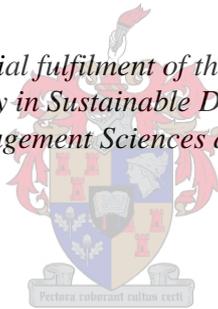


Extractivism and Transition in Africa: Opportunities and Challenges

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Abstract

Existence of natural resources in majority of African countries has been identified to support further development due to continuously increase in commodity revenues. However, the resource curse presents critical aspects of resource intensive economies such as short-term benefits of commodity revenues, limited economic diversification and unstable government. Due to natural resource abundance in Africa, extractive industries are essential in the domestic economic system, although, the disadvantages based on the resource curse theory, question the support of commodity revenues in Africa's development.

South America views the issues of extractive industries from a different perspective by analysing the related developmental approaches namely conventional extractivism, neo-extractivism and post-extractivism. While South American countries are in different transition phases of extractivism, Africa is dominated solely by conventional extractivism. This results in varying degrees of social and environmental impacts on the African continent. However, Africa's transition towards neo- or post-extractivism will limit the problems of the resource curse and offers a more sustainable resource management of the extractive industries.

The Environmental Kuznets' Curve (EKC) supports the principle of developed and recently industrialised countries by relying on the economic development, which will reduce environmental degradation automatically by achieving a specific turning point. The three phases of EKC can be related to different stages of economic development, as well as to the three extractivism approaches. Therefore, transitions from conventional extractivism to neo-extractivism and finally to post-extractivism have to occur to stabilise economic development and reduce environmental degradation.

Within this process of transition towards more sustainable extractivism approaches, the principle of "Sustainable Structural Transformation" (SST) is applicable. SST was described in the UNCTAD report (2012) as a tool to reduce environmental impacts while continuing to provide for the demand of an increasing global population. Neo- and post-extractivism approach supports the concept of SST, which primarily emphasises more efficient technologies, new economic activities, labour productivity and regulations. The foundation of SST is based on resource decoupling in order to separate economic developmental process from natural resource extraction while minimizing environmental impacts. For the application of SST and thus for the transition of extractivism, reinvestment is essential to create a diversified economy. While reinvestment can take place in various forms, the World Bank (2011) identified three types of wealth namely natural, produced and intangible capital contributing to the total wealth of a country. However, developing countries prioritise natural wealth in comparison to other forms of wealth; therefore, reinvestment has to take

place in other types of wealth namely intangible and produced wealth in order to achieve sustainable development in Africa.

UNCTAD (2012) considers SST as a framework without an attempt of creating a “one-size-fits-all” solution. This understanding is crucial for the transition from one phase of extractivism to another. Depending on the context of a country, tools have to be adapted to support the needed transition. These existing differences are presented in the case studies of Nigeria and Botswana, which are two developing countries in Africa but they present different stages of extractivism and resource management.

Opsomming

Daar is vasgestel dat die beskikbaarheid van natuurlike hulpbronne in 'n meerderheid van Afrika-lande verdere ontwikkeling ondersteun deur 'n ononderbroke toename in grondstofinkomstes. Die hulpbronvloek wys egter kritiese aspekte van hulpbron-intensiewe ekonomieë uit. Van hierdie aspekte sluit in korttermynvoordele van grondstofinkomstes, beperkte ekonomiese diversifisering en onstabiele regerings. Weens die oorfloed van natuurlike hulpbronne in Afrika is ontginningsnywerhede onontbeerlik in die binnelandse ekonomiese stelsel, alhoewel die nadele wat deur die hulpbronvloekteorie uitgewys word die ondersteuning van grondstofinkomstes in Afrika se ontwikkeling bevraagteken.

Suid-Amerika beskou die kwessie van ontginningsnywerhede vanuit 'n ander perspektief deur die verwante ontwikkelingsbenaderings, naamlik konvensionele ontginning, neo-ontginning en postontginning, te ontleed. Alhoewel Suid-Amerikaanse lande in ander oorgangsperiodes van ontginning verkeer, word Afrika slegs deur konvensionele ontginning oorheers. Dit lei tot wisselende grade van sosiale en omgewingsimpakte op die Afrika-kontinent. Afrika se oorgang na neo- en postontginning sal egter die uitdagings van hulpbronvloek beperk en bied 'n meer onderhoubare hulpbronbestuur van die ontginningsnywerhede.

Die Omgewing-Kuznetskurwe (OKK) ondersteun die beginsel van ontwikkelde en onlangs geïndustrialiseerde lande. Hierdie ondersteuning geskied deur staat te maak op die ekonomiese ontwikkeling wat outomaties omgewingsagteruitgang sal verminder deur 'n spesifieke keerpunt te bereik. Die drie fases van die OKK kan met verskillende fases van ekonomiese ontwikkeling asook die drie ontginningsbenaderings verbind word. Om hierdie rede moet oorgange van konvensionele ontginning na neo-ontginning en uiteindelik postontginning plaasvind om die ekonomiese ontwikkeling te stabiliseer en die omgewingsagteruitgang te beperk.

