecology explores the politicisation of nature through conflicts. The struggle about bauxite mining at Atewa

Forest is an example for a political ecology conflict, where different actors on different scales with different interests compete about a politicised resource.

In 2018, China and Ghana entered a so-called resource-for-infrastructure swap that gained public attention: the *Sinohydro deal*. This agreement is viewed controversial, as the repayment shall be done with the revenue of refined bauxite. This requires the development of a bauxite industry and, therefore, further extraction of bauxite. The states of Guinea, Ghana and Sierra Leone are home to the most important bauxite mining areas in Africa. In 2014, Guinea, the fourth largest producer in the world, produced 17.3 million tons of bauxite, Sierra Leone 1.16 million tons and Ghana only about 837,000 tons (USGS 2016). Although Ghana has extensive reserves, the bauxite aluminum industry is not economically significant, compared to Ghana's main export goods Cacao and Gold. The country exports bauxite in its raw state, imports aluminum oxide, processes it in a smelter and then exports aluminum. This fragmented supply chain, which began in the 1970s, was beneficial to the companies involved, but not in the countries economic interests (Hart 1977). Since 1942, bauxite is mined in only one location (Awaso) in Ghana. Already during the independence of Ghana, there have been plans to develop an integrated bauxite-aluminium-industry, but this was never fully realised. The Atewa Forest in Ghana's Eastern Region is one of three possible sites where the government of Ghana is seeking to mine bauxite in order to develop an integrated bauxite-aluminium industry. Up to this point, the Atewa Forest with its upland evergreen forests has not been exploited. Due to the ubiquitous impending risk of bauxite mining and ecological risks, several NGOs aimed for an institutionalised protection of the forest. However, the current bauxite deal has become a key part of the government plans for a nationwide industrialisation and has been framed along with iron and steel as a Strategic Anchor Industry.

I observed the conflict from 2017 until 2020 and analysed the politicisation and the involved actors in this setting. In this paper, the central questions are: (1) who are the involved actors in this conflict? (2) What strategies and methods are used by the alliance that is against bauxite mining at the Atewa Forest? To address these focal points, I use a political ecology approach with its actor-orientated perspective. I will outline the political ecology approach in *Political ecology approach and methods*, following a brief overview about the study area and specific methods used (*Study area and methods*). I then describe how the conflict emerged and how the Atewa Forest with its bauxite was politicised (*The politicisation of the territory*). I will end with elaborating on the strategies of the NGOs fighting mining at the Atewa Forest and examine the counter reactions from the

government in the discussion (*The conflict, strategies and actor mapping*). This contribution highlights the negotiations and frictions between individuals and groups with different agendas, worldviews and aims within the context of mining. While it is too early to say if the movements against mining at Atewa Forest was successful, the central lesson is that the NGOs (using several techniques) are trying to pull the government back into the conflict arena, to avoid that the exploitation may appear as something economical logical and without an alternative to the population.

Political ecology approach and methods

The conservation of biodiversity is an increasingly challenging endeavor. Hodgson et al. (2019) argue that conservation conflicts currently poses one of the most significant challenges to wildlife and biodiversity across the globe. The geographical overlap between mining sites and biodiversity hotspots often lead to serious social and ecological challenges over the short and long term. In academia, the conflict between conservation and mining is often framed as the conservation-exploitation dilemma. There is a vast number of studies about the dilemma between exploitation and conservation (see (Helwege 2015; van Butsic et al. 2015; Paredes 2016; Gómez-Valenzuela et al. 2020). While there are many drivers for conservation conflicts, Baynham-Herd et al. (2018) argue that many are rooted in larger societal issues (such as poverty and inequality), imbalances of power and inappropriate governance processes.

From an extraction perspective, Engels (2016) defines three types of conflicts: (1) conflicts between civil society organisations on the one hand and the state and mining companies on the other; (2) conflicts between trade unions and mining companies; and (3) conflicts between artisanal miners and mining companies. Pijpers and Eriksen (2019) introduce the mining encounters approach, understood as the negotiations and frictions between individuals and groups with different agendas, worldviews and aims within the context of mining operations from the early stages of exploration and development to the final phases of closure and aftermath. From the perspective of conservation, conflicts are mostly labeled as a conflict of interest. A typical example of a conflict of interest could be over a forest resource, where some groups want to harvest trees and other groups want to preserve the forest as a habitat for specific species (Adams 2015). Similarly, Bonsu et al. (2019) argue conservation-exploitation conflicts are constructed upon a substance, grasped as an issue that comprise the conflict. Hereby, the 'substance' is not only understood as a material substance, but also as narratives or different imaginaries of future development.

While Engels (2016) emphasis the actor-centered approach, Bonsu et al. (2019) focus on the relationship and behavior of people.

The general analysis about socio-environmental conflicts in protected areas assumes that conservation is a generator of conflicts because its main objective is to separate part of the territory for nature (García-Frapolli et al. 2018). Conservation involves making choices about the relations between people and nature. If a forest is protected, it is not available for farmers, hunters or loggers (Adams 2015). Castro and Nielsen (2003) argue that conflicts arise because the people or institutions have differences or incompatibilities between their interests, values, power, perceptions and objectives about something in particular. Political ecology poses a different framing of the understanding of socio-environmental conflicts. According to Le Billon (2015, 598), *“political ecology is about politics and about recognising the political character of environmental and resource issues”*. In addition, political ecology is about recognising the power that actors have at the moment of deciding what, how and where to conserve (García-Frapolli et al. 2018). It is important to highlight that political ecology explores the politicisation of nature through conflicts, instead of naturalising the conflicts through environmental analysis. Political ecology rejects the hypothesis that with greater environmental scarcity or lack of resources there is an increase in conflicts. Rather it assumes that all human decisions and therefore also conservation, are inherently political (Adams 2015). Robbins (2004) highlights that political ecology views social/environmental change and emerging conflicts with a normative understanding. Political ecology studies have developed several conceptions of ecological conflicts. Socio-ecological conflicts can be defined as struggles associated with the unequal access to, distribution of and control over natural resources as well as ecological benefits and risks (Peet and Watts 2004; Turner 2004; Alier 2009; Le Billon 2015; Pichler 2017). Poststructuralist political ecologists have criticised this understanding of conflict and power, arguing for a more relational understanding of conflicts and power that evolves in assembled networks (Bennett 2010; Rocheleau 2015). Schmidt et al. (2019) highlights the strength of a political ecology approach, because (i) it integrates political and ecological dimensions as well as material and discursive elements, (ii) it calls for a normative perspective and (iii) must be more understood as lenses through which conflicts can be analysed rather than as a theory or method.

In this paper, a political ecology approach is used to look at the bauxite mining Atewa Forest conflict. Robbins (2004, 12) defines such approaches as *“an empirical, research based exploration to explain linkages in the conditions and change of social/environmental system, with*

explicit consideration to relations of power". Bryant and Bailey (1997, 39) define power as the *"ability of an actor to control"* the access to nature and natural resources as well as the access of other actors to these resources. The paper follows the approach formulated by Schmidt (2013): Identifying the key actors and their relations, the different scales on which they act and which interests they follow. The aim is to elaborate on the politicisation of nature, in that case the forest reserve and its bauxite reserves.

Study area and methods

The Atewa Range (see Fig. 8) is an ecologically important forest reserve (17,400 hectares) established in 1926. Since that time, Ghana has lost roughly 80% of its forested habitat (Cleaver 1992). Ownership of the reserve is vested in the President of Ghana, while the entire reserve falls within the jurisdiction of the Akyem Abuakwa Traditional Area (McCullough et al. 2007). The head of this area is known as *Okyenhene*, which is the title of the king of Akyem Abuakwa, an ancient kingdom in the Eastern Region of Ghana (with the capital Kyebi or also written Kibi). The chieftaincy is officially accepted in Ghana. Politicians ask chiefs/kings for advice and permissions because usually they are closer to the people.

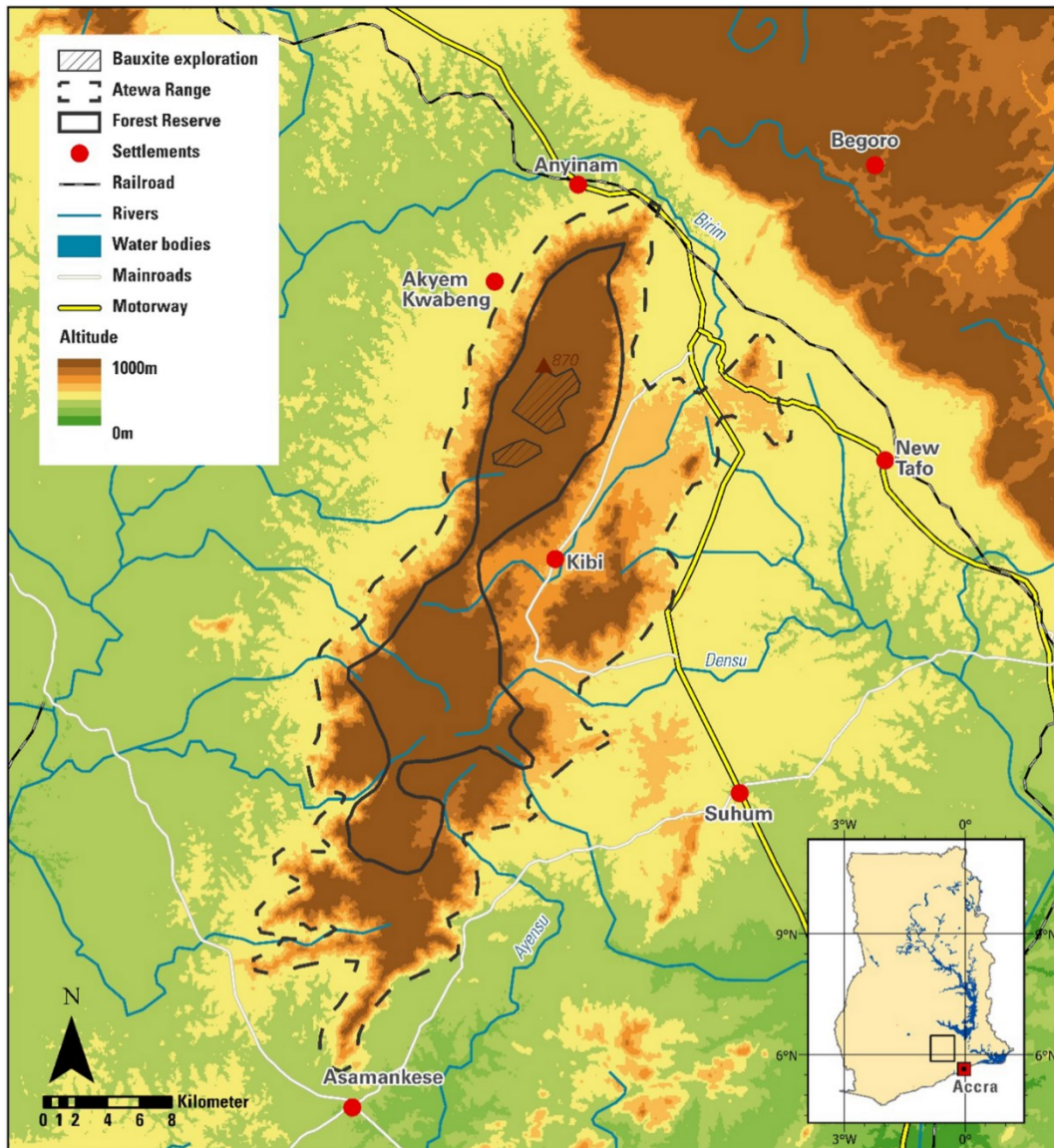


Figure 8 Study Area: Atewa Forest Reserve in the Eastern Region, Ghana;

(Bauxite exploration area are based on a map, provided by GIADEC, published on the website of A Rocha Ghana in 2020)

Since the Atewa Range is declared a forest reserve, some communal rights are granted: For example, farming within the reserve (admitted farms), collecting forest products (including building materials, canes, vines, ropes, pestles, palm trees, snails, mushrooms, chewing sticks, medicinal plants, game and wildlife), receiving a share in timber royalties resulting from forestry on privately owned land, accessing sacred places, establishing hunting camps and washing for gold (McCullough et al. 2007). The Atewa Range represents some of the highest forest covered hills in Ghana (along with the hills of the Southern Scarp and the Nyinahin Range (Swaine and Hall 1977). The range peaks at 842 m

and runs from north to south. It is characterised by a series of plateaus, which are remnants of a Tertiary peneplain (McCullough et al. 2007). The vegetation within the mountain range is very diverse with elements of upland evergreen forest; in addition, the forest is an important watershed from where three important rivers namely the Densu, Ayensu and Birim originate. Atewa Range Forest Reserve is not only recognised as a watershed but also known to constitute the largest and most intact patch of upland evergreen forest in Ghana (Ayivor and Gordon 2012). The reserve is only one of the two reserves in Ghana with upland evergreen forest (Hall and Swaine 1981; Abu-Juam et al. 2003). Because of its uniqueness, the reserve has changed status over the years as a Special Biological Protection Area in 1994, a Hill Sanctuary in 1995 and as one of Ghana's 30 Globally Significant Biodiversity Areas (GSBAs) in 1999. In 2001, Atewa was listed as an Important Bird Area (IBA) by *BirdLife International* (Abu-Juam et al. 2003; McCullough et al. 2007).

However, the conservation of this forest reserve also led to some threats and challenges, such as illegal hunting and illegal small-scale gold mining. Intensive farming and illegal logging caused further problems with erosion (Ayivor and Gordon 2012). At the edge of the reserve, gold is mined and the forest harbors one of three possible sites for bauxite mining within Ghana. While legal gold mining takes place close to the border of the reserve, bauxite mining would be taking place at the hills and therefore in the forest reserve (Fig. 8).

As later shown, the conflict started in the beginning of 2017; it got more public attention when Ghana and China signed a Memorandum of Understanding in June 2017, the time when I first started with my research. Since then, I have not only undertaken interviews during fieldtrips, but also collected secondary data such as policy documents as well as media reports. During the three years I studied the conflict I conducted fieldtrips in March 2018, March 2019 and March 2020, which were instrumental to get further information about the conflict or in regards to interviewing new actors, who were not considered originally. Interviews were conducted with key actors in this conflict including the leading NGO in this conflict, VALCO (a smelting company) and a representative from a community close to the forest. In addition, a group meeting of the *Concerned Citizens of Atewa landscape* as participating observation, as well as a group interview with this collective were undertaken. Political documents, statements and press releases from the government and NGO were also taken into account. An actor-oriented political ecology perspective argues that power is exercised by actors. While actors exercise power, they are also met by various forces of resistance and opposition. Mapping Actors can help to

understand the power relations between them. Svarstad et al. (2018) argue that study the agency of individual actors is important in order to explain injustice and a lack of environmental sustainability.

The politicisation of the territory

Since the very first discovery of bauxite in 1914 in the Atewa Range and initial attempts to establish an integrated bauxite-aluminum industry in 1924, this region has always been one of three possible sites for bauxite mining in Ghana. In 1942, a mine in the Western Region of Ghana started producing bauxite. The first President of Ghana, Kwame Nkrumah, aspired to develop an integrated bauxite-aluminum-industry in order to achieve not only political sovereignty but also economic independence. As a consequence, a smelter was set up in Tema and the Volta Dam was built. However, the proposed integrated industry was never realised. Since then, bauxite remained an economically unimportant resource without any further development in that country. This constellation has protected the Atewa Forest from mining activities. In 2012, the Forestry Commission informed the NGO (thereafter named ARG) that the government had given out concessions to prospect bauxite at Atewa to a national company called *Exton Cubic*. In response to these news, ARG and some smaller civil groups joined forces and opened a dialogue with the government. In 2013, ARG organised a national summit on Atewa Forest with all the important stakeholders including the Forestry Commission, the Water Resource Commission as well as the Minister of Lands and the Minister of Environment. The main outcome of that summit was that it is important to protect the forest and that no future government should step in and start mining bauxite there. All the participants agreed that upgrading the reserve to a National Park would prohibit any future government of mining bauxite in the Atewa Forest. The Forestry Commission, the Water Commission as well as the Ministry of Lands started the process to declare Atewa Forest Reserve as a National Park.

The campaign to save Atewa Forest is also part of the *Green Livelihoods Alliance*. This alliance is supported by the Netherlands Ministry of Foreign Affairs. Therefore, the Dutch Ministry together with *IUCN Netherlands* initiated a survey together with the local NGOs such as ARG named the 'The Economics of the Atewa Forest range, Ghana' (Schep et al. 2016). The study by Schep et al. (2016) compared four different development scenarios for the forest and concluded that declaring Atewa Forest as a national park with a supporting buffer zone would result in the highest cumulative value for the region. Because a national park has the strictest regulations, the idea of a buffer zone was considered. Such a buffer

zone can ensure that part of the traditional activities of local communities develop in a sustainable manner and still provide economic benefits locally. Therefore, the local support should also be granted as the needs of the population around the forest are addressed with this scenario.

The aim in the mentioned survey was to calculate the value of the forest, so that the proposed protection would be more comprehensible for politicians. The foreword of the report was written by the Ghanaian Minister of Land and Natural Resources, Nii Osah Mills at that time, who expressed his intentions: *“Clearly, we simply cannot continue doing business as usual and to this I reiterate the commitment of the Government of Ghana to designate Atewa Range Forest Reserve as a National Park”* (Schep et al. 2016, 7). ARG also prepared a needed justification for the Ministry of Lands and Natural Resources. In 2016, the process of upgrading the Atewa Reserve to a national park had progressed so far that the Ministry of Lands and Natural Resources sent out a letter to the cabinet. However, 2016 was also a presidential election year in Ghana between the two major parties, the National Democratic Congress (NDC; at that time in office) and the National Patriotic Party (NPP). One part of the NPP campaign was committed to establish an integrated bauxite-aluminum-industry in order to create jobs and achieve a higher level of industrialisation with bauxite mining playing an important role. ARG was in contact with both parties trying to push their idea of a national park to prevent any mining activities in the forest. By the end of 2016, the NPP won the election and Akufo-Addo got into office. Given this new political landscape, it was necessary for the NGOs to start campaigning against bauxite mining at Atewa. On the one side, the NGO sees huge environmental risks for the forest as well as rivers. Bauxite is extracted on a large surface in open-cast mining, resulting in degradation and environmental pollution. An associated scenario-based impact study by the *Netherlands Environmental Assessment Agency* (Meijer et al. 2018) concluded that over 50% of forestland could be cleared in a worst-case scenario. In addition, toxic by-products (the so-called red mud) are generated during the further processing and leaching of bauxite. The big concern of local environmental organisations, as well as ARG, is that trace quantities of this red mud could get into rivers. The corrosive caustic soda contained in the red mud would be hazardous to the fauna and humans in the vicinity of the rivers. On the other side, the government argues that an integrated bauxite-aluminum-industry would not only generate jobs but would also finance infrastructure and act as a driver for a nation-wide industrialisation.

In 2017, Ghana and China signed a Memorandum of Understanding that may culminate in the development of a \$10 billion bauxite for infrastructure barter (part of it also known as the *Sinohydro deal*). President Akufo-Addo (2018, 9) said in his speech that marked the 61st anniversary of the country's independence from Britain 3 months after his inauguration: "*Fellow Ghanaians, we have huge infrastructure needs in the areas of roads, bridges, water, electricity, housing, hospitals, schools, etc. The problem has always been where to find the money. However, where there is a will, there is a way. My government is going to implement an alternative financing model to leverage our bauxite reserves, in particular, to finance a major infrastructure programme across Ghana. This will probably be the largest infrastructure programme in Ghana's history, without any addition to Ghana's debt stock.*"

Shortly after the 2016 Ghanaian general election, the new government ignored the plans to upgrade Atewa Forest to a national park and rejected the inquiries from the NGOs. Therefore, ARG decided to take the conflict into the public space. The initial twitter post of ARG in January 2017 included a call to the president to save Atewa Forest. However, against the background of the 2017 memorandum that the Government of Ghana and the Peoples Republic of China brokered, the attempts to protect Atewa might appear futile. Even though there was no concrete mining taking place or concession given out following the 2017 memorandum, the dissent between the NGOs and the Government about appropriate strategies for territorial development turned specifically the Atewa Forest into a contested territory.

The conflict, strategies and actor mapping

In Ghana, it is usually common to initially carry out a Strategic Environmental Assessment (SEA), in order to identify the possible impacts of bauxite mining and then select possible sites. The NGOs called for the *Environmental Protection Agency* to require a SEA. However, the new government refuses to follow this procedure. By the end of March 2019, the government presented the *Ghana Integrated Bauxite and Aluminium Development Authority Act*. The Act sets up the legal framework for an authority to develop and establish the integrated bauxite-aluminum industry. The NGOs claim that the establishment of such an authority was unconstitutional, because the Minerals Commission is in charge of such developments. The Government responded by establishing a cooperation, the *Ghana Integrated Aluminum Development Cooperation* (GIADEC). GIADEC is in charge for organising bauxite mining in the country and for setting up plans to build refineries and needed infrastructure. The board of the GIADEC consists of representatives of the integrated aluminium industry, members of parliament, a representative of the Ministry

of Finance, the chief from Nyinahini, a representative of the Minerals Commission and a representative of the Association of Ghana Industries. GIADEC has a Chief Executive Officer, who was a former Senior Vice-President of the Dell Corporation. Shortly after the setup of the GIADEC, a deal with the Chinese company *Sinohydro* was signed about infrastructure development in return for refined bauxite. ARG points out that the agreement with *Sinohydro* is not specific about the location of the bauxite mining. In fact, part of the agreement states that if the country is not able to extract enough bauxite, the country should explore other options. As a consequence, ARG saw a real opportunity to continue with the protest and negotiate with the new government. Several actions were then undertaken to push the agenda that Atewa Forest will be upgraded to a national park. The coalition of NGOs used several tactics that are outlined below to put further pressure on the new government, which can be differentiated into two strategies: demonstrations and up scaling.

Demonstrations

Demonstration can be understood in two different ways. Either to demonstrate something to someone or in the sense of a protest, as a collective gesture of disapproval, such as a march. Marking the World Water Day in March 2018 the *Concerned Citizens of the Atewa Landscape*, represented by civil society organisations, NGOs, Youth Groups, Interfaith Groups, Farmer Based Associations and Opinion Leaders and Community Leaders from the Atewa region organised a 6-day walk. Hereby, leading NGO and organiser of this protest march was ARG. The 95 km long walk started at Kyebi (Atewa Region) and ended at the Jubilee House, the presidential palace in Accra. ARG counted about 150 people during the walk. During the march, the demonstrators pointed out that water resources would be destroyed thereby symbolically referring to the UN Sustainable Development Goal 6 (SDG6; Water and Sanitation) and also planned the march to arrive in Accra on World Water Day. Following the arrival in Accra, the demonstrators handed a petition to the president. The main argument was mostly built on the UN SDGs, specifically SDG6 to 'Ensure availability and sustainable management of water and sanitation for all'. Shortly after this the *Ghana Integrated Bauxite and Aluminium Development Authority Act* was implemented by the government. The campaign generated media attention in Ghana. Several local Newspaper, radio broadcasts and on social media, the issue of Atewa Forest and bauxite mining was discussed and reported.

Besides the walk on Water Day, in January 2019 an exhibition about the Atewa Forest was organised by ARG. The Exhibition took place at the British Council in Accra showcasing

visual displays (pictures, drawings) and providing information about the Atewa Forest and its services to the community. In June 2019, the Atewa Day of Action: March for Atewa, Forest and Water took place in Accra. The route through the capital Accra ended at Parliament House, where a petition was handed to members of Parliament. In 2020 ARG planned picketing in front of the Forestry Commission but had to cancel it due to the Coronavirus pandemic.

While these actions are generally understood as a public protest, one member from ARG describes these protests as tactics, so that *“the governments knows that we are still watching them”*. In addition, the aim was to inform the people in Accra that their water sources come from the forest (thereby rising public awareness). However, demonstrating also refers to the idea of showing or presenting something, in order to convince certain groups. In the context of the conservation of the Atewa Forest, these important stakeholders include the communities that live in the surroundings of the forest.

Mostly people compared bauxite mining to small-scale gold mining operating in the region and employing many people. ARG, therefore, organised a trip for stakeholders around the Atewa landscape to Awaso in beginning of March 2018. Awaso hosts the only active bauxite mine (since 1942) and is partly owned by the Chinese *Bosai Minerals Group* (80%) and the state (20%). The idea of this trip was to demonstrate the impacts and environmental risks that open-cast bauxite mining poses. In addition, they visited the village Awaso and demonstrated that the people there do not have a better living situation or more income due to the nearby mine. A former assembly member and opinion leader explained in an interview that at first, he supported the mining because he hoped jobs would be created. Some of the people who participated in this tour also filmed and took pictures, which are now presented in their communities. Also, the trip has been key in the formation of the *Concerned Citizens of Atewa Landscape*. The group includes local farmers, youth, women and interfaith groups as well as local opinion leaders. The general idea of this trip was to educate the people about the impacts of mining. In addition, ARG aimed to talk to the chiefs around the Atewa Forest. The position and role of Chiefs in Ghana was further strengthened in the 1992 Constitution of the Fourth Republic, acting as powerful leaders of a community. The main functions of chiefs include dispute settlement; codification of customary law; organisation of rituals, ceremonies and festivals; custody of stool land; organisation of communal labour; and promotion of socioeconomic development. Chiefs' responsibilities thus include both statutory and non-statutory aspects, such as promoting development (Kleist 2011). To educate and convince chiefs about sustainable development,

as also done in the aforementioned trip to Awaso, is therefore an important aspect of the campaign to protect the Atewa Forest.

In addition, ARG demonstrated their constant watch over the government and exploited a further strategy to rise public awareness in regards to conservation of the Atewa Forest by placing large billboards at strategic locations. While some billboards are located around the forest area in smaller villages, one billboard is placed on the opposite side of the Jubilee House, the presidential palace (see Fig. 9). The billboard is not only placed at a major and highly frequented road in Accra for everyone to see, but also as a statement and symbol of this conflict. It reimagines the mentioned ARG quote that “*the government knows that we are still watching them*” and is reminding everyday of the unsolved issue.



Figure 9 Billboard at the Jubilee House, Accra

Upscaling

During conflicts between social groups, the actors can use a strategy of 'jumping scale': upscaling or downscaling (Hogenstijn et al. 2008). Cox (1998) calls this process 'constructing spaces of engagement'. In this process, actors form temporary coalitions to achieve a common goal. However, these actors can act at different scales. Terlouw (2017) argues that upscaling the conflict arena enables some groups to use their links with powerful groups or individuals to improve their position locally or even on a broader scale. Hogenstijn et al. (2008) are differentiating between upscaling the figuration and upscaling the conflict. The latter, is about trying to refer the conflict to a higher spatial scale, where the weak group can achieve a stronger position on the power balance. In contrast, upscaling the figuration means that groups use their links with powerful groups or individuals at higher spatial scales to advance their position locally.

In the context of the preservation of the Atewa Forest, a network on a larger scale is the IUCN Netherlands. Especially because these actors worked together on the prescribed study in 2016. In May 2017 the US Ambassador Robert P. Jackson and Netherlands Deputy Ambassador Caecilia Wijge visited the forest. These state officials received a guided tour and were further educated about the importance of protecting the forest by *A Rocha Ghana*, Leading Ghanaian musicians MzVee, Obour and Sherifa Gunu visited the Netherlands in August 2018 to mobilise with the Ghanaian community to join their plea for the protection of the Atewa Range Forest reserve in Ghana. The Ghanaian community in the Netherlands wrote a letter to the president proposing to upgrade Atewa Range Forest into a National Park. International awareness about the Atewa Forest was raised when the famous biologist Edward O. Wilson, an Emeritus at Harvard, Bestselling Author and two-times winner of the Pulitzer Prize for General Nonfiction, wrote a letter to the President of Ghana. The letter was part of a petition led by ARG, but also intended as a critical review of the president. However, more recognition on social media received the tweet from the actor Leonardo Di Caprio in November 2019, who linked an article of the *Washington Post* about Atewa and called for its protection. In addition, several other international media platforms reported about the conservation efforts of the Atewa Forest including the mentioned article from the *Washington Post* (2019), *Quartz* (Asiedu 2018; Oteng-Yeboah 2019) and *Foreign Policy* (Gbadamosi 2020). While the conflict did receive more international attention in this time frame, the upscale process was limited on rising awareness rather than upscaling the conflict itself. In 2020, the ARG started two attempts to upscale the conflict by a motion during the *IUCN World Congress of Conservation* in June

2020 and by going to court. Held every 4 years, the IUCN Congress is the world's largest conservation event. The aim is to send a resolution backed by the IUCN to the Ghanaian government to urge them to exclude Atewa as a site for bauxite mining. In January 2020, ARG handed a 30-day moratorium to the government, requesting a statement on the further actions in Atewa Forest. However, ARG received no answer and therefore sued the government for entering the forest in May 2019 and drilling deep holes causing damage to the Forest.

The two conflict lines and actor mapping

In the beginning of 2020, a youth march around Atewa Forest against bauxite mining gained public attention. After the march, several chiefs allied and published a statement against this protest. The two major arguments of this statement are that (1) the forest is already under threats such as illegal logging and mining and therefore it is difficult to set up a national park and (2) they dispute that the NGOs speak for the people around the forest. This opens a new conflict line, between some chiefs of the effected communities trying to delegitimise the protests, the government and the environmental NGOs. Additionally, in June 2019, representatives of the GIADEC visited the Okyenhene, the traditional King of the region. He is also the head of the Akyem Abuakwa traditional council, which at first was sceptic about the mining. However, in their meeting the Okyenhene stressed the need for sustainable mining practices that will ensure the full protection of the environment, but praised the new government for their plans to develop an integrated aluminium industry (Nyabor 2019).

The important actors, divided in key actors, primary actors and secondary actors are put together in a so-called actors map. It sums up the participating actors, their position to each other and enables to identify the conflict lines. However, this mapping only gives an overview over the current status (spring 2020) and leaves out further development. Actors may drop out or appear as well as relations between the actors could change in the future. As argued, Figure 10 shows that there are two conflict-lines: (a) between the NGOs and GIADC and (b) between the NGOs and chiefs of the Atewa landscape. Because the president is not in a direct exchange or dialog with the NGOs, the conflict is more between GIADC and the NGOs. As explained ARG or other actors address the president directly, but he remains silent and does not speak in this conflict. While he does speak about the future of bauxite mining and the industrialisation along with this process but avoiding discussions about ecological concerns. Having GIADC in charge and negotiating with the NGOs, puts the president more on the sideline of this conflict. The relations between the

chiefs and governmental actors remain unclear. However, according to an interview with members of the ARG office in Keybi, the few chiefs are bribed and speaks of elite capturing, which remains an unsettled allegation. It is important to mention that Keybi, the biggest settlement around the forest, is also the hometown of the President Akufo-Addo. While this was never a particular important argument in the conflict, one member of ARG in Keybi pointed out “he is one of us, from our town, we should support him. But, at the same time, we are fighting him.” The relationships between the president and the chiefs are not in the figure. However, it should be pointed out that there might be at least in part some informal relationships between those actors and overlapping interests.

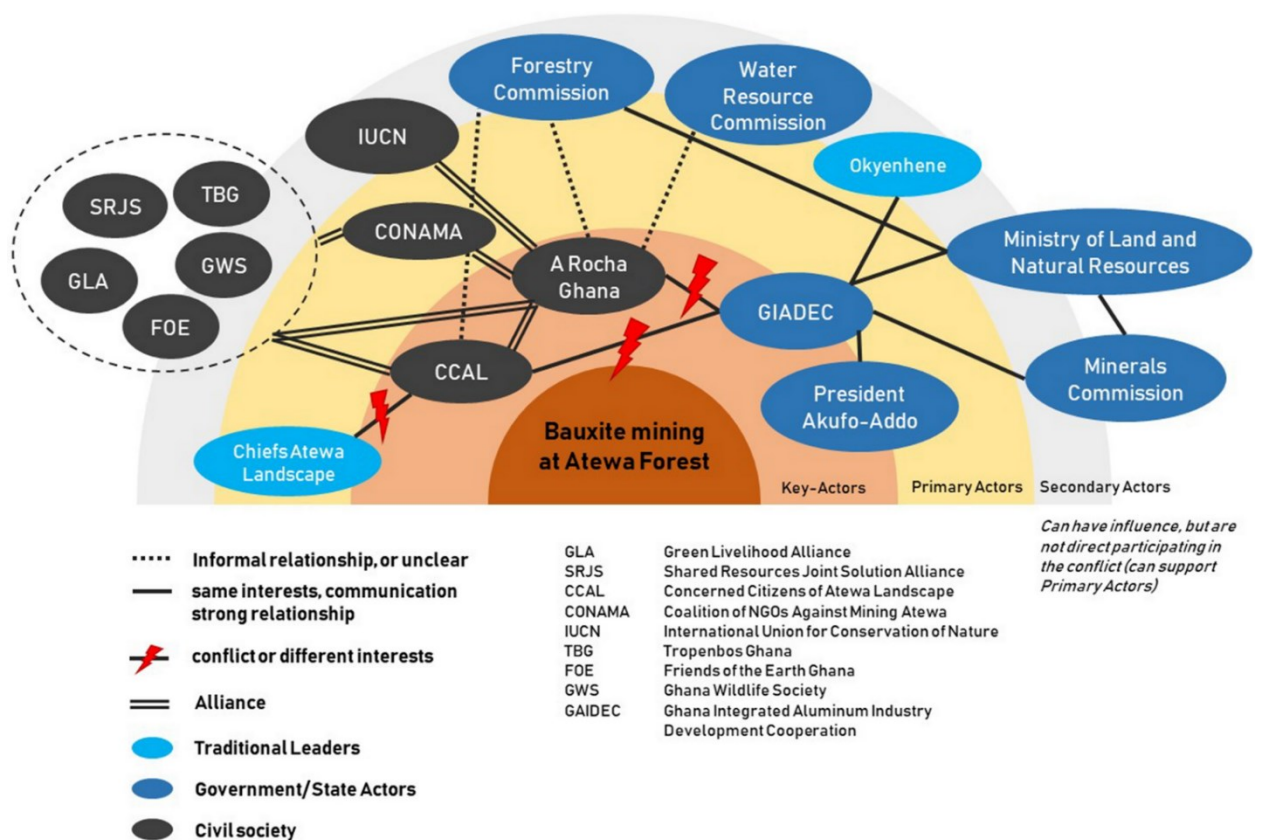


Figure 10 Actor Mapping of the Bauxite Mining at Atewa Conflict

Conclusion

While some strategies have been more successful than others have, demonstration understood as showing films and taking the local actors to the bauxite mine in Awaso was often described as a successful example. This created greater support for the local population and convinced some political mandate holders from the region about the risks of bauxite mining. As mentioned, an Opinion Leader interviewed changed his mind about bauxite mining after the bus tour to the Awaso mine. Compared to other social movements in the context of mining projects, the NGOs involved in the Atewa Forest conservation formed an Alliance before the current deal with China was signed. In addition, the movement was in the beginning backed by the government aiming for protecting the forest and turned after the elections 2016 into a movement against the new government. The government of Ghana is silent in the discussion not giving any public statement; however, in one statement by the current president, he declares the concern the NGOs raise, as something technically manageable. Büscher (2010) points out the anti-political tendencies in environmental conflicts, meaning that concerns are reduced to technical and management discussions. Mostly the transformation from a rock into ore is seen as something economical logical to do, because the ore is being translated into benefits for society. However, mining can result in unwanted consequences and these are quite difficult to anticipate or control. Therefore, certain actors produce the idea that extraction is something mostly beneficially. While the new government views the forest as a resource for bauxite, which is symbolised with jobs and industrialisation, the environmentalists view the forest as providing essential ecosystem services including unique biodiversity hotspots and clean water. In addition, an illegal hunter would see the forest as source for food and resource to sustain his livelihood. The presented case, framed as a conservation-extraction conflict, is characterised by differences in the idea about nature. Hiding the political is also a strategy; however, the NGOs try to pull the new government back into the conflict arena, to avoid that the exploitation may appear as logical and without an alternative to the population.