Die beginsel van "Onderhoubare Strukturele Transformasie" (OST) is veral toepaslik in die oorgangsproses na meer onderhoubare ontginningsbenaderings. Die OST is in die verslag van die Verenigde Nasies se Kongres van Handel en Ontwikkeling (VНКHEO) (2012) beskryf as 'n middel om omgewingsimpakte te beperk terwyl dit in die behoefte van 'n toenemend groeiende wêreldbevolking voorsien. Neo- en postontginningsbenaderings ondersteun die OST-konsep wat veral meer doeltreffende tegnologieë, nuwe ekonomiese aktiwiteite, arbeidsproduktiwiteit en regulasies benadruk. Vir die toepassing van OST en dus die verandering in ontginning is herbelegging noodsaaklik om 'n gediversifiseerde ekonomie te bewerkstellig. Alhoewel herbelegging op verskillende maniere kan plaasvind, het die Wêreldbank (2011) drie tipes rykdom geïdentifiseer, naamlik natuurlike, vervaardigde en ontasbare kapitaal wat tot die algehele rykdom van 'n land bydra. Ontwikkelende lande gee voorkeur aan natuurlike rykdom teenoor ander vorme van rykdom. Om hierdie rede moet herbelegging binne die ander vorme van rykdom plaasvind om

onderhoubare ontwikkeling in Afrika teweeg te bring. Hierdie ander vorme van rykdom sluit ontasbare en vervaardigde rykdom in.

VNKHEO (2012) beskou OST as 'n raamwerk wat nie poog om 'n "one-size-fits-all"-oplossing voort te bring nie. 'n Oorkoepelende benadering is kardinaal om die verandering in ontginning teweeg te bring. Afhangende van die konteks van 'n land moet middels aangepas word vir die nodige ondersteuning van die verandering. Hierdie bestaande verskille word in die gevallestudies van Nigerië en Botswana uitgewys. Dié twee lande dui op twee verskillende ontginningstadia en hulpbronbestuur.

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1. Background

1.1. Introduction

Development in Africa is viewed in various ways. Positive voices identify the potential of Africa's economy, society and environment (McKinsey, 2010), while pessimists highlight low standards of living, poverty, inequality and the high unemployment rate as setbacks in the developmental process (Andreasson, 2005:972). Africa is plagued with numerous challenges and conflicts such as colonialism, civil war and military dictator regimes. This history has a significant influence on the existing structures and strategies within which limited priority is given to sustainable development. Often natural resources are difficult to manage while following the principles of long-term development due to the finite nature, poor government policies, fluctuating prices and other socio-economic aspects of natural resources. Although, natural resources are in demand on the global market, existing barriers slow down further development on the continent.

According to the McKinsey Global Institute (2010:2), natural resources are major components of Africa's increasing growth. The expectations of further growth are based on the increase in demand of natural resources to cover the needs of a growing world population (Swilling and Annecke, 2012:44-45), as well as the rising consumption patterns of individuals especially in industrialised countries (Smith, 2011:112-113). Domestic material extraction (DME), representing the extraction of raw materials within a country, increased by 87 % in Africa between 1980 and 2008 (UNCTAD, 2012:35). Although, a general improvement of economic performance based on increase in revenues is identified as a positive transformation for a country, quality of economic growth is an equally essential aspect of defining the wealth of a country and the level of sustainable development (Ross, 2001). Narrow economic assessments or assumptions focus on gross domestic product (GDP) and other economic figures, with a rare consideration for the quality component such as diversification of economy, which requires a detailed analysis of wealth composition within a country. For instance, Africa's exports are dominated by non-renewable resources like fossil fuels, metals and non-metallic minerals, the export of which increased from 38 per cent to 47 per cent between 1980 and 2008, with the dominant drivers being crude oil, coal, and natural gas as sub-categories of fossil fuels (UNCTAD, 2012:39-44). Non-renewables are declared to be physically limited, and therefore, a focus on such resources is critical within the process of sustainable development.

Resource extraction initiates various opportunities and challenges for a local economy. For instance, natural resource reserves attract foreign investors and this investment is usually seen as leading to the improvement of the local economy. The production of various goods could result in the diversification of the local economy, new job opportunities, the reinvestment of revenues in social capital and infrastructure, and finally the growth of wealth within a country. These aspects could be identified as the positive outcomes of natural resource extraction (Kaplinsky et al., 2012;

Johanson and Adams, 2004). Generally, the GDP is seen as the indicator of wealth due to the assumption that GDP reflects economic growth. The total wealth of a nation cannot be limited to a single figure. Moreover, numerous aspects are significant in the wealth composition of a country, which require detailed consideration. The report by the McKinsey Global Institute (2010) presents a sparkling picture of Africa, as a growing economy, with new opportunities for business and investments. But social challenges like poverty, malnutrition or illiteracy are ignored. How do blooming economies based on natural resource reserves, influence these existing problems?

Africa is faced with numerous challenges, and the exploitation of natural resources is seen as a way of reducing these problems. But in many cases, the exploitation of precious resources has created risks rather than wealth (Gylfason, 2001:847) which has led to the theory of the 'resource curse' (Sachs and Warner, 2001). Environmental impacts due to pollution generated by for instance extractive industries destroy major parts of crucial livelihoods of local citizens. Profits from oil and gas extraction are rarely invested to fulfil local needs or to create new opportunities for residents. This is an increasing challenge for development in Nigeria, which is an example of a country with oil resources (Ikelegbe, 2005:223, Manby, 2000:3). The significant growth identified by different researchers (African Development Bank, 2010; McKinsey, 2010) created hope and trust in Africa's potential for further progress. But how can these potentials be realised in an 'adequate way'; in a way that will lead to sustainable development? Where are the challenges of a resource intensive economy and what benefits can be identified?