The paper identified main techniques the NGOs uses for this purpose: Demonstration and Up-Scaling. While these strategies were not directly formulated by the NGOs, they all serve the goal of keeping the protest going, gaining more attention and therefore leading to the situation that the government has to engage with the NGOs because it can no longer ignore or overhear the protest. The paper also elaborated on who the actors are. If the used strategies to protect the forest will be eventually successful is uncertain. The year 2020

marks an election year in Ghana and as ARG pointed out that provides a big chance to put pressure on the current president. At the same time, the outbreak of Covid-19 (SARS-CoV-2) in Ghana in March 2020 is challenging activities such as protests and gatherings on both sides of the conflict. Due to these many factors, Atewa Forest will remain a contested territory being constantly renegotiated. Political ecology is an important approach to deconstruct conflict strategies and drawing attention to the processes of politicisation and how nature is constantly negotiated. In addition, Bridge (2019) calls for a critical engagement with the investment process, from exploration, through development, production and closure. While the conflict between local NGOs and the Ghanaian Government is only one side of the conflict, it remains unclear how direct the involvement of China is in this conflict. Interests between the Governments of China and Ghana may be similar, but in certain aspects could also be contrary. While the idea of bauxite mining in Ghana is nothing new, more an unfulfilled dream, the politicisation of Atewa Forest is closely connected to the involvement of China in this conflict. This is because it is the Chinese financial support that may appear as the trigger of this conflict. Further research should therefore also consider not only the conflicts between civil groups and governments, but also what intentions and strategies are competing between a government that hosts natural resources and the Chinese government. Especially against the background of the so-called new scramble for Africa and growing interests of China to secure access to African resources, it will be important to address issues such as power relations and how these will have impacts on the local level.

6.2. “Come what may, we bring those resources to play” – Narratives, Future-making and the case of bauxite extraction at Atewa Forest, Ghana.

Abstract

The Ghanaian government aims to develop an integrated Bauxite-Aluminium-Industry and seeks to further bauxite extraction at several sites across the country. This vision is embedded within the political agenda ‘Ghana Beyond Aid’ introduced by the country’s president, Nana Akufo-Addo. One possible mining-area is Atewa Forest, one of the few remaining intact upland evergreen rainforests in Ghana. This study highlights the important narratives local NGOs use to mobilise against bauxite mining at Atewa Forest: (a) the case of environmental justice with a strong focus on clean water and (b) the foreign Chinese influence. Both narratives have gained national as well as international attention. However, the government avoids direct discussion and legitimises extraction through the created political agenda ‘Ghana Beyond Aid’. The latter is better understood as a future-making practice, a practice creating a single development path that only needs to be managed. At the same time, revenue from refined bauxite finances huge infrastructure projects that are the foundation of this political agenda. In addition, this legitimisation to extract bauxite appears to be powerful because it is linked to broader global narratives about modernisation and economic growth.

Introduction

The Atewa Forest Reserve in the Eastern Region of Ghana has gained international attention, due to plans to mine bauxite in the forest reserve. On the one hand, because the forest is a biodiversity hotspot and one of the few remaining intact upland evergreen rainforests in Ghana. On the other hand, because the plan to mine bauxite at Atewa is linked to a Deal between the Government of Ghana and the Chinese company *Sinohydro*. The Deal states, that *Sinohydro* will invest and build infrastructure across the country for refined bauxite in return. Ghana has vast bauxite deposits, many untapped. Therefore, the resource remains economically unimportant for the country.

In 2018, Ghana’s president Akufo-Addo introduced his national vision ‘Ghana Beyond Aid’ (GBA). The agenda functions as a blueprint for the country’s further development and transformation. Within this vision, the development of an integrated bauxite-aluminum industry plays a significant role. However, local NGOs fight the government for their plans to mine at Atewa Forest. I observed the dispute about bauxite mining at Atewa Forest from

2018 until 2020. From a political ecology perspective, I was looking at structures, actors, institutions and narratives.

This paper specifically looks on the dimension of narratives with a focus on three questions: (a) what are main narratives of local NGOs against bauxite mining at Atewa forest? (b) What is the role of the political Agenda 'Ghana Beyond Aid' in this conflict and (c) to what extent is future-making a benefitting perspective for political ecology? Results are based on interviews with NGOs that were conducted during three field trips in March 2018, 2019, and 2020. In addition, I analysed political documents, press-statement as well as speeches. The paper elaborates, how, the legitimisation for bauxite extraction is created through the embedding of bauxite within the national vision 'Ghana Beyond Aid'. Usually, narratives are defined as stories of past events told to interpret and ascribe meaning to these events and guide action (Dietz 2019). However, GBA appears to be better understood as future-making practices exercising political power by creating a desirable future vision that acquires and legitimises actions in the present to get there.

Narratives and future-making

Dietz (2019) defines narratives as stories of past events told to interpret and ascribe meaning to them and to guide further action. In contrast to discourses, narratives can, according to Haarstad and Fløysand (2007), be seen as perceptions that are specific or modes of explanation promoted by an actor or a group of actors. Within the discourse on environmental protection, various groups can promote their particular narratives on central environmental problems and the best strategies for handling related problems. Therefore, discourses are a general exchange of meaning on a general topic that structures how a particular topic is thought about (Rose 2001). Dietz and Engels (2020) argue that discourses and narratives are important for structures and institutions (rules, norms, etc.) since the latter need to be constantly reproduced and reconfirmed through images, ideas, arguments, stories, statistics, etc.. In addition, Moor and Wahlström (2019) point out that narratives play a crucial part in shaping social movements. However, narratives are not powerful per se, they unfold power if they resonate with people's cultural norms and beliefs and if they refer to context-related social actions and events (Dietz 2019). Prause and Le Billon (2021) argue that narratives are strategic stories constructed by resistance movements to articulate claims or grievances, promote the interests of the resisting group, and oppose the narratives of their antagonists. Discourses and narratives are crafted by stakeholders to mobilise for or against mining projects. In this way, mining discourses reflect competing views and benefits within the existing economic and political order.

Dietz and Engels (2020) developed a framework for analysing conflicts over land from a dialectical perspective and with four dimensions: structure, agency, institution, and narrative. In my case, I am focusing on narratives and legitimisation of institutions. Furthermore, on how actors use narratives to legitimise what they do? I am building on recent contribution to political ecology, to focus more on time and future as a strategy (see Fent and Kojola 2020). In addition, Ahlqvist and Rhisiart (2015) give more attention to future narratives and Müller-Mahn (2020) introduces future-making, a practice that envisions a desirable future and thereby gains control over present ideas. According to Knappe et al. (2019), future-making practices are social and political endeavors that implicitly or explicitly establish relationships or refer to future situations. These practices are contextual and positional with multiple stakeholders and interests, always making present future-images political (Ahlqvist and Rhisiart 2015).

If future-making practices are effective, they can become powerful tools for creating (new) orders, empowering or excluding actors, and even preserve or transform fundamental values such as the ones that determine what people perceive as a good life or a desirable future (Knappe et al. 2019). Future-making requires performative action that creates greater visibility for some future imaginations while silencing others (Müller-Mahn 2020). Sejersen (2020, 3) shows at the example of extractive industries in Greenland that certain actors can mobilise for an idea of a future-to-come and thereby produce “*a contemporary us*”, as well as the idea of who we can become. These future-making practices create a certain teleology by telling only one desirable future. Therefore, future-making and development practices are consequently closely related and must be understood as attempts “*to gain control over the future and reduce uncertainty*” (Müller-Mahn 2020, n.p.). According to Wiegink (2018), a temporal perspective on the extraction-development nexus is therefore particularly apt to uncover how (future) extractive projects are experienced and envisioned. In his studies about the smelter road in Zambia, Kesselring (2018), for example, showed that even when plans are still uncertain they may already affect social behavior and actors may start to act in anticipation of future events.

To analyse the narratives that mobilises the protest against bauxite mining at Atewa forest, I will refer to narrative analysis, identifying the main stories that are created. According to Dietz and Engels (2020), narratives create a link between structural changes and social action. Therefore, I will analyse different stories, articulated through social media, press releases, or public protest. Besides, I used interviews with the local NGO *A Rocha Ghana* conducted in their main office in Accra as well as the regional office at Keybi where I also

conducted participant observation. I participated in a meeting with the self-organised *Concerned Citizens of Atewa Landscape* where they discussed several strategies. Furthermore, I conducted a group interview with the members of this organisation. On the other side, looking at the government perspective, I did informal interviews with the Ministry of Land and Resources in Ghana, the Environmental Protection Agency, as well as with the Minerals Commission. Additionally, I analysed the political Agenda by President Akufo-Addo's 'Ghana Beyond Aid' (GBA), as well as speeches by the president. I will finally argue that the political agenda 'Ghana Beyond Aid' should be understood not only as a narrative, but as a future-making practice. Therefore, I argue to focus more on 'time' in political ecology in order to understand how governments craft powerful legitimations for their actions.

Atewa Forest: a contested territory

Mining at Atewa Forest is not a new idea. Ayivor and Gordon (2012) point out that mining activities by unlicensed individuals and groups are increasing and causing serious problems for communities (Hilson and Nyame 2006; Oxford Business Group 2013). The status of a national park should protect the ecosystem of the forest for future generations and end the discussions about mining in this area. Until 2016, this process was already far developed. However, in 2016 the opposition National Patriotic Party (NPP) won the elections, promising new jobs from a nationwide industrialisation, including bauxite mining at Atewa. When Akufo-Addo (NPP) became president in January 2017, the government withdraw the plans to upgrade the Atewa Forest to a National Park.

The bauxite deposits at Atewa Forest are covered by the tropical forest. This implies that the forest needs to be logged completely if open pit mines are to be build (Schep et al. 2016). Like most extractive industries, bauxite mining (usually opencast mines) has significant effects on the natural environment like degradation or severe disruption of local wildlife and rivers. One of the by-products that is created during the process of refining bauxite into alumina is a waste product mostly known as red-mud (Ingulstad et al. 2013). The alkaline constituents in the red mud pose severe and alarming environmental problems, e.g. soil or water pollution (Rai et al. 2017). According to Ingulstad et al. (2013), the mining process generates 10 tons of waste rock and 3 tons of toxic red mud to produce 1 ton of aluminum. Consequently, environmentalists, as well as local officials criticise the plans for bauxite mining in the Atewa forest. They fear deforestation, water pollution, and other environmental risks that will especially affect the local population. The forest functions as the source of three important rivers – the Densu, Birim, and Ayensu Rivers. Thus, regional

environmental destruction might lead to heavy pollution of these rivers. The Densu River belongs to the coastal river system of Ghana and is one of the two main sources of water supply for the Accra urban area (Schep et al. 2016). According to the Ghana Wildlife Society (2018), over 5 million Ghanaians depend on the water from the three rivers, Densu, Birim, and Ayensu. Hence, society calls for the protection of the forest and promotes different options like ecotourism. A group calling themselves *Concerned Citizens of Atewa Landscape* was formed in 2018 to prevent bauxite mining in the forest. It consists of civil society organisations, youth groups, interfaith groups, farmer-related associations, opinion- and community leaders. Besides, the NGO *A Rocha Ghana* is an initiator that promotes protest against the government plans. *A Rocha Ghana* was involved in the plans to declare Atewa Forest a national park. Along with a study by Schep et al. (2016), the plans were further developed and the government was willing to proceed to protect Atewa forest.

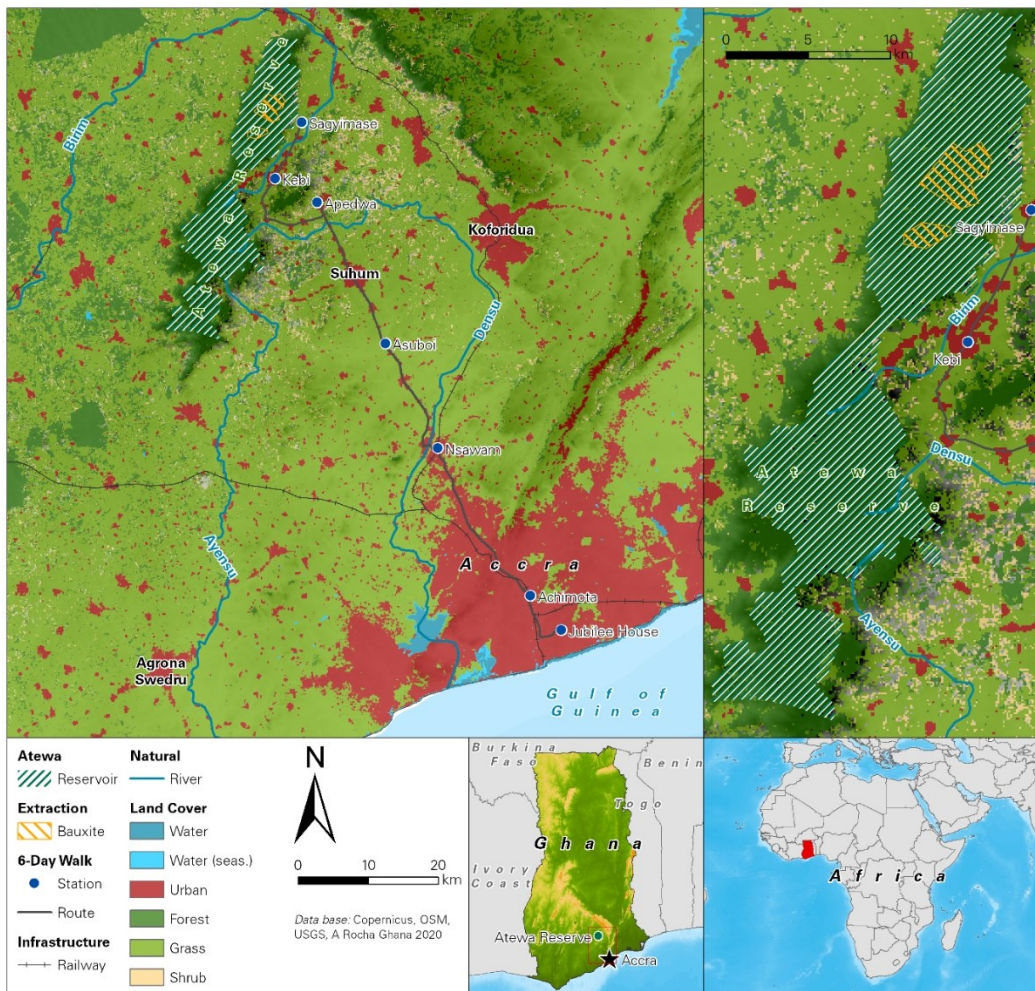


Figure 11 Study Area Atewa Forest Reserve in the Eastern Region, Ghana.

Results

While the Ghana Integrated Bauxite and Aluminium Development Authority Bill (established 2018) does not particularly name any locations where bauxite should be mined, the Ghana Integrated Aluminium Development Corporation (GIADEC 2020) who has the mandate to develop and promote an Integrated Aluminum Industry in Ghana highlights three locations for possible bauxite mining; the existing mine in Awaso, Nyinahin-Mpasaso and Kyebi (also known as Kibi or Kebi). Especially the mining plans at Kebi are contested. The NGOs involved are not in general against mining or the political agenda GBA, but against mining at Atewa forest. This is a challenge for the protesting NGOs because they are agreeing to the government's vision of industrialisation and development in general, but are fighting the same arguments on the ground, particular at Atewa forest.

Narratives from the social movements

In June 2017, when the Ghanaians officially entered a memorandum of understanding with China that included the further development of Ghana bauxite resources, the leading NGO *A Rocha Ghana* posted on social media: *"The Government of Ghana just traded our water, our culture, and heritage to the Chinese and as is expected, the Chinese have also accepted."* Followed by the statement: *"The Government of Ghana just traded the source of water for over 5 million Ghanaians to the Chinese."* In a press conference in July 2017, the local NGOs referred to a study about 'The Economics of Atewa Forest Range' (Schep et al. 2016) which subtitles read 'Living water from the mountain, protecting Atewa water resources'. The study also highlights the water issue, showing a map which especially draws attention to the connection of Accra and the Atewa Forest through the Densu River. This study appears to be the main document the social movement refers to and which legitimises the environmental justice narrative. Toledo López (2020) refer to that as producing counter-expertise and knowledge.

The movement also published an open letter they wrote to the Chinese Ambassador in Ghana in 2018. The story about the Chinese activities that pollute the environment takes up a global discourse about the risks of China's investments in Africa. At that time, it was not neither clear nor agreed on who exactly should mine at Atewa Forest. The so-called *Sinohydro deal* even points out that Ghana sets up the conditions for developing an integrated bauxite-aluminum-industry. However, international newspaper picked up this narrative. For example, the *Foreign Policy* (Gbadamosi 2020) and the *Washington Post*

(2019) addressing both perspectives in their article: *“Mining Ghana’s bauxite would bring in billions from China. But it could also taint the water for 5 million people”* (Washington Post 2019).

However, more central was the narrative about the water bodies being polluted. The first public protest that was organised by *A Rocha Ghana* was a six-day walk in March 2018 from Keybi (Atewa Forest) to the capital Accra. The walk ended on World Water Day (22.03.2018) in front of the Jubilee House (the Presidential office). The groups symbolically referred to water pollution to be a crucial issue if mining will take place at the Atewa Forest and called on action concerning the Sustainable Development Goal number 6 (Water and Sanitation). In June 2019, another march took place, called ‘March for Atewa, Forest and Water’. The water-narrative made it very simple to understand that bauxite mining at Atewa Forest will not only have impacts on small villages but also on the capital. As mentioned by one interviewee, suddenly it was not only an issue of some people living in the periphery, but it was something that also concerned the people in the capital. However, as protests and mobilisation have not successful yet, *A Rocha Ghana* sued the government. The organisation claimed, *“that mining bauxite in the forest violates ‘the right to life and dignity as enshrined in articles 13 and 15 of the 1992 Constitution of Ghana’”* (A Rocha Ghana 2020).

Ghana Beyond Aid and the ‘making’ of a resource

According to Conde (2017), governments react differently to protest against mining projects, depending on how dependent the country on mining is. While bauxite is no important resource for Ghana’s industry, its importance is produced and embedded in a larger vision of a nationwide industrialisation. In addition, Conde (2017) points out that common responses by governments are usually regulations. For example, in the case of El Salvador, the government created a moratorium on extraction due to social pressure (Bebbington and Humphreys Bebbington 2011).

However, in the early stage of the conflict about mining at Atewa, there was no active discussion or response by the government officials. President Akufo-Addo directly referred to the case only a few times. During the Sustainable Ocean Industries Conference in 2019, Akuffo-Addo declared that this issue could be solved with new technologies used in the bauxite industry, avoiding disturbance of the wildlife. In December 2019, during a media encounter, the president affirmed the project at all three locations, because it finances infrastructure across the country. The developing of an integrated bauxite-aluminum industry has since 2016 been a state promoted idea around the promise to finance huge infrastructure with the revenue from processed bauxite. The legitimisation of this project goes hand in hand with its embeddedness in the political agenda ‘Ghana



Figure 12 Statement of President Akufo-Addo on his Social Media Channels (2018)

Beyond Aid'. In 2017, at the 5th Africa CEOs Forum, Ghana's President Akufo-Addo announced, "We want to build a Ghana beyond aid; a Ghana which looks to the use of its own resources." (Communications Bureau 2017, n.p.) and outlined an agenda, that he introduced in 2018 during his speech marking the 61st Day of Independence.

The GBA vision is about the idea of transforming Ghana from an "underdeveloped country to a confident and self-reliant nation" (Government of Ghana 2019) and is built upon five goals: A wealthy, inclusive, sustainable, empowered, and resilient Ghana, in short, a W.I.S.E.R Ghana. In February 2019, a charter committee outlined the four main priorities of the Ghana Beyond Aid initiative: (1) industrialisation, (2) agriculture, (3) corruption, and (4) education. Ghana Beyond Aid is designed to provide money, jobs, and raw materials to reduce poverty nationwide. GBA appears to be more than just a political agenda, it is "a national and non-partisan call to harness effectively our own resources and deploy them effectively and efficiently for rapid economic and social transformation." (Government of Ghana 2019). Bauxite extraction is not only a necessary but also a seemingly unavoidable step towards the achievement of socio-economic development, as proclaimed in a billboard from the president Akufo-Addo (see Figure 12). In his speech, marking the 61st Day of Independence, Akufo Addo calculated the benefits of this promises: "On the world market, bauxite in its raw form is worth about \$42 per metric ton. Processing it just one stage further into alumina oxide will fetch twice that amount. Refining the alumina oxide into alumina will increase the value by seven times and smeltered aluminum fetches one hundred-fold what it gets in the raw state." (Akufo-Addo 2018, n.p.).

The importance of the integrated bauxite-aluminum industry is also linked to the so-called *Sinohydro deal*. The Chinese company *Sinohydro* builds infrastructure in Ghana and is repaid with the revenue from selling refined bauxite (alumina or aluminum): „My

government is going to implement an alternative financing module to leverage our bauxite reserves, in particular, to finance major infrastructure programs across Ghana. This will probably be the largest infrastructure program in Ghana's history without any addition to Ghana's debt stock." (Akufo-Addo 2018, n.p.). The Ghanaian Government defines priority infrastructure projects therefore has the certainty that GBA projects are materialised. Bauxite mining has made itself a project without alternatives from the government's perspective. Because (a) it enables Ghana to establish and is literally the material ground for an integrated Bauxite-Aluminium industry with the attempt to export higher levels of manufactures and (b) enables a deal with the Chinese company *Sinohydro* and therefore loans to finance other projects of the GBA Agenda.

This double dimension, of being the material foundation for GBA and being embedded within this vision, highlights the importance to execute this project. This double dimension leads to circumstances, where the governments argues that there is no alternative to executing the project. President Akufo-Addo repeatedly pointed out "*come what may, we bring those resources to play*" (Aluminium Insider 2017, n.p.). In the framework, Dietz and Engels (2020) highlight that narratives are strategically transformed and adapted to different scales in order to gain legitimacy from scale-specific hegemonic discourses. In addition, Jasanoff and Kim (2015) point out that imaginaries work more powerful through the global circulation of already powerful socio-technical imaginaries which are re-embedded into local constellations of production and practice. Looking at the case, it reveals a significant similarity to modernisation theories and the development discourse.

In the early stages of the bauxite mining plans, there simply was the promoted idea of developing an integrated bauxite-aluminum industry and finance several infrastructure projects with the revenues from refined bauxite. I would argue that the legitimisation during that time was quite vague. According to Zimmermann (1933) resources are not, they become. With the *Sinohydro deal* and the developed vision Ghana Beyond Aid in 2018, the project became important due to their importance for GBA. In this context, it developed a much more powerful legitimisation, being now coupled with the vision of a nationwide industrialisation, modernisation and self-reliant nation. Ironically, this is not the first time bauxite is a symbol for industrialisation and sovereignty. Already during the years of independence, the first President of Ghana, Kwame Nkrumah, had the vision of developing an integrated bauxite-aluminum industry to modernise the nation. However, this vision never became fully realised (see for example Miescher 2014). Bauxite mining at Atewa forest is linked with future promises about development that make the extraction

appear as something achievable and without alternatives. Looking at 'Ghana Beyond Aid' (GBA) as a future-making practice, gives more attention to how the resource bauxite gains importance and its extraction legitimisation. This highlights, that dimensions of time or future, can be a benefitting perspective in political ecology. Future-making practices envision a desirable future and thereby gain control over present ideas, narratives, and reactions. These practices are legitimated through different narratives (Knappe et al. 2019). While the concept of imaginaries must be understood as an analysis of present images of the future, future-making refers to a related set of socio-technical practices. Ahlqvist and Rhisiart (2015) describe it as a foresight process understood as a creative and exclusive set of practices in which a certain imaginary is produced. These practices aim *"to seize a certain organizational or spatial unit present and past, constructed in the hermetic process of strategy, as a function of its potential futures"* (Ahlqvist and Rhisiart 2015, 26). Equally important in this context is the creation of hierarchies and through the legitimisation of certain truths, meanings, and knowledge, a particular order-of-things (Robbins 2012; Holmes 2014; Boelens et al. 2016). The future does not simply emerge; it is socially produced through practices.

Conclusion

Müller-Mahn (2020), as well as Knappe et al. (2019) are generally more focused on the state or the government when it comes to future-making. However, on the one hand, future-making can also be a practice of resistance by empowering local people to develop their idea of futures. On the other hand, it is important to have a differentiated view when it is about 'the government' or 'the state'. The political agenda 'Ghana Beyond Aid' is linked to president Akufo-Addo. According to Gramsci (1992, 136), the stabilisation of power relations is based on hegemony and a social group or class is hegemonic when *"it is 'leading' and 'dominant'"*. In this struggle, the ruling classes and their intellectual leaders shape public opinion by using storylines which influence the cultural and political background (Gramsci 2000).

Nevertheless, it appears that GBA is a powerful vision because it relies on the global development discourse which Ziai (2017, 264) labeled as *"remarkable permanent"*. Kumi (2020, 87) elaborates on the public perceptions of 'Ghana Beyond Aid' and highlights that GBA is *"the desire of the governing elites to promote development through structural economic transformation by reducing their dependence on foreign aid."* A few days before the national election on 7th December 2020, Akuffo-Addo addressed the people in Nyinahin and repeated his promise: *"The Ghana integrated Bauxite and Aluminium Development Authority*

will soon be complete for the mining of the bauxite, out of which an industrial revolution would emerge to bring money, jobs and development to Nyinahin." (GhanaWeb 2020, n.p.). This finally shows that the government avoids picking up or confronting the narratives from the protesters and rather hold on to their own produced future, which appears to be without alternative. Meanwhile, despite Covid-19, 21 days before election day the Ghana Youth Environmental Movement organised the *#voteAtewa* campaign, rising public attention through protests and social media posts on environmental issues and reminding everyone that it is about their future as well.

This paper, as part of a project that looks at structures, actors, and narratives in the conflict about bauxite mining at Atewa Forest in Ghana tried to answer three questions concerning the dimension of narratives. As in the beginning stated, I would argue that the local protesters and NGOs fighting against bauxite mining at the forest, are drafting their narrative around the aspect of environmental justice by referring to the right of access to clean water. In addition, biodiversity and wildlife are always part of this argument. However, it appears that water is as topic more concrete for everyone, also for people living in the capital Accra. Therefore, this narrative mobilises more collective action as it addresses more people. In addition, the narrative of Chinese influence and getting access to resources was also important in the beginning. The longer the protests are going on and the more details about the deal between *Sinohydro* and the government is getting public, the less this narrative is used.

The second question concentrated on the government's agenda Ghana Beyond Aid. The paper elaborated on how the plans for bauxite extraction are being embedded within this agenda. Simultaneously, this agenda not only but still heavily relies on the development of an integrated bauxite-aluminum industry, as the revenue from this industry are to finances the *Sinohydro deal* and which finances infrastructure promised by GBA. Therefore, the bauxite extraction appears more and more as something without alternatives. In addition, it is coupled to the vision of a self-reliant nation. This leads to the third question. I would argue, that time, temporalities and future provide new perspectives for political ecology. In political conflicts, time can be used strategically. Control over time is a medium of hierarchic power and governance. Future-making practices create a certain teleology by telling only one desirable future. Therefore, they implicitly or explicitly refer to future situations by simultaneously outlining how to get there. As mentioned, narratives are not powerful per se and they refer to context-related social actions and events. In contrast, I would argue that the seemingly unavoidable path to mine bauxite is better understood

from the standpoint of future-making practices. It still admits that it is something socially produced and political but it deconstructs the processes that created a powerful legitimisation. It allows understanding *“how future gets translated into space”* (Müller-Mahn 2020, n.p.). Future-making and the creating of a national imaginary are about how to demarcate space, legitimate extraction, as well as a new order of the territory. As Hinojosa et al. (2015) argue, future-making practices consider transformation from a geographical perspective and are about appropriate strategies for territorial development and futures to which residents might aspire. This practice is important to create a single development path that only needs to be managed. At this point, reaching a certain future is becoming a question of managing the present; furthermore, the created future legitimises present practices.

6.3. Same Same, but different: Ghana's Sinohydro Deal as evolved 'Angola Model'?

Abstract

Ghana has gained international attention due to an interesting deal into which it has entered with the Chinese Sinohydro Corporation Limited, which is investing \$2 billion in infrastructure development and in return for refined bauxite over a 15-year period. When it comes to resource-backed loans between China and African governments, these types of cooperation are widely known as the Angola Model. However, the Sinohydro deal has a different structure in relation to involved actors and the established para-state company charged with managing the extraction of bauxite. This paper aims to elaborate on the differences between both.

Introduction

Over the last few years, trade between African countries and China has rapidly expanded, due in part to China's fast-growing economy, which has led to an increasing demand for energy. By 2011, China had become the world's largest energy consumer (Vasquez 2019), and in 2014, the country surpassed the US as the world's largest oil importer and positioned itself as an alternative market. Due to low oil prices after 2008, African oil became available at competitive prices, and so China engaged increasingly more with oil-producing countries on the continent (Arriagada et al. 2014; Dollar 2016). To take advantage of these opportunities, China used investment, lending and political agreements to expand its oil frontiers (Vasquez 2019), with its banks and major companies investing in selected countries in exchange for oil. The financial presence of China is exemplified in two major ways: (a) as foreign direct investments or (b) as loans in exchange for future payments in oil; for example, Angola and Sudan secured significant loans with oil. However, Brautigam and Jyhjong (2016) point out that of the five largest recipients of Chinese loans in the period 2000–14, only Angola and Sudan secured their loans based on oil – while Ethiopia used sesame seeds as collateral, the DRC used copper, and Kenya secured a loan for building a railway against future revenues from rail traffic. Vasquez (2019) noted that certain voices framed these outcomes as an orchestrated policy by China (Taylor 2006; Kong and Gallagher 2017), while others played down these negative assumptions (see (Brautigam 2009; González-Vicente 2013; Economy and Levi 2014). Nevertheless, trade and diplomatic relationships between African countries and China have rapidly expanded, as well as the discussion about so-called 'resource-for-

infrastructure swap agreements'. According to Singh (2020), resource-backed loans make up approximately one-third of China's monetary advances to African nations. Brautigam and Gallagher (2014) name Angola, Congo-Brazzaville, the Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Gabon, Ghana, Nigeria, Sudan and Zimbabwe as recipients of commodity-backed finance in Africa. This large-scale Chinese financing scheme has been widely known as the Angola Model (Foster et al. 2009), Angola Mode (Power and Alves 2012) or China-Angola Investment Model (Begu et al. 2018). The Angola Model involves an exchange of natural resources for national infrastructure through direct investments by China in both mining (in the case of Angolan oil) and infrastructure, and it dates back to 2004 when Angola signed several financing packages with China for public investment projects. Mihalyi et al. (2020) illustrate that the finance structure, also labelled the 'Angola Model', has become relatively commonplace in resource-rich countries in sub-Saharan Africa, Latin America and beyond. Lenders are mainly state-owned development banks from China. In general, these resource-for-infrastructure deals have been criticised for leading to certain economic as well as ecological risks for the host country. However, they are also recognised for the fact that they enable the financing and development of infrastructure desperately needed by African countries. Habiyaemye (2016, n.p.) argues that *"Africa's ability to sustain the high growth rates of its lion economies, in the long run, will depend on its capacity to mobilize the profits from the natural resource sector so that they can yield sufficiently large surpluses for investment in a modern manufacturing sector."* Since resource-backed loans also come with challenges, Mihalyi et al. (2020) reveal emerging new modes of financing, citing contracts in Brazil 2017, Guinea 2017 and the *Sinohydro Deal* in Ghana 2018 as examples in this regard. The latter is an agreement between the *Sinohydro Corporation*, a Chinese state-owned enterprise (SEO) specialising in infrastructure development, and the Government of Ghana. *Sinohydro* arranged loans to fund infrastructure projects, while Ghana uses revenue from refined bauxite to repay the loan. However, the bauxite-aluminum sector in Ghana is not particularly well-developed and plans for extraction at the Atewa Forest Reserve (eastern region of the country) have gained international media attention (see, for example, Washington Post 2019 or Oteng-Yeboah 2019). According to Johnston (2019), the *Sinohydro deal* is actually a step-around debt trap and not far away from the widely used Angola Model. Furthermore, in 2017, the Chinese Exim Bank called for a long-term, stable and sustainable financing mechanism and promoted government-private capital cooperation (Exim Bank 2017).

Ghana's bauxite industry

Ghana is rich in oil, gold, manganese, diamonds and bauxite; however, gold is currently the key resource for the country's economy (Ayee et al. 2011), making it the largest producer in Africa. Over time, the country has managed to exploit its resources; however, for several reasons, this has returned little in sustained development value to the economy (Ayee et al. 2011). Despite the rich reserve base and Ghana being the third-largest producer of bauxite on the African continent (Knierzinger 2018), the raw material has only been mined at one site since 1942. Besides, its exports accounted for 0.6% of total minerals exports and 0.22% of total merchandise exports in 2014 (Oxford Business Group 2017). Ghana's bauxite gained importance between World War I and World War II, and it also played a major role in the Volta River Project, which included a hydroelectric dam, an aluminum smelter to process Ghanaian-mined bauxite, new cities, a deep-sea harbour and other infrastructural investments (Miescher 2014). The project, during the years of Ghana's first president Kwame Nkrumah, became a symbol of sovereignty and promised an economically independent Ghana as a result of rapid industrialisation and reducing the country's dependence on cocoa exports (Agbolosoo 1991). After the coup in 1966, Britain showed little interest in the development of a bauxite-aluminum industry, and bauxite production in recent years has fluctuated on account of the country's inadequate railway system for transporting ore from the mine to the coast. After Western companies withdrew from the sector, Chinese investors took their place and began to revive the old vision. Following the plans posited by the First Republic of Ghana, the country's bauxite deposits are to be further developed in terms of an integrated aluminum production strategy. The proceeds from this project will serve to finance many needs, such as infrastructure, electricity, schools and water supply, and realise, according to President Akufo-Addo, a Ghana Beyond Aid: *"My government is going to implement an alternative financing module to leverage our bauxite reserves, in particular, to finance major infrastructure program across Ghana. This will probably be the largest infrastructure program in Ghana's history without any addition to Ghana's debt stock"* (Akufo-Addo 2018, n.p.). However, currently, only two major actors are active in the bauxite-aluminum industry: the government, which holds a 100% share in the VALCO smelter at Tema and 20% stake in the Ghana Bauxite Company, and the Bosai Minerals Group, which holds the other 80% in the Ghana Bauxite Company, operating at the only bauxite mine in Ghana, namely Awaso (see Figure 13).



Figure 13 Ghana's Bauxite-Aluminium Industry (2020)

Research Design and Methods

Mihalyi et al. (2020, 2) argue that “RBLs have become relatively commonplace in resource-rich countries in sub-Saharan Africa, Latin America and beyond.” Meanwhile, the *Sinohydro deal* has been recently labelled as a new finance model and a promising alternative to the widely used Angola Model (see Johnston 2019). This paper elaborates on the differences between the Angola Model and Ghana's *Sinohydro deal* and considers whether the deal offers a more promising model for Chinese investment in Africa.

I contend in this paper that there are differences between the *Sinohydro deal* in Ghana and other resource-backed loans made by China, particularly highlighting (a) a privatisation shift and (b) the collateral itself; using refined bauxite, not raw bauxite, which enables Ghana to add value to their resource and may increase therefore the local economic impact. This deal illustrates a shift that may be becoming more visible, i.e. the diversification of the Chinese finance mechanism.

Herein, I first expand on the Angola Model, its origins and operational characteristics, following which I provide a brief overview of resource-backed loans on the African continent. The first section ends by describing the shortcomings of the Angola Model. In the following chapter, I outline the origins and operational characteristics of Ghana's *Sinohydro deal*. Thereafter, the deal in Guinea is briefly compared to the *Sinohydro deal*. Both loans were negotiated during the same period, and both with bauxite as collateral. Building on the mentioned shortcomings of the Angola Model, I discuss if – and how – the *Sinohydro*

deal does things differently. A conclusion, as well as ongoing concerns and challenges, end the paper.

Research for this paper is based on the analysis of secondary and primary literature, including official government documents, press statements by NGOs or governments, presidential speeches and research reports on resource-backed loans and the environmental impacts of aluminum sector projects. During field trips in March 2019 and March 2020, additional material, such as *Sinohydro deal* documents, were collected. Relevant contacts were the local NGO *A Rocha Ghana*, Minerals Commission, VALCO and the Environmental Protection Agency (EPA). However, all relevant information used in this paper is now published, which is why interviews are not included in this paper.

The Angola Model

Origins of the Angola Model

In 2002, the MPLA (Movimento Popular para a Libertac,ãõ de Angola) government in Angola was ready to rebuild the country after a 27-year civil war. The IMF offered loans to fund a large-scale infrastructure reconstruction program, albeit insisting that Angola had to achieve a healthier fiscal situation first, which implied cutting public expenditure, lowering inflation and increasing transparency. Angola's government did not agree with these conditions and instead decided to negotiate with China. At that time, on the one hand, China's export-oriented industries and manufacturing demanded more and more natural resources, especially oil (Burgos and Ear 2012). On the other hand, the commencement of war in the Middle East made it necessary for China to diversify its imports. In 2004, China's Exim Bank offered the first loan to Angola (Corkin 2011), and both countries were able to secure their national interests using this strategic financial mechanism (Kiala 2010). Brautigam and Hwang (2016) define two financing models: strategic partnerships with major Chinese companies and commodity-secured package finance. Strategic partnerships offer financial support to national champion firms, usually in the form of five-year plans, whilst commodity-secured packages offer individual project loans and a line of credit secured by resource exports. Zongwe (2010) argues that the Angola-China contracts are the first major example and archetypes of resource-for-infrastructure contracts between China and the African continent. An investment contract is distinguishable from a trade agreement. While a trade transaction characteristically consists of a one-off exchange of goods and money, an investment deal initiates a long-term relationship (Dolzer and Schreuer 2008). The World Bank, in its report entitled

Building Bridges (Foster et al. 2009), first framed the term Angola Model, the fundamental assumption of which is that African Countries want China to invest in their infrastructure, and China needs to import Africa's mineral and oil resources (see also Begu et al. 2018). Foster et al. (2009) point out that the China Exim Bank increasingly uses the Angola model for countries that cannot provide adequate financial guarantees to back their loan.

Operational Characteristics

When Angola negotiated with the IMF for loans in 2003, the government also received a counteroffer of a \$2 billion advance from China's Exim Bank. The deal came with an interest rate repayment of 1.5 per cent over 17 years, including a grace period of five years (Corkin 2011). At first, 10,000 barrels per day of crude oil should be supplied, but later this should increase to 40,000 barrels per day (Taylor 2006). The Angola government has granted a license to extract the resource to Chinese oil companies, which provide payment for the loans. Also, indicates the Angola Government the infrastructure projects to Chinese construction companies. Meanwhile, Chinese construction companies receive financial support from the Exim Bank, which holds the exclusive mandate to extend concessional loans that fall under the official development aid (ODA) category, albeit, in the case of Angola, they are extended on a more commercial basis (Power and Alves 2012). The bank has been a key instrument in facilitating expanding economic cooperation between China and Angola. The Export-Import Bank of China is one of China's three policy banks established in 1994 (the other two are the China Development Bank and the China Agricultural Development Bank), which remain tools of the government and allow Beijing to allocate preferential or targeted finance through a mix of planning and market means. Both the Exim Bank and the Development Bank are key instruments in China's foreign economic policy and cooperation with Africa, with the former providing concessional finance and loans for infrastructure development in the majority of countries on the continent (Corkin 2011). Also, loans are tied, because involved companies (usually construction businesses) are generally Chinese in origin. Furthermore, these Chinese companies carry out infrastructural projects and are reimbursed by the Exim Bank, which deducts construction expenses from the value of resources that African countries transfer to the Chinese government (Tan-Mullins et al. 2010). Vasquez (2019) stresses that the China Development Bank (CDB) and the Export-Import Bank of China (China Exim Bank) are mainly involved in lending money, but to a much lesser extent than commercial lending institutions. As part of the loan mechanism, the proceeds from the exported resources are

deposited in an escrow account at a Chinese bank, which draw from it to repay the loan (Brautigam and Gallagher 2014).

Alves (2013) claims that the Angola Model is the product of a timely convergence of interests between China and African countries. On the one hand, China is home to many rapidly expanding industries, and on the other hand, African countries have infrastructural deficits. It is also important to point out that while the IMF or Western countries tend to be more careful about investments, China was ready to take a risk in Angola, a country that had recently stabilised after civil war. Landry (2018) highlights that risk calculations are an important aspect in determining the interest rates applied to development finance. Especially African countries in post-war circumstances had difficulties accessing the capital market but were rich in natural resources. Therefore, using natural resources as collateral to access sources of finance for investment came as a welcome solution. China loans were provided without political conditionality and at a much lower interest rate than any international financial institution might offer (Begu et al. 2018). This was also a more favourable deal for the African political elites (Konijn 2014). After all, the Angola Model made it possible to leverage natural resource wealth for infrastructure development. Additionally, Halland et al. (2014) claim that such finance models reduce the risk that revenues from resource extraction will be spent elsewhere, mismanaged or get other prioritisation. In some way, resource-backed loans' inherent precommitment mechanisms may reduce such risks (Halland et al. 2014). Kabemba (2016) reported that the Congolese government failed to secure investments from Western countries and turned to China. Similarly to Angola, the money used for infrastructure did not go to the government, thereby enabling quick investment in infrastructure and preventing other types of political spending or mismanagement.

In the case of Angola, in 2004, a \$2 billion loan from the Chinese Exim Bank was used to finance the reconstruction of infrastructure damaged during the nation's long-lasting civil war (Konijn 2014). The Angola government now uses Chinese credit, backed by oil-based guarantees, to finance national infrastructure. In addition, Chinese companies are largely contracted to undertake projects and are paid directly by China Exim Bank. The loan is repayable at LIBOR plus 1.5% over 17 years, including a grace period of five years (Corkin 2011). Investments appear not as money that is directly transferred to the government of Angola; rather, in the case of Angola, a Chinese oil company provides payments for new loans to the Chinese Exim Bank, which in turn provides financial loans for infrastructure projects to a Chinese construction company. Therefore, instead of transferring funds to

African governments, they are transferred directly to the companies undertaking the construction work (Corkin 2011). The aforementioned Chinese construction companies are selected by Exim Bank and the Chinese Ministry of Commerce and have to be approved by the African government (Thompson 2012). The Government of Angola prioritises the importance of certain infrastructure projects to the Chinese construction company and then grants a license to the Chinese oil company to extract natural resources. The company then guarantees the repayment of the loan through the export of the natural resource. As long as China receives oil from Angola, the Exim Bank is willing to invest in the African country. At the same time, China is investing in many countries around the world, in order to be independent of Angola's oil. In 2018, the Government of Angola announced it was moving beyond its heavy dependency on Chinese capital and diversifying its funding sources (Sato 2018).

Examples of Implementation

Chinese banks and companies began to lend a large amount of money to selected African (and Latin American) countries in exchange for their oil. The largest sectors financed by Chinese loans are transportation (US\$24.2 billion), followed by energy (US\$17.6 billion), mining (US\$9.0 billion) and communication (US\$6.5 billion) (Brautigam and Hwang 2016). Table 4 shows resource-backed loans between African countries and China, up to 2018. However, it should be clarified that most of these deals are backed with oil. Also, most of them are greenfield projects (Vasquez 2019). The Angola Model, as an agreement between governments and mainly state-owned development banks as lenders, is commonplace across the continent. However, there are some exceptions, such as Guinea, which can be seen as part of a new model and with private actors on both sides, the *Sinohydro deal* in Ghana.

Table 4 Overview of resource-backed loans between African countries and China between 2004 and 2018;

(Source: Konijn 2014; Mihalyi et al. 2020)

Year	Loan value (\$M)	Borrowing country	Borrower entity	Lending country	Lender entity	Project	Resource
2004	2,000	Angola	Government	China	Exim Bank	Multi-sector infrastructure projects	Oil
2007	500	Angola	Government	China	Exim Bank	Multi-sector infrastructure projects	Oil
2007	2,000	Angola	Government	China	Exim Bank	Multi-sector infrastructure projects	Oil
2009	2,000	Angola	Government	China	Exim Bank	Multi-sector infrastructure projects	Oil
2010	2,500	Angola	Sonangol (SOE)	China	ICBC*	Kilambia Kiaxi New Town Phase I	Oil
2015	15,000	Angola	Government	China	CDB*	Multi-sector infrastructure and Sonangol development	Oil
2008	3,000	The Democratic Republic of the Congo	Sicomines: JV of Congolese SOE Gecamines (32%) and Chinese consortium of CREC and Sinohydro (68%)	China	Exim Bank	Construction and rehabilitation of various railways, roads, hospitals	Copper and cobalt
2007	306	Ghana	Government	China	Exim Bank	Bui Hydropower	Cocoa
2007	292	Ghana	Government	China	Exim Bank	Bui Hydropower	Cocoa
2011	1,500	Ghana	Government	China	CDB	Multi-sector infrastructure	Oil
2011	1,500	Ghana	Government	China	CDB	Multi-sector infrastructure	Oil
2018	2,000	Ghana	Ghana Integrated Aluminium Development Corporation (GIADC)	China	Sinohydro	Multi-sector infrastructure including roads, bridges, interchanges, hospitals, affordable housing	Bauxite

2017	20,000	Guinea	Government	China	Henan International Cooperation Group, Chalco, China Power Investment Corp	Multi-sector infrastructure including Coyah-Dabola road, Conakry road network and sanitation, university building	Bauxite
2013	1,000	Niger	Government	China	Exim Bank	SORAZ oil refinery (replacing an earlier loan)	Oil
2006	1,600	Rep. of Congo	Government	China	Exim Bank	Multi-sector infrastructure	Oil
2012	1,000	Rep. of Congo	Government	China	Exim Bank	Multi-sector infrastructure	Oil
2015	1,000	South Sudan	Government	China	CNPC (China National Petroleum Corporation)	Advances on oil sale	Oil
2016	169	South Sudan	Government	China	Exim Bank	Nadapal-Torit-Juba and Juba-Rumbek-Wau roads	Oil
2007	3,000	Sudan	Government	China	Exim Bank	Multi-sector infrastructure	Oil
2004	110	Zimbabwe	Zimbabwe Electricity Supply Authority	China	China National Aero-Technology Import & Export Corporation	Purchase of REA equipment	Tobacco
2006	200	Zimbabwe	Government	China	Exim Bank	Purchase of agricultural equipment	Platinum
2011	98	Zimbabwe	Government	China	Exim Bank	Construction of the National Defense College	Diamond

Nigeria is also an important oil exporter, but it is not listed above. The Chinese company Sinopec took over the company Addax Petroleum for USD 7.2 billion in 2009. Sinopec received oil equity in Nigeria, Gabon and Cameroon (Vasquez 2019). Therefore, it is not a resource-backed loan from China.

Shortcomings and Problems

The Angola Model has often been discussed as a strategic partnership or a marriage of convenience. Corkin (2011, n.p.) argued that the relationship between Angola and China *“seems to be maturing from a heady embrace of mutual convenience to a reassessment of each other’s strategic significance as partners.”* Begu et al. (2018, 1) define the model as cooperation and a *“source of economic growth and infrastructure development for Angola and a source of energy that fuels China”*. Konijn and van Tulder (2015) highlight that general criticisms are the lack of transparency, doubts if it is a fair deal, a potential conflict of interest, concerns about fraud and corruption as well as weak links with the local economy. Furthermore, Ezechukwu (2015) points out a number of challenges resulting from the irreversible damage done to the environment by infrastructure projects, as well as the rising debt profile of African countries. Brooks (2017, 228) notes that the *“Angola Model enables types of capitalist development that in the long run will bring greater benefits to Chinese capital than the Angolan people”*. Also, he states, African countries are now re-accumulating debts and deepening their dependency on China. For Singh (2020), in terms of dependency on natural resource extraction amongst borrowing governments, is more concerned with the *“misconception”* (Singh 2020, n.p.) that China is using loans to take over natural resources. There is also a growing number of scholars, such as Brautigam (2020) or Lai et al. (2020), refusing to acknowledge the debt trap discourse. Carmody (2020), however, supports this idea and outlines that increasing dependencies are more a feature of uneven capitalist development rather than something unique to China. However, he also points out that China as an increasingly authoritarian state is not afraid of using its economic and geopolitical power. For Konijn (2014), the resource-backed finance model has weak linkages to the local economy and therefore limits economic impact. Mihalyi et al. (2020) highlight that Chinese banks often bundle loans with oil sector production or trading agreements. Also, they come with requirements regarding the use of Chinese construction companies. Alves (2013) highlights, as observed in the case of Angola, the increased participation of Chinese companies in upstream production (Mihalyi et al. 2020). Furthermore, due to contract conditions, the major share of goods and services is produced in China, while African countries only export resources in their raw state. In the case of the deal between China

and DRC in 2008, the former gained rights to extract 6.8 million tons of copper and 420,000 tons of cobalt (Jiang 2009).

The Sinohydro deal in Ghana 2018

Origins of the Sinohydro deal

Resource-for-infrastructure deals refer to those in which loans granted for infrastructure development are repaid with natural resources. The first kind of resource-for-infrastructure deal between Ghana and China was the construction of the Bui Dam in 2007, also with *Sinohydro* as a construction company. The cost of construction was covered by the government of Ghana and by loans from the China Exim Bank (Williams et al. 2017). Both countries settled on a cocoa sales agreement of 40,000 tons for 17 years as repayment for the construction of the dam (Konijn 2014). In June 2017, the People's Republic of China and the Republic of Ghana entered into a \$10 billion deal, stipulating that China would participate in the development of the integrated bauxite-aluminum industry in Ghana and invest heavily in infrastructure development. In addition to the construction of schools and hospitals, this agreement included the expansion of roads and railway lines as well as deep-water port at Tema (Oxford Business Group 2018). Finally, in September 2018, the two countries signed a Memorandum of Understanding on further cooperation under the Belt and Road Initiative. In this context, an agreement was signed between the Ghanaian government and the Chinese company *Sinohydro*, the latter of which invested \$2 billion in the development of infrastructure and would receive refined bauxite in return for 15 years (MPSA 2018). Also, Ghana committed to expand its bauxite-mining activities and build refineries over the following three years (Kpodo 2018). While this agreement could be just another example of the Angola Model and a typical resource-for-infrastructure contract, there are debates about differences between it and the more common finance models.

A major challenge with oil-backed loans is the volatile nature of oil prices. Ghana experienced such problems with a 3 billion US \$ oil-backed loan from the China Development Bank in 2011. On the one hand, the country struggled with falling oil prices (from 115 US \$ in June 2014 to 53 US \$ in January 2015) (Aidoo et al. 2017), while on the other hand, it also had a simultaneous problem with price declines in its other major export goods, i.e. gold and cacao. The ability of Ghana's government to repay the loan was restricted. In 2015, the agreement ended, and Ghana turned to the IMF to help its struggling economy. In 2015, the IMF approved a \$918 million loan, to help the country. During that time, the nation's opposition party, New Patriotic Party (NPP), accused the ruling National

Democratic Congress (NDC) of making a one-sided deal with China and putting a lot of pressure on the administration (Aidoo et al. 2017). This was also an important narrative during the campaign in 2016 (NPP 2016), when Akufo-Addo's NPP won the general election and started new loan negotiations with China. However, due to past experiences, this time would be different.

Operational Characteristics

The Government of Ghana entered a finance arrangement with *Sinohydro* to develop infrastructure in the country. In July 2018, the Master Project Support Agreement (MPSA) was approved by Parliament, following which, in November 2018, Parliament approved Deferred Payment Agreements (DPAs) and Engineering, Procurement Construction (EPC) contracts (International Monetary Fund 2019), the latter of which are a particular form of arrangement whereby the contractor (in this case *Sinohydro*) is responsible for all activities, ranging from design, procurement, and construction, through to the commissioning and handover of the project to the end-user or owner. Under an EPC contract, a single construction company agrees to provide a finished project, meeting certain technical and functional specifications, by a fixed time and for a fixed price. The Government of Ghana has undertaken to pay the total EPC contract price to *Sinohydro*, using proceeds from the sale of refined bauxite.

Sinohydro agreed to arrange project financing for deferred repayments by the government, which in turn would provide 15% of the construction and project costs. Under the MSPA, the government defined priority areas that need to be developed and executed by *Sinohydro*. Phase 1 consisted of ten road construction projects, at a total of 441.59 km and 500 million US\$ and was scheduled to begin in March of 2020 (Ministry of Finance Ghana 2020). According to the Republic Ghana Ministry of Finance (2020), four out of 10 road projects have already commenced; however, due to the Covid-19 outbreak in March 2020, construction stopped, and there are serious concerns of further delays. Defined priority areas for Phase II are further road construction and bridges, as well as hospitals and affordable housing.

The Ghana Integrated Aluminium Corporation (GIADC) was set up by Parliament (established through an Act of Parliament in August 2018) as a commercially-based independent SPV (special-purpose vehicle) in charge of developing and managing the nation's bauxite reserves (IMF 2019). While this was a required step, it is not defined in the *Sinohydro deal*. GIADC is in charge of organising bauxite mining in the country and for

setting up plans to build refineries and relevant infrastructure. It is also in charge of entering into joint venture partnerships with investors for mining and refining. The GIADC board consists of representatives of the integrated aluminium industry, members of Parliament, a representative of the Ministry of Finance, the chief from Nyinahini, a representative of the Minerals Commission and a representative of the Association of Ghana Industries. GIADC has a Chief Executive Officer, who was a former Senior Vice-President of the Dell Corporation.

Under the DPAs, all financial obligations to *Sinohydro* are to be transferred from the Ministry of Finance to the Ghana Integrated Aluminium Corporation (GIADC) (see also Figure 14). Therefore, the government has no financial liability to *Sinohydro*, and the Chinese company is not directly involved in bauxite mining or the sale of the refined resource. However, GIADC reimburses *Sinohydro* with deferred payments and is responsible if payments are missed. As a result, GIADC has set up an offshore escrow account for revenue generated from selling bauxite. The government estimates that bauxite mining could deliver over US\$500 billion in revenue. Although the Republic of Ghana has extensive bauxite reserves, the bauxite-aluminum industry has historically not been very significant, and the ore is only mined at one site near the city of Awaso. Since 2011, the mine has been owned by the Chinese company Bosai Mineral Group, which has fundamentally changed exports, since bauxite was mainly distributed to Europe and North America between 2008 and 2011, but since 2012, it has increasingly been exported to China (Ministry of Finance 2015; British Geological Survey 2018).

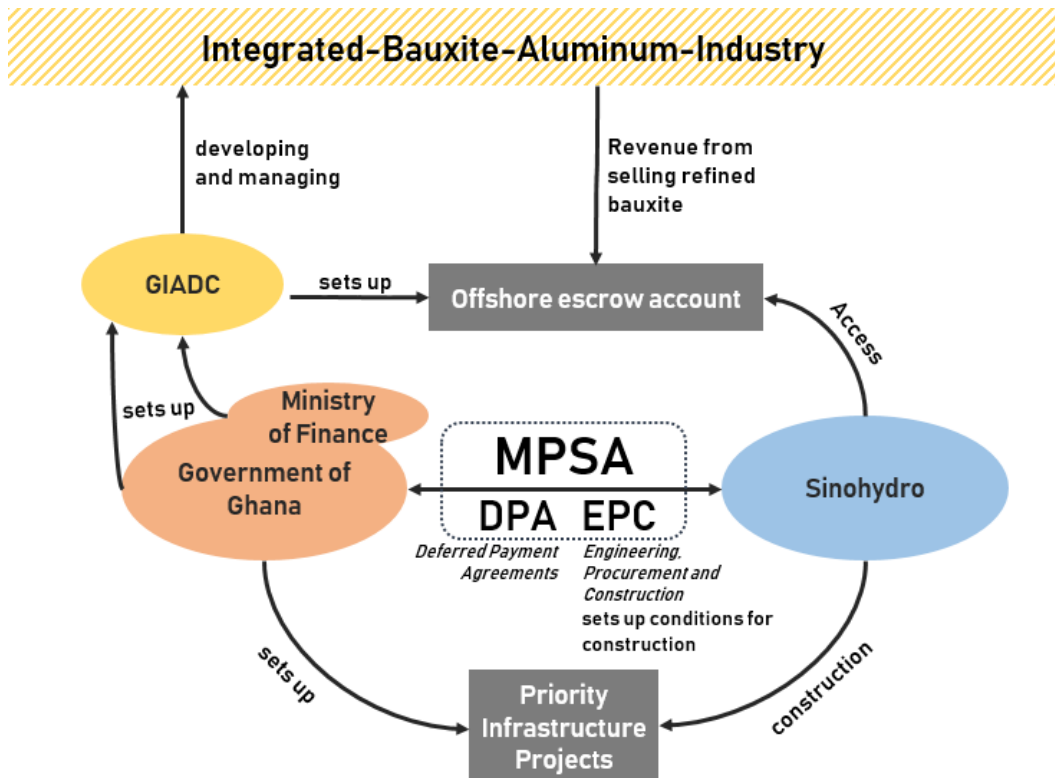


Figure 14 Sinohydro deal structure

Examples from Other Countries

Very similar to the *Sinohydro deal* in Ghana is the resource-backed loan in Guinea, which is a good example because both were negotiated at the same time. Moreover, both deals are the only known loans backed by the commodity bauxite (Mihalyi et al. 2020). In 2017, a consortium of Chinese banks, led by the Industrial and Commercial Bank of China (ICBC), announced \$20 billion in loans, in return for which they would receive bauxite with Guinea. Compared to Ghana, in the case of Guinea, bauxite concessions are provided in exchange for infrastructure such as road projects. As part of these negotiations, Guinea entered into a concession agreement with the Chinese company *Chalco*. Under this agreement, further developments in the bauxite sector have been agreed upon, and it is planned to proceed further with bauxite and build refineries. According to Wingo (2020), China is shifting toward making a greater on-the-ground commitment to extraction as part of resource-backed deals in Guinea. However, it is important to note that the bauxite sector in Guinea is far more developed compared to Ghana. Also, many details remain unclear, which makes it difficult to compare both cases. Nevertheless, the resource-backed deals in Ghana and Guinea illustrate that the trend of using metals as collateral continues (Wingo 2020).

Analysis and Discussion

As mentioned previously, transparency is often a problem, and it often limits studies on resource-backed loans, because not every detail is made public. In their study, for instance, Mihalyi et al. (2020) found, that out of 52 cases, only 19 provided basic information such as interest rates. However, Ghana has tried to be more transparent. While many details still remain somewhat vague, more openness in Ghana allows for a more detailed look at such deals. Nevertheless, the lack of transparency in other cases also limits research on this topic, especially when it comes to comparison.

One main argument offered by Johnston (2019) as to why the *Sinohydro deal* is different, is the 'new fixed interest rate development loan'. However, according to Mihalyi et al. (2020), ten out of 19 loans they observed had fixed interest rates; for example, the loan made in 2009 to the Republic of Congo had a fixed interest rate of 0.25 per cent, while in 2007, one of the two loans negotiated between Ghana and Exim Bank had a fixed interest rate of 2 per cent (Brautigam 2011). Furthermore, the *Sinohydro deal* is London Interbank Offered Rate (LIBOR)-based, with an annual interest rate of LIBOR + 2.8 per cent. As mentioned, the collateral is also refined bauxite. Herein, I concentrate on two different and unique aspects of Ghana's *Sinohydro deal*: (a) privatisation, which refers to the involved actors and the new parastatal GIADC, as well as (b) the collateral itself and impacts for the integrated bauxite industry.

Privatisation Shift

Mihalyi et al. (2020) highlight that out of the \$164 billion in RBLs committed in sub-Saharan Africa and Latin America between 2004 and 2018, 77 per cent of the amount came from two Chinese policy banks, specifically CDB and the China Exim Bank. The rest were a mix of state-owned companies of various nationalities and international commodity traders. Under the Angola Model, Chinese loans are provided by its Export-Import Bank (Exim Bank) and are accompanied by an interest subsidy from the Ministry of Commerce (Foster et al. 2009; Kiala 2010). In the case of Ghana, the state-owned company *Sinohydro*, with the approval of *Sinosure* (China Export & Credit Insurance Corporation), signed the deal with the government of Ghana, which negotiated on behalf of the *Ghana Integrated Aluminium Development Corporation* (GIADC), but once the GIADC was set up, it would become the obligor under the *Sinohydro* arrangement. Compared to the construction of the Bui Dam, an agreement between China and Ghana in 2006, the government put the Bui Power Authority – a government agency – in charge. The *Sinohydro deal* is at this point a deal

between a state-owned company (*Sinohydro*) and a commercial-based independent SPV (GIADC). The IMF (2019) argues that this structure seeks to ensure that the GIADC obligation will not add to the Ghanaian government's debt stock. Also, the *Sinohydro deal* states that the Government of Ghana will have no financial liability to *Sinohydro*, nor will it provide any guarantees. Therefore, the IMF (2019) classified this project as commercial debt, thereby appearing to have ring-fenced possible government obligations. The only risk in that case would be a delayed transfer of obligations to the SPV. However, another advantage of this arrangement is that the GIADC is free to negotiate with possible investors in the bauxite sector, so they can also attract Western companies and limit Chinese influence in the mining sector.

The *Sinohydro deal*, as well as the example from Guinea, illustrates what has been observed recently, i.e. China's state-owned enterprises (SOEs) increasingly investing their own capital to build and operate infrastructure projects. Primarily, the SOEs serve as contractors responsible for engineering, procurement and construction (EPC). Chinese policy banks then finance the project with loans, and thereafter, projects are contracted to a Chinese construction firm (Foster et al. 2009). Leutert (2019) points out the evolution of Chinese SOEs, from contractors to operators and investors, which is also the case with *Sinohydro* in Ghana. As mentioned earlier, in 2017 the Exim Bank promoted a more sustainable and innovative finance mechanism. This shift, and its implications for governments and economies, will require more attention in the future.

Collateral and its impact on the national economy

When it comes to collateral, there are some differences. In the case of the Bui-Dam deal between Ghana and China, the latter guaranteed to purchase 30,000 tons of cocoa per year from the Ghanaian government at current world market prices (Odom 2015), similar to the \$3 billion oil loan in 2012, which stated that 13,000 barrels of oil would be supplied daily for fifteen-and-a-half years to pay off the loan (Odom 2015). In addition, the 2004 deal with Angola stated that the US \$2 billion Chinese loan was tied to a delivery of 10,000 bpd of crude oil. *Sinohydro deal* documents define that the proceeds of the sale of refined bauxite should be used. Additionally, they state that "*receipts from the transfer of refined bauxite to its strategic partner, and where receipts from refined bauxite are not sufficient [...] Government of Ghana shall use other sources for the repayment to Sinohydro,*" (MPSA 2018, n.p.) thereby allowing for the export of refined bauxite, or even bauxite in its raw state, into the global market. In comparison, a similar deal in 2017 between China and Guinea had bauxite as collateral, while Ghana has refined bauxite. Meanwhile, aluminum is becoming

more and more important. Ghana's government also hopes that with the integrated bauxite-aluminum industry, they can stimulate nationwide industrialisation. Ghana has mines as well as a smelter, and so only the refiners are missing in the value chain. In addition, it already holds a 20 per cent stake in the mining company, the smelter is 100 per cent state-owned and a minimum 30 per cent stake in any new mine, refinery or smelter will be held by the government. With the *Sinohydro deal*, the government argues, the country can now develop an integrated bauxite-aluminum industry, which has been the plan since the nation gained independence. This would also be in the interest of China. As Schmalz (2018) suggests, China is trying to avert a possible financial crisis and is struggling with increasing industry overcapacity as well as rising indebtedness. By building infrastructure and connecting other countries, China exports its surplus while supporting economic growth. Thus, Ghana is increasingly embedded in China-based globalisation (Kanungo 2017) and, as a resource-rich country and fast-growing sales market, has aroused the interest in Chinese companies. *Sinohydro* is a state-owned enterprise, with the majority stake held by the Chinese central government. For Asche and Schüller (2018, 15), the impression of an overall strategy for the economic development of Africa is reinforced by the fact that "*the Chinese government formulates clear industrial policy goals and uses a mixture of market-based and interventionist instruments to achieve its goals.*" Therefore, it could be argued from the perspective of China, this is some kind of strategy diversification to invest in other countries, using not only their state-owned development banks, but also state-owned enterprises. However, due to the close interlinking of politics and the economy in China, targeted agreements between the administration and the company, as well as joint action on foreign markets, is possible. Also, from the perspective of Ghana, it seems that the administration tried to negotiate a different deal and may have learned from past experiences, especially recalling the oil-backed loan in 2011. The *Sinohydro deal* is therefore a foundation and an essential factor in the administration's 'Ghana Beyond Aid' political agenda. Most of the defined infrastructure projects on the agenda are financed through the *Sinohydro deal*. The resource for infrastructure loan is literally the material foundation of the political agenda of 'Ghana Beyond Aid'.

Finally, also worth mentioning is the guaranteed 30 per cent local content in the *Sinohydro deal*. It may appear to be not that much; however, it is an important step in limiting Chinese involvement, which has always been seen as critical. Other deals have culminated in a lower percentage securing local interests, such as a loan to the DRC in 2007 at 12 per cent.

More often, China holds a high percentage of its own companies, such as in Ghana in 2011 (minimum 60 per cent Chinese companies) or Angola in 2004 with 70 per cent.

Conclusion

The Angola Model has ensured vast amounts of capital to build much-needed roads, bridges and other infrastructure in Africa under the narrative of a win-win-situation (Begu et al. 2018). However, the financial crisis and the crash in oil prices meant that Angola had to sell increasingly more oil to repay the Chinese debt. Commodity prices are inherently volatile, and African countries need to sell enough of their resources to avoid the same inflation trap. Mihalyi et al. (2020) point out that the majority of resource-backed loans are earmarked for financing particular infrastructure projects. Since the provision of infrastructure is critical, many African governments justify borrowing if the social returns from these projects are higher than interest charges and risks associated with the loan. However, since 2014, commodity-backed loans have played a smaller role in China's foreign policy, and some governments have also refused to use these finance models; for example, Angola announced in 2019 that it had decided to stop guaranteeing loans with oil (Macauhub 2019). Additionally, other commodities, such as cobalt and copper in the DRC, appear to be less resilient to price drops than originally hoped (Landry 2018). In the case of the Republic of Congo, the IMF approved a bailout worth nearly \$449 million, after the country struggled with debts it owed to China (Bavier 2019). The *Sinohydro deal* in Ghana is an example of a Chinese SOE being not only a constructor, but also an operator and an investor. This matches with the idea proposed by the Exim Bank in 2017 to develop new, innovative and sustainable finance mechanisms, including government-private capital cooperation. From the perspective of Ghana, the established GIDAC has ring-fenced possible government obligations. Also, what Hart (1977, 22) once described as “*the country's most useful resource*” can now be developed into a promising industry. However, some challenges remain, similar to other cases, such as problems in transparency. Investments made by China in Africa, according to Ascensão et al. (2018), increase negative environmental impacts and are likely to disproportionately affect an already vulnerable population. Due to the lack of transparency, environmental issues and concerns, the *Sinohydro deal* increased a growing movement against bauxite mining in Ghana, especially at Atewa Forest – a possible extraction site (Purwins 2020). The Ghanaian government is therefore under a lot of pressure, and not only from local NGOs: international NGOs, intellectuals (or actors like Leonardo DiCaprio) and major manufacturing companies as members of the Aluminium Stewardship Initiative openly oppose mining in Atewa Forest

(BirdLife International 2021). Finally, the Covid-19 pandemic across China and Ghana has also led to a delay when it comes to construction. In this regard, signing this deal without already constructed refineries and infrastructure seems a very risky undertaking.

In January 2020, the news website Ghana Web ran the following headline: “*Ghana’s Sinohydro deal touted as a new model for Africa to follow.*” The ensuing article’s analysis showed that the *Sinohydro deal* differed in some ways from the Angola Model; however, is too early to say if this kind of deal is something for which other African countries strive; in fact, it could be one of many different ways to approach construction deals on the African continent, rather than a strategic shift. On the other hand, Ghana is known on the African continent as having a strong economy, and so it may be in a better position when negotiating with China. However, in terms of the *Sinohydro deal*, the short-to-long-term extraction of bauxite, as well as the associated consequences on the local level, will prove if it is indeed a successful – and sustainable – model.

7. Conclusion

Pijpers (2019) argues that extraction – while being constantly renegotiated by different combinations of actors – its effects and the rapid changes it may trigger are fluid and multifaceted, simultaneously accommodating both positive and negative dynamics. In his understanding, a crucial question is therefore *how* different actors position themselves vis-à-vis each other and negotiate the multiple potential effects of resource extraction. I contribute to that assumption in Chapter 6.1 by identifying key actors and their relations within the conflict, suggesting that disputes over extraction are not a question of either/or. Extraction spaces, even without actually mining taking place yet, are spaces where power relations are destabilised, existing livelihoods are challenged, inequalities emerge and territorial development is contested. Frequently, these spaces, and the processes that take place therein, are marked by tension, friction and accelerated change (Pijpers and Eriksen 2019).

In this summary, bringing together the three papers from Chapter 6 and the debates from the beginning, I conclude and elaborate on the described empirical as well as theoretical-conceptual aims of this work. Finally, I discuss open and possible points for further research.