Although studies have been done on the phenomenon of resource curse, economic growth in Africa, extractive industries and natural resource abundance, literature on the holistic view of extractive industries in Africa is limited. Resource intensive economies have a variety of effects on the standard of living in a country. In this study the positive and negative aspects of extractive industries in Africa and the existing opportunities to make use of the extractive industries on the path to a sustainable future and to higher living standards in African countries, are highlighted. It is essential to analyse the influence of extractive industries beyond merely GDP growth and present the real situation within a country in order to support further development and to influence the decisions of policy makers. The developmental approach of extractivism applied in Latin America can be viewed as a new way of addressing the situation of resource-intensive economies in Africa.

1.2. Motivation of the research

Because I come from an economic management background with an undergraduate degree in management and law and working experiences in NGOs, my perspectives were limited to profits and cost savings as economic principles. The social aspects of the strife for economic improvement are rarely considered by those who work for a company or in the global economic system.

Similarly, African countries are often assessed by experts considering economic growth indicators rather than on total wealth, which include social and environmental aspects in addition to economic ones. These assessments result in inadequate/partial data compilation, which influences further decision-making. The objective of generating a broader picture on Africa's current situation is deeply connected to natural resources as the main foundation of Africa's economic structure. This study aims to contribute to the existing pool of knowledge by presenting various aspects of development in Africa. Furthermore, it is intended that the outcomes of this research will act as a supportive tool for decision-makers to achieve a broader perspective to continue on the path of sustainable development, which is needed to improve standards of living across the continent of Africa.

1.3. Purpose of research

Numerous countries in Africa such as Nigeria and Botswana have based their economies on the extraction of natural resources. A distorted picture of extractive industries is presented in the media and by politicians. Economists present extractive industries positively citing various advantages for the given country and the global system. Examples of countries with resource-intensive economies and high standards of living like Norway or Australia are presented in order to encourage African countries to follow the same path by focusing on natural resources. Environmentalists, on the other hand, alarm citizens with dramatic facts about pollution, health consequences and climate change and they demand the closure of extractive industries. Socialists highlight unequal benefit distribution with an enriched minority and a majority of the population below the poverty line dealing with direct consequences of extractive industries without receiving an adequate percentage of resource revenues.

The tensions between different stakeholders in the context of extractive industries demonstrate the need for clarity. In the past considering economic growth only has proved to be insufficient, therefore attention should be paid to other details as well. Following the path of 'business as usual' seems risky in the face of the principles of sustainable development and the increase in challenges faced by the world as a whole and by Africa in particular.

During this research there is an attempt to define the risks and benefits of extractive industries in Africa in order to identify possible solutions to existing tensions. While African countries base their hope of further development on non-renewable resources, the advocates of sustainable development criticise short-term development of natural resources due to physical limitation. Natural resources are essential in the global market and they can be used as a platform of further development, but the simplistic perspective of extractive industries could result in the opposite with short-term revenues for an elite group without the improvement of living standards of the majority of citizens. A broad assessment of extractive industries in Africa is supported by a theoretical

review, by the content analysis of reports written by experts in various disciplines, and by the practical application of two case studies. The results of each section are used to outline the essential aspects of further development that have to be considered by governments and decision makers.

1.4. Research question and objectives

This research is based on a key research question and sub-questions, although various problems related to this research exist which are identified in the introduction of this report. To achieve an understanding of the research goal and to clarify specific aspects of this research, guidelines of further research in the form of questions instead of a problem statement were created.

1.4.1 Research question

Key research question:

How do extractive industries influence the economic, social and environmental systems in Africa?

Sub-research questions:

How does the existence of natural resources in a country shape its economic system?

Which perspectives on the practice of resource-intensive economies appear in the literature?

Could extractive industries participate in the sustainable development path of Africa?

1.4.2 Research objectives

In order to answer the above research questions, the objectives during this study are to:

- identify barriers to the further development of extractive industries in Africa;
- identify the benefits and problems of extractive industries for the African and global system;
and
- identify feasible opportunities for countries with resource-intensive economies

2. Literature review

2.1. Introduction

Natural resources such as fossil fuels, metals and minerals are essential contributors to the global economic system, contributors for which there is a continuously increasing demand. Africa as a continent is rich in natural resources and is identified as one of the key role players in the global market. Generally, the existence of natural resources in a country is viewed as beneficial for the development process as it creates wealth (Ross, 2001:5-6). In the context of Africa there have been limited improvements despite the discovery and exploration of various resources. This raises the question of how and if natural resources can contribute to sustainable growth in Africa.

Latin America, like Africa, is rich in natural resources, but the extractive industries are involved in its developmental process by following different paths of extractivism. There are three main types of extractivism, namely conventional extractivism, neo-extractivism and post-extractivism. They are categorised based on historical existence, appearing challenges and aspects of sustainable development (Aguilar, 2012). Although, these approaches are not literally used in the African context, various components overlap and they could support a broader understanding of the role of extractive industries in Africa's development process. Recent years of significant economic growth identified by various researchers have created a state of hope and trust in Africa's potential for progress based on natural resource extraction (McKinsey, 2010). However, Africa's view on extractive industries is limited to the negative aspect of the resource curse and the positive aspect of economic growth. Therefore, a holistic consideration of the diverse components of extractive industries is needed. Applying the extractivism approach used in Latin America to the African context will provide a better understanding of the role of extractive industries in the developmental process of Africa, and most importantly, the understanding of the critical role that the extractive industries could play in the sustainable development path towards improving the socio-economic state of Africa.