7.1. Empirical goal

As Dietz and Engels (2018) contend, social environmental movements and conflicts emerge at certain historical conjunctures, in specific geographical and cultural contexts. The reasons why the Atewa Forest Reserve has been earmarked as a potential site for bauxite mining were outlined in Chapter 6.1. A point in time had been reached at which large parts of the previous government agreed to declare the forest a national park. During the election campaign, however, the New Patriotic Party proclaimed that it would answer the question of industrialisation and the development of infrastructure by mining bauxite. However, the dispute over the Atewa Reserve became publicly known after Ghana signed a Memorandum of Understanding with China. The attention, in many media articles, was very much on China at this point. Oteng-Yeboah's (2019) "*Ghana's pact with China for bauxite mining threatens to ravage a biodiverse forest*" or Gbadamosi's (2020) "*Chinese investment has led to a crush of infrastructure development in Ghana's tropical forests*" are two out of many reports on the topic. However, the abandonment of the plans to proclaim a national park went hand in hand with the election campaign and then with the change of government.

This highlights the importance of this specific political context. As mentioned before, Gramsci (2000) and Conde and Le Billon (2017) highlight the importance of more internal perspectives for intellectual leaders, thereby opening up the 'the local' vs. 'the state' dichotomy. For example, the Forestry Commission as a state agency was a supporter of plans to upgrade the Atewa Forest Reserve to a national park. Initially, the Forestry Commission and the Water Resource Commission supported the study by Schep et al. (2016), which made a number of good arguments for protecting the forest. In addition, the Forestry Commission commissioned a report with justifications to upgrade Atewa to a national park. As argued before, the Forestry Commission is currently neither actively pushing mining at Atewa nor insisting on upgrading the reserve to a national park. Under the new Minister of Land and Resources and a new government, agencies find themselves in a position of now working against their own previous plans. As also mentioned in Chapter 6.2, bauxite mining at Atewa is more a project of political leaders and elites. This idea has become the material ground for the *Sinohydro deal*, which aims to invest quickly in infrastructure across the country. Therefore, 'locals/NGOs vs. state' framings are not differentiated enough. By using an actor-mapping method, I attempted in Chapter 6.1 to outline the set of actors and their relationships with each other. It was possible to identify two lines of conflict, namely one between GIADEC and the social movement, and a second between several chiefs around Atewa Forest and the social movement. This also shows that when speaking of 'people of the Atewa landscape', the actors involved in this conflict do not speak with one voice. It remains unclear and open for future research how the population is positioning itself in this conflict between social movements and the chiefs. However, the conflict line between the social movement and GIADEC is quite one-dimensional, because neither GIADEC nor other state entities have responded adequately to the protests. Political ecology views the environment as an arena, in which oppositional conflicts unfold. Agrawal (2005) argues that this imagination of an arena often turns into the assignment of credit and blame. Actors are often divided into winners and losers. Carpenter (2020) argues this dualistic perspective oversimplifies and especially overlooks the exercise of power and political asymmetries. I tried to overcome a dualistic understanding by not dividing actors solely into winners and losers. Rather I observed the multiplicity of interactions, illustrated in the actor mapping in chapter 6.1.

As argued at the beginning of this work, linear explanations suggest, rather than investigate, global and local linkages. Like for example, the Chinese investments and the narrative that China lurks for Ghana's bauxite (see Washington Post 2019). In my opinion,

this line of argument has a decisive weakness since it assumes a strategic approach by China in every single step. Especially from a Western perspective, people often tend to judge China's approach as planned and targeted. However, the structure and process of large-scale investments often remains a black box. Bridge (2019) argues that political ecology needs more serious engagement with investment processes when it comes to new geographies of extraction. Without a doubt, China's investment and mining activities are increasing. However, far too often, the arguments are generalised, such as, for example, the debt trap narrative. Here, China's approach is very much simplified and reduced to one actor. As shown herein, a state-owned company was decisive in getting the contract off the ground. The exact contractual or financial structure is often not examined, because it is often not transparently accessible. In this regard, in Chapter 6.3, I highlight three aspects: first, *Sinohydro* is not involved in bauxite projects in Ghana. The treaty forces the Ghanaian government to develop this industry, but how and with whom is not agreed. Second, a reduced view of Chinese investments on the African continent overlooks the fact that these financial structures also change, adapt and are flexible. And third, such a view often assumes that African countries naively accept all conditions in negotiations with Chinese actors. Here, too, it has been shown that the government of Ghana has protected against possible debts by establishing the para-state corporation GIADEC.

Neither China's actions nor anything similar should be defended here. However, it was the empirical goal of this research to highlight that the dynamics, actors and subject matter of conflict are related to a variety of factors. These individual factors – at least in this case – are not necessarily linked to overarching global crisis processes, and neither can they be understood through linear explanations. The framework by Dietz and Engels (2020) provided a helpful approach to analyse conflicts over land, as it helped view structure and agency from a dialectical perspective. Both categories are in correlation, but they nevertheless remain essentially different, and the relationship between both cannot be reduced to one or the other side, thereby taking into account constraining or enabling effects of structures on actors and their actions. Furthermore, a dialectical approach to examining structure-agency relations means exploring how actors reflect upon, perceive and interpret structural selectivities and changes and recursively choose strategies and tactics oriented towards the environment or context within which their actions are realised (Dietz and Engels 2020). Dietz and Engels (2020) state that the form of state policy, agencies and institutions plays a central role. It is therefore important to look at political-institutional decisions and administrative practices. However, for this research, the

institution dimension was less relevant. Dietz and Engels (2020) of course stress that not every dimension needs to be relevant or similar. They understand this dimension as the materialisation of structural constraints and opportunities, having emerged from previous actions. In this work, institutions occurred in between structure and agency, surfacing from the relationship between these two dimensions. This may be the result of this specific case, where specific institutions were not relevant at all or just new, such as GIADEC. However, institutions such as the Minerals Commission, Forestry Commission or Environmental Protection Agency, all state agencies, did not have significant effects on actors and their actions. Conversely, the newly formed GIADEC appeared as result of the decisions made by actors, which in turn led to reactions by other actors and made it a key factor in the conflict. The plans to set up an Authority were changed due to legal concern, that were also brought up by the Coalition against bauxite mining at Atewa Forest. In consequence, a cooperation was set up and introduced as commercially-based independent SPV. As mentioned, all financial obligations to *Sinohydro* will be transferred from the Government (represented by the Ministry of Finance) to GIADC. The IMF (2019) points out, that the Government of Ghana will have no financial liability to *Sinohydro* nor will it provide any guarantees. This arrangement, which was not initially planned, is now touted as a new model for Africa (see Johnston 2019). What was left out of this work and could highlight future work would be the perception of the people who live in the villages surrounding the forest. Especially when the conflict and the project are better known, it would be exciting to analyze how the arguments of the NGO's or the government affect the populations. Moreover, only time will tell how successfully the project is implemented. Or whether the strategic importance of bauxite will again fade into the background in view of more recent developments.

In September 2021, the government of Ghana announced that it had selected *Rocksure International* to work on the development of the integrated bauxite-aluminum industry. The Accra-based company will own a 70% stake in the project and the Ghana Integrated Aluminium Development Corporation will have the remaining 30% (Dzawu 2021). Contrary to the NGO's fears, it is not a Chinese company that is involved in bauxite mining, which is initially to start at the Nyinahin-Mpasaaso site. There is still no news about the future of the Atewa Forest in this context. In this work, the focus was primarily on the Atewa Forest, which has a dedicated NGO, *A Rocha Ghana*, that advocates for the protection of the forest. Other sites seem to be less worthy of protection; at least no comparable movement is forming at the site of Nyinahin-Mpasaaso. Actors decide what is worth

protecting or conserving and what is not. Political ecology provided a helpful approach, because it argues that all these decisions are political.

7.2. Theoretical-conceptual goal

Extraction is a practice whereby the materiality of a resource is as important as its temporality for determining its value and creating wealth for some (Szolucha 2018). As Pijpers and Eriksen (2019) note, frictions emerge in spaces of extraction, because different temporalities overlap. Like the urgent need for resources as an engine of economic growth, suitable developments in market prices and the rapid extraction of materials. But also, local livelihoods with their own temporalities as well as slow or rapid ecological changes. One main argument throughout this work has been the competing views and imagined futures of the Atewa Forest. Should the forest become a protected national park, or should its bauxite reserves serve an integrated bauxite-aluminum industry? From the perspective of temporalities, different relationships between the future, the past and the present come together in this case. Ingold (2002) states that change in a landscape or within nature appears so slow that the observer views nature as unchanging relative to humanity. The bauxite resource – underneath the forest's surface – is almost 'waiting' to be used. John Peter Amewu, Minister for Lands and Natural Resources, best illustrates this notion in the Memorandum to the integrated bauxite and aluminium development bill (2018, i), in which he declares "*The availability of the necessary resources locally puts the country in a prime position to leverage this venture as a fulcrum for the pursuit of aggressive industrialisation.*"

In contrast to rapid transformation, which is happening around the forest, make claims for further conservation almost feel like an attempt to slow down time within the protected area. Furthermore, mining, i.e. removing a resource from the forest, connects bauxite with another temporality. Turning the resource into aluminum, transporting it to other countries and using the revenue to invest in and build streets, roads and further infrastructure that once again allows a faster and quicker movement of goods, people and capital through time and space. This spatial dynamic, which Massey (1999) frames as *power geometry*, is an interpretation of time-space compression highlighting motilities and connections across space. It is maybe also one concern of the NGOs fighting mining at Atewa Forest that the fast and rapid industrial temporality challenges livelihoods around the forest, arguing that the rapid accelerated quest for resources and industrialisation is blind to the slow and longstanding environmental degradation that emerge from fast-moving, extractive practices with which local people have to deal in the end.

I suggest adapting the temporalities of natural resource extraction to a political ecology of resource extraction. This involves temporalities of resources, temporality surrounding resource extraction and time as a political strategy. For example, activists can use protests to build pressure to make urgent decisions. At the same time, these protests can also delay the implementation of the project. Combining the protection of the forest with global climate discourses, the NGOs point out that in times of environmental crisis, the forest needs to be protected extremely well. On the one hand, they push this agenda forward through a series of open letters, protests and social media campaigns. On the other hand, the delays they produce generate rising attention on the topic, therefore not only building more pressure, but also making mining at Atewa Forest unattractive to investors, who cannot *afford* any delays. Also, as shown with the 'future-making' approach, the government is promoting imaginaries of futures of growth, jobs and prosperity – a narrative that decouples seemingly fast economic benefits from long-term environmental pollution. In contrast, weeks before the general elections in December 2020, a youth environmental movement started a social media campaign reminding the public that it is about their future.

For some reason it is always '*time*'. Akufo-Addo (2018) pointed out in his speech, in which for the first time he outlined his proposals for the bauxite industry, that aluminum is the metal of the future, and therefore it was the right time to develop the industry. Whilst conducting archive work at the library of the University of Ghana, I came across an article from the *Journal West Africa 1952*. Reporting on the plans of Kwame Nkrumah to develop an integrated bauxite-aluminum industry, the article was headlined "*Aluminum: the metal of the future*". As shown in Chapter 5, bauxite in Ghana was once afforded "*imperial importance*" and became important during the Kwame Nkrumah era and, more recently, at the beginning of the Akufo-Addos presidency. This illustrates that there is no 'right time' per se; rather, it is a political strategy to address something as the right time. In his essay 'Die Post-2015 Agenda und die Nachhaltigkeit des Entwicklungsdiskurses', Aram Ziai (2017) explores what significant changes and continuities can be identified in the development discourse. Ziai compares the current post-2015 agenda with the basic structures of the development discourse since its creation in the mid-20th century. These basic structures can be found in the SDG reports as well as in the inaugural speech of US President Truman. Although almost 65 years after the Washington Consensus, there are also changes, but these are marginal, because the same structures which, after the end of

World War II, were used to gain acceptance for the practice of *development* in a capitalist world order can still be identified (2017, 263). According to Aram Ziai (2017), a political strategy in line with the development discourse has always been to create a historical momentum suggesting that *right now* is the historical time to solve a long-lasting problem. At the very beginning of this study, I quoted from the introduction to the integrated bauxite and aluminium development bill: “*Ghana has a unique opportunity to establish an integrated aluminium industry*” (Amewu 2018, ii). Furthermore, Akufo-Addo stated that: “*The time has come to make a concerted effort not only to bring the raw materials into play, but to establish the full value chain of the product, so we can have a vibrant aluminium industry [...] we cannot, in the modern era, stumble twice on our journey of giving value to our significant natural resources of bauxite [...]*”. (classfmonline 2019, n.p.)

However, future research in Political ecology should emphasises the linkages between temporalities, narratives, discourses and power. Moreover, aim to uncover the exercises of discursive power by elites. In a post-structuralism understanding, discourses are socially shared perspective on a topic. ‘Discursive power’ is exercised when actors produce s set of interlinked expressions, statements or concepts and manage to get other groups to adopt and contribute to the reproduction of these (Svarstad et al. 2018). Actors shape projects based on different knowledge, worldviews, but also regarding on what is declared as underlying problem and how it should be solved. Ahlborg and Nightingale (2018) argue, that actors select strategies and framings in their communication to justify decision. In the case of Ghana’s Bauxite-Aluminum Industry ruling intellectual leaders like Ghana’s first president Nkrumah or the current president Akuffo-Addo promoted the idea of this industry that would bring modernisation and welfare to the country. Likewise, *ibid.* (2018) argue, it is important to examine a broad range of scholarly contributions in order to theorise and expose practices and effects of discursive power. Uncovering the way power is exercised, through its multiplicity interplay, makes way to understand politicisation and processes or de-politicisation of nature.

Political ecology provided a useful framework to analyse this presented case. As Political ecology explores the politicisation of nature through conflicts, instead of naturalising the conflicts through environmental analysis. Furthermore, Political ecologists argue, that resources do not exist in a finite or a fixed state. This notion of resources as *becoming* and being *political* is an ongoing concern within political ecology (Richardson and Weszkalnys 2014) and was a major aspect in this work. Following Iparraguirre (2016), who defines time as the “*phenomenon of becoming*” and temporality as the “*interpretation of becoming*”, it is

fruitful and obvious to highlight a temporal perspective on resource extraction, because, as in conservation, the *"becoming"* of resources has a temporal dimension that should be taken out of the shadows in order to be analysed on an equal footing with the spatial dimension. Meanwhile, in the long term, in the face of the always-recurring discussions on bauxite mining, the building of an extractive industry with its facilities and infrastructure, connected with the promise of fast and rapid industrialisation and prosperity, the Atewa Forest – at least for now – is still standing.

Epilog

Doing research in geographical regions which are commonly labeled as Global South or Periphery in the global economy, needs a reflection and critical discussion about how *we*, as privileged researcher from Europe, position ourselves in this context. The data that I collected in the Global South traveled with me to the Global North and are interpreted there in a completely new and different setting. When we acknowledge that data is some kind of resource, am I therefore extracting this resource in the Global South and proceeding it in the Global North to get my academic degree? If we hold on to this image then the empirical research is an extractive practice. In addition, scholars like Nhemachena et al. (2016) criticise that defining Africa as a field from which to mine raw data. They question the basic idea of the term fieldwork, involving journeys to the field far from home. Furthermore, they point out that the notion >>field<< connected to experiments, observations, interviews and adventures, reminds one of colonial projects and adventures. In a Blog Series, Ryan (2020) described the situation when a Paramount Chief chastised her for coming to Sierra Leone to conduct research that would only help her career. *“For a long time after that interview, I felt like I’d failed in the basic premise of thinking that I could go to Sierra Leone for research.”* (ibid., n.p.). Undertaking fieldwork means that we are entering people’s lives. However, there is a deeply troubling, yet still little, changed reality of an unequal system that continues to underlie how data is collected, how knowledge is produced (Mertens et al. 2020). David Mwambari (2019, n.p.) highlights that *“doing academic fieldwork in Africa, for example, still relies on colonial practices of a white man going to find information in remote African places, inhabited by “vulnerable” and underdeveloped communities. The end goal is to bring back “home” stories of the colonised. While demographics of researchers continue to change, new researchers mimic colonial practices in collecting data.”*

As mentioned by Mwambari (2019), new generations of researchers will mimic the practices we did, because this is what the mainstream defines as proper scientific work. In order to achieve a degree, to be integrated in the scientific community and to maybe have a career in science, we mostly do best when mimicking successful researchers. We are scientifically socialised through our supervisor and professors, maybe the funded project that we are in and through our colleagues.

While some of the challenges described above are structural challenges and difficult to change for an individual, I tried to (a) write/interpret the data in the context and (b) report back my results. The first aspect refers to the idea that I tried to write and proceed my data as much as possible in my research context, meaning in a workplace in my area in Accra, Ghana. This might sound like the stories of the famous Ernest Hemingway who wrote his notes sitting at the foot of the Chimborazo (Tanzania), but it is less romantic. It rather refers back to the idea to interpret the data and assumptions within the context and simultaneously being geographically in that very place. The own process of interpretation and the position of me as a researcher needs to be understood as a part of the analysis and data evaluation, and therefore needs to be reflected together.

Reporting back refers to the idea that results are transferred back to those actors or stakeholders who were important for my research. I mostly tried to send my publications (the ones that are written in English) back to my main contacts. However, more could have been done, for example participating even more in the reporting back process, trying to use understandable language or making sure that my results are published with open access. One time I created a map for the NGO and they additionally requested help with getting contacts, especially of international NGOs, in order to receive funding. There is a thin line between my part of reporting back and getting involved in some way as a scientific activist. While I tried to avoid getting too much involved, it is sometimes not my decision. The NGO is using and instrumentalising my status and interests for their purpose. They might communicate or introduce me to others as someone being on their side, even when I was eager not to position myself within this conflict. However, I have to acknowledge that in some way, I did position myself or others made this decision for me. Therefore, it is also naive to think we can be neutral observers. Maybe this is the most dangerous colonial continuity: Because the Geographers in the 18th century exploring new areas and collecting data always understood themselves as neutral scientist. However, they were embedded in a colonial social-Darwinism context and with their research, they legitimised colonial practices. The very first chairs at universities which mark the beginning of Geography as a scientific discipline, were all characterised by these practices. Therefore, being a Geographer myself, I am taking the history of Geography as Science very seriously and I have to constantly ask myself in which ways my research has colonial continuities and if I reproduce them. Caitlin Ryan (2020, n.p.) highlights that more Global North academics doing research in the Global South are starting to do better: *“There are more panels at conferences, training sessions for graduate students, workshops, writing collectives, books, and*

blogs where we are talking about what we are doing wrong and, most usefully, where researchers from the global South share experiences of harmful and dangerous failures of researchers from the global North." However, while the individual is able to reflect and tackle certain colonial continuities of their own research, there are also structural constraints that still reproduce or strengthen these continuities. However, the hope is that more reflection on this, critical discussions, creative research projects and new generations of researchers from the North and South might change institutionalised practice. For Caitlin Ryan (2020), and I would agree with her in that regard, the answer cannot be to withdraw from such kind of empirical research, but to accept and reflect our failures, in the sense of failing forward.

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Appendix

The appendix contains the final print versions of the papers as published in the respective journals. Please note the different licences of the individual articles.

Die (Wieder-)Entdeckung von Ghanas Bauxit – Akteure, Strukturen und Narrative

Die Geschichte von Ghanas Bauxit ist eine Geschichte von unerfüllter Industrialisierung und eng verbunden mit der Idee von politischer und ökonomischer Souveränität. Historisch lassen sich drei Phasen identifizieren: die Kolonialzeit, in der Bauxit für die britische Kriegsindustrie relevant war, die Jahre der Unabhängigkeit, in der eine integrierte Bauxit-Aluminium-Industrie symbolisch mit Modernisierung und Industrialisierung aufgeladen wurde, jedoch nie umgesetzt werden konnte, und die gegenwärtige Zeit, in der Bauxit erneut eine strategische Ressource zur Finanzierung von Infrastruktur wird. Der vorliegende Beitrag will mit der historischen Aufarbeitung des Bauxitabbaus in Ghana aufzeigen, dass Ressourcen nicht einfach nur sind, sondern sich in einem kontinuierlichen Prozess des Werdens befinden (Zimmermann 1933). Ressourcen sind folglich immer auch politisch aufgeladen, weshalb aktuelle Trends von Inwertsetzungen durch diese politisch-ökologische Perspektive verstärkt betrachtet werden müssen. In diesem Zusammenhang verweist Arboleda (2020) darauf, dass die Analyse aktueller Trends und Praktiken zur Inwertsetzung von Rohstoffen hilfreich ist, um die gegenwärtigen Widersprüchlichkeiten und Probleme von Entwicklung, Kapitalismus sowie Imperialismus zu identifizieren. Dieser Aufsatz soll mit dem regionalen Fallbeispiel in Ghana einen Beitrag hierzu leisten.

Einleitung

Ghanas Bauxit-Reserven werden auf 554 Millionen Tonnen geschätzt (Gawu et al. 2012). Doch obwohl Ghana der drittgrößte Produzent auf dem afrikanischen Kontinent ist (Knierzinger 2018), wird diese Ressource seit 1942 in nur einer Mine abgebaut und hatte 2014 lediglich einen Anteil von 0,6 % an Ghanas Exporten. Was einst von Hart (1977:12) als „*the most useful resource*“ für Ghana beschrieben wurde, scheint lange Zeit für die ökonomische Entwicklung des Landes unbedeutend gewesen zu sein. Seit 2017 treten in Ghana neue Entwick-

lungen und Interessen im Bauxit-Aluminium Sektor auf. Ghanas Regierung hat mit der chinesischen Firma Sinohydro eine Vereinbarung unterzeichnet, wonach Sinohydro Infrastrukturprojekte in Ghana finanziert sowie durchführt und im Gegenzug die Kosten über Gewinne durch verarbeitetes Bauxit refinanzieren wird. Dies impliziert, dass Ghana eine integrierte Bauxit-Aluminium-Industrie aufbauen wird, um diese Rückzahlungen zu garantieren. Gleichzeitig soll der Aufbau einer integrierten Bauxit-Aluminium-Industrie auch einen Beitrag zur Industrialisierung in Ghana leisten. In seiner Rede 2018 zum Unabhängigkeitstag der Nation erklärte der Präsident Ghanas, Akufo-Addo, sein Vorhaben:

„Fellow Ghanaians, we have huge infrastructure needs in the areas of roads, bridges, water, electricity, housing, hospitals, schools, etc. The problem has always been where to find the money. However, where there is a will, there is a way. My government is going to implement an alternative financing model to leverage our bauxite reserves, in particular, to finance a major infrastructure programme across Ghana. This will probably be the largest infrastructure programme in Ghana’s history, without any addition to Ghana’s debt stock“ (Akufo-Addo 2018:9).

Die Umwandlung von Gestein in Erz oder Metall erscheint zunächst als eine völlig logische ökonomische Handlung. Erz kann wiederum in Gewinne kommodifiziert werden und somit in Entwicklung für die Gesellschaft. Allerdings kann der Abbau mineralischer Ressourcen auch ungewollte Konsequenzen mit sich bringen, etwa Umweltdegradationen, Vertreibung von Bevölkerungsgruppen und neue ökonomische, aber auch politische Abhängigkeiten. Obwohl diese Konsequenzen über die Forschung hinaus bekannt sind, nimmt die Bedeutung von *Extraktivismus* nicht ab, vor dem Hintergrund des *new scramble for Africa’s resources* (Carmody 2013) sogar eher zu. Entscheidend ist, dass bestimmte Akteure die Idee kreieren und reproduzieren, dass Ressourcenabbau etwas ausschließlich Vorteilhaftes für die Gesellschaft ist. Verschiedene andere Aspekte tragen ebenso dazu bei, dass es schwer fällt für Länder des Globalen Südens mit einem dominanten Rohstoffexport, diesen eingeschlagenen Entwicklungspfad zu verlassen (vgl. Purwins 2019). Der vorliegende Aufsatz widmet sich der Bauxit-Industrie in Ghana und betrachtet dabei Akteure, Strukturen und Narrative. Dies soll vor allem durch einen ausführlichen geschichtlichen Abriss erfolgen, der die Akteure und Strukturen darlegt und zudem auf historische Narrative zu dieser Industrie eingeht. Gegenwärtige Narrative werden unter Bezug der von Ziai (2017) benannten Kontinuitäten des Entwicklungsdiskurses diskutiert. Es soll verdeutlicht werden, wie ein sowohl historisches als auch gegenwärtiges, von modernisierungstheoretischen Ideen geleitetes Narrativ die Notwendigkeit des Bauxitabbaus (re)produziert.

Historische Hintergründe

Im Jahr 1914 entdeckte Sir Albert Kitson als erster Europäer in der damaligen britischen Kolonie Goldküste Bauxit. Die heimische Bevölkerung wiederum nutzte die Ressource bereits seit Langem, vor allem zur Herstellung von Schmuck und Ornamenten. Für die Briten war die Ressource jedoch mehr als nur Schmuck, sie sahen darin vor allem eine strategische Ressource. In seinem Bericht über die Bauxitfunde beschrieb Kitson (*Colonial Reports 1917:48*) diese Entdeckung „*to be of the highest Imperial importance*“. In den folgenden Jahren reiste Kitson den Volta-Fluss entlang und stellte fest, dass der Fluss durch ein von Hügeln umgebenes Gebiet fließt. Er verknüpfte dies mit dem Bauxit-Fund und kam auf die Idee, einen Staudamm zu errichten, der Strom erzeugen sollte für die Weiterverarbeitung von Bauxit zu Aluminium (Hart 1977). In den Jahren 1915 bis 1921 erweiterte sich der Plan und der Staudamm sollte nicht nur der Aluminiumproduktion dienen, sondern auch für andere Industrien oder den Aufbau der Eisenbahn. Den Plänen zu Folge sollte in Tema (östlich der Hauptstadt Accra) ein neuer Hafen entstehen, der gleichzeitig als Standort für einen Aluminiumschmelzer in Betracht kam. Kitson stellte die Pläne eines Staudammes und der Entwicklung einer integrierten Bauxit-Aluminium-Industrie 1924 unter dem Titel *The possible source of power for industrial purpose in the Gold Coast, British West Africa* auf der ersten World Power Conference vor (Kitson 1924). Doch die Umsetzung wurde aufgrund des Ersten Weltkrieges zunächst nicht realisiert.

Privates Interesse wird zu kolonialem Interesse

Nach dem Ersten Weltkrieg entwickelte der südafrikanische Ingenieur Duncan Rose, der Kitsons Artikel gelesen hatte, die Pläne weiter. Rose überzeugte Investoren, gründete das *African Aluminium Syndicate* und sicherte sich Lizenzen zum Aufbau eines Staudammes sowie zum Abbau von Bauxit. 1927 wurde die *British and Colonial Bauxite Company* gegründet und registriert. Das Unternehmen war eine Tochtergesellschaft der *British Aluminium Company* (BACo) mit zwei weiteren Tochterunternehmen: die *Aluminium Company Ltd.* und die 1933 gegründete *Gold Coast Bauxite Company Ltd.* (Moos 1948). 1928 erhielt BACo Abbaulizenzen bei Awaso (westlich von Kumasi), begann jedoch zunächst nicht mit dem Abbau von Bauxit. 1931 mussten die Lizenzen erneuert werden. Allerdings wurde der Abbau von Bauxit erneut hinausgeschoben, bis das im Jahre 1940 von Churchill eingeführte britische Ministerium für Luftfahrtproduktion im gleichen Jahr den Bauxitabbau in der Kolonie anordnete (Perchard 2013). Zu diesem Zeitpunkt waren bereits zwei Standorte bekannt, beide mussten jedoch zunächst mit Straßen und Schienen an die Infrastruktur angeschlossen

werden. Das britische *Ministry of Supply* finanzierte die nötigen Maßnahmen. 1941, unter direkter Unterstützung der britischen Regierung, begann BACo mit dem Abbau und sendete das Bauxit von der Goldküste zur Weiterverarbeitung in das schottische Burntisland (Bracewell 1962). Der Bauxitabbau an der Goldküste war eng mit der Nachfrage nach Aluminium für die britische Luftwaffenproduktion verbunden; in den Jahren 1943 bis 1944 stieg der Export rasant an, bis zu 147.500 Tonnen Bauxit in zwei Jahren (de Graft Johnson 1955:9). Die Bauxit-Industrie der Goldküste stellte an sich eine kriegswichtige Industrie für den Luftkampf Englands dar. Allerdings entwickelten sich der U-Boot-Krieg im Atlantik zum Risiko für den Transport des Rohstoffes (Perchard 2013), so dass im Laufe der Kriegsjahre Südamerika zum wichtigeren Lieferanten von Bauxit wurde (Dumett 1985).

Nach dem Ende des Zweiten Weltkrieges beeinflusste günstiges Aluminium aus Kanada die Wettbewerbsfähigkeit von BACo. Dies änderte sich im Juli 1946 aufgrund von zwei Ereignissen: Erstens wurde die Parität des kanadischen Dollars mit dem US-Dollar wiederhergestellt, was eine Aufwertung des Kanada-Dollars zur Folge hatte, und zweitens interessierte sich Alcan (*Aluminium Company of Canada Ltd.*) für das sogenannte Volta River Project (Hove 2013). 1947 sicherte sich Alcan Konzessionen in der Kolonie Goldküste, auch weil aufgrund der Sterling-Krise in England die britische Regierung vorzugsweise ausländische Investitionen bevorzugte. Nach dem Zweiten Weltkrieg herrschte in London die Ansicht vor, die wirtschaftliche Entwicklung in den einzelnen Kolonien voranzutreiben. Im Falle der Goldküste und des Volta River Projects (VRP im Weiteren) gab es allerdings Unklarheiten mit der Kolonialregierung über Zuständigkeiten. Die Kolonialregierung beanspruchte die Zuständigkeiten über das Projekt für sich, während das britische Finanzministerium deutlich machte, dass es sich nicht um ein Kolonialprojekt handele, sondern ein allgemeines Projekt für koloniale Entwicklung. Diese Unstimmigkeiten zeigen deutlich, wie sehr die britische Regierung in den Nachkriegsjahren an dem Projekt Interesse gewonnen hatte und es kontrollieren wollte (Hove 2013).

Der Anstoß für die Industrialisierung eines unabhängigen Ghanas

Im Februar 1951 gewann die *Convention People's Party* (CPP) die erste offizielle Wahl in der Goldküste. Kwame Nkrumah, der Anführer der CPP, bildete die erste afrikanischen Regierung unter britischer Herrschaft (Miescher 2014). Zu dieser Zeit hatte das Land eine Bevölkerung von 6,7 Millionen und eine Bevölkerungswachstumsrate von 2,5 % bis 3,0 %. Damit war die Goldküste zur damaligen Zeit das am dichtesten besiedelte Land Afrikas und das Land mit dem schnellsten Bevölkerungswachstum weltweit (Hart 1977). Das VRP wurde mehr und mehr

strategisch relevant im Rahmen eines 5-Jahres-Plans zur Modernisierung des Landes. Ziel war es, eine Industrialisierung zu initiieren und die Abhängigkeit von Kakaoexporten zu reduzieren. Ghana war weltweit führend im Kakaoexport und wirtschaftlich sehr stark darauf ausgerichtet. Während kurz nach dem Zweiten Weltkrieg noch eine hohe Nachfrage nach Aluminium herrschte, gab es bereits 1956 eine weltweite Überproduktion (Birmingham et al. 1966). Dies erlaubte es den beteiligten Unternehmen, zu sehr günstigen Konditionen in das VRP einzusteigen. Die britische Regierung verlangte nach finanzieller Unterstützung durch die Weltbank, während Alcan wiederum um günstige Strompreise für die Aluminiumproduktion verhandelte (Moxon 1969).

1953 setzte die britische Regierung eine *Volta River Preparatory Commission* unter der Leitung von Kommandant Jackson ein. Britische Architekten begannen mit der Planung des neuen Hafens bei Tema sowie einem neuen Dorf Tema, um die alte Bevölkerung dorthin umzusiedeln. Der Staudamm sollte 90 % der gewonnenen Energie nach Kpong leiten, wo eine Industrie entstehen sollte, um Bauxit zu Aluminium zu verarbeiten. Dies würde auch die Errichtung eines energieintensiven Schmelzers erfordern. Diese zwei Fabriken sollten den Plänen zufolge 15.000 Menschen beschäftigen. Die Gesamtkosten beliefen sich auf 130 Millionen Britische Pfund. Dabei würde England 80 Millionen beisteuern, die restlichen Kosten würden die Unternehmen Alcan und BACo tragen. Die Regierung wäre Eigentümer des Staudammes und würde die Verteilung regeln, zudem wäre sie für die Eisenbahn und den Hafen in Tema zuständig (vgl. Abbildung 1). Die Unternehmen wiederum wären am Abbau von Bauxit beteiligt, würden die Fabriken betreiben und die Behausungen für die Arbeiter bei Kpong bauen (Special Correspondent 1956). Zudem sollten neue Eisenbahnverbindungen zwischen den Bauxitminen, Kpong und dem Hafen entstehen (Miescher 2014). Zur Umsetzungen der Fabriken bei Kpong sowie der Infrastruktur von Kpong nach Tema kam es jedoch nie.

Als 1957 die britische Kolonie Goldküste in die Unabhängigkeit entlassen wurde, herrschten ein weitverbreiteter Enthusiasmus und der Wunsch nach schneller wirtschaftlicher Entwicklung vor (Amankwah-Amoah, Osabutey 2017). Die weltweite Aluminiumnachfrage war gesättigt und BACo musste wegen Kreditüberziehungen aus dem VRP aussteigen (Hove 2013). 1958 übernahmen *Reynold* und *UK Tube Investment* das Unternehmen BACo (King 2001). Zur gleichen Zeit sahen die USA in dem VRP eine gute Möglichkeit, ihren Einfluss auf dem afrikanischen Kontinent auszuweiten. Vor allem vor dem Hintergrund von Präsident Trumans Entwicklungsprogrammen, die von der Modernisierungstheorie beeinflusst waren, und dem wachsenden Einfluss der Sowjetunion in Afrika (Cullather 2002; Ekbladh 2010). Eisenhower und Nkrumah verständigten sich darauf, das Vorhaben durch private Investitionen zu unterstützen. Die US-Firma *Kaiser Engineers* (ein Teil der *US Kaiser Industries*) war 1959 bereit, in eine

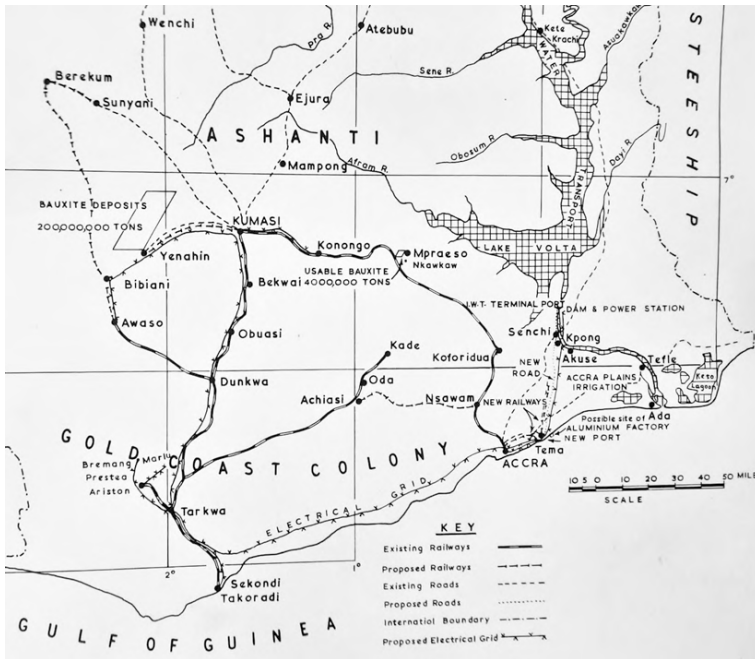


Abbildung 1: Pläne der integrierten Bauxit-Aluminium-Industrie an der Goldküste (kartographisch umgesetzt von Consulting Engineers Sir William Halcrow and Partners, veröffentlicht von Dr. R.J. Harrison Church 1952). Quelle: Harrison 1952.

etwas reduzierte Version des VRP zu investieren. Dies beinhaltete den Bau eines Staudamms sowie eines Aluminium-Schmelzers in Tema. *Kaiser Aluminium* bildete mit vier weiteren Unternehmen ein Konsortium und gründete die *Volta River Aluminium Company (VALCO)*, die den geplanten Schmelzer betreiben sollte. Aufgrund einiger Verhandlungsschwierigkeiten mit *Kaisers*, Gegenwind der politischen Opposition in Ghana sowie Widerstand bzw. Bedenken der USA stand das gesamte Projekt kurz vor dem Scheitern (Miescher 2014). *Kaiser* präsentierte einen unrealistischen Finanzierungsplan und war nicht in der Lage, die erforderlichen Kredite für den Bau des Staudamms aufzuwenden (Knierzinger 2018). Als John F. Kennedy US-Präsident wurde, änderte sich die US-Politik und war mehr auf einen *Third World Neutralism* bedacht. Dies brachte die Rolle der Weltbank stärker ins Spiel und im Februar 1961 einigte man sich auf eine Finanzierung durch die Weltbank (47 Mio. US\$), die USA (37 Mio. US\$) sowie die britische Regierung (14 Mio. US\$) (Mahoney 1983:168). Noch im gleichen Jahr wurde das italienische Konsortium *Impregilo*, das zuvor den Kariba-Staudamm zwischen Simbabwe und Sambia fertiggestellt hatte, damit beauftragt, das Flussbett zu entwässern und auszubaggern. Zudem setzte die Regierung Ghanas die *Volta River Authority (VRA)* zur Überwachung dieser Maßnahmen ein. Der

Staudamm wurde schließlich ab 1961 gebaut und 1965 fertiggestellt (Whitfield 2018). Da Nkrumah das Projekt unbedingt umsetzen wollte, akzeptierte er einen ungleichen Deal: Die Abmachung sah vor, dass der Schmelzer von *Kaiser* und *Alcan* importiertes Aluminiumoxid verwenden durfte und zudem wurde der Strompreis für den Schmelzer erheblich runtergehandelt (Hart 1977).