In Chapter 2 of this literature review, the approach to extractivism developed by Gudynas (2010) which reflects existing models of extractive industries in Latin America, is described. The deeper meaning of extractivism and its relevance to Africa is presented in Chapter 3, followed by a review of the different views on the existence of the resource curse in Africa. These three sections build the foundation for further analysis. Different approaches to extractivism highlight various ways and views on resource extraction in light of a sustainable future. The resource curse perspective identifies specific critical aspects of resource management which have to be considered to improve development in a country dependent on natural resources. Resource intensive economic growth and development can be defined as beneficial or destructive depending on the criteria considered. Positive and negative components, as well as possible opportunities for resource intensive

economic growth and development are critically evaluated, leading to the presentation of ways towards a more sustainable future for Africa. The assessment of various views on extractive industries highlights the importance of examining different angles to achieve a holistic picture of the situation facing decision and policy makers. The foundation of this review is the extractivism approach, which is referred to at the beginning of this review and is used as a guiding principle. The importance of this theory is to highlight the gap in the literature on extractive industries in Africa, namely an adequate conception of what is referred to in the Latin American literature as 'extractivism'.

2.2. Extractivism

Extractivism is a broad term used to describe the process of exploration, exploitation and export of natural (minerals and oil) resources without any further processing prior to exportation (Gudynas, 2010:1; Sibaud, 2012). Extractive industries are entities which explore, develop and mine for minerals, oil and natural gas (Sturmer, 2010:3). Extractivism as a school of thought has its roots in Latin America (Gudynas, 2010:1). As happens in Africa, numerous countries in Latin America follow the path of a resource intensive economy such as Brazil, Peru, Venezuela and Bolivia, where exports are driven by the extraction of natural resources (Verdum, 2010:2-4). According to Gudynas (in Brand, 2013:3) there are three types of extractivism: depredate, cautious and indispensable extractivism.

Depredating extractivism represents exploitative activities where no consideration is given to environmental and social impacts, and is also referred to as "predatory extractivism" (Gudynas, 2011 in Aguilar, 2012:10). Cautious or "moderate extractivism" (Gudynas, 2011 in Aguilar, 2012:10) includes environmental and social concerns in the resource extraction process, while natural resources remain the dominant driver of economic growth. Indispensable extraction aims to reduce material extraction to the lowest possible level and to find possible replacements like recycling (Gudynas, in Brand, 2013:3). Hence, policies which regulate environment, health and employment, support the principles of indispensable or "basic extractivism" (Gudynas, 2011 in Aguilar, 2012:10). Although extraction of resources is the essential component of extractivism, other factors such as the role of the state or rights of nature are involved in this process. Brand (2013:3) describes extractivism as a developmental model, which coordinates "socio-economic, political and cultural aspects" of resource intensive-economies.

According to the literature three main approaches to extractivism are used as development models, namely conventional, post-, and neo-extractivism as summarized in Table 2-1 (Aguilar, 2012; Gudynas, 2010). The 'progressive modernization' approach that emerged in Latin America initiated a shift away from the traditional role of governments to transform the country with the aim of a better future. Although the awareness of critical and risky aspects in regard to conventional

extractivism emerged, significant components of the old/traditional system remained relevant (Gudynas, 2010:1).

Table 2-1: Extractivism a developmental approach; Source: Gudynas, 2010

Development approach	Dominant type of extractivism	Explanation
Conventional extractivism	Depredating/predatory extractivism	No consideration of social and environmental impacts, limited influence of government
Neo-extractivism	Cautious/moderate extractivism	Nationalism (state increases control of natural resources), consideration of environmental and social problems, but extractivism remains the dominant industry in the economic system which involves sacrifices in other areas.
Post-extractivism	Indispensable/basic extractivism	Natural resource extraction is limited, alternatives are introduced and stricter regulations are implemented

Conventional extractivism:

Conventional extractivism took place mainly in the 1980s and 1990s, where the state had limited control over the extraction of natural resources. Mostly international corporations were responsible for the management of resource extraction with the advantage of limited regulations in various areas like environment, labour and society. The role of the state is the distinctive aspect in contemporary approaches. In the past, governments issued licences to companies in exchange for an access fee. Due to the revenues of extractive industries, the state overlooked negative impacts on the environment and society. Additionally, corruption was an essential side effect of this approach primarily due to lack of regulation (Gudynas, 2010:3). The basic foundation of this approach is fast economic growth based on raw materials without due consideration of resulting consequences (Aguilar, 2012:4).