Schwierigkeiten und das Ende des VRP

Als 1961 die Baumaßnahmen für den neuen Staudamm begannen, gab es noch keinen finalen Plan zur Umsiedlung der betroffenen Bevölkerung. Aufgrund des strengen Zeitplans wurden in nur zweieinhalb Jahren knapp 70.000 Menschen umgesiedelt. Nkrumah war jedoch weiterhin überzeugt, dass dies verkraftbar sei, da die Realisierung seiner Vision helfen sollte, Ghana zu modernisieren und zu industrialisieren. Während der Bauphase des Staudamms gerieten die Pläne für eine integrierte Bauxit-Aluminium-Industrie zunehmend in den Hintergrund. Noch während Ghana in den Verhandlungen mit *Kaiser* und den USA stand, startete Präsident Nkrumah Pläne und Verhandlungen mit der Sowjetunion zum Bau des Bui-Staudamms im Norden des Landes. Nkrumah wollte damit auch die Position Ghanas in Zeiten des Kalten Krieges ausbalancieren, indem er versuchte, beide Interessen zu bedienen. Obwohl eine Umsetzung der integrierten Bauxit-Aluminium-Industrie schwierig, aber möglich gewesen wäre, entschied sich Nkrumah für den Bau des Bui-Staudamms. Miescher und Tsikata (2009) argumentieren, dass diese Entscheidung eine Überschätzung von Ghanas Möglichkeiten war, zumal es die Vereinbarung mit der Weltbank ignorierte, Ghana keinen zweiten Staudamm zu finanzieren. Nkrumah begründete seine Entscheidung damit, dass Ghana Strom für das gesamte Land sowie für die Nachbarländer produzieren könnte (Miescher 2014). Als sich Nkrumah 1966 auf Reisen in Ostasien aufhielt, kam es zu einem durch die USA unterstützten Militärputsch in Ghana (Miescher 2014; Knierzinger 2016). Dieser Putsch besiegelte das Ende des Bui-Staudamms sowie auch des VRP. Zwar wurde der Schmelzer 1967 fertiggestellt, aber es gab keine weiteren Interessen oder Bemühungen, in eine Industrialisierung des Landes durch eine Bauxit-Aluminium-Industrie zu investieren. In einem Bericht der CIA (1971) wurde das Vorhaben als „*largest development efforts ever undertaken in tropical Africa*“ beschrieben, allerdings als limited success deklariert. Die USA finanzierten die begonnenen Projekte zu Ende, auch um den Einfluss der Sowjetunion zu unterbinden (Miescher 2014). Die neue Militärregierung zeigte sich kooperativ, konzentrierte sich aber vorerst allein auf die Stromproduktion. Die Idee einer integrierten Bauxit-Aluminium-Industrie mit dem Ziel, das Land zu modernisieren, Arbeitsplätze sowie eine Industrie aufzubauen, wurde fallen gelassen (Knierzinger 2018).

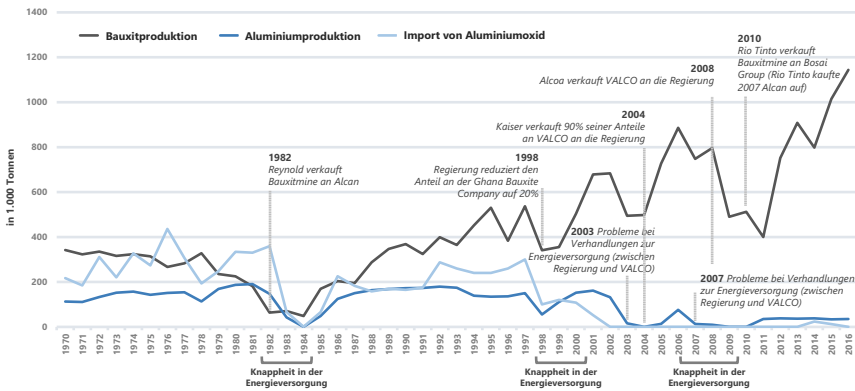
Jahre der Stagnation

Nach dem Militärputsch und dem ins Hintertreffen geratenen Projekt zum Aufbau einer integrierten Bauxit-Aluminium-Industrie stellte sich die Situation wie folgt dar: Ghana exportierte unverarbeitetes Bauxit, importierte verarbeitetes Bauxit (Alumina bzw. Aluminiumoxid), schmolz dieses bei Tema zu Primäraluminium (unmittelbar aus Aluminiumoxid gewonnenes Aluminium), exportierte dieses und importierte wiederum Aluminium für die Weiterverarbeitung von Endprodukten. Für Ghana war diese fragmentierte Wertschöpfungskette ökonomisch betrachtet kaum gewinnbringend. Für die beteiligten Unternehmen jedoch in doppelter Hinsicht, da sie Bauxit verkaufen konnten und günstigen Strom für die Aluminiumschmelze erhielten (Hart 1977). Ghana exportierte Bauxit vor allem nach England, Griechenland, Deutschland, Kanada sowie zuletzt immer stärker in die Volksrepublik China, und importierte Alumina (Aluminiumoxid) aus Jamaika und Europa für den Schmelzer in Tema (Knierzinger 2018). 1982 verkaufte *Reynold* die Mine bei Awaso an *Alcan*, während der Bauxitsektor moderat wuchs, aber immer wieder Probleme hatte. Der Anteil des Bauxit-Exports am Gesamtexport betrug zu dieser Zeit 1,4 % (Akabza, Darimani 2001; Knierzinger 2018). 1998 verkaufte die Regierung Anteile an der *Ghana Bauxite Company* und reduzierte somit ihren Anteil von 55 % auf 20 % (Akabza, Darimani 2001).

2014 produzierte Ghana etwa 870.000 Tonnen Bauxit, hingegen Sierra Leone im gleichen Jahr 1.161.000 Tonnen und Guinea mit 17.258.222 Tonnen etwa 20-mal so viel wie Ghana (USGS 2016). Während die ökonomische Bedeutung anderer Güter in Ghana weiter zunahm, ging die Relevanz von Bauxit immer weiter zurück. Zudem musste der Aluminiumschmelzer *VALCO* in Tema teilweise wegen unzureichender Stromzufuhr und auch Differenzen bei Preisverhandlungen im Mai 2003 komplett heruntergefahren werden (Bergstresser 2003). Im Juli 2004 verkaufte daher *Kaiser* seine 90 % Anteile an *VALCO* an die Regierung von Ghana, die letzten 10 % verblieben bei *ALCOA* (Ekpe 2016). Bereits einen Monat später verkündete *ALCOA*, dass es neue Verhandlungen mit der Regierung gegeben habe und der Schmelzer bald wieder seine volle Arbeit aufnehmen könnte. 2005 unterzeichneten die Regierung und *ALCOA* zudem zwei voneinander getrennte *Memoranda of Understanding* (MoU), um das Potential zu analysieren, weitere Bauxitminen zu erschließen sowie eine verarbeitende Industrie mit Raffinerien zu entwickeln (Gawu et al. 2012). Erstmals seit dem gescheiterten Versuch nach der Unabhängigkeit gab es wieder einen Anlauf, eine integrierte Bauxit-Aluminium-Industrie zu entwickeln. Allerdings bestanden weitere Engpässe bei der Stromversorgung, sodass der Schmelzer nur mit einer Kapazität von 30 % arbeiten konnte und 2007 erneut komplett heruntergefahren wurde. 2008 verkaufte schließlich auch *ALCOA* seine 10 % Anteile an die Re-

gierung Ghanas (Bermúdez-Lugo 2008; Kpodo 2018). Aufgrund einer mangelhaften Infrastruktur zum Transport von Bauxit, den anhaltenden Problemen mit der Stromversorgung des Schmelzers und dem Ausstieg westlicher Investoren wurde die Idee einer integrierten Bauxit-Aluminium-Industrie erneut verworfen (Kpodo 2018). Auch die Transportkosten von der Bauxit-Mine mit der Eisenbahn zum Hafen Sekondi Takoradi waren mit immer höheren Kosten verbunden (Knierzinger 2016), sodass der Konzern *Rio Tinto*, der 2007 *Alcan* aufgekauft hatte, seine Anteile an der *Ghana Bauxite Company Ltd.* komplett an die chinesische *Bosai Minerals Group* verkaufte (Bertolli 2010). Aufgrund der Transportschwierigkeiten sank die Produktion zunächst um 21 %. 2012 entschied Bosai den Transport von Bauxit komplett auf die Straße zu verlagern (Oxford Business Group 2013). 2011 begann zudem der Aluminiumschmelzer mit einer Kapazität von 20 % wieder seine Arbeit aufzunehmen (Knierzinger 2016).

In dieser beschriebenen Zeit stiegen vor allem wegen Problemen mit der Infrastruktur (Strom sowie Transport via Schiene) nach und nach westliche Unternehmen aus dem Bauxit-Aluminium-Sektor in Ghana aus. Die Entwicklungen wurden durch Archivarbeit in folgender Abbildung zusammengetragen und stellen einen zeitlichen Überblick der Bauxit-Aluminium-Industrie in Ghana dar.



Quelle: Bank of Ghana (2003); Report on the Mining Sector; British Geological Survey (2018); World Mineral Statistic; British Geological Survey (2007); African Mineral Production 2001-2005. Keyworth, Nottingham; Ministry of Finance Ghana (2015); GHEITI Report on the Mining Sector 2014. Anafo D. (2017). In pursuit of pro-poor development in Ghana. In: Asuelime L. E. Okem E. (2017). The Political Economy of Energy in Sub-Saharan Africa, 30-46.

Abbildung 2: Historie der Bauxit-Aluminium-Industrie in Ghana. Quelle: Anafo 2018; Bank of Ghana 2003; British Geological Survey 2007; British Geological Survey 2018; Ministry of Finance Ghana 2015.

Die Wiederentdeckung

Seit 2011 sind die Regierung von Ghana und die chinesische Firma *Bosai Mineral Group* die einzigen verbliebenen Akteure im Bauxit-Aluminium-Sektor. Zwar hielt ein Tochterunternehmen der niederländischen *Vimetco*, *Vimetco Ghana (Bauxite) Ltd.*, Abbaukonzessionen bei Kyebi und Nyanahin, doch seit dem Einstieg Chinas in diesen Sektor hat sich das Unternehmen vorerst zurückgezogen (Vimetco 2016).

Obwohl China ein wichtiger Player im globalen Aluminium-Sektor ist, hat sich die Volksrepublik bislang wenig an Abbautätigkeiten auf dem afrikanischen Kontinent für die Herstellung des Metalls interessiert. Die großen Minen, wie etwa in Guinea, sind alle in Händen westlicher Unternehmen (Knierzinger 2016). Während des ghanaischen Präsidentschaftswahlkampfes 2016 warb die *New Patriotic Party* (NPP) damit, erneut den Anlauf zu unternehmen, eine integrierte Bauxit-Aluminium-Industrie in Ghana zu entwickeln. Ziel sei es, damit Arbeitsplätze durch eine weitreichende Industrialisierung zu schaffen. Nachdem die einstige Oppositionspartei die Wahlen gewonnen hatte, erklärte Ghanas Präsident Akufo-Addo, dass der Aufbau einer solchen Industrie auch Teil einer langfristigen nationalen Strategie sei, die als *Ghana Beyond Aid* veröffentlicht wurde. Im Rahmen des Unabhängigkeitstages 2018 erklärte Akufo-Addo zudem in seiner Rede:

„My government is going to implement an alternative financing module to leverage our bauxite reserves in particular to finance major infrastructure programmes across Ghana. This will probably be the largest infrastructure programme in Ghana’s history without any addition to Ghana’s debt stock“ (Akufo-Addo 2018).

Die Pläne, zusammengetragen aus Informationen des Finanzministeriums und dem jährlichen Haushaltsplan, sehen vor, dass neue Minen bei Awaso, Kyebi und Nyanahin erschlossen werden sollen. Zudem sollen dort Raffinerien zur Weiterverarbeitung entstehen und die Infrastruktur, im Sinne von Energieversorgung sowie Eisenbahnlinien, erneuert werden (Ministry of Finance Ghana 2018). Ergänzend soll rund um das Gelände von *VALCO* eine Aluminiumindustrie entstehen mit Unternehmen, die das gewonnene Aluminium direkt zu Endprodukten verarbeiten können.

Ghana Beyond Aid

Während bislang vor allem die Aspekte Akteure und Pfadabhängigkeit im Fokus standen, soll nun abschließend noch auf den Aspekt des Narrativs eingegangen werden. Hierbei wird an der zuletzt beschriebenen gegenwärtigen Situation an-

geknüpft. Allerdings soll es dabei weniger um die Rolle Chinas in diesem Kontext gehen, sondern vielmehr um die symbolische Aufladung der Ressource in Ghana selbst.

Wenn es um Narrative oder Imaginationen, also auch um symbolische Aufladungen von Ressourcen geht, verweisen Jasanoff und Kim (2015) darauf, dass besonders solche Imaginationen stark sind, die sich bereits an global wirkungsmächtigen Narrativen orientieren. Sie bedienen sich der globalen Imaginationen und betten sie in einen lokalen Kontext ein, sodass diese an bestimmte Gegebenheiten angepasst werden. Als prägendstes Beispiel ist hierbei das Modernisierungsnarrativ zu nennen. Peters und Burchardt (2017) argumentieren, dass noch immer die Bearbeitung sozioökonomischer Fragen, wie Armut, Erwerbslosigkeit oder Einkommensungleichheiten primär über die Steigerung des Wirtschaftswachstums verfolgt wird. Ebenso wird für Peters und Burchardt (2017), trotz steigendem Bewusstseins und Studien über ökologische Folgen, noch immer zu Gunsten der Ökonomie entschieden. Als Folge manifestiert sich ein ungebrochener Fortschrittsoptimismus, der negative Umweltfolgen relativiert, technisch für lösbar erklärt oder mit der Notwendigkeit von Entwicklungszwängen rechtfertigt. In seinem 2017 veröffentlichten Aufsatz *Die Post-2015 Agenda und die Nachhaltigkeit des Entwicklungsdiskurses* geht Aram Ziai der Frage nach, welche bedeutsamen Änderungen und Kontinuitäten im modernisierungstheoretischen Entwicklungsdiskurs festgestellt werden können. Dabei vergleicht Ziai (2017) die Diskussion der Millenniumsentwicklungsziele (bekannt als Post-2015-Agenda) mit den grundlegenden Strukturen des Entwicklungsdiskurses seit seiner Entstehung Mitte des 20. Jahrhunderts. Diese grundlegenden Strukturen seien in den *Sustainable Development Goals* Berichten ebenso zu finden, wie in der Antrittsrede von US-Präsident Truman. Zwar gäbe es knapp 65 Jahre nach dem Washington Consensus auch Veränderungen, diese seien aber marginal, denn noch immer könnten die „*gleichen Strukturen identifiziert werden, die nach dem Ende des Zweiten Weltkriegs zur Akzeptanzbeschaffung für die Praxis der »Entwicklung« in einer kapitalistischen Weltordnung genutzt wurden*“ (Ziai 2017: 263–264). Nach Aram Ziai (2017) sind die sogenannten Kontinuitäten (1) die Diagnose eines Problems bzw. Defizits, (2) das Versprechen, dieses Problem lösen zu können, (3) das Rezept zur Bearbeitung des Problems sowie schließlich (4) das Credo einer Harmonie der Ziele. Die folgende Tabelle fasst die vier Kontinuitäten zusammen und stellt wesentliche Aussagen gegenüber.

Tabelle 1: Kontinuitäten des Entwicklungsdiskurses sowie deren zentrale Aussagen.

Kontinuität	Bestandteil/Aussage
Diagnose	Zentraler Aspekt ist die Definition eines Problems oder Defizites; meist ist dies ‚Armut‘ oder ‚Ungleichheit‘ (Ziai weist darauf, dass neuerdings auch der Klimawandel als zusätzliches Problem deklariert wird).
Versprechen	Die Versprechen werden mit einem starken Präsentismus aufgeladen; dies meint die wiederholte Erklärung, dass ‚wir‘ das Problem ‚jetzt‘ lösen; damit wird eine historisch einmalige Möglichkeit der Problemlösung konstruiert.
Rezept	Technische Lösungen und wirtschaftliche Entwicklung werden als Antwort auf das Problem präsentiert (Nebeneffekte oder daraus resultierende Konflikte werden nicht diskutiert).
Credo	Harmonie der Ziele, alle Beteiligten können profitieren, wirtschaftliche Entwicklung und Nachhaltigkeit scheinen vereinbar

Quelle: Ziai 2017.

In folgender Tabelle sind die zuvor dargestellten Kontinuitäten ausgewertet anhand der Rede zum Unabhängigkeitstag 2018 von Präsident Akufo-Addo.

Tabelle 2: Abgleich der Kontinuitäten des Entwicklungsdiskurses (nach Ziai 2017) und der Rede des Ghanaischen Präsidenten Akufo-Addo aus dem Jahr 2018.

Kontinuität	Rede von Präsident Akufo-Addo 2018
Diagnose	„ <i>Poverty continues to be our lot.</i> “ „ <i>We are still dependent on the export of primary commodities, as was the case at the time of Gordon Guggisberg. We must admit, sadly, that, in the area of economic development, we have underachieved, relative to our peers at independence.</i> “
Versprechen	„ <i>We cannot wait that long; we have wasted enough time already. It is time to get on with it, and the time is now.</i> “
Rezept	„ <i>The change in our fortunes will only happen when our economy improves.</i> “ „ <i>Getting our country to a situation Beyond Aid means we add value to our exports, and stop the export of materials such as cocoa, gold, bauxite, manganese and oil in their raw state.</i> “
Credo	–

Quelle: Eigene Darstellung.

Es zeigt sich, dass bis auf den Punkt Credo, der in der Rede in dieser Form nicht ausgeführt wurde, alle anderen Kontinuitäten eine eindeutige Ähnlichkeit zu den beschriebenen Beispielen von Ziai (2017) offenlegen. Es handelt sich um eine in einen nationalen Kontext übertragene Modernisierungsrhetorik, die zudem auch erstaunliche Ähnlichkeiten mit der Entwicklung einer integrierten Bauxit-Aluminium-Industrie in Ghana während der Zeit der Unabhängigkeit aufweist. In seiner Rede rechnet Akufo-Addo deutlich den Mehrwert einer Verarbeitung von Bauxit vor, sodass es plausibel erscheint, diese Schritte zu unternehmen. Er

schließt diese Ausführungen mit dem Satz „*Aluminium, we are told, is the metal of the future*“ (Akufo Addo 2018). Zum Vergleich, 1952 erschien im *Journal West Africa* ein Beitrag unter dem Titel *Aluminium: Metal of the Future*. In beiden Kontexten wird darauf Bezug genommen, dass Ghana den Strom zur Verfügung stellen kann, der für eine entsprechende Industrie benötigt wird, sowie über ausreichende Mengen an der nötigen wichtigen Ressource (Bauxit) verfügt. Nkrumah versuchte mit der Umsetzung des *Volta River Project* koloniales Erbe hinter sich zu lassen. Das Ziel war es, das neue unabhängige Ghana zu entwickeln, sowohl souverän politisch als auch ökonomisch. Ebenso gehört für Akufo-Addo zur *Vision Ghana Beyond Aid* inklusive des Plans einer integrierten Bauxit-Aluminium-Industrie auch der Schritt, unabhängiger von anderen Industrienationen bzw. Geberländern zu werden. Bauxit und die Weiterverarbeitung werden als unerfüllter Traum symbolisiert, auf dessen Realisierung der Präsident verweist: „*It is for this reason that Ghana has, since independence, sought to establish an integrated bauxite and aluminium industry. Thus far, this has remained a fond hope*“ (Akufo-Addo 2018). Bis in die Gegenwart wird jedoch seit 1942 kontinuierlich das abgebaute Bauxit exportiert und nicht im eigenen Land verarbeitet oder in Wert gesetzt. Was als koloniales Projekt der Briten begann, symbolisch aufgeladen wurde mit wirtschaftlicher und politischer Souveränität während des Jahren der Unabhängigkeit Ghanas, könnte mit dem Auftreten der chinesische Firma *Sinohydro* als neue neokoloniale Praktik interpretiert werden. Zuletzt hat die Regierung von Ghana durch gesetzliche Grundlagen und auch die Etablierung einer para-nationalen Einrichtung dafür gesorgt, dass die Durchführung der Pläne eine gewisse Institutionalisierung erfährt. Ähnlich wie Nkrumah, der das damalige *Volta River Project* sehr zentralistisch initiierte, bestätigt sich im aktuellen Fall die Analyse von Arboleda (2020), wonach der Staat zunehmend interventionistisch agiert und durch starke Narrative überzeugend gegenüber der Bevölkerung auftritt.

Diskussion

Der ausführliche historische Abriss hat gezeigt, dass Ressourcen nicht einfach nur sind, sondern sich durch einen kontinuierlichen Prozess des *Werdens* auszeichnen (vgl. Zimmermann 1933). Entsprechend können sie von machtvollen Akteuren eigennützig interpretiert werden oder auch an Bedeutung verlieren. Dabei sind Ressourcen aber nicht nur passive Objekte. Gerade im Zuge des *material turn* und im Sinne des *new materialism* wird auf den aktiven Charakter verwiesen. Insbesondere die Sichtweise der Affordanz geht darauf ein, indem diskutiert wird, dass Materialität einen Angebotscharakter aufzeigt, indem eine Aufforderung zu einer bestimmten Nutzung gemacht wird. Im Fall von Bauxit

könnte eine von verschiedenen Aufforderungen die Nutzung zur Verarbeitung zu Aluminium sein. Die Eigenschaft von Bauxit bietet sich in diesem Sinne an, eine entsprechende Weiterverarbeitung umzusetzen, da Bauxit sich nur als Schmuck verwenden oder zu Aluminium verarbeiten lässt. Bei der Betrachtung der Wiederentdeckung dieser Ressource spielt folglich die Materialität eine nicht unerhebliche Rolle, gleichzeitig wird diese Inwertsetzung durch ein Narrativ aufgeladen.

Bereits vor dem Ersten Weltkrieg wurde Ghanas Bauxit zu einer strategischen Ressource und von besonderer Relevanz. Früh war die britische Regierung beteiligt und der Abbau war von größter Wichtigkeit. Waren die Gründe hier vor allem noch militärischer Natur, so änderte sich dies in den Jahren der Unabhängigkeit Ghanas. Im Rahmen des *Volta River Projects* sollte Bauxit den Anstoß für eine landesweite Industrialisierung liefern und der Aufbau einer integrierten Bauxit-Aluminium-Industrie versprach Arbeitsplätze und wirtschaftliche Entwicklung. Eingebettet in dieses größere Projekt symbolisierte Bauxit Souveränität und Unabhängigkeit in doppelter Hinsicht: Unabhängigkeit vom Kakao-Export und somit eine heterogene industriellere Wirtschaftsstruktur sowie Unabhängigkeit von anderen Staaten, da Ghana sich wirtschaftlich entwickeln würde. Nach dem Militärputsch gegen den ersten Präsidenten verlor die Ressource an strategischer Bedeutung und bis auf eine Mine, die bereits seit 1941 aktiv ist, wurde bis 2020 keine weitere Bauxit-Mine eröffnet, obwohl mehrere Bauxitlagerstätten in Ghana vorhanden sind. Und doch änderte sich die strategische Relevanz von Bauxit ab 2017 erneut. Wie dargelegt symbolisiert die Entwicklung einer integrierten Bauxit-Aluminium-Industrie erneut Souveränität und Unabhängigkeit, in dieser Situation eingebettet in das nationale Programm *Ghana Beyond Aid*.

Dieses spezielle Fallbeispiel zeigt jedoch auch, dass das Verständnis und der Umgang mit Ressourcen stark von ihrer jeweiligen symbolischen Aufladung abhängig sind. War Bauxit 1917 bei Sir Kitson (*Colonial Reports 1917:48*) noch „*of the highest Imperial importance*“, so ist es 2018 „*key in moving Ghana Beyond Aid*“ (Akufu-Addo 2018). Ressourcennutzung und Inwertsetzung sind damit nie per se eine rein naturwissenschaftliche oder technische Frage, sondern ebenso eine soziale und politische.

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Bauxite mining at Atewa Forest Reserve, Ghana: a political ecology of a conservation-exploitation conflict

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Abstract Atewa Forest Reserve in the Eastern Region of Ghana represents one of only two reserves with upland evergreen forests in Ghana but is also a possible site for bauxite mining. The Government of Ghana deployed an infrastructure in anticipation for a refined bauxite agreement with China. Ghana's Government seeks to develop an integrated Bauxite-Aluminum Industry; however, several NGOs try to protect the Atewa Forest and propose that the area should be upgraded to a National Park. In this study, this conservation-exploitation conflict is analyzed from a political ecology perspective elaborating on who are the involved key actors, their relations and what strategies are used. Political ecology is about recognizing the power that actors have at the moment of deciding what, how, and where to conserve nature. Based on interviews done during fieldtrips in 2018, 2019 and 2020 complemented by an analysis of political documents, the identified strategies the NGOs are using in this conflict, can be described as demonstration and upscaling. The aim of this paper is to draw attention on the politicization of nature, in particular Atewa forest reserve and its bauxite resources.

Keywords Bauxite mining · Atewa forest · Political ecology · Conservation-exploitation conflict · Ghana

Introduction

Extraction spaces, even without actually mining taking place yet, are spaces where power relations are destabilized, existing livelihoods are challenged, inequalities emerge and the territorial development is contested. Frequently, these spaces and the processes are marked by tension, friction and accelerated change. Pijpers and Eriksen (2019) point out, that just as the extractive sector is expanding, so is the interest among social scientists in the implications of this expansion. The recent growth in associated research indicates that there is considerable ongoing concern to seek a better understanding of extractive practices and their social, economic, political and environmental effects around the world. For political ecology, a research approach that specifically engages with the causes and consequences of uneven power relations over natural resources and the environment, understanding *conflicts* is a prime focus (Le Billion and Duffy 2018). In addition, political ecology explores the politicization of nature through conflicts. The struggle about bauxite mining at Atewa Forest is an example for a political ecology conflict, where

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different actors on different scales with different interests compete about a politicized resource.

In 2018, China and Ghana entered a so-called resource-for-infrastructure swap that gained public attention: the Sinohydro Deal. This agreement is viewed controversial, as the repayment shall be done with the revenue of refined bauxite. This requires the development of a bauxite industry and, therefore, further extraction of bauxite. The states of Guinea, Ghana and Sierra Leone are home to the most important bauxite mining areas in Africa. In 2014, Guinea, the fourth largest producer in the world, produced 17.3 million tons of bauxite, Sierra Leone 1.16 million tons, and Ghana only about 837,000 tons (USGS 2016). Although Ghana has extensive reserves, the bauxite aluminum industry is not economically significant, compared to Ghana's main export goods Cacao and Gold. The country exports bauxite in its raw state, imports aluminum oxide, processes it in a smelter and then exports aluminum. This fragmented supply chain, which began in the 1970s, was beneficial to the companies involved, but not in the countries economic interests (Hart 1977). Since 1942, bauxite is mined in only one location (Awaso) in Ghana. Already during the independence of Ghana, there have been plans to develop an integrated bauxite-aluminium-industry, but this was never fully realized. The Atewa Forest in Ghana's Eastern Region is one of three possible sites where the government of Ghana is seeking to mine bauxite in order to develop an integrated bauxite-aluminium industry. Up to this point, the Atewa forest with its upland evergreen forests has not been exploited. Due to the ubiquitous impending risk of bauxite mining and ecological risks, several NGOs aimed for an institutionalized protection of the forest. However, the current bauxite deal has become a key part of the government plans for a nationwide industrialization and has been framed along with iron and steel as a *Strategic Anchor Industry*.

I observed the conflict from 2017 until 2020 and analyzed the politicization and the involved actors in this setting. In this paper, the central questions are: (1) who are the involved actors in this conflict? (2) What strategies and methods are used by the alliance that is against bauxite mining at the Atewa Forest? To address these focal points, I use a political ecology approach with its actor-orientated perspective. I will outline the political ecology approach in “**Political**

ecology approach and methods”, following a brief overview about the study area and specific methods used (**Study area and methods**). I then describe how the conflict emerged and how the Atewa Forest with its bauxite was politicized (**The politicization of the territory**). I will end with elaborating on the strategies of the NGOs fighting mining at the Atewa Forest and examine the counter reactions from the government in the discussion (**The conflict, strategies and actor mapping**). This contribution highlights the negotiations and frictions between individuals and groups with different agendas, worldviews and aims within the context of mining. While it is too early to say if the movements against mining at Atewa Forest was successful, the central lesson is that the NGOs (using several techniques) are trying to pull the government back into the conflict arena, to avoid that the exploitation may appear as something economical logical and without an alternative to the population.

Political ecology approach and methods

The conservation of biodiversity is an increasingly challenging endeavor. Hodgson et al. (2019) argue that conservation conflicts currently poses one of the most significant challenges to wildlife and biodiversity across the globe. The geographical overlap between mining sites and biodiversity hotspots often lead to serious social and ecological challenges over the short and long term. In academia, the conflict between conservation and mining is often framed as the *conservation-exploitation dilemma*. There is a vast number of studies about the dilemma between exploitation and conservation (see Butsic et al. 2015; Helwege 2015; Paredes 2016; Gómez-Valenzuela et al. 2020). While there are many drivers for conservation conflicts, Beynham-Herd et al. (2018) argue that many are rooted in larger societal issues (such as poverty and inequality), imbalances of power and inappropriate governance processes.

From an extraction perspective, Engels (2016) defines three types of conflicts: (1) conflicts between civil society organizations on the one hand and the state and mining companies on the other; (2) conflicts between trade unions and mining companies; and (3) conflicts between artisanal miners and mining companies. Pijpers and Eriksen (2019) introduce the *mining encounters* approach, understood as the

negotiations and frictions between individuals and groups with different agendas, worldviews and aims within the context of mining operations from the early stages of exploration and development to the final phases of closure and aftermath. From the perspective of conservation, conflicts are mostly labeled as a *conflict of interest*. A typical example of a *conflict of interest* could be over a forest resource, where some groups want to harvest trees, and other groups want to preserve the forest as a habitat for specific species (Adams 2015). Similarly, Bonsu et al. (2019) argue conservation-exploitation conflicts are constructed upon a substance, grasped as an issue that comprise the conflict. Hereby, the ‘substance’ is not only understood as a material substance, but also as narratives or different imaginaries of future development. While Engels (2016) emphasis the actor-centered approach, Bonsu et al. (2019) focus on the relationship and behavior of people.

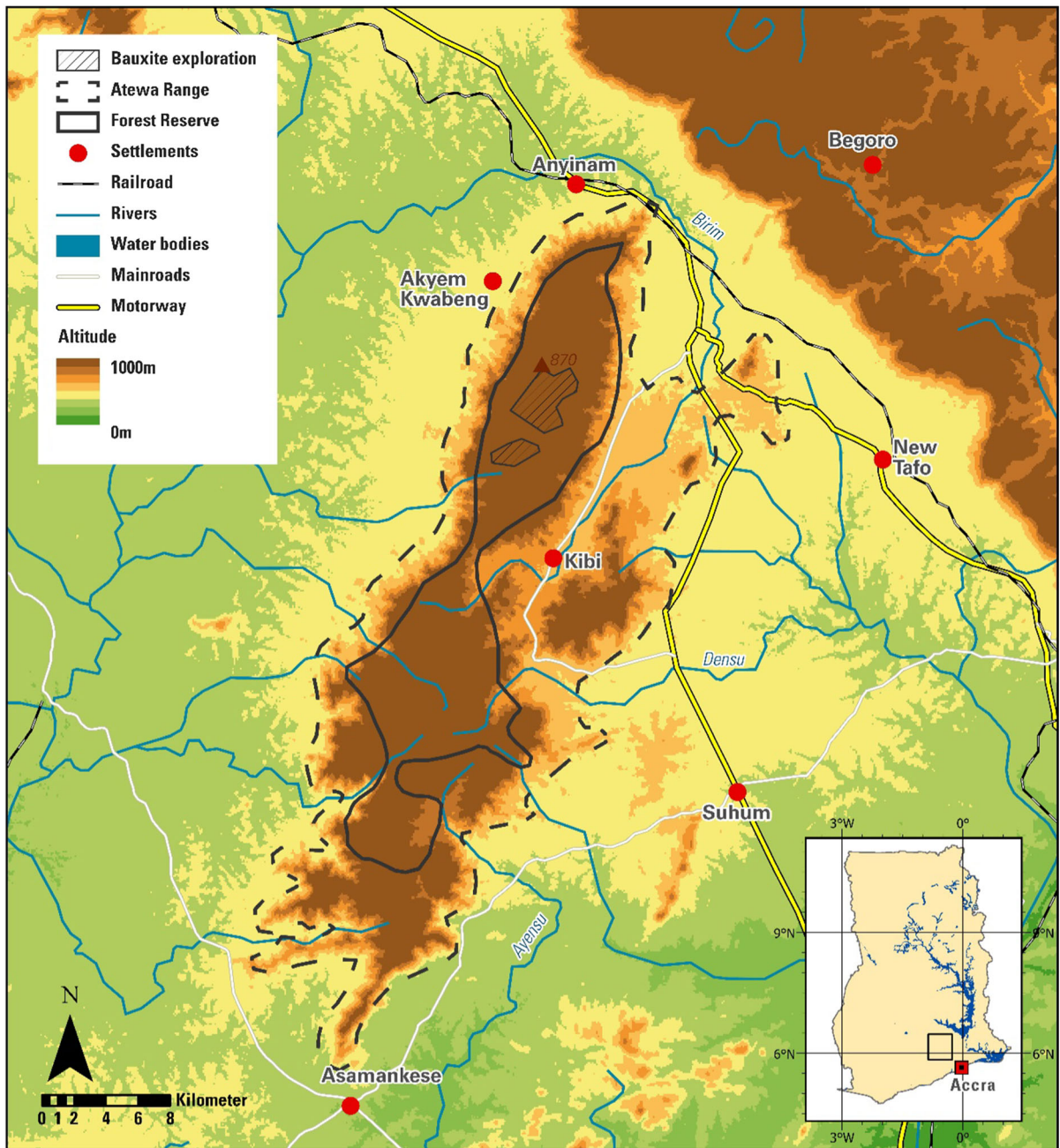
The general analysis about socio-environmental conflicts in protected areas assumes that conservation is a generator of conflicts because its main objective is to separate part of the territory for nature (García-Frapolli et al. 2018). Conservation involves making choices about the relations between people and nature. If a forest is protected, it is not available for farmers, hunters or loggers (Adams 2015). Castro and Nielsen (2003) argue that conflicts arise because the people or institutions have differences or incompatibilities between their interests, values, power, perceptions and objectives about something in particular. Political ecology poses a different framing of the understanding of socio-environmental conflicts. According to Le Billon (2015: 598), “*political ecology is about politics, and about recognizing the political character of environmental and resource issues*”. In addition, political ecology is about recognizing the power that actors have at the moment of deciding what, how, and where to conserve (García-Frapolli et al. 2018). It is important to highlight that political ecology explores the politicization of nature through conflicts, instead of naturalizing the conflicts through environmental analysis. Political ecology rejects the hypothesis that with greater environmental scarcity or lack of resources there is an increase in conflicts. Rather it assumes that all human decisions, and therefore also conservation, are inherently political (Adams 2015). Robbins (2004) highlights that political ecology views social/environmental change and emerging conflicts with a

normative understanding. Political ecology studies have developed several conceptions of ecological conflicts. Socio-ecological conflicts can be defined as struggles associated with the unequal access to, distribution of, and control over natural resources as well as ecological benefits and risks (Le Billon 2015; Martinez Alier 2009; Peet and Watts 2004; Pichler 2016; Turner 2004). Poststructuralist political ecologists have criticized this understanding of conflict and power, arguing for a more relational understanding of conflicts and power that evolves in assembled networks (Bennet 2010; Rocheleau 2015). Schmidt et al. (2019) highlights the strength of a political ecology approach, because (i) it integrates political and ecological dimensions as well as material and discursive elements, (ii) it calls for a normative perspective and (iii) must be more understood as lenses through which conflicts can be analyzed rather than as a theory or method.

In this paper, a political ecology approach is used to look at the bauxite mining Atewa Forest conflict. Robbins (2004: 12) defines such approaches as “*an empirical, research based exploration to explain linkages in the conditions and change of social/environmental system, with explicit consideration to relations of power*”. Bryant and Bailey (1997, p 39) define power as the “*ability of an actor to control*” the access to nature and natural resources as well as the access of other actors to these resources. The paper follows the approach formulated by Schmidt (2013): Identifying the key actors and their relations, the different scales on which they act and which interests they follow. The aim is to elaborate on the politicization of nature, in that case the forest reserve and its bauxite reserves.

Study area and methods

The Atewa Range (see Fig. 1) is an ecologically important forest reserve (17,400 hectares) established in 1926. Since that time, Ghana has lost roughly 80% of its forested habitat (Cleaver 1992). Ownership of the reserve is vested in the President of Ghana, while the entire reserve falls within the jurisdiction of the Akyem Abuakwa Traditional Area (McCullough et al. 2007). The head of this area is known as Okyenhene, which is the title of the king of Akyem Abuakwa, an ancient kingdom in the Eastern Region of Ghana (with



Source: GADM 2020, OSM 2020 (Bauxite Exploration area based on map provided by GIADEC, published on A Rocha Ghana Website 2020).

Fig. 1 Study Area: Atewa Forest Reserve

the capital Kyebi or also written Kibi). The chieftaincy is officially accepted in Ghana. Politicians ask chiefs/kings for advice and permissions because usually they are closer to the people.

Since the Atewa Range is declared a forest reserve, some communal rights are granted: For example, farming within the reserve (admitted farms), collecting forest products (including building materials, canes, vines, ropes, pestles, palm trees, snails, mushrooms,

chewing sticks, medicinal plants, game and wildlife), receiving a share in timber royalties resulting from forestry on privately owned land, accessing sacred places, establishing hunting camps and washing for gold (McCullough et al. 2007). The Atewa Range represents some of the highest forest covered hills in Ghana (along with the hills of the Southern Scarp and the Nyinahin Range (Swaine and Hall 1977). The range peaks at 842 m and runs from north to south. It is characterized by a series of plateaus, which are remnants of a Tertiary penplain (McCullough et al. 2007). The vegetation within the mountain range is very diverse with elements of upland evergreen forest; in addition, the forest is an important watershed from where three important rivers namely the Densu, Ayensu and Birim originate. Atewa Range Forest Reserve is not only recognized as a watershed but also known to constitute the largest and most intact patch of upland evergreen forest in Ghana (Ayivor and Gordon 2012). The reserve is only one of the two reserves in Ghana with upland evergreen forest (Hall and Swaine 1981; Abu-Juam et al. 2003). Because of its uniqueness, the reserve has changed status over the years as a Special Biological Protection Area in 1994, a Hill Sanctuary in 1995 and as one of Ghana's 30 Globally Significant Biodiversity Areas (GSBAs) in 1999. In 2001, Atewa was listed as an Important Bird Area (IBA) by BirdLife International (Abu-Juam et al. 2003; Rapid Assessment Program 2007).

However, the conservation of this forest reserve also led to some threats and challenges, like illegal hunting and illegal small-scale gold mining. Intensive farming and illegal logging caused further problems with erosion (Ayivor and Gordon 2012). At the edge of the reserve, gold is mined and the forest harbors one of three possible sites for bauxite mining within Ghana. While legal gold mining takes place close to the border of the reserve, bauxite mining would be taking place at the hills and therefore in the forest reserve (Fig. 1).

As later shown, the conflict started in the beginning of 2017; it got more public attention when Ghana and China signed a Memorandum of Understanding in June 2017, the time when I first started with my research. Since then, I have not only undertaken interviews during fieldtrips, but also collected secondary data like policy documents as well as media reports. During the three years I studied the conflict I conducted fieldtrips in March 2018, March 2019 and March 2020, which were instrumental to get further

information about the conflict or in regards to interviewing new actors, who were not considered originally. Interviews were conducted with key actors in this conflict including the leading NGO in this conflict (would add here also Name of the NGO; at the head office as well as the local office in Kyebi), VALCO (a smelting company) and a representative from a community close to the forest. In addition, a group meeting of the concerned citizens of Atewa landscape as participating observation, as well as a group interview with this collective were undertaken. Political documents, statements and press releases from the government and NGO were also taken into account. An actor-oriented political ecology perspective, argues that power is exercised by actors. While actors exercise power, they are also met by various forces of resistance and opposition. Mapping Actors can help to understand the power relations between them. Svarstad et al. (2018) argue, that study the agency of individual actors is important in order to explain injustice and a lack of environmental sustainability.

The politicization of the territory

Since the very first discovery of bauxite in 1914 in the Atewa Range, and initial attempts to establish an integrated bauxite-aluminum industry in 1924, this region has always been one of three possible sites for bauxite mining in Ghana. In 1942, a mine in the Western Region of Ghana started producing bauxite. The first President of Ghana, Kwame Nkrumah, aspired to develop an integrated bauxite-aluminum-industry in order to achieve not only political sovereignty but also economic independence. As a consequence, a smelter was set up in Tema and the Volta Dam was built. However, the proposed integrated industry was never realized. Since then bauxite remained an economically unimportant resource without any further development in that country. This constellation has protected the Atewa forest from mining activities. In 2012, the Forestry Commission informed the NGO A Rocha Ghana¹ (thereafter named

¹ A Rocha Ghana (ARG) is a non-governmental, non-profit environmental organization with a Christian background. A Rocha was founded in Portugal in 1983; the headquarter is now in London and the organization has branches in about 21 countries.

ARG) that the government had given out concessions to prospect bauxite at Atewa to a national company called Exton Cubic. In response to these news, ARG and some smaller civil groups joined forces and opened a dialogue with the government. In 2013, ARG organized a national summit on Atewa Forest with all the important stakeholders including the Forestry Commission and the Water Resource Commission as well as the Minister of Lands and the Minister of Environment. The main outcome of that summit was that it is important to protect the forest, and that no future government should step in and start mining bauxite there. All the participants agreed that upgrading the reserve to a National Park would prohibit any future government of mining bauxite in the Atewa Forest. The Forestry Commission, the Water Commission as well as the Ministry of Lands started the process to declare Atewa Forest Reserve as a National Park.

The campaign to save Atewa Forest is also part of the Green Livelihoods Alliance. This alliance is supported by the Netherlands Ministry of Foreign Affairs. Therefore, the Dutch Ministry together with IUCN Netherlands initiated a survey together with the local NGOs like ARG named the *'The Economics of the Atewa forest range, Ghana'* (Schep et al. 2016). The study by Schep et al. (2016) compared four different development scenarios for the forest and concluded, that declaring Atewa Forest as a national park with a supporting buffer zone would result in the highest cumulative value for the region. Because a national park has the strictest regulations, the idea of a buffer zone was considered. Such a buffer zone can ensure that part of the traditional activities of local communities develop in a sustainable manner and still provide economic benefits locally. Therefore, the local support should also be granted as the needs of the population around the forest are addressed with this scenario.

The aim in the mentioned survey was to calculate the value of the forest, so that the proposed protection would be more comprehensible for politicians. The foreword of the report was written by the Ghanaian Minister of Land and Natural Resources, Nii Osah Mills at that time, who expressed his intentions: *"Clearly, we simply cannot continue doing business as usual and to this I reiterate the commitment of the Government of Ghana to designate Atewa Range Forest Reserve as a National Park"* (Schep et al.

2016:7). ARG also prepared a needed justification for the Ministry of Lands and Natural Resources. In 2016, the process of upgrading the Atewa Reserve to a national park had progressed so far that the Ministry of Lands and Natural Resources sent out a letter to the cabinet. However, 2016 was also a presidential election year in Ghana between the two major parties, the National Democratic Congress (NDC; at that time in office) and the National Patriotic Party (NPP). One part of the NPP campaign was committed to establish an integrated bauxite-aluminum-industry in order to create jobs and achieve a higher level of industrialization with bauxite mining playing an important role. ARG was in contact with both parties trying to push their idea of a national park to prevent any mining activities in the forest. By the end of 2016, the NPP won the election and Akufo-Addo got into office. Given this new political landscape, it was necessary for the NGOs to start campaigning against bauxite mining at Atewa. On the one side, the NGO sees huge environmental risks for the forest as well as rivers. Bauxite is extracted on a large surface in open-cast mining, resulting in degradation and environmental pollution. An associated scenario-based impact study by the Netherlands Environmental Assessment Agency (Meijer et al. 2018) concluded that over 50% of forestland could be cleared in a worst-case scenario. In addition, toxic by-products (the so-called red mud) are generated during the further processing and leaching of bauxite. The big concern of local environmental organizations, as well as ARG, is that trace quantities of this red mud could get into rivers. The corrosive caustic soda contained in the red mud would be hazardous to the fauna and humans in the vicinity of the rivers. On the other side, the government argues that an integrated bauxite-aluminum-industry would not only generate jobs, but would also finance infrastructure and act as a driver for a nationwide industrialization.

In 2017, Ghana and China signed a Memorandum of Understanding that may culminate in the development of a \$10 billion bauxite for infrastructure barter (part of it also known as the Sinohydro Deal). President Akufo-Addo (2018:9) said in his speech that marked the 61st anniversary of the country's independence from Britain 3 months after his inauguration: *"Fellow Ghanaians, we have huge infrastructure needs in the areas of roads, bridges, water, electricity, housing, hospitals, schools, etc. The*

problem has always been where to find the money. However, where there is a will, there is a way. My government is going to implement an alternative financing model to leverage our bauxite reserves, in particular, to finance a major infrastructure programme across Ghana. This will probably be the largest infrastructure programme in Ghana's history, without any addition to Ghana's debt stock."

Shortly after the 2016 Ghanaian general election, the new government ignored the plans to upgrade Atewa Forest to a national park and rejected the inquiries from the NGOs. Therefore, ARG decided to take the conflict into the public space. The initial twitter post of ARG in January 2017 included a call to the president to save Atewa Forest. However, against the background of the 2017 memorandum that the Government of Ghana and the Peoples Republic of China brokered, the attempts to protect Atewa might appear futile. Even though there was no concrete mining taking place or concession given out following the 2017 memorandum, the dissent between the NGOs and the Government about appropriate strategies for territorial development turned specifically the Atewa forest into a contested territory.

The conflict, strategies and actor mapping

In Ghana, it is usually common to initially carry out a Strategic Environmental Assessment (SEA), in order to identify the possible impacts of bauxite mining and then select possible sites. The NGOs called for the Environmental Protection Agency to require a SEA. However, the new government refuses to follow this procedure. By the end of March 2019, the government presented the *Ghana Integrated Bauxite and Aluminium Development Authority Act*. The Act sets up the legal framework for an authority to develop and establish the integrated bauxite-aluminum industry. The NGOs claim that the establishment of such an authority was unconstitutional, because the Minerals Commission is in charge of such developments. The Government responded by establishing a cooperation, the Ghana Integrated Aluminum Development Cooperation (GIADEC). GIADEC is in charge for organizing bauxite mining in the country and for setting up plans to build refineries and needed infrastructure. The board of the GIADEC consists of representatives of the integrated aluminium industry, members of

parliament, a representative of the Ministry of Finance, the chief from Nyinahini, a representative of the Minerals Commission and a representative of the Association of Ghana Industries. GIADEC has a Chief Executive Officer, who was a former Senior Vice-President of the Dell Corporation. Shortly after the setup of the GIADEC, a deal with the Chinese company Sinohydro was signed about infrastructure development in return for refined bauxite. ARG points out that the agreement with Sinohydro is not specific about the location of the bauxite mining. In fact, part of the agreement states that if the country is not able to extract enough bauxite, the country should explore other options. As a consequence, ARG saw a real opportunity to continue with the protest and negotiate with the new government. Several actions were then undertaken to push the agenda that Atewa Forest will be upgraded to a national park. The coalition of NGOs used several tactics that are outlined below to put further pressure on the new government, which can be differentiated into two strategies: demonstrations and up scaling.

Demonstrations

Demonstration can be understood in two different ways. Either to *demonstrate* something to someone or in the sense of a protest, as a collective gesture of disapproval, like a march. Marking the World Water Day in March 2018 the *Concerned Citizens of the Atewa Landscape*, represented by civil society organizations, NGOs, Youth Groups, Interfaith Groups, Farmer Based Associations and Opinion Leaders and Community Leaders from the Atewa region organized a 6-day walk. Hereby, leading NGO and organizer of this protest march was ARG. The 95 km long walk started at Kyebi (Atewa Region) and ended at the Jubilee House, the presidential palace in Accra. ARG counted about 150 people during the walk. During the march, the demonstrators pointed out that water resources would be destroyed thereby symbolically referring to the UN Sustainable Development Goal 6 (SDG6; *Water and Sanitation*), and also planned the march to arrive in Accra on World Water Day. Following the arrival in Accra, the demonstrators handed a petition to the president. The main argument was mostly built on the UN SDGs, specifically SDG6 to '*Ensure availability and sustainable management of water and sanitation for all*'. Shortly after this the

Ghana Integrated Bauxite and Aluminium Development Authority Act was implemented by the government. The campaign generated media attention in Ghana. Several local Newspaper, radio broadcasts, and on social media, the issue of Atewa forest and bauxite mining was discussed and reported.

Besides the walk on Water Day, in January 2019 an exhibition about the Atewa Forest was organized by ARG. The Exhibition took place at the British Council in Accra showcasing visual displays (pictures, drawings) and providing information about the Atewa forest and its services to the community. In June 2019, the Atewa Day of Action: March for Atewa, Forest and Water took place in Accra. The route through the capital Accra ended at Parliament House, where a petition was handed to members of Parliament. In 2020 ARG planned picketing in front of the Forestry Commission but had to cancel it due to the Coronavirus pandemic.

While these actions are generally understood as a public protest, one member from ARG describes these protests as tactics, so that *“the governments knows, that we are still watching them”*. In addition, the aim was to inform the people in Accra that their water sources come from the forest (thereby rising public awareness). However, demonstrating also refers to the idea of showing or presenting something, in order to convince certain groups. In the context of the conservation of the Atewa Forest, these important stakeholders include the communities that live in the surroundings of the forest.

Mostly people compared bauxite mining to small-scale gold mining operating in the region and employing many people. ARG, therefore, organized a trip for stakeholders around the Atewa landscape to Awaso in beginning of March 2018. Awaso hosts the only active bauxite mine (since 1942) and is partly owned by the Chinese Bosai Minerals Group (80%) and the state (20%). The idea of this trip was to demonstrate the impacts and environmental risks that open-cast bauxite mining poses. In addition, they visited the village Awaso and demonstrated that the people there do not have a better living situation or more income due to the nearby mine. A former assembly member and opinion leader explained in an interview, that at first, he supported the mining because he hoped jobs would be created. Some of the people who participated in this tour also filmed and took pictures, which are now presented in their

communities. Also, the trip has been key in the formation of the Concerned citizens of Atewa Landscape. The group includes local farmers, youth, women and interfaith groups as well as local opinion leaders. The general idea of this trip was to educate the people about the impacts of mining. In addition, ARG aimed to talk to the chiefs around the Atewa forest. The position and role of Chiefs in Ghana was further strengthened in the 1992 Constitution of the Fourth Republic, acting as powerful leaders of a community. The main functions of chiefs include dispute settlement; codification of customary law; organization of rituals, ceremonies and festivals; custody of stool land; organization of communal labour; and promotion of socioeconomic development. Chiefs' responsibilities thus include both statutory and non-statutory aspects, such as promoting development (Kleist 2011). To educate and convince chiefs about sustainable development, as also done in the aforementioned trip to Awaso, is therefore an important aspect of the campaign to protect the Atewa Forest.

In addition, ARG demonstrated their constant watch over the government and exploited a further strategy to rise public awareness in regards to conservation of the Atewa Forest by placing large billboards at strategic locations. While some billboards are located around the forest area in smaller villages, one billboard is placed on the opposite side of the Jubilee House, the presidential palace (see Fig. 2). The billboard is not only placed at a major and highly frequented road in Accra for everyone to see, but also as a statement and symbol of this conflict. It reimagines the mentioned ARG quote that *“the government knows, that we are still watching them”* and is reminding everyday of the unsolved issue.

Upscaling

During conflicts between social groups, the actors can use a strategy of ‘jumping scale’: upscaling or downscaling (Hogenstijn et al. 2008). Cox (1998) calls this process ‘constructing spaces of engagement’. In this process, actors form temporary coalitions to achieve a common goal. However, these actors can act at different scales. Terlouw (2017) argues that upscaling the conflict arena enables some groups to use their links with powerful groups or individuals to improve their position locally or even on a broader scale. Hogenstijn et al. (2008) are differentiating between



Fig. 2 Billboard at the Jubilee House, Accra

upscaling the figuration and upscaling the conflict. The latter, is about trying to refer the conflict to a higher spatial scale, where the weak group can achieve a stronger position on the power balance. In contrast, upscaling the figuration means that groups use their links with powerful groups or individuals at higher spatial scales to advance their position locally.

In the context of the preservation of the Atewa Forest, a network on a larger scale is the IUCN Netherlands. Especially because these actors worked together on the prescribed study in 2016. In May 2017 the US Ambassador Robert P. Jackson and Netherlands Deputy Ambassador Caecilia Wijge visited the forest. These state officials received a guided tour and were further educated about the importance of protecting the forest by ARG. Leading Ghanaian musicians MzVee, Obour, and Sherifa Gunu visit the Netherlands in August 2018 to mobilize with the Ghanaian community to join their plea for the protection of the Atewa Range forest reserve in Ghana. The Ghanaian community in the Netherlands wrote a letter to the president proposing to upgrade Atewa Range Forest into a National Park.

International awareness about the Atewa Forest was raised when the famous biologist Edward O. Wilson, an Emeritus at Harvard, Bestselling Author and two-times winner of the Pulitzer Prize for General Non-fiction, wrote a letter to the President of Ghana. The letter was part of a petition led by ARG, but also intended as a critical review of the president. However, more recognized on social media received the tweet from the actor Leonardo Di Caprio in November 2019, who linked an article of the Washington Post about Atewa and called for its protection. In addition, several other international media platforms reported about the conservation efforts of the Atewa Forest including the mentioned article from the Washington Post (2019), Quartz (Asiedu 2018; Oteng-Yeboah 2019) and Foreign Policy (Gbadamosi 2020). While the conflict did receive more international attention in this time frame, the upscale process was limited on rising awareness rather than upscaling the conflict itself. In 2020, the ARG started two attempts to upscale the conflict by a motion during the IUCN World Congress of Conservation in June 2020 and by going to court. Held every 4 years, the IUCN Congress is the world's largest conservation event. The aim is to send a resolution backed by the IUCN to the Ghanaian government to urge them to exclude Atewa as a site for bauxite mining. In January 2020, ARG handed a 30-day moratorium to the government, requesting a statement on the further actions in Atewa Forest. However, ARG received no answer and therefore sued the government for entering the forest in May 2019 and drilling deep holes causing damage to the Forest.

The two conflict lines and actor mapping

In the beginning of 2020, a youth march around Atewa forest against bauxite mining gained public attention. After the march, several chiefs allied and published a statement against this protest. The two major arguments of this statement are that (1) the forest is already under threats like illegal logging and mining and therefore it is difficult to set up a national park and (2) they dispute, that the NGOs speak for the people around the forest. This opens a new conflict line, between some chiefs of the effected communities trying to delegitimize the protests, the government and the environmental NGOs. Additionally, in June 2019, representatives of the GIADEC visited the Okyen-hene, the traditional King of the region. He is also the

head of the Akyem Abuakwa traditional council, which at first was sceptic about the mining. However, in their meeting the Okyenhene stressed the need for sustainable mining practices that will ensure the full protection of the environment, but praised the new government for their plans to develop an integrated aluminium industry (Nyabor 2019).

The important actors, divided in key actors, primary actors and secondary actors are put together in a so-called actors map. It sums up the participating actors, their position to each other and enables to identify the conflict lines. However, this mapping only gives an overview over the current status (spring 2020) and leaves out further development. Actors may drop out or appear as well as relations between the actors could change in the future. As argued, Fig. 3 shows that there are two conflict-lines: (a) between the NGOs and GIADC and (b) between the NGOs and chiefs of the Atewa landscape. Because the president is not in a direct exchange or dialog with the NGOs, the conflict is more between GIADC and the NGOs. As explained ARG or other actors address the president directly, but

he remains silent and does not speak in this conflict. While he does speak about the future of bauxite mining and the industrialization along with this process, but avoiding discussions about ecological concerns. Having GIADC in charge and negotiating with the NGOs, puts the president more on the sideline of this conflict. The relations between the chiefs and governmental actors remain unclear. However, according to an interview with members of the ARG office in Keybi, the few chiefs are bribed and speaks of elite capturing, which remains an unsettled allegation. It is important to mention, that Keybi, the biggest settlement around the forest, is also the hometown of the President Akufo-Addo. While this was never a particular important argument in the conflict, one member of ARG in Keybi pointed out “*he is one of us, from our town, we should support him. But, at the same time, we are fighting him.*” The relationships between the president and the chiefs are not in the figure. However, it should be pointed out that there might be at least in part some informal relationships between those actors and overlapping interests.

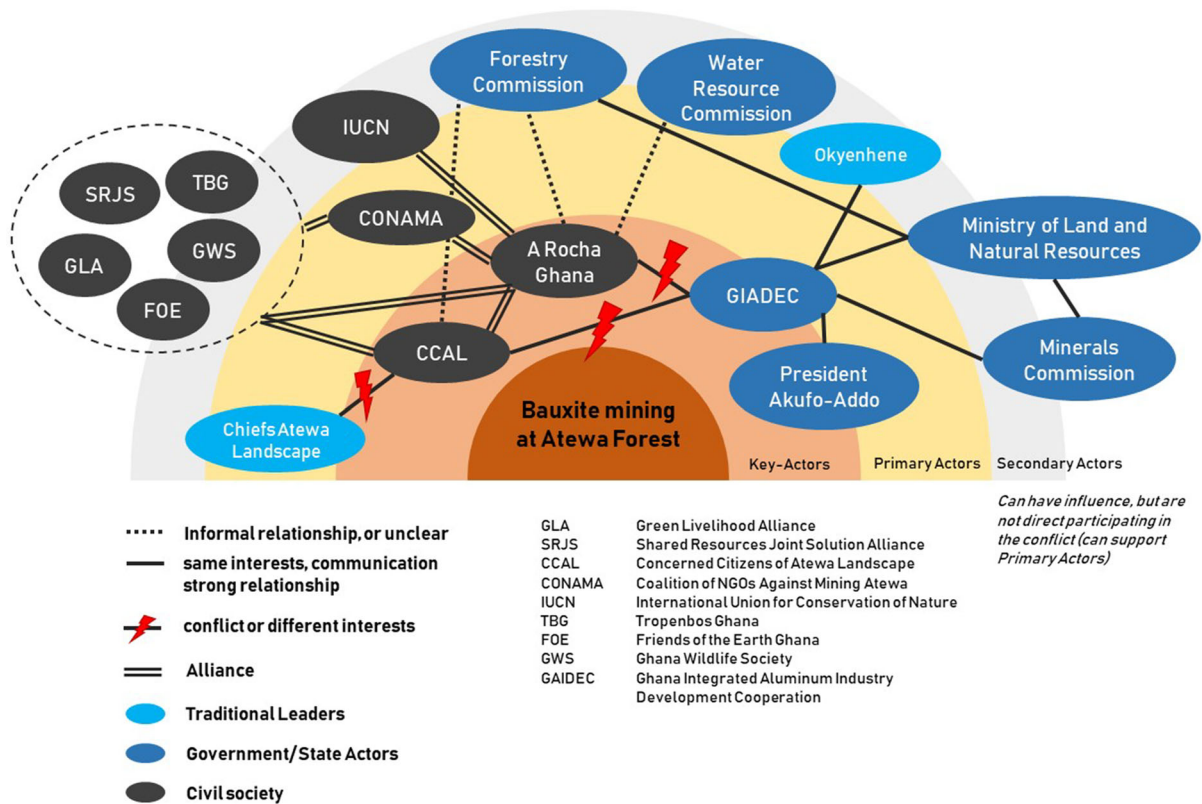


Fig. 3 Actor Mapping of the Bauxite Mining at Atewa Conflict

Conclusion

While some strategies have been more successful than others have, demonstration understood as showing films and taking the local actors to the bauxite mine in Awaso was often described as a successful example. This created greater support for the local population and convinced some political mandate holders from the region about the risks of bauxite mining. As mentioned, an Opinion Leader interviewed changed his mind about bauxite mining after the bus tour to the Awaso mine. Compared to other social movements in the context of mining projects, the NGOs involved in the Atewa Forest conservation formed an Alliance before the current Deal with China was signed. In addition, the movement was in the beginning backed by the government aiming for protecting the forest and turned after the elections 2016 into a movement against the new government. The government of Ghana is silent in the discussion not giving any public statement; however, in one statement by the current president, he declares the concern the NGOs raise, as something technically manageable. Büscher (2010) points out the anti-political tendencies in environmental conflicts, meaning that concerns are reduced to technical and management discussions. Mostly the transformation from a rock into ore is seen as something economical logical to do, because the ore is being translated into benefits for society. However, mining can result in unwanted consequences and these are quite difficult to anticipate or control. Therefore, certain actors produce the idea that extraction is something mostly beneficially. While the new government views the forest as a resource for bauxite, which is symbolized with jobs and industrialization, the environmentalists view the forest as providing essential ecosystem services including unique biodiversity hotspots and clean water. In addition, an illegal hunter would see the forest as source for food and resource to sustain his livelihood. The presented case, framed as a conservation-extraction conflict, is characterized by differences in the idea about nature. Hiding the *political* is also a strategy; however, the NGOs try to pull the new government back into the conflict arena, to avoid that the exploitation may appear as logical and without an alternative to the population. The paper identified main techniques the NGOs uses for this purpose: Demonstration and Up-Scaling. While these strategies were not directly

formulated by the NGOs, they all serve the goal of keeping the protest going, gaining more attention and therefore leading to the situation, that the government has to engage with the NGOs because it can no longer ignore or overhear the protest. The paper also elaborated on who the actors are. If the used strategies to protect the forest will be eventually successful is uncertain. The year 2020 marks an election year in Ghana and as ARG pointed out that provides a big chance to put pressure on the current president. At the same time, the outbreak of Covid-19 (SARS-CoV-2) in Ghana in March 2020 is challenging activities like protests and gatherings on both sides of the conflict. Due to these many factors, Atewa Forest will remain a contested territory being constantly renegotiated. Political Ecology is an important approach to deconstruct conflict strategies and drawing attention to the processes of politicization, and how nature is constantly negotiated. In addition, Bridge (2019) calls for a critical engagement with the investment process, from exploration, through development, production and closure. While the conflict between local NGOs and the Ghanaian Government is only one side of the conflict, it remains unclear how direct the involvement of China is in this conflict. Interests between the Governments of China and Ghana may be similar, but in certain aspects could also be contrary. While the idea of bauxite mining in Ghana is nothing new, more an unfulfilled dream, the politicization of Atewa Forest is closely connected to the involvement of China in this conflict. This is because it is the Chinese financial support that may appear as the trigger of this conflict. Further research should therefore also consider not only the conflicts between civil groups and governments, but also what intentions and strategies are competing between a government that hosts natural resources and the Chinese government. Especially against the background of the so-called new scramble for Africa and growing interests of China to secure access to African resources, it will be important to address issues like power relations and how these will have impacts on the local level.

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ARTICLE

“Come what may, we bring those resources to play”: Narratives, future-making, and the case of bauxite extraction at Atewa Forest, Ghana

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Abstract

The Ghanaian government aims to develop an integrated bauxite–aluminium industry and seeks to further bauxite extraction at several sites across the country. This vision is embedded within the political agenda “Ghana Beyond Aid,” introduced by the country’s president, Nana Akufo-Addo. One possible mining area is Atewa Forest, one of the few remaining intact upland evergreen rainforests in Ghana. This study highlights the important narratives local NGOs use to mobilise against bauxite mining at Atewa Forest: (a) the case of environmental justice with a strong focus on clean water and (b) the foreign Chinese influence. Both narratives have gained national as well as international attention. However, the government avoids direct discussion and legitimises extraction through the newly created political agenda Ghana Beyond Aid. The latter is better understood as a future-making practice, a practice creating a single development path that only needs to be managed. At the same time, revenue from refined bauxite finances huge infrastructure projects that are the foundation of this political agenda. In addition, this legitimisation to extract bauxite appears to be powerful because it is linked to broader global narratives about modernisation and economic growth.

KEYWORDS

Atewa Forest, bauxite mining, future-making, Ghana, narrative

1 | INTRODUCTION

The Atewa Forest Reserve in the Eastern Region of Ghana has gained international attention, due to plans to mine bauxite in the forest reserve. On the one hand, this is because the forest is a biodiversity hotspot and one of the few remaining intact upland evergreen rainforests in Ghana. On the other hand, this is because the plan to mine bauxite at Atewa is linked to a deal between the Government of Ghana and the Chinese company Sinohydro. The deal states that Sinohydro will invest and build infrastructure across the country for refined bauxite in return. Ghana has vast bauxite deposits, many untapped. Therefore, the resource remains economically unimportant for the country.

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In 2018, Ghana's president, Akufo-Addo, introduced his national vision "Ghana Beyond Aid." The agenda functions as a blueprint for the country's further development and transformation. Within this vision, the development of an integrated bauxite–aluminium industry plays a significant role. However, local NGOs fight the government for their plans to mine at Atewa Forest. I observed the dispute about bauxite mining at Atewa Forest from 2018 until 2020. From a political ecology perspective, I was looking at structures, actors, institutions, and narratives.

This paper specifically looks at the dimension of narratives with a focus on three questions: (a) What are main narratives of local NGOs against bauxite mining at Atewa Forest? (b) What is the role of the political agenda Ghana Beyond Aid in this conflict? (c) To what extent is future-making a benefiting perspective for political ecology? Results are based on interviews with NGOs that were conducted during three field trips in March 2018, 2019, and 2020. In addition, I analysed political documents, press statements, as well as speeches. The paper elaborates how the legitimisation for bauxite extraction is created through the embedding of bauxite within the national vision Ghana Beyond Aid. Usually narratives are defined as stories of past events told to interpret and ascribe meaning to these events and guide action (Dietz, 2019). However, Ghana Beyond Aid appears to be better understood as future-making practices exercising political power by creating a desirable future vision that acquires and legitimises actions in the present to get there.

2 | NARRATIVES AND FUTURE-MAKING

Dietz (2019) defines narratives as stories of past events told to interpret and ascribe meaning to them and to guide further action. In contrast to discourses, narratives can, according to Haarstad and Fløysand (2007), be seen as perceptions that are specific or modes of explanation promoted by an actor or a group of actors. Within the discourse on environmental protection, various groups can promote their particular narratives on central environmental problems and the best strategies for handling related problems. Therefore, discourses are a general exchange of meaning on a general topic that structures how a particular topic is thought about (Rose, 2001). Dietz and Engels (2020) argue that discourses and narratives are important for structures and institutions (rules, norms, etc.) since the latter need to be constantly reproduced and reconfirmed through images, ideas, arguments, stories, statistics, etc. In addition, De Moor and Wahlström (2019) point out that narratives play a crucial part in shaping social movements. However, narratives are not powerful *per se*; they unfold power if they resonate with people's cultural norms and beliefs and if they refer to context-related social actions and events (Dietz, 2019). Prause and Le Billon (2020) argue that narratives are strategic stories constructed by resistance movements to articulate claims or grievances, promote the interests of the resisting group, and oppose the narratives of their antagonists. Discourses and narratives are crafted by stakeholders to mobilise for or against mining projects. In this way, mining discourses reflect competing views and benefits within the existing economic and political order.