Various African countries followed the path of conventional extractivism. For instance, oil was discovered in Nigeria in 1956, but international companies such as Shell and Chevron dominated the oil extraction for more than three decades, with increased profit for the companies rather than

the country. The country's politics were dominated by corruption and violent protests, resulting in irreparable destruction of the natural environment and communities. The main focus of the extractive industry in Nigeria solely benefits a small minority like political elites and international companies while the majority suffers (Aluko, 2004:64-66, Sibaud, 2012:20). Although some ways of releasing this burden like "corporate social responsibility of multinational companies" were proposed and implemented, limited results can be seen mostly due to corruption (Idemudia, 2010). In 2004, Nigeria launched the "Nigerian Extractive Industries Transparency Initiative" to reduce corruption by monitoring the distribution of oil revenues and this is supported by an international community (like Australia, Norway and Sweden). Still, Nigeria has one of the highest levels of corruption in the world (Yates, 2009:13). In countries following the principles of conventional extractivism, high levels of corruption appear frequently especially in the process of licence granting (Gudynas, 2010:3).

Neo-extractivism:

In neo-extractivism, on the other hand, the state has more influence on the resource extraction process, and the nationalisation of natural resources is a significant attribute of this approach. Resource nationalisation has been identified as one of the major characteristic of neo-extractivism and this influences commodity pricing. There are four types of resource nationalism. These include revolutionary resource nationalism, economic resource nationalism, legacy nationalism and soft resource nationalism (Bremmer and Johnston, 2009:149-152), as summarized in Table 2-2. The primary objective of resource nationalism is to create an active state, which regains political and economic control over the extractive industry within the country (Click and Weiner, 2010:784). More or less radical approaches are practised with the aim of transforming different areas of the existing system. Revolutionary resource nationalism enforces renegotiation of existing contracts to shift ownership of natural resources from the private sector to state. While economic resource nationalism increases the role of the state by higher fiscal control of all financial aspects of resource management. Legacy resource nationalism is a deeply rooted mode, which is more extensive than a developmental approach. It is the cultural and political identity of a country, which allows the state to control and coordinate natural resource extraction. Legacy resource nationalism is practised in Mexico, where the state automatically manages natural resources, and action against this principle causes major protests. Organisation for Economic Cooperation and Development (OECD) countries and Brazil follow the principles of economic nationalism without deconstructing existing regulations and agreements. This is also referred to as soft resource nationalism (Bremmer and Johnston, 2009:149-152).

Table 2-2: Types of resource nationalism; Source: Bremmer and Johnston, 2009:149-152

Resource nationalism	Scope
Revolutionary resource nationalism	Top-down actions to shift ownership of natural resources by forced transformation of existing contracts
Economic resource nationalism	State increases its fiscal take in natural resource extraction
Legacy resource nationalism	Cultural and political rooted support of resource nationalism
Soft resource nationalism	Economic nationalism without major changes of existing contracts and regulations

Neo-extractivism is relevant in the context of progressive governments, also referred to as “new developmental extractivism” (Verdum, 2010). The public controls the extraction of raw materials and allows the state to increase its revenues from extractive industries. These are used to invest in projects which are beneficial for society and environment (Verdum, 2010:2). Gudynas (2010) explores the developmental approach of neo-extractivism in a progressive government. He identifies various combinations of old and new components of extractivism. Neo-extractivism especially under a progressive government is an improvement in comparison to conventional extractivism considering the objective of sustainable development. However, old attributes from conventional extractivism remain as relevant as new and innovative ones. Brazil established a social fund taking a percentage of oil revenues to invest in social programmes like projects for poverty alleviation, education, culture and technology or environmental quality (Moreira, 2011:3-4). This fund grants Brazil the opportunity to finance social programmes that are necessary to increase the standard of living, but environmental and social degradation, such as the destruction of biodiversity remains largely uncontrolled, due to the construction of new infrastructure to improve the transport system (Verdum, 2010:2-3).

Major challenges within a country like poverty and inequality receive high attention during debates on policies and regulations. Although there is an awareness of social and environmental impacts and they are considered in specific ways, natural resource extraction and export remain a priority for economic growth and the foundation of the development approach (Aguilar, 2012:7). For example, South Africa considers existing challenges in various forms in policies for instance through environment impact assessments (Du Pisani and Sandham, 2006), but coal mining is a

dominant source of energy for electricity, and various minerals are a significant part of South Africa's economic structure (Peter and Swilling, 2011:5-8).

Post-extractivism:

In post-extractivism development is viewed from a different angle, which includes admitting the rights of nature in strategies and recognising natural resources as a finite component of the earth. These aspects are fundamental, and they require a different mind-set from participants like citizens, companies and the state (Aguilar, 2012:8). The shift from economic growth to other priorities like the eco-system or social development is an extensive transformation. Post-extractivism allows a broader view of development (Gudynas, 2011:441). Resource extraction remains but the pressure on raw material extraction as the highest priority of the local economy is reduced through the process of diversification, increased opportunities of employment and taxation policies (Aguilar, 2012:9). Ecuador adopted a new constitution in 2008, in which nature was declared as an entity with rights. This constitution started a new path of development in Ecuador, dominated by the left-wing government. As a result new initiatives were implemented to limit the pressure on nature (Arsel, 2012:161). For instance, the Yasuni-ITT initiative proposed leaving the oil in the ground in return for a financial contribution from the international community. While this approach and resulting projects are remarkable and necessary to improve the condition of the eco-system, practical outcomes are questionable. Economic aspects are still the priority and additional socio-economic challenges appear despite the role assigned to nature within country's development path (Arsel and Angel, 2010:204). Therefore, a complete transition to post-extractivism has not been achieved yet in Latin America, but some components of post-extractivism can be identified in different sectors. In contrast, Africa current primarily practices conventional extractivism with a growing tendency towards neo-extractivism.