Dietz and Engels (2020) developed a framework for analysing conflicts over land from a dialectical perspective and with four dimensions: structure, agency, institution, and narrative. In my case, I am focusing on narratives and legitimisation of institutions. Furthermore, on how actors use narratives to legitimise and what they do. I am building on recent contributions to political ecology to focus more on time and future as a strategy (see Fent & Kojola, 2020). Ahlqvist and Rhisiart (2015) give more attention to future narratives and Müller-Mahn (2019) introduces future-making, a practice that envisions a desirable future and thereby gains control over present ideas. According to Knappe et al. (2019), future-making practices are social and political endeavours that implicitly or explicitly establish relationships or refer to future situations. These practices are contextual and positional with multiple stakeholders and interests, always making present future-images political (Ahlqvist & Rhisiart, 2015).

If future-making practices are effective, they can become powerful tools for creating (new) orders, empowering or excluding actors, and even preserve or transform fundamental values such as the ones that determine what people perceive as a good life or a desirable future (Knappe et al., 2019). Future-making requires performative action that creates greater visibility for some future imaginations while silencing others (Müller-Mahn, 2019). Sejersen shows in the example of extractive industries in Greenland that certain actors can mobilise for an idea of a future-to-come and thereby produce "a contemporary us" (2019, p. 3), as well as the idea of who *we* can become. These future-making practices create a certain teleology by telling only one desirable future. Therefore, future-making and development practices are consequently closely related and must be understood as attempts "to gain control over the future and reduce uncertainty" (Müller-Mahn, 2019, n.p.). According to Wiegink (2018), a temporal perspective on the extraction–development nexus is therefore particularly apt to uncover how (future) extractive projects are experienced and envisioned. In his studies about the smelter road in Zambia, Kesselring (2018), for example, showed that even when plans are still uncertain they may already affect social behaviour and actors may start to act in anticipation of future events.

To analyse the narratives that mobilise the protest against bauxite mining at Atewa Forest, I will refer to narrative analysis, identifying the main stories that are created. According to Dietz and Engels (2020), narratives create a link between structural changes and social action. Therefore, I will analyse different stories, articulated through social media, press releases, or public protest. Besides, I used interviews with the local NGO A Rocha Ghana conducted in their main office in Accra as well as the regional office at Keybi, where I also conducted participant observation. I participated in a meeting with the self-organised Concerned Citizens of Atewa Landscape, where they discussed several strategies. Furthermore, I conducted a group interview with the members of this organisation. On the other side, looking at the government perspective, I did informal interviews with the Ministry of Land and Resources in Ghana, the Environmental Protection Agency, as well as with the Minerals Commission. Additionally, I analysed the political agenda of President Akufo-Addo's Ghana Beyond Aid, as well as speeches by the president. I will finally argue that the political agenda Ghana Beyond Aid should be understood not only as a narrative but also as a future-making practice. Therefore, I argue to focus more on 'time' in political ecology in order to understand how governments craft powerful legitimations for their actions.

3 | ATEWA FOREST: A CONTESTED TERRITORY

Mining at Atewa Forest is not a new idea. Ayivor and Gordon (2012) point out that mining activities by unlicensed individuals and groups are increasing and causing serious problems for communities (see also Hilson & Nyame, 2006; Owusu et al., 2018). The status of a national park should protect the ecosystem of the forest for future generations and end the discussions about mining in this area. Until 2016, this process was already far developed. However, in 2016 the opposition National Patriotic Party (NPP) won the elections, promising new jobs from a nationwide industrialisation, including bauxite mining at Atewa. When Akufo-Addo (NPP) became president in January 2017, the government withdrew the plans to upgrade the Atewa Forest to a National Park.

The bauxite deposits at Atewa Forest (see Figure 1) are covered by tropical forest. This implies that the forest needs to be logged completely if open pit mines are to be built (Schep et al., 2016). Like most extractive industries, bauxite mining (usually opencast mines) has significant effects on the natural environment like degradation or severe disruption of local wildlife and rivers. One of the by-products that is created during the process of refining bauxite into alumina is a waste product mostly known as red mud (Ingulstad et al., 2013). The alkaline constituents in the red mud pose severe and alarming environmental problems, e.g., soil or water pollution (Rai et al., 2017). According to Ingulstad et al. (2013), the mining process generates 10 tons of waste rock and 3 tons of toxic red mud to produce 1 ton of aluminium. Consequently, environmentalists as well as local officials criticise the plans for bauxite mining in Atewa Forest. They fear deforestation, water pollution, and other environmental risks that will especially affect the local population. The forest functions as the source of three important rivers – the Densu, Birim, and Ayensu. Thus, regional environmental destruction might lead to heavy pollution of these rivers. The Densu River belongs to the coastal river system of Ghana and is one of the two main sources of water supply for the Accra urban area (Schep et al., 2016). According to the Ghana Wildlife Society (2018), over 5 million Ghanaians depend on the water from these three rivers. Hence, society calls for the protection of the forest and promotes different options like ecotourism. A group calling themselves Concerned Citizens of Atewa Landscape was formed in 2018 to prevent bauxite mining in the forest. It consists of civil society organisations, youth groups, interfaith groups, farmer-related associations, opinion leaders, and community leaders. The NGO A Rocha Ghana is also an initiator that promotes protest against the government plans. A Rocha Ghana was involved in the plans to declare Atewa Forest a national park. Along with a study by Schep et al. (2016), the plans were further developed and the government was willing to proceed to protect Atewa Forest.

4 | RESULTS

While the Ghana Integrated Bauxite and Aluminium Development Authority Bill (established 2018) does not particularly name any locations where bauxite should be mined, the Ghana Integrated Aluminium Development Corporation (GIADEC, 2020), which has the mandate to develop and promote an integrated aluminium industry in Ghana, highlights three locations for possible bauxite mining: the existing mines in Awaso, Nyinahin-Mpasaso, and Kyebi (also known as Kibi or Kebi). The mining plans at Kebi are especially contested. The NGOs involved are not in general against mining or the political agenda Ghana Beyond Aid, but are against mining at Atewa Forest. This is a challenge for the protesting NGOs because they are agreeing to the government's vision of industrialisation and development in general, but are fighting the same arguments on the ground, particularly at Atewa Forest.

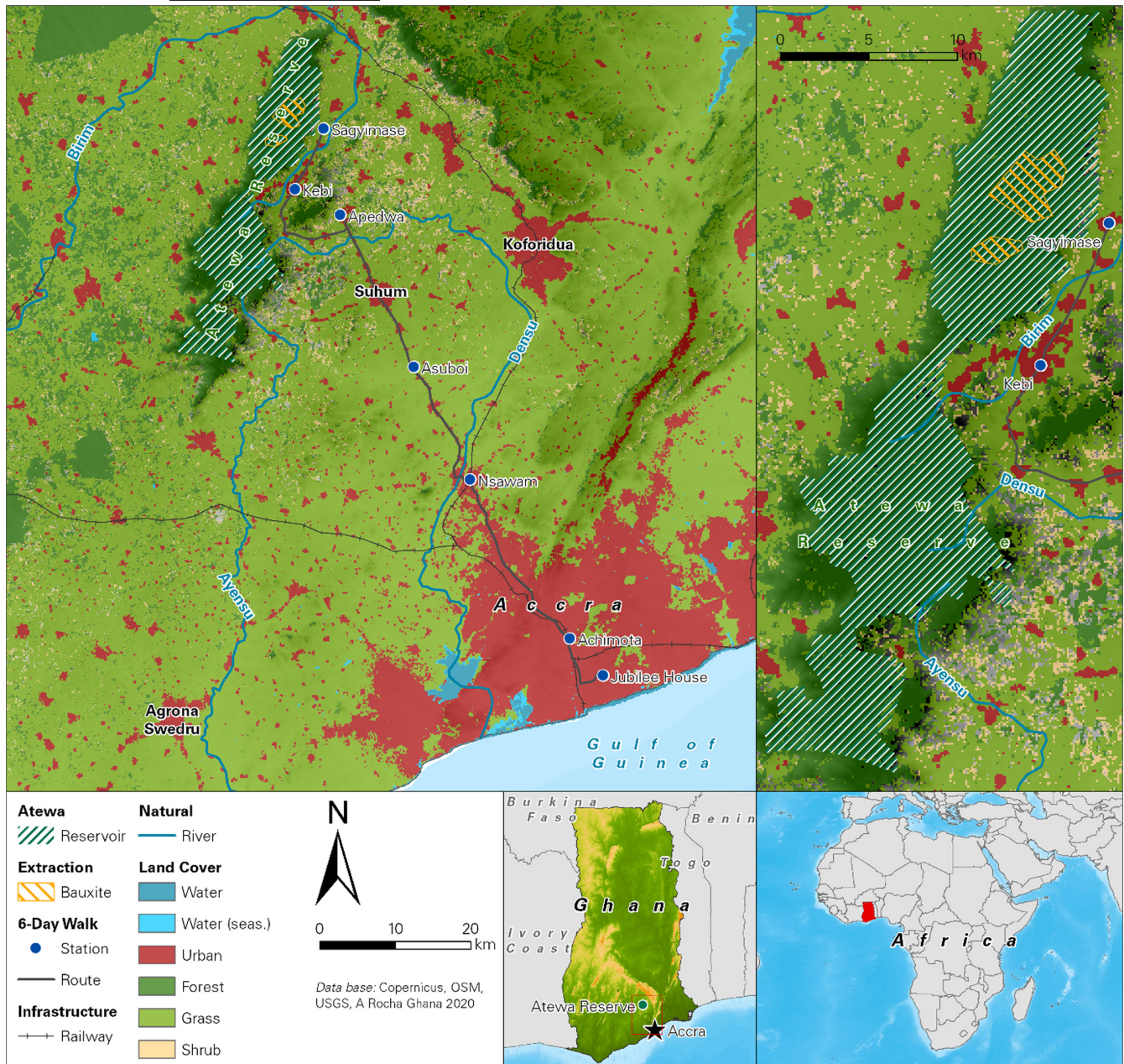


FIGURE 1 Atewa Forest Reserve study area, in the Eastern Region, Ghana

Source: Authors

4.1 | Narratives from the social movements

In June 2017, when Ghanaians officially entered a memorandum of understanding with China that included the further development of Ghana's bauxite resources, the leading NGO A Rocha Ghana posted on social media: "The Government of Ghana just traded our water, our culture, and heritage to the Chinese and as is expected, the Chinese have also accepted." This was followed by the statement: "The Government of Ghana just traded the source of water for over 5 million Ghanaians to the Chinese." In a press conference in July 2017, the local NGOs referred to a study about "The Economics of Atewa Forest Range" (Schep et al., 2016), which was subtitled "Living water from the mountain, protecting Atewa water resources." The study also highlights the water issue, showing a map which especially draws attention to the connection of Accra and the Atewa Forest through the Densu River. This study appears to be the main document the social movement refers to and which legitimises the environmental justice narrative. Tittor and Toledo López (2020) refer to that as producing counter-expertise and knowledge.

The movement also published an open letter they wrote to the Chinese Ambassador in Ghana in 2018. The story about the Chinese activities that pollute the environment takes up a global discourse about the risks of China's investments in Africa. At that time, it was neither clear nor agreed who exactly should mine at Atewa Forest. The so-called Sinohydro Deal even points out that Ghana sets up the conditions for developing an integrated bauxite–aluminium industry. However, international newspapers picked up this narrative, such as the article by *Foreign Policy* (Gbadamosi, 2020), and the *Washington Post* (2019) addressed both perspectives in its article: “Mining Ghana's bauxite would bring in billions from China. But it could also taint the water for 5 million people.”

However, more central was the narrative about the water bodies being polluted. The first public protest that was organised by A Rocha Ghana was a six-day walk from Keybi (Atewa Forest) to the capital Accra in March 2018. The walk ended on World Water Day (22 March 2018) in front of Jubilee House (the Presidential office). The groups symbolically referred to water pollution as a crucial issue if mining takes place at Atewa Forest and called on action concerning Sustainable Development Goal number 6 (Water and Sanitation). In June 2019, another march took place, called “March for Atewa, Forest and Water.” The water narrative made it very simple to understand that bauxite mining at Atewa Forest will not only have impacts on small villages but also on the capital. As mentioned by one interviewee, suddenly it was not only an issue of some people living in the periphery, but it was something that also concerned the people in the capital. However, as protests and mobilisation had not been successful yet, A Rocha Ghana sued the government. The organisation claimed that “mining bauxite in the forest violates ‘the right to life and dignity as enshrined in articles 13 and 15 of the 1992 Constitution of Ghana’” (A Rocha, 2020, n.p.).

4.2 | Ghana Beyond Aid and the “making” of a resource

According to Conde (2017), governments react differently to protest against mining projects, depending on how dependent the country is on mining. While bauxite is not an important resource for Ghana's industry, its importance is produced and embedded in a larger vision of a nationwide industrialisation. In addition, Conde (2017) points out that common responses by governments are usually regulations. For example, in the case of El Salvador, the government created a moratorium on extraction due to social pressure (Bebbington & Bebbington, 2011).

However, in the early stage of the conflict about mining at Atewa, there was no active discussion or response by government officials. President Akufo-Addo directly referred to the case only a few times. During the Sustainable Ocean Industries Conference in 2019, Akuffo-Addo declared that this issue could be solved with new technologies used in the bauxite industry, avoiding disturbance of wildlife. In December 2019, during a media encounter, the president affirmed the project at all three locations, because it finances infrastructure across the country. The developing of an integrated bauxite–aluminium industry has since 2016 been a state-promoted idea around the promise to finance huge infrastructure with the proceeds of revenue from bauxite. The legitimisation of this project goes hand in hand with its embeddedness in the political agenda Ghana Beyond Aid. In 2017, at the 5th Africa CEOs Forum, Ghana's President Akufo-Addo announced, “We want to build a Ghana Beyond Aid; a Ghana which looks to the use of its own resources” (Communications Bureau, 2017, n.p.) and outlined an agenda that he introduced in 2018 during his speech marking the 61st Day of Independence.

The Ghana Beyond Aid vision is about the idea of transforming Ghana from an “underdeveloped country to a confident and self-reliant nation” (Government of Ghana, 2019, n.p.) and is built on five goals: a wealthy, inclusive, sustainable, empowered, and resilient Ghana, abbreviated as a WISER Ghana. In February 2019, a charter committee outlined the four main priorities of the Ghana Beyond Aid initiative: (1) industrialisation, (2) agriculture, (3) corruption, and (4) education. Ghana Beyond Aid is designed to provide money, jobs, and raw materials to reduce poverty nationwide. Ghana Beyond Aid appears to be more than just a political agenda, it is “a national and non-partisan call to harness effectively our own resources and deploy them effectively and efficiently for rapid economic and social transformation” (Government of Ghana, 2019, n.p.). Bauxite extraction is not only a necessary but also a seemingly unavoidable step towards the achievement of socio-economic development, as proclaimed in a billboard of President Akufo-Addo (see Figure 2). In his speech marking the 61st Day of Independence, Akufo Addo calculated the benefits of these promises:

On the world market, bauxite in its raw form is worth about \$42 per metric ton. Processing it just one stage further into alumina oxide will fetch twice that amount. Refining the alumina oxide into alumina will increase the value by seven times, and smeltered aluminum fetches one hundred-fold what it gets in the raw state. (Akufo-Addo, 2018, n.p.)



FIGURE 2 Statement of President Akufo-Addo on his social media channels (2018)

The importance of the integrated bauxite–aluminium industry is also linked to the so-called Sinohydro Deal. The Chinese company Sinohydro builds infrastructure in Ghana and is repaid with the revenue from selling refined bauxite (alumina or aluminium):

My government is going to implement an alternative financing module to leverage our bauxite reserves, in particular, to finance major infrastructure programs across Ghana. This will probably be the largest infrastructure program in Ghana's history without any addition to Ghana's debt stock. (Akufo-Addo, 2018, n.p.)

The Ghanaian Government defines priority infrastructure projects and therefore has the certainty that Ghana Beyond Aid projects are materialised. Bauxite mining has made itself a project without alternatives from the government's perspective. This is because (a) it enables Ghana to establish, and is literally the material ground for, an integrated bauxite–aluminium industry with the aim of exporting more manufactured product and (b) it enables a deal with the Chinese company Sinohydro and therefore loans to finance other projects of the Ghana Beyond Aid agenda.

This double dimension, of being the material foundation for Ghana Beyond Aid and being embedded within this vision, highlights the importance of executing this project. This double dimension leads to circumstances where the government argues that there is no alternative to executing the project. President Akufo-Addo repeatedly pointed out “come what may, we bring those resources to play” (Aluminium Insider, 2017, n.p.). In the framework, Dietz and Engels (2020) highlight that narratives are strategically transformed and adapted to different scales in order to gain legitimacy from scale-specific hegemonic discourses. In addition, Jasanoff and Kim (2015) point out that imaginaries work more powerfully through the global circulation of already powerful socio-technical imaginaries, which are re-embedded into local constellations of production and practice. Looking at this case, it reveals a significant similarity to modernisation theories and the development discourse.

In the early stages of the bauxite mining plans, there was simply the promoted idea of developing an integrated bauxite–aluminium industry and financing several infrastructure projects with the revenues from refined bauxite. I would argue that the legitimisation during that time was quite vague. According to Zimmermann (1933), resources are not, they *become*. With the Sinohydro Deal and the developed vision Ghana Beyond Aid in 2018, the project became important due to its importance for Ghana Beyond Aid. In this context, it developed a much more powerful legitimisation, being now coupled with the vision of a nationwide industrialisation, modernisation, and a self-reliant nation. Ironically, this is not the first time bauxite has been a symbol for industrialisation and sovereignty. During the first years of independence, the first President of Ghana, Kwame Nkrumah, had the vision of developing an integrated bauxite–aluminium industry to modernise the nation. However, this vision never became fully realised (see, for example, Miescher, 2014).

Bauxite mining at Atewa Forest is linked with future promises about development that make the extraction appear as something achievable and without alternatives. Looking at Ghana Beyond Aid as a future-making practice gives more attention to how the resource bauxite gains importance and its extraction legitimisation. This highlights that dimensions of time or future can be a beneficial perspective in political ecology. Future-making practices envision a desirable future and

thereby gain control over present ideas, narratives, and reactions. These practices are legitimated through different narratives (Knappe et al., 2019). While the concept of imaginaries must be understood as an analysis of present images of the future, future-making refers to a related set of socio-technical practices. Ahlqvist and Rhisiart (2015) describe it as a foresight process understood as a creative and exclusive set of practices in which a certain imaginary is produced. These practices aim “to seize a certain organizational or spatial unit present and past, constructed in the hermetic process of strategy, as a function of its potential futures” (Ahlqvist & Rhisiart, 2015, p. 26). Equally important in this context is the creation of hierarchies and through the legitimisation of certain truths, meanings, and knowledge, a particular order-of-things (Boelens et al., 2016; Holmes, 2014; Robbins, 2012). The future does not simply emerge; it is socially produced through practices.

5 | CONCLUSION

Müller-Mahn (2019) and Knappe et al. (2019) are generally more focused on the state or the government when it comes to future-making. However, on the one hand, future-making can also be a practice of resistance by empowering local people to develop their idea of futures. On the other hand, it is important to have a differentiated view when it is about “the government” or “the state” The political agenda Ghana Beyond Aid is linked to President Akufo-Addo. According to Gramsci (1992), the stabilisation of power relations is based on hegemony and a social group or class is hegemonic when “it is ‘leading’ and ‘dominant’” (1992, p. 136). In this struggle, the ruling classes and their intellectual leaders shape public opinion by using storylines which influence the cultural and political background (Gramsci, 2000).

Nevertheless, it appears that Ghana Beyond Aid is a powerful vision, because it relies on the global development discourse which Ziai labelled as “remarkably permanent” (2017, p. 264). Kumi elaborates on the public perceptions of Ghana Beyond Aid and highlights that it is “the desire of the governing elites to promote development through structural economic transformation by reducing their dependence on foreign aid” (2020, p. 87). A few days before the national election on 7 December 2020, Akufo-Addo addressed the people in Nyinahin and repeated his promise: “The Ghana integrated Bauxite and Aluminium Development Authority will soon be complete for the mining of the bauxite, out of which an industrial revolution would emerge to bring money, jobs and development to Nyinahin” (GhanaWeb, 2020, n.p.). This finally shows that the government avoids dealing with or confronting protesters’ narratives and instead holds on to its own produced future, which appears to be without alternative. Meanwhile, despite COVID-19, the Ghana Youth Environmental Movement organised the #voteAtewa campaign 21 days before election day, raising public awareness through protests and social media posts on environmental issues and reminding everyone that it is about *their* future as well.

This paper, as part of a project that looks at structures, actors, and narratives in the conflict about bauxite mining at Atewa Forest in Ghana, tried to answer three questions concerning the dimension of narratives. As stated at the start of the paper, I would argue that the local protesters and NGOs fighting against bauxite mining at the forest are drafting their narrative around the aspect of environmental justice by referring to the right of access to clean water. In addition, biodiversity and wildlife are always part of this argument. However, it appears that water is a topic more relevant for everyone, including for people living in the capital Accra. Therefore, this narrative mobilises more collective action as it addresses more people. In addition, the narrative of Chinese influence and getting access to resources was also important in the beginning. The longer the protests continue and the more publicised details about the deal between Sinohydro and the government become, the less this narrative is used. The second question concentrated on the government’s agenda, Ghana Beyond Aid.

The paper elaborated on how the plans for bauxite extraction are being embedded within this agenda. Simultaneously, this agenda still heavily relies on the development of an integrated bauxite–aluminium industry, as the revenue from this industry will finance the Sinohydro Deal, which finances infrastructure promised by Ghana Beyond Aid. Therefore, the bauxite extraction appears more and more as something without alternatives. In addition, it is coupled with the vision of a self-reliant nation. This leads to the third question. I would argue, that time, temporalities, and future provide new perspectives for political ecology. In political conflicts, time can be used strategically. Control over time is a medium of hierarchic power and governance. Future-making practices create a certain teleology by telling only one desirable future. Therefore, they implicitly or explicitly refer to future situations by simultaneously outlining how to get there. As mentioned, narratives are not powerful *per se* and they refer to context-related social actions and events. In contrast, I would argue that the seemingly unavoidable path to mine bauxite is better understood from the standpoint of future-making practices. It still admits that it is something socially produced and political but it deconstructs the processes that created a powerful legitimisation. It allows understanding of “how future gets translated into space” (Müller-Mahn, 2019, n.p.). Future-making and the creation of a national imaginary are about how to demarcate space, legitimate extraction, as well as a new order of the territory. As Hinojosa et al.

(2015, p. 105) argue, future-making practices consider transformation from a geographical perspective and are about appropriate strategies for territorial development and futures to which residents might aspire. This practice is important to create a single development path that only needs to be managed. At this point, reaching a certain future is becoming a question of managing the present; furthermore, the created future legitimises present practices.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author on reasonable request. Secondary data that support the findings of this study are openly available.

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Same Same, but Different: Ghana's Sinohydro Deal as Evolved 'Angola Model'?

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journals.sagepub.com/home/ia**Sebastian Purwins¹**

Abstract

Ghana has gained international attention due to a controversial deal, which it has entered with the Chinese Sinohydro Corporation Limited. Sinohydro is investing \$2 billion in infrastructure development, in return for refined bauxite over a 15-year period. When it comes to resource-backed loans between China and African governments, these types of cooperation are widely known as the Angola Model. Besides the criticism of resource-secured lending, in some African countries, these practices are declined, while in others it continues, but also evolve. For example in Guinea and in Ghana. This article takes a closer look at the structure and concerns regarding Ghana's Sinohydro deal in comparison to the Angola Model. The main difference appears to be (a) the established para-state company charged with managing the extraction of bauxite and (b) the plans to develop an integrated bauxite–aluminum industry within Ghana. On the other side, environmental concerns regarding bypassing regulations or possible pollution remain the same.

Keywords

Ghana model, Angola model, Sinohydro deal, Ghana, China

Introduction

Over the last few years, trade between African countries and China has rapidly expanded, due in part to China's fast-growing economy, which has led to an increasing demand for energy. By 2011, China had become the world's largest energy consumer (Vasquez 2019), and in 2014, the country surpassed the US as the world's

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largest oil importer and positioned itself as an alternative market. Due to low oil prices after 2008, African oil became available at competitive prices, and so China engaged increasingly more with oil-producing countries in the continent (Arriagada, Espinasa, and Baragwanath 2014; Dollar 2016). To take advantage of these opportunities, China used investment, lending and political agreements to expand its oil frontiers (Vasquez 2019), with its banks and major companies investing in selected countries in exchange for oil. The financial presence of China is exemplified in two major ways: (a) as foreign direct investments or (b) as loans in exchange for future payments in oil; for example, Angola and Sudan secured significant loans with oil. However, Brautigam and Hwang (2016) point out that of the five largest recipients of Chinese loans in the period 2000–2014, only Angola and Sudan secured their loans based on oil, while Ethiopia used sesame seeds as collateral, the DRC used copper and Kenya secured a loan for building a railway against future revenues from rail traffic. Vasquez (2019) noted that certain voices framed these outcomes as an orchestrated policy by China (e.g. Kong and Gallagher 2017; Taylor 2006), while others played down these negative assumptions (e.g. Brautigam 2009; Economy and Levi 2014; Gonzalez Vicente 2013).

Nevertheless, trade and diplomatic relationships between African countries and China have rapidly expanded, as well as the discussion about so-called resource-for-infrastructure swap agreements. According to Singh (2019), resource-backed loans make up approximately one-third of China's monetary advances to African nations. Brautigam and Gallagher (2014) name Angola, Congo-Brazzaville, the Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Gabon, Ghana, Nigeria, Sudan and Zimbabwe as recipients of commodity-backed finance in Africa. This large-scale Chinese financing scheme has been widely known as the Angola Model (Foster et al. 2009), Angola Mode (Alves 2013) or China–Angola Investment Model (Begu et al. 2018). The Angola Model involves an exchange of natural resources for national infrastructure through direct investments by China in both mining (in the case of Angolan oil) and infrastructure, and it dates back to 2004 when Angola signed several financing packages with China for public investment projects. Mihalyi, Adam, and Hwang (2020) illustrate that the finance structure, also labelled the Angola Model, has become relatively commonplace in resource-rich countries in sub-Saharan Africa, Latin America and beyond. Lenders are mainly state-owned development banks from China. In general, these resource-for-infrastructure deals have been criticised for leading to certain economic as well as ecological risks for the host country. However, they are also recognised for the fact that they enable the financing and development of infrastructure, desperately needed by African countries. Habiyaemye (2016, n.d.) argues that *Africa's ability to sustain the high growth rates of its lion economies, in the long run, will depend on its capacity to mobilize the profits from the natural resource sector so that they can yield sufficiently large surpluses for investment in a modern manufacturing sector*. Since resource-backed loans also come with challenges, Mihalyi, Adam, and Hwang (2020) reveal emerging new modes of financing, citing contracts in Brazil 2017, Guinea 2017 and the Sinohydro deal in Ghana 2018 as examples in this regard.

The latter is an agreement between the Sinohydro Corporation, a Chinese state-owned enterprise (SEO) specialising in infrastructure development, and the

Government of Ghana. Sinohydro arranged loans to fund infrastructure projects, while Ghana uses revenue from refined bauxite to repay the loan. However, the bauxite–aluminum sector in Ghana is not particularly well developed, plans for extraction at the Atewa Forest Reserve (eastern region of the country) have gained international media attention (e.g. *Washington Post* 2019 or Oteng-Yeboah 2019). According to Johnston (2019), the Sinohydro deal is actually a step-around debt trap and not far away from the widely used Angola Model. Furthermore, in 2017, the Chinese Exim Bank called for a long-term, stable and sustainable financing mechanism and promoted government–private capital cooperation (Exim 2017).

Ghana's Bauxite Industry

Ghana is rich in oil, gold, manganese, diamonds and bauxite; however, gold is currently the key resource for the country's economy (Ayee et al. 2011), making it the largest producer in Africa. Over time, the country has managed to exploit its resources; however, for several reasons, this has returned little in sustained development value to the economy (Ayee et al. 2011). Despite the rich reserve base and Ghana being the third-largest producer of bauxite in the African continent (Knierzinger 2018), the raw material has only been mined at one site since 1942. Besides, its exports accounted for 0.6% of total minerals exports and 0.22% of total merchandise exports in 2014 (Oxford Business Group 2017). Ghana's bauxite gained importance between World War I and World War II, and it played a major role in the Volta River Project, which included a hydroelectric dam, an aluminum smelter to process Ghanaian-mined bauxite, new cities, a deep-sea harbour and other infrastructural investments (Miescher 2014). The project, during the years of Ghana's first President Kwame Nkrumah, became a symbol of sovereignty and promised an economically independent Ghana as a result of rapid industrialisation and reducing the country's dependence on cocoa exports (Agbolosoo 1991). After the coup in 1966, Britain showed little interest in the development of a bauxite–aluminum industry, and bauxite production in recent years has fluctuated on account of the country's inadequate railway system for transporting ore from the mine to the coast. After Western companies withdrew from the sector, Chinese investors took their place and began to revive the old vision. Following the plans posited by the First Republic of Ghana, the country's bauxite deposits are to be further developed in terms of an integrated aluminum production strategy. The proceeds from this project will serve to finance many needs, such as infrastructure, electricity, schools and water supply, and realise, according to President Akufo-Addo, a Ghana Beyond Aid: *My government is going to implement an alternative financing module to leverage our bauxite reserves, in particular, to finance major infrastructure program across Ghana. This will probably be the largest infrastructure program in Ghana's history without any addition to Ghana's debt stock* (Akufo-Addo 2018, n.d.). However, currently, only two major actors are active in the bauxite–aluminum industry: the government, which holds a 100% share in the VALCO smelter at Tema and 20% stake in the Ghana Bauxite Company. As well as the Bosai Minerals Group, which holds the other 80% in the



Figure 1. Ghana's Bauxite–Aluminium Industry (2020)

Source: The author.

Ghana Bauxite Company, operating at the only bauxite mine in Ghana, namely Awaso (Figure 1).

Research Design and Methods

Mihalyi, Adam, and Hwang (2020, 2) argue that *RBLs have become relatively commonplace in resource-rich countries in sub-Saharan Africa, Latin America and beyond*. Meanwhile, the Sinohydro deal has been recently labelled as a new finance model and a promising alternative to the widely used Angola Model (e.g. Johnston 2019). This article elaborates on the differences between the Angola Model and Ghana's Sinohydro deal and considers whether the deal offers a more promising model for Chinese investments in Africa.

I contend in this article that there are differences between the Sinohydro deal in Ghana and other resource-backed loans made by China, particularly highlighting (a) a privatisation shift and (b) the collateral itself; using refined bauxite, not raw bauxite, which enables Ghana to add value to their resource and may increase therefore the local economic impact. This deal illustrates a shift that may be becoming more visible, that is, the diversification of the Chinese finance mechanism.

Herein, I first expand on the Angola Model, its origins and operational characteristics, following which I provide a brief overview of resource-backed loans in the African continent. The first section ends by describing the shortcomings of the Angola Model. In the following section, I outline the origins and operational characteristics of Ghana's Sinohydro deal. Thereafter, the deal in Guinea is briefly compared to the Sinohydro deal. Both loans were negotiated during the same period, and both with bauxite as collateral. Building on the mentioned shortcomings of the

Angola Model, I discuss if—and how—the Sinohydro deal does things differently. A conclusion, as well as ongoing concerns and challenges, end the article.

Research for this article is based on the analysis of secondary and primary literature, including official government documents, press statements by NGOs or governments, presidential speeches and research reports on resource-backed loans and the environmental impacts of aluminum sector projects. During field trips in March 2019 and March 2020, additional material, such as Sinohydro deal documents, were collected. Relevant contacts were the local NGO A Rocha Ghana, Minerals Commission, VALCO and the Environmental Protection Agency (EPA). However, all relevant information used in this article is now published, which is why interviews are not included in this article. Information in sections entitled ‘Origins of the Sinohydro Deal’ and ‘Operational Characteristics’ on the Sinohydro deal can be found in the original documents. These were made available to me, but they have now been published on the Parliament of Ghana’s server.

The Angola Model

Origins of the Angola Model

In 2002, the Movimento Popular para a Libertacãõ de Angola (MPLA) government in Angola was ready to rebuild the country after a 27-year civil war. The IMF offered loans to fund a large-scale infrastructure reconstruction program, albeit insisting that Angola had to achieve a healthier fiscal situation first, which implied cutting public expenditure, lowering inflation and increasing transparency. Angola’s government did not agree with these conditions and instead decided to negotiate with China. At that time, on the one hand, China’s export-oriented industries and manufacturing demanded more and more natural resources, especially oil (Burgos and Ear 2012). On the other hand, the commencement of war in the Middle East made it necessary for China to diversify its imports. In 2004, China’s Exim Bank offered the first loan to Angola (Corkin 2011), and both countries were able to secure their national interests using this strategic financial mechanism (Kiala 2010).

Brautigam and Hwang (2016) define two financing models: strategic partnerships with major Chinese companies and commodity-secured package finance. Strategic partnerships offer financial support to national champion firms, usually in the form of five-year plans, while commodity-secured packages offer individual project loans and a line of credit secured by resource exports. Zongwe (2010) argues that the Angola–China contracts are the first major example and archetypes of resource-for-infrastructure contracts between China and the African continent. An investment contract is distinguishable from a trade agreement. While a trade transaction characteristically consists of a one-off exchange of goods and money, an investment deal initiates a long-term relationship (Dolzer and Schreuer 2008). The World Bank, in its report entitled *Building Bridges* (Foster et al. 2009), first framed the term Angola Model, the fundamental assumption of which is that African Countries want China to invest in their infrastructure, and China needs to import Africa’s mineral and oil resources (Begu et al. 2018). Foster et al. (2009) point out that the China

Exim Bank increasingly uses the Angola model for countries that cannot provide adequate financial guarantees to back their loan.

Operational Characteristics

When Angola negotiated with the IMF for loans in 2003, the government also received a counteroffer of a \$2 billion advance from China's Exim Bank. The deal came with an interest rate repayment of 1.5% over 17 years, including a grace period of 5 years (Corkin 2011). At first, 10,000 barrels per day of crude oil should be supplied, but later this should increase to 40,000 barrels per day (Taylor 2006). The Angola government has granted a licence to extract the resource to Chinese oil companies, which provide payment for the loans. Also, indicates the Angola Government the infrastructure projects to Chinese construction companies. Meanwhile, Chinese construction companies receive financial support from the Exim Bank, which holds the exclusive mandate to extend concessional loans that fall under the official development aid (ODA) category, albeit, in the case of Angola, they are extended on a more commercial basis (Alves 2013). The bank has been a key instrument in facilitating expanding economic cooperation between China and Angola. The Export–Import Bank of China is one of China's three policy banks established in 1994 (the other two are the China Development Bank and the China Agricultural Development Bank), which remain tools of the government and allow Beijing to allocate preferential or targeted finance through a mix of planning and market means. Both the Exim Bank and the Development Bank are key instruments in China's foreign economic policy and cooperation with Africa, with the former providing concessional finance and loans for infrastructure development in the majority of countries in the continent (Corkin 2011). In addition, loans are tied, because involved companies (usually construction businesses) are generally Chinese in origin. Furthermore, these Chinese companies carry out infrastructural projects and are reimbursed by the Exim Bank, which deducts construction expenses from the value of resources that African countries transfer to the Chinese government (Tan-Mullins, Mohan, and Power 2010). Vasquez (2019) stresses that the China Development Bank (CDB) and the Export–Import Bank of China (China Exim Bank) are mainly involved in lending money, but to a much lesser extent than commercial lending institutions. As part of the loan mechanism, the proceeds from the exported resources are deposited in an escrow account at a Chinese bank, which draw from it to repay the loan (Brautigam and Gallagher 2014).

Alves (2013) claims that the Angola Model is the product of a timely convergence of interests between China and African countries. On the one hand, China is home to many rapidly expanding industries, and on the other hand, African countries have infrastructural deficits. It is also important to point out that while the IMF or Western countries tend to be more careful about investments, China was ready to take a risk in Angola, a country that had recently stabilised after civil war. Landry (2018) highlights that risk calculations are an important aspect in determining the interest rates applied to development finance. Especially African countries in post-war circumstances had difficulties accessing the capital market but were rich in natural resources. Therefore, using natural resources as collateral to access sources of finance

for investment came as a welcome solution. China loans were provided without political conditionality and at a much lower interest rate than any international financial institution might offer (Begu et al. 2018). This was also a more favourable deal for the African political elites (Konijn 2014). After all, the Angola Model made it possible to leverage natural resource wealth for infrastructure development. Additionally, Halland et al. (2014) claim that such finance models reduce the risk that revenues from resource extraction will be spent elsewhere, mismanaged or get other prioritisation. In some way, resource-backed loans' inherent precommitment mechanisms may reduce such risks (Halland et al. 2014). Kabemba (2012) reported that the Congolese government failed to secure investments from Western countries and turned to China. Similarly to Angola, the money used for infrastructure did not go to the government, thereby enabling quick investment in infrastructure and preventing other types of political spending or mismanagement.

In the case of Angola, in 2004, a \$2 billion loan from the Chinese Exim Bank was used to finance the reconstruction of infrastructure damaged during the nation's long-lasting civil war (Konijn 2014). The Angola government now uses Chinese credit, backed by oil-based guarantees, to finance national infrastructure. In addition, Chinese companies are largely contracted to undertake projects and are paid directly by China Exim Bank. The loan is repayable at LIBOR plus 1.5% over 17 years, including a grace period of 5 years (Corkin 2011). Investments appear not as money that is directly transferred to the government of Angola; rather, in the case of Angola, a Chinese oil company provides payments for new loans to the Chinese Exim Bank, which in turn provides financial loans for infrastructure projects to a Chinese construction company. Therefore, instead of transferring funds to African governments, they are transferred directly to the companies undertaking the construction work (Corkin 2011). The aforementioned Chinese construction companies are selected by Exim Bank and the Chinese Ministry of Commerce and have to be approved by the African government (Thompson 2012). The Government of Angola prioritises the importance of certain infrastructure projects to the Chinese construction company and then grants a licence to the Chinese oil company to extract natural resources. The company then guarantees the repayment of the loan through the export of the natural resource. As long as China receives oil from Angola, the Exim Bank is willing to invest in the African country. At the same time, China is investing in many countries around the world, in order to be independent of Angola's oil. In 2018, the Government of Angola announced it was moving beyond its heavy dependency on Chinese capital and diversifying its funding sources (Sato 2018).

Examples of Implementation

Chinese banks and companies began to lend a large amount of money to selected African (and Latin American) countries in exchange for their oil. The largest sectors financed by Chinese loans are transportation (US\$24.2 billion), followed by energy (US\$17.6 billion), mining (US\$9.0 billion) and communication (US\$6.5 billion) (Brautigam and Hwang 2016). Table 1 shows resource-backed loans between African countries and China, up to 2018. However, it should be clarified

Table 1. Overview of Resource-backed Loans between African Countries and China between 2004 and 2018

Year	Loan Value (\$M)		Borrowing Country		Borrower Entity	Lending Country		Lender Entity	Project	Resource
	Year	Value	Country	Value		Country	Entity			
2004	2,000	Angola	Government	China	Exim Bank	Multi-sector infrastructure projects	Oil			
2007	500	Angola	Government	China	Exim Bank	Multi-sector infrastructure projects	Oil			
2007	2,000	Angola	Government	China	Exim Bank	Multi-sector infrastructure projects	Oil			
2009	2,000	Angola	Government	China	Exim Bank	Multi-sector infrastructure projects	Oil			
2010	2,500	Angola	Sonangol (SOE)	China	ICBC*	Kilamba Kiayi New Town Phase I	Oil			
2015	15,000	Angola	Government	China	CDB*	Multi-sector infrastructure and Sonangol development	Oil			
2008	3,000	The Democratic Republic of the Congo	Sicomines: JV of Congolese SOE Gecamines (32%) and Chinese consortium of CREC and Sinohydro (68%)	China	Exim Bank	Construction and rehabilitation of various railways, roads, hospitals	Copper and cobalt			
2007	306	Ghana	Government	China	Exim Bank	Bui hydropower	Cocoa			
2007	292	Ghana	Government	China	Exim Bank	Bui hydropower	Cocoa			
2011	1,500	Ghana	Government	China	CDB	Multi-sector infrastructure	Oil			
2011	1,500	Ghana	Government	China	CDB	Multi-sector infrastructure	Oil			
2018	2,000	Ghana	Ghana Integrated Aluminium Development Corporation (GIADC)	China	Sinohydro	Multi-sector infrastructure including roads, bridges, interchanges, hospitals, affordable housing	Bauxite			

2017	20,000	Guinea	Government	China	Henan International Cooperation Group, Chalco, China Power Investment Corp	Multi-sector infrastructure including Coyah-Dabola road, Conakry road network and sanitation, university building	Bauxite
2013	1,000	Niger	Government	China	Exim Bank	SORAZ oil refinery (replacing an earlier loan)	Oil
2006	1,600	Republic of Congo	Government	China	Exim Bank	Multi-sector infrastructure	Oil
2012	1,000	Republic of Congo	Government	China	Exim Bank	Multi-sector infrastructure	Oil
2015	1,000	South Sudan	Government	China	CNPC (China National Petroleum Corporation)	Advances on oil sale	Oil
2016	169	South Sudan	Government	China	Exim Bank	Nadapal-Torit-Juba and Juba-Rumbek-Wau roads	Oil
2007	3,000	Sudan	Government	China	Exim Bank	Multi-sector infrastructure	Oil
2004	110	Zimbabwe	Zimbabwe Electricity Supply Authority	China	China National Aero-Technology Import & Export Corporation	Purchase of REA equipment	Tobacco
2006	200	Zimbabwe	Government	China	Exim Bank	Purchase of agricultural equipment	Platinum
2011	98	Zimbabwe	Government	China	Exim Bank	Construction of the National Defense College	Diamond

Source: Konjin (2014), Mihalyi, Adam, and Hwang (2020).

Note: *China Development Bank (CDB); Industrial and Commercial Bank of China (ICBC).

that most of these deals are backed with oil. Also, most of them are greenfield projects (Vasquez 2019). The Angola Model, as an agreement between governments and mainly state-owned development banks as lenders, is commonplace across the continent. However, there are some exceptions, such as Guinea, which can be seen as part of a new model and with private actors on both sides, the Sinohydro deal in Ghana.

Nigeria is also an important oil exporter, but it is not listed above. The Chinese company Sinopec took over the company Addax Petroleum for US\$ 7.2 billion in 2009. Sinopec received oil equity in Nigeria, Gabon and Cameroon (Vasquez 2019). Therefore, it is not a resource-backed loan from China.

The Literature on the Angola Model

For Konijn (2014), the resource-backed finance model has weak linkages to the local economy and therefore limits economic impact. Mihalyi, Adam, and Hwang (2020) highlight that Chinese banks often bundle loans with oil sector production or trading agreements. Also, they come with requirements regarding the use of Chinese construction companies. Alves (2013) highlights, as observed in the case of Angola, the increased participation of Chinese companies in upstream production (Mihalyi, Adam, and Hwang 2020). Furthermore, due to contract conditions, a major share of goods and services is produced in China, while African countries only export resources in their raw state. In the case of the deal between China and DRC in 2008, the former gained rights to extract 6.8 million tons of copper and 420,000 tons of cobalt (Jiang 2009).

The Angola Model has often been discussed as a strategic partnership or a marriage of convenience. Corkin (2011, n.d.) argued that the relationship between Angola and *China seems to be maturing from a heady embrace of mutual convenience to a reassessment of each other's strategic significance as partners*. Begu et al. (2018, 1) define the model as cooperation and a *source of economic growth and infrastructure development for Angola and a source of energy that fuels China*. Konijn and van Tulder (2013) highlight that general criticisms are the lack of transparency, doubts if it is a fair deal, a potential conflict of interest, concerns about fraud and corruption as well as weak links with the local economy. Furthermore, Ezechukwu (2015) points out a number of challenges resulting from the irreversible damage done to the environment by infrastructure projects, as well as the rising debt profile of African countries. Brooks (2017, 228) notes that the *Angola Model enables types of capitalist development that in the long run will bring greater benefits to Chinese capital than the Angolan people*. Also, he states, African countries are now re-accumulating debts and deepening their dependency on China.

For Singh (2019), in terms of dependency on natural resource extraction among borrowing governments, is more concerned with the *misconception* (Singh 2019, n.d.) that China is using loans to take over natural resources. There is also a growing number of scholars, such as Brautigam (2019) or Lai, Lin, and Sidaway (2020), refusing to acknowledge the debt trap discourse. Carmody (2020),

however, supports this idea and outlines that increasing dependencies are more a feature of uneven capitalist development rather than something unique to China. However, he also points out that China as an increasingly authoritarian state is not afraid of using its economic and geopolitical power. Moreover, Jureńczyk (2020) argues that western researchers and commentators criticise China's cooperation and investment in African countries. However, he points out the specific political circumstances in Angola. The political system in Angola is monopolised by the MPLA and the masses do not benefit from the contracts with China, it can be better labelled as a transparent looting by the elites (Hess and Aidoo 2015). In addition, authorities have silenced criticism of China's growing role in Angola. In 2017, Angola approved a new media law, that enabled the government to control and censor critical information online. Therefore, Jureńczyk (2020, 54) argues, that there is *no confirmation in the data of the practice defined by the world media as land grabbing*. Furthermore, he points out, that western commentators overstate the influence of China in Angola. Nevertheless, de Carvalho, Kopiński, and Taylor (2021) argue that China responded to the criticism of the Angola Model and evolved their lending practices. In 2019, China shifted lending away from African countries that had recently restructured or reprofiled their debt. Lending was cut to countries such as Angola, Ethiopia, Cameroon or the Republic of Congo, and new borrowers were Ghana, South Africa, Egypt, Ivory Coast and Nigeria (Pilling and Schipani 2021). In addition, Acker and Brautigam (2021) conclude, based on 20 years of data on China's Africa lending, that (a) Chinese loan commitments dipped by 30% in 2019 compared to 2018; (b) Commercial loans from China Development Bank raised and (c) the resource-backed finance model is evolving, especially in Ghana and Guinea.

The Sinohydro Deal in Ghana 2018

Origins of the Sinohydro Deal

Resource-for-infrastructure deals refer to those in which loans granted for infrastructure development are repaid with natural resources. The first kind of resource-for-infrastructure deal between Ghana and China was the construction of the Bui Dam in 2007, also with Sinohydro as a construction company. The cost of construction was covered by the government of Ghana and by loans from the China Exim Bank (Williams et al. 2017). Both countries settled on a cocoa sales agreement of 40,000 tons for 17 years as repayment for the construction of the dam (Konijn 2014). In June 2017, the People's Republic of China and the Republic of Ghana entered into a \$10 billion deal, stipulating that China would participate in the development of the integrated bauxite–aluminum industry in Ghana and invest heavily in infrastructure development. In addition to the construction of schools and hospitals, this agreement included the expansion of roads and railway lines as well as deep-water port at Tema (Oxford Business Group 2018). Finally, in September 2018, the two countries signed a Memorandum of Understanding on further cooperation under the Belt and Road Initiative. In

this context, an agreement was signed between the Ghanaian government and the Chinese company Sinohydro, the latter of which invested \$2 billion in the development of infrastructure and would receive refined bauxite in return for 15 years (Master Project Support Agreement [MPSA] 2018). Also, Ghana committed to expand its bauxite-mining activities and build refineries over the following 3 years (Kpodo 2018). While this agreement could be just another example of the Angola Model and a typical resource-for-infrastructure contract, there are debates about differences between it and the more common finance models.

A major challenge with oil-backed loans is the volatile nature of oil prices. Ghana experienced such problems with a US\$ 3 billion oil-backed loan from the China Development Bank in 2011. On the one hand, the country struggled with falling oil prices (from US\$ 115 in June 2014 to US\$ 53 in January 2015) (Aidoo et al. 2017), while on the other hand, it also had a simultaneous problem with price declines in its other major export goods, that is, gold and cacao. The ability of Ghana's government to repay the loan was restricted. In 2015, the CBD agreement ended (Chen 2016), and Ghana turned to the IMF to help its struggling economy. In 2015, the IMF approved a \$918 million loan, to help the country. During that time, the nation's opposition party, New Patriotic Party (NPP), accused the ruling National Democratic Congress (NDC) of making a one-sided deal with China and putting a lot of pressure on the administration (Aidoo et al. 2017). This was also an important narrative during the campaign in 2016 (NPP 2020), when Akufo-Addo's NPP won the general election and started new loan negotiations with China. However, based on experiences, this time it was different.

Operational Characteristics

The Government of Ghana entered a finance arrangement with Sinohydro to develop infrastructure in the country. In July 2018, the master project support agreement (MPSA) was approved by Parliament. Following which, in November 2018, Parliament approved deferred payment agreements (DPAs) and engineering, procurement construction (EPC) contracts (IMF 2019). The latter of which are a particular form of arrangement whereby the contractor (in this case Sinohydro) is responsible for all activities, ranging from design, procurement and construction, through to the commissioning and handover of the project to the end-user or owner. Under an EPC contract, a single construction company agrees to provide a finished project, meeting certain technical and functional specifications, by a fixed time and for a fixed price. The Government of Ghana has undertaken to pay the total EPC contract price to Sinohydro, using proceeds from the sale of refined bauxite.

Sinohydro agreed to arrange project financing for deferred repayments by the government, which in turn would provide 15% of the construction and project costs. Under the MSPA, the government defined priority areas that need to be developed and executed by Sinohydro. Phase 1 consisted of ten road construction projects, at a total of 441.59 km and US\$ 500 million and was scheduled to begin in March of 2020 (Republic Ghana Ministry of Finance 2020). According to the Republic Ghana Ministry of Finance (2020), four out of 10 road projects have

already commenced; however, due to the Covid-19 outbreak in March 2020, construction stopped, and there are serious concerns of further delays. Defined priority areas for Phase II are road construction and bridges, as well as hospitals and affordable housing.

The Ghana Integrated Aluminium Corporation (GIADC) was set up by Parliament (established through an Act of Parliament in August 2018) as a commercially-based independent SPV (special-purpose vehicle) in charge of developing and managing the nation’s bauxite reserves (IMF 2019). While this was a required step, it is not defined in the Sinohydro deal. GIADC is in charge of organising bauxite mining in the country and for setting up plans to build refineries and relevant infrastructure. It is also in charge of entering into joint venture partnerships with investors for mining and refining. The GIADC board consists of representatives of the integrated aluminium industry, members of Parliament, a representative of the Ministry of Finance, the chief from Nyinahini, a representative of the Minerals Commission and a representative of the Association of Ghana Industries. GIADC has a Chief Executive Officer, who was a former Senior Vice President of Dell Corporation.

Under the DPAs, all financial obligations to Sinohydro are to be transferred from the Ministry of Finance to the Ghana Integrated Aluminium Corporation (GIADC) (see also Figure 2). Therefore, the government has no financial liability to Sinohydro, and the Chinese company is not directly involved in bauxite mining or the sale of the refined resource. However, GIADC reimburses Sinohydro with

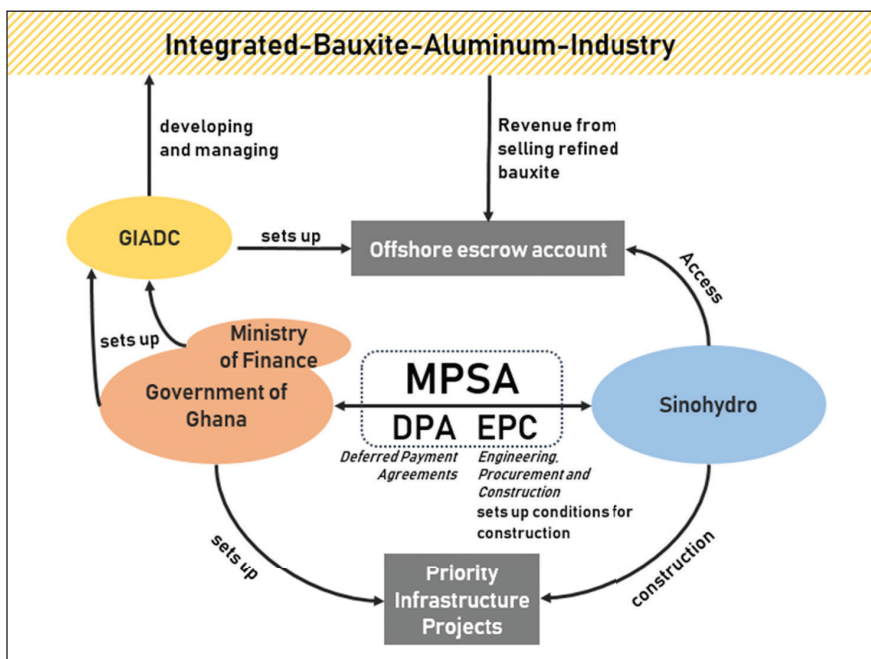


Figure 2. Sinohydro Deal Structure.

Source: Author’s own source.

deferred payments and is responsible if payments are missed. As a result, GIADC has set up an offshore escrow account for revenue generated from selling bauxite. The government estimates that bauxite mining could deliver over US\$500 billion in revenue. Although the Republic of Ghana has extensive bauxite reserves, the bauxite–aluminum industry has historically not been very significant, and the ore is only mined at one site near the city of Awaso. Since 2011, the mine has been owned by the Chinese company Bosai Mineral Group, which has fundamentally changed exports. Bauxite was mainly distributed to Europe and North America between 2008 and 2011, but since 2012, it has increasingly been exported to China (British Geological Survey 2018; Republic Ghana Ministry of Finance 2015).

Analysis and Discussion

As mentioned previously, transparency is often a problem, and it often limits studies on resource-backed loans, because not every detail is made public. In their study, for instance, Mihalyi, Adam, and Hwang (2020) found that out of 52 cases, only 19 provided basic information such as interest rates. However, Ghana has tried to be more transparent. While many details still remain somewhat vague, more openness in Ghana allows for a more detailed look at such deals. Nevertheless, the lack of transparency in other cases also limits research on this topic, especially when it comes to comparison.

One main argument offered by Johnston (2019) as to why the Sinohydro deal is different, is the *new fixed interest rate development loan*. However, according to Mihalyi, Adam, and Hwang (2020), 10 out of 19 loans they observed had fixed interest rates. For example, the loan made in 2009 to the Republic of Congo had a fixed interest rate of 0.25%, while in 2007, one of the two loans negotiated between Ghana and Exim Bank had a fixed interest rate of 2% (Brautigam 2011). Furthermore, the Sinohydro deal is London Interbank Offered Rate (LIBOR)-based, with an annual interest rate of LIBOR + 2.8%. As mentioned, the collateral is also refined bauxite. Herein, I concentrate on two different and unique aspects of Ghana's Sinohydro deal: (a) privatisation, which refers to the involved actors and the new parastatal GIADC, as well as (b) the collateral itself and impacts for the integrated bauxite industry. However, in the end I also want to draw attention on (c) the environmental aspect, as it is a major concern when it comes to mineral extraction industry.

Privatisation Shift

Mihalyi, Adam, and Hwang (2020) highlight that out of the \$164 billion in RBLs committed in sub-Saharan Africa and Latin America between 2004 and 2018, 77% of the amount came from two Chinese policy banks, specifically CDB and the China Exim Bank. The rest were a mix of state-owned companies of various nationalities and international commodity traders. Under the Angola model, Chinese loans are provided by its Export–Import Bank (Exim Bank) and are accompanied by an interest subsidy from the Ministry of Commerce (Foster et al. 2009; Kiala 2010). In the case of Ghana, the state-owned company Sinohydro, with the

approval of Sinosure (China Export & Credit Insurance Corporation), signed the deal with the government of Ghana, which negotiated on behalf of the Ghana Integrated Aluminium Development Corporation (GIADC), but once the GIADC was set up, it would become the obligor under the Sinohydro arrangement. Compared to the construction of the Bui Dam, an agreement between China and Ghana in 2006, the government put the Bui Power Authority—a government agency—in charge. The Sinohydro deal is at this point a deal between a state-owned company (Sinohydro) and a commercial-based independent SPV (GIADC). The IMF (2019) argues that this structure seeks to ensure that the GIADC obligation will not add to the Ghanaian government's debt stock. Also, the Sinohydro deal states that the Government of Ghana will have no financial liability to Sinohydro, nor will it provide any guarantees. Therefore, the IMF (2019) classified this project as commercial debt, thereby appearing to have ring-fenced possible government obligations. The only risk in that case would be a delayed transfer of obligations to the SPV. However, another advantage of this arrangement is that the GIADC is free to negotiate with possible investors in the bauxite sector, so they can also attract Western companies and limit Chinese influence in the mining sector.

The Sinohydro deal, as well as the example from Guinea, illustrates what has been observed recently, that is, China's state-owned enterprises (SOEs) increasingly investing their own capital to build and operate infrastructure projects. Primarily, the SOEs serve as contractors responsible for engineering, procurement and construction (EPC). Chinese policy banks then finance the project with loans, and thereafter, projects are contracted to a Chinese construction firm (Foster et al. 2009). Leutert (2019) points out the evolution of Chinese SOEs, from contractors to operators and investors, which is the case with Sinohydro in Ghana. As mentioned earlier, in 2017 the Exim Bank promoted a more sustainable and innovative finance mechanism. This shift, and its implications for governments and economies, will require more attention in the future.

Collateral and Its Impact on the National Economy

When it comes to collateral, there are some differences. In the case of the Bui-Dam deal between Ghana and China, the latter guaranteed to purchase 30,000 tons of cocoa per year from the Ghanaian government at current world market prices (Odoom 2015). Similar to the \$3 billion oil loan in 2012, which stated that 13,000 barrels of oil would be supplied daily for fifteen-and-a-half years to pay off the loan (Odoom 2015). In addition, the 2004 deal with Angola stated that the US\$2 billion Chinese loan was tied to a delivery of 10,000 bpd of crude oil. Sinohydro deal documents define that the proceeds of the sale of refined bauxite should be used. Additionally, they state that *receipts from the transfer of refined bauxite to its strategic partner, and where receipts from refined bauxite are not sufficient [...] Government of Ghana shall use other sources for the repayment to Sinohydro*, thereby allowing for the export of refined bauxite, or even bauxite in its raw state, into the global market. In comparison, a similar deal in 2017 between China and Guinea had bauxite as collateral, while Ghana has refined bauxite. Meanwhile, aluminium is becoming more and more important. Ghana's government also hopes that with the integrated bauxite–aluminum industry, they

can stimulate nationwide industrialisation. Ghana has mines as well as a smelter, and so only, the refiners are missing in the value chain. In addition, it already holds a 20% stake in the mining company, the smelter is 100% state-owned and a minimum 30% stake in any new mine, refinery or smelter will be held by the government. With the Sinohydro deal, the government argues, the country can now develop an integrated bauxite–aluminum industry, which has been the plan since the nation gained independence. This would also be in the interest of China.

As Schmalz (2018) suggests, China is trying to avert a possible financial crisis and is struggling with increasing industry overcapacity as well as rising indebtedness. By building infrastructure and connecting other countries, China exports its surplus while supporting economic growth. Thus, Ghana is increasingly embedded in China-based globalisation (Kanungo 2017) and, as a resource-rich country and fast-growing sales market, has aroused the interest in Chinese companies. Sinohydro is a state-owned enterprise, with the majority stake held by the Chinese central government. For Asche and Schüller (2008, 15), the impression of an overall strategy for the economic development of Africa is reinforced by the fact that *the Chinese government formulates clear industrial policy goals and uses a mixture of market-based and interventionist instruments to achieve its goals*. Therefore, it could be argued from the perspective of China, this is some kind of strategy diversification to invest in other countries, using not only their state-owned development banks, but also state-owned enterprises. However, due to the close interlinking of politics and the economy in China, targeted agreements between the administration and the company, as well as joint action on foreign markets, is possible. Also, from the perspective of Ghana, it seems that the administration tried to negotiate a different deal and may have learned from past experiences, especially recalling the oil-backed loan in 2011. Worth mentioning is the guaranteed 30% local content in the Sinohydro deal. It may appear to be not that much; however, it is an important step in limiting Chinese involvement, which has always been critical. Other deals have culminated in a lower percentage securing local interests, such as a loan to the DRC in 2007 at 12%. More often, China has a high percentage of its own companies, such as in Ghana in 2011 (minimum 60% Chinese companies) or Angola in 2004 with 70%.

One benefit of the Sinohydro deal is that the construction of infrastructure projects are starting very quick and results are getting visible in a short time. Less than 18 months after the negotiations, the road projects are getting underway. The important aspect here is that Ghana's President Akufo-Addo needs to show very quickly that the Sinohydro deal is worth the critical environmental and financial risks. Looking at the location of the prioritised projects, it appears that almost every political region in Ghana benefits. If people see positive development in their region, they may be less concerned about the critic from national as well as international environmentalist and the media. Especially because 2020 is an election year and many roads will be finished or at least under construction within the first term of Akufo-Addos presidency. Parallel, the infrastructure for the integrated Bauxite–Aluminium industry needs to be set up, which is best done via railway. Therefore, Ghana signed several agreements with China Railway Wuju Group Corporation and China Civil Engineering Construction Corporation

(Ministry of Railway Development 2019a; 2019b) in order to renew and extend the existing railway network. While the Sinohydro deal serves public infrastructure across the regions, the government agreed new loans in order to set up an infrastructure, which serves more the Bauxite–Aluminum industry. However, this may deepen the dependency on China as well as raise the pressure on being successful with these projects. The establishment of the bauxite refinery to complete the aluminium value chain is therefore an important aspect of his industrial projects in the presidential campaign of Akufo-Addo in 2020 (NPP 2020).

Environmental Concerns

The 2018 budget statement and economic policy of government promotes aluminium refineries and bauxite mines at Nyinahin and the Atewa range, Kyebi. Due to its processing, it makes sense to build refinery directly next to mining areas. However, Kyebi in particular attracted media attention, as an important forest could fall victim to the plans. According to the Minerals Commission (2015), the Atewa range hosts the second largest bauxite deposit in Ghana. The range of hills on which the bauxite occurs consists of flat or nearly flat-topped hills stretching 14.5 km from Apinamang in the west to Kyebi in the east. The bauxite deposits are covered by the tropical forest, which implies that the forest needs to be logged to some extent, if open pit mines are to be developed (Schep et al. 2016). Like most extractive industries, bauxite mining—which is usually striped-mined—has significant effect on natural environment, like degradation or disruption of local wildlife and water flows. One of the by-products of the process for refining bauxite into alumina is a waste product, mostly known as ‘red-mud’ (Ingulstad, Storli, and Gendron 2013). The alkaline constituents in the red mud impose severe and alarming environmental problems, like soil or water pollution (Rai, Wasewar, and Agnihotri 2017).

According to Ingulstad, Storli, and Gendron (2013), in order to produce one tonne of aluminium, the mining process generates 10 tonnes of waste rock and three tonnes of toxic red mud. Environmentalists as well as the local officials criticise the plans for mining of bauxite in the Atewa forest (Purwins 2020). They fear deforestation, pollution of water and other environmental damage will affect especially the local population. The forest functions as the source of three important rivers—the Densu, Birim and Ayensu rivers. A burden on the region could thus also lead to these rivers being heavily polluted. The Densu river belongs to the coastal river system of Ghana and is one of the two main sources of water supply for the Accra urban area (Schep et al. 2016). According to the Ghana Wildlife Society (2018), over five million Ghanaians depend on the water from the three rivers, Densu, Birim and Ayensu. However, the society calls for a protection of the forest and promotes different options like eco-tourism. A group calling themselves concerned citizens of Atewa Landscape was formed in 2018 to prevent bauxite mining in the forest. They constitute themselves from civil society organisations, youth groups, interfaith groups, farmer-based associations, opinion leaders and community leaders. In addition, the NGO A Rocha Ghana is an initiator and promoting the protest against the government plans. In March 2018,

the group started a six-day walk from the eastern region to Accra in protest of mining in the Atewa forest reserve and to submit a petition to the government. By 2020, they intensified their protests in various ways. In addition, some youth groups within the Ashanti region have vowed to stop the mining of bauxite in the Nyinahin forest reserve, another major bauxite reserve in Ghana.

Nevertheless, most African countries require a type of environmental assessment, which is a formal process preventing environmental harm and aligning development activities with the interests of the general public. The environmental laws in Ghana come in the form of environmental impact assessments (EIAs) and strategic environmental assessments (SEAs), which are also very common in other African countries (TCI 2018). An EIA requires an analysis of the possible impacts that a proposed physical development would have on the environment, as well as on human well-being. In general, these assessments have to be done before starting a project. Based on the results, the project needs to guarantee certain changes and implementations. An SEA is the systematic and comprehensive process of evaluating the environmental effects of government policies, programmes or plans (EPA Ghana 1994; TCI 2018). The Environmental Protection Agency (EPA) permits projects (governmental as well as private) if they undertake an EIA and can prove that they will have no significant impact on the environment and public health. At this point, the question arises why the Ghanaian government has not undertaken a formal assessment of the agreement's potential environmental impacts. The requirement for a formal assessment does not apply to negotiations of agreements; in addition, an SEA will only trigger if government plans are likely to affect the environment (Neal and Losos 2021). However, the Sinohydro deal is crafted in such a way that it does not mention at any time, the development of an integrated bauxite–aluminium industry—it is only agreed that Ghana will use refined bauxite as collateral. Moreover, the Sinohydro deal does not describe how Ghana will meet its contractual obligations. EIA and SEA does not trigger, the Sinohydro deal has bypassed environmental laws.

Examples from Other Countries: The Case of Guinea

Acker and Brautigam (2021), point out that besides the critic of resource-secured lending, in some countries this practice declined, while in others it continued, for example, in the DRC, Guinea and as described in Ghana. In the DRC, copper is used to finance infrastructure under the Sicominex agreement. Very similar to the Sinohydro deal in Ghana is the resource-backed loan in Guinea, which is a good example because both were negotiated at the same time. Moreover, both deals are the only known loans backed by the commodity bauxite (Mihaľyi, Adam, and Hwang 2020). In 2017, a consortium of Chinese banks, led by the Industrial and Commercial Bank of China (ICBC), announced \$20 billion in loans, in return for which they would receive bauxite with Guinea. Compared to Ghana, in the case of Guinea, bauxite concessions were provided in exchange for infrastructure such as road projects. As part of these negotiations, Guinea entered into a concession agreement with the Chinese company Chalco. Under this

agreement, further developments in the bauxite sector had been agreed upon, and it was planned to proceed further with bauxite and build refineries. According to Wingo (2020), China is shifting toward making a greater on-the-ground commitment to extraction as part of resource-backed deals in Guinea. However, it is important to note that the bauxite sector in Guinea is far more developed compared to Ghana. Ding et al. (2021, 3) argue, that on the other side, Ghana *has a more diversified economy, a stronger legal and regulatory framework, and a more empowered civil society, giving Ghana an advantage in addressing the regulatory and environmental concerns of its natural resource for infrastructure agreement with China*. Especially the aspect of a more empowered civil society, giving Ghana an advantage in addressing the regulatory and environmental concerns, as already described before. Compared to Guinea, the issue of biodiversity protection is a greater concern in Ghana (Ding et al. 2021). However, many details remain unclear, which makes it difficult to compare both cases. Nevertheless, the resource-backed deals in Ghana and Guinea illustrate that the trend of using metals as collateral continues (Wingo, 2020).

Conclusion

The Angola Model has ensured vast amounts of capital to build much-needed roads, bridges and other infrastructure in Africa under the narrative of a win-win-situation (Begu et al. 2018). However, the financial crisis and the crash in oil prices meant that Angola had to sell increasingly more oil to repay the Chinese debt. Commodity prices are inherently volatile, and African countries need to sell enough of their resources to avoid the same inflation trap. Mihalyi, Adam, and Hwang (2020) point out that the majority of resource-backed loans are earmarked for financing particular infrastructure projects. Since the provision of infrastructure is critical, many African governments justify borrowing if the social returns from these projects are higher than interest charges and risks associated with the loan. However, since 2014, commodity-backed loans have played a smaller role in China's foreign policy, and some governments have also refused to use these finance models; for example, Angola announced in 2019 that it had decided to stop guaranteeing loans with oil (Macauhub 2019). Additionally, other commodities, such as cobalt and copper in the DRC, appear to be less resilient to price drops than originally hoped (Landry 2018). In the case of the Republic of Congo, the IMF approved a bailout worth nearly \$449 million, after the country struggled with debts it owed to China (Bavier 2019).

The Sinohydro deal in Ghana is an example of a Chinese SOE being not only a constructor, but also an operator and an investor. This matches with the idea proposed by the Exim Bank in 2017 to develop new, innovative and sustainable finance mechanisms, including government-private capital cooperation. From the perspective of Ghana, the established GIDAC has ring-fenced possible government obligations. Also, what Hart (1977, 22) once described as *the country's most useful resource* can now be developed into a promising industry. However, some challenges remain, similar to other cases, such as problems in transparency.

Investments made by China in Africa, according to Ascensão et al. (2018, 207), increase negative environmental impacts. They are likely to affect disproportionately an already vulnerable population. Due to the lack of transparency, environmental issues and concerns, the Sinohydro deal increased a growing movement against bauxite mining in Ghana, especially at Atewa forest—a possible extraction site (Purwins 2020). The Ghanaian government is therefore under a lot of pressure, not only from local but international NGOs, intellectuals (or actors like Leonardo DiCaprio) and major manufacturing companies as members of the Aluminium Stewardship Initiative openly opposing mining in Atewa forest (Birdlife International 2021). Finally, the COVID-19 pandemic across China and Ghana has also led to a delay when it comes to construction. In this regard, signing this deal without already constructed refineries and infrastructure seems a very risky undertaking.

In January 2020, the news website Ghana Web ran the following headline: *Ghana's Sinohydro deal touted as a new model for Africa to follow*. In addition, likewise to the analysis of Acker and Brautigam (2021), I would argue, that the controversial resource-backed infrastructure financing model is still alive and has evolved in certain ways. As argued, the main differences are (a) the established para-state company charged with managing the extraction of bauxite and (b) the plans to develop an integrated bauxite–aluminium industry within Ghana. On the other side, environmental concern regarding bypassing regulations or possible pollutions remain the same. However, is too early to say if this kind of deal is something for which other African countries strive; in fact, it could be one of many different ways to approach construction deals in the African continent, rather than a strategic shift. On the other hand, Ghana is known in the African continent as having a strong economy, and so it may be in a better position when negotiating with China. In terms of the Sinohydro deal, the short-to-long-term extraction of bauxite, as well as the associated consequences on the local level, will prove if it is indeed a successful—and sustainable—model.

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