2.3. Extractivism in Africa

The term extractivism is not directly used in literature about Africa, despite the fact that various aspects of the extractive industry sector in Africa have been analysed and discussed in similar ways to the extractivism approaches of Latin America (Buchholz and Sturmer, 2011:18-20). Like Latin American countries, many African countries base their economies on natural resources. Challenges as a result of extractive industries are a burden for further development in Latin America and Africa which are both classified as regions with developing countries (World Bank, 2009). Various reports – for example the UNCTAD and McKinsey reports - present Africa as a dominant provider of natural resources with a strong influence on the global economy (see Section 2.5; Swilling, 2012:17).

In Africa resource extraction is the second largest economic sector following agriculture (Sturmer, 2010:5). Analysing the total exports of Africa, minerals, metals and fossil fuels contribute a significant portion of the total exports. While fossil fuels account for 75% of Africa's total exports, metals and minerals accounted for 11% and 7% of export flows in 2008 respectively (UNCTAD, 2012:41-42). Due to the importance of natural resource exports in Africa, the boom of commodity prices has been an essential driver for Africa's economic growth by causing export revenues to rise (Buchholz and Sturmer, 2011:18).

Furthermore, foreign direct investments in African countries have increased as a result of the commodity boom (Sturmer, 2010:5). China, one of the main investors in Africa, has experienced an increasing demand for raw materials, which is slowly levelling off. This led to their investments in the African extractive sector with the aim of satisfying the local demand for goods which requires raw materials (Kelley, 2012:38). Africa is not only currently a source of raw materials, but has an enormous potential for further discoveries. Advanced technologies that were not feasible in the past, facilitate new discoveries. Because of the increasing demand for raw materials, the undiscovered potential and improved technologies, Africa will continue to be an essential role player in the global economy. However, political instability like civil wars and poor governance limit the accessibility and attractiveness of Africa (Buchholz and Sturmer, 2011:20-22).

Although economic benefits from the increased activity of extractive industries are often seen as an initiator of growth, the danger of intensive extraction is its impact on the eco-system and human society. The extractive industry is classified as one of the most dangerous industries in the world (Aguilar, 2012:7). Furthermore, economic growth based primarily on natural resources is short-term, with various negative consequences such as inefficient planning or limitation of long-term projects, and reduced improvement of living standards within a resource-rich country (Lahiri-Dutt, 2006:15). This leads to a critical discussion of the natural resource curse in countries with resource intensive economies.

Latin America has changed in various aspects compared to Africa, and resource extraction is debated within the framework of extractivism. The state achieved various forms/levels of control over natural resources with economic growth and social welfare as the priority of the government. The perspective of viewing nature as an entity with rights, and natural resources as having physical limitations supports the transition towards a reduction of social and environmental impacts and encourages the implementation of new structures, strategies and technologies. Although, extractive industries are not completely removed, the domestic economic system transforms resource extraction and export into economic diversification (Aguilar, 2012:8-9). However, the resource curse dominates the African context of resource extraction, due to the lack of development in spite of intensive resource economy and the limited role of the state in the extractive industries.

2.4. Resource curse

Natural resources are precious and valuable in various ways. It is generally assumed that countries with these treasures should take the leading role in the world economy. However, empirical research has identified the limited benefits of dependence on natural resources. Auty (1990) and Gelb (1988) were the first researchers who identified the “resource curse” or “paradox of plenty” phenomenon. Gelb (1988 in McFerson, 2010:336) analysed the effects of oil resources on six developing countries from 1973 to 1979. The result showed that the profits of oil resources are seldom used for beneficial and inclusive development. The performance of countries with oil resources was worse in comparison to countries without oil resources. Evidence of the resource curse in countries with hard-rock minerals and oil resources was highlighted by Auty (1993 in Ross, 1999:300).

Advocates of the term “resource curse” argue that there are distinctions between the different types of resources. Sachs and Warner (1995) present a clearer picture of the resource curse by examining the economies of ninety-seven countries between 1971 and 1989. Their studies were based on the fundamental work of Auty (1990) and Gelb (1988) and they analysed the effects of natural resource exports on economic growth. They observed that resource abundance had a negative influence on the economic growth of the 97 countries investigated. Based on these studies, the decelerated economic growth within a resource-rich country was commonly identified; however, there is no agreement on which factor is the dominant initiator of the resource curse phenomenon (Ross, 1999:297).

Various indicators have been identified as main initiators of the resource curse in resource abundant countries. However, the lack of collectively accepted indicators of the resource curse is primarily due to the different views on the major economic driver (Sachs and Warner, 2001:833). Economic and political aspects of the resource curse are primarily analysed and empirically supported (Sachs and Warner, 1995). For instance, Kelley (2012:36) divided the resource curse into three parts, which are the phenomenon of the Dutch disease (exchange rate appreciation), price fluctuation of commodity prices, and political and institutional effects. These three factors are explained in the following paragraphs. Although, social aspects are crucial and have possibly extensive effects, it is difficult to assess them (Ross, 1999). Ross (1999:309-312) viewed the cognitive and societal explanations of the resource curse critically, but limited empirical evidence is available. Therefore, in this review the focus is on the economic and political aspects of the resource curse.

2.4.1 Economic view

As discussed in the previous chapter, numerous countries in Latin America and Africa follow the path of a resource intensive economy, which results in various challenges for development. These

countries are mostly underdeveloped or developing. Therefore, a detailed analysis of economic factors for resource-rich countries based on Kelley's (2012:36) classification and relevant related literature is crucial and these are outlined in the next paragraphs.

Dutch disease

Although, there is no collectively accepted evidence of the Dutch disease being the main reason for the resource curse, some researchers identified it as one of the key economic aspects of the resource curse. Dutch disease refers to what happened in the Dutch economy after the discovery of oil in the North Sea. Due to the sharp increase of resource exports, the exchange rate of the affected country appreciates and damages the export market of domestically produced goods. Manufactured goods, agricultural products and even local services become more expensive, which initiates the tendency of high resource exports and limited diversification (Kelley, 2012:36). In empirical research this phenomenon is debated in different ways. Gelb (1988) countered that only four out of seven analysed countries have shifted away from the manufacturing industry and agriculture. Other studies showed the burden on agricultural products rather than on manufactured ones in countries with mineral resources (Ross, 1999:306). Based on contrary evidence a variety of experiences of resource-rich countries were identified, which was also supported by Auty (2001) who analysed different case studies with a wide range of results (Bulte et al., 2005:1030).

Commodity prices and diversification

The challenge with natural resource exports is the volatility of commodity prices. Although commodity booms influence economic growth positively (McKinsey, 2010:1), they are identified as short-term due to sharp fluctuations of commodity prices. Hence, resource intensive economies are vulnerable as a result of resource/commodity price volatility (Lahiri-Dutt, 2006:15). The economy of such a country blooms when commodity prices are high, but a decline in prices due to various external influences leads to cuts in governments' public spending and to dropping living standards (Kelley, 2012:36-37). However, a diversified economy buffers an economy and helps it to survive commodity shocks (Kaplinski et al., 2011:2). This highlights the significance of diversification from a resource-export driven economy to the development of a local manufacturing capacity, which is rarely considered in conventional and neo-extractivism.

High amounts of raw materials are exported to Europe for the manufacturing process and the final product is imported back to Africa at higher cost (Fischer-Kowalski and Swilling, 2011:95-96; Fukunishi, 2004:1). This import-oriented structure is not beneficial in Africa's long-term development. The focus on raw material exports leads to a reduced manufacturing industry within African countries and thus the economic structure is rarely diversified (Gylfason and Zoega, 2006:1098). Thus Africa's form of neo-extractivism and progressive neo-extractivism is trapped in

the old structure of conventional extractivism in which economic profits of extractive industries are seen as sufficient with the confidence of the appearance of a trickle-down effect. This effect assumes the automatic distribution of benefits from companies and politicians to every citizen (Aguilar, 2012:9-10; Gudynas, 2010:10). Emphasis on resource extraction and export without further diversification results in the same development barriers as are faced by countries practising conventional extractivism, such as short-term profits, limited job opportunities and poverty.

Savings and investments

Another aspect of the resource curse in Africa is the continuous reduction in savings and direct investment in basic public and social amenities, and services such as basic education (Gylfason, 2001:850). Commodity revenues are volatile and short-term, which undermines savings for future generations, but resource-rich countries rarely consider the long-term view (Swilling, 2012:1; Collier, 2010:1121). Based on Gylfason and Zoega's (2006:1093) report, the distinguishing factor between growing and stagnating economies is the reinvestment of revenues. Unfortunately, resource rich countries rarely see the importance of these reinvestments due to the focus on short-term commodity revenues (Bremmer and Johnston, 2009:157). According to Swilling (2012:17) reinvestment has to take place primarily in infrastructure and human capital to achieve long-term economic growth. Infrastructures associated with various extractive industries are highly prioritised in the investment process due to the economic benefits of more efficient resource extraction (Zafar, 2007:123). Additionally, the limited role of the government results in difficulties of a beneficial distribution of foreign investment for a majority of citizens (Gudynas, 2010:3; Ross, 2001:6). While investment is essential for development, the question of benefiting parties is significant as well (Mohan and Power, 2009:26). For instance, China achieves profits due to improved infrastructure in Africa, but there is no or limited national growth for African countries. China prefers to use its own low-cost workers in construction processes; therefore, Africa has no improvement in human capital through new investments in infrastructure (Zafar, 2007:124).

Empirical evidence highlights the connection between lower reinvestments of revenues in education and resource abundance within a country. Resource-rich countries prefer to emphasise their natural capital without considering the importance of other aspects of their development (Gylfason, 2001:850). Although criteria of the resource curse are primarily a result of conventional extractivism, neo-extractivism also prioritises the economic benefits of extractive industries and ignores additional development opportunities (Gudynas, 2010:13). The difficulty of resource-rich nations is that the natural-capital is often controlled by an elite group while the needs of the rest of the society are forgotten. This happens regardless of the amount of revenues earned (Isham et al., 2005:147). Additionally, resource intensive industry requires numerous low-skilled workers; in such cases citizens earn only enough to survive and there is no opportunity for them to improve their skills (Gylfason, 2001:858). Neo-extractivism is seen as the new developmental approach of

extractive industries in Latin America but it does not create enough job opportunities nor solve the problem of poverty and inequality. In other words, the problems are similar to those associated with conventional extractivism (Aguilar, 2012:7).

2.4.2 Political view

Politics play a significant role in the economic performance of a country. Without an effective state, economic development cannot proceed (Collier, 2010:1109). Resource rents have various negative effects on a political structure (Ross, 1999:308). The assumption of a trickle-down effect from the profits of elites to the average resident is misleading and cannot be practically guaranteed (Mohan and Power, 2009:26). Therefore, the political system has to consider some critical aspects with regard to a resource-intensive economy.

Accountability and security

Collier (2010:1106) identified security and accountability as the essential criteria for an effective government. The government in a resource-rich state is less accountable (Kelly, 2012:37). Due to resource rents, limited taxation takes place, which reduces the awareness and importance of citizens for governmental actions. This lack of awareness initiates more actions and responsibilities for the state in the developmental approach of neo-extractivism for instance through imposed taxes, tariffs or licences (Gudynas, 2010:8). Furthermore, resource rents are accompanied by quick but short-term income. These windfalls are corrupt especially for unstable governments (Sandbu, 2006:1155-1156). Therefore, checks and balances are needed to control corruption (Kelley, 2012:37).

Literature has shown that there is a relationship between civil war and natural resources in Africa (Swilling, 2012:2-7). High commodity prices are likely to exacerbate political problems. One possible aspect is the nurturing of rebellions due to commodity exports. For instance, diamonds financed revolts in Angola. Additionally, natural resources initiate the desire to capture revenues mostly in corrupt ways. Sometimes rebellions start off by being political parties, but they turn to loot-seeking due to the attractiveness of resource rents. The lack of regulations makes it easier for rebellions to break out (Collier, 2010:1110-1112). While Africa faces different types of conflicts due to natural resources such as revolts financed by resource revenues, Latin America primarily struggles with protests against resource extraction. These protests appear even where a progressive government follows the principles of neo-extractivism (Gudynas, 2010:7).

Furthermore, resource rich-countries have higher chances of policy failure (Ross, 1999:308), and even with a democratic structure, resource rents limit effective governance (Kelley, 2012:37) due to corruption. Elections are not the essential criterion for the solution of political instability with natural

resources (Collier, 2012), rather there is the need to implement checks and balances supporting accountability and effectiveness of the governance (Kelley, 2012:37).

The role of the state

The state plays an essential role in resource discovery, extraction and the spending of revenues. Natural resources are a common good with ownership by all citizens (Sibaud, 2012:11). The state is the representative tool to manage these collectively owned goods (Fine, 2012:9). Beside the long-term view, the government has to consider the possible fluctuation of volatile commodity prices. Investments, to achieve long-term growth, have to take place in the case of new discoveries, public goods and liquid assets. Furthermore, extraction, export and revenue consumption has to be balanced (Collier, 2010:1117-1125). The significance of an active role of the state is identified by the debate about resource nationalism which is presented as a solution to resource problems (Bremmer and Johnston, 2009). Neo-extractivism supports the principle of direct and indirect state interventions in the extractive sector. While Latin America is influenced by political change in the direction of left and progressive government (Gudynas, 2010:1-2), African states are weak (Kelley, 2012:37) and partly passive with regard to the required actions and responsibilities (Fine, 2012).

Government is an essential factor for the management of resources and related economic growth. Weak institutions increase the risk of mismanagement and the negative influence of resources on the political system. The assumed trickle-down effect from the profits of extractive companies and politicians to an average citizen is dominant in past and currently existing structures without a practical guarantee (Mohan and Power, 2009:26). Therefore, additional tools to provide transparency and support resource management are necessary, in the form of checks and balances, public auctions of extraction rights or taxation (Sandbu, 2006:1156-1157; Collier, 2010:1128; Kelley, 2012:37).

Resource curse is identified as a problem in Africa due to the limited economic growth. Various factors influence further development in countries with resource abundance. A consideration of those factors is relevant for policy and decision-makers. Economic and political aspects like commodity price fluctuation, limited reinvestments and diversification, low quality of government and political insecurity are existing barriers in Africa's development path. The resource curse primarily reflects negative impacts of conventional extractivism, which is the main type of extractivism in Africa, but neo-extractivism is associated with similar patterns and the same challenges rather than new perspectives with additional opportunities.

2.5. Extractive industries as the driver of economic growth

Conventional extractivism in Latin America emphasised the economic profits of extractive industries without due consideration of the negative influences of the extraction process (Gudynas, 2010:3). In Africa and Latin America, extractive industries were a significant component of historical development and were rooted in the colonialism of the continent which presents a variety of experiences. Countries colonised other countries for a variety of reasons but the demand for raw materials enjoyed the highest priority in order to guarantee a sufficient supply of raw materials for emerging European industries. The availability of cheap and over-supplied raw materials resulted in over-production by the manufacturing industry. Therefore, Africa with its high population was then identified as a profitable delivery market; hence, political and administrative control was crucial in order to ensure a stable and continuous stream of export materials and an import market for manufactured goods (Ocheni and Nwankwo, 2012:47-51). Based on these principles, conventional extractivism was established with a lack of long-term and holistic perspectives. These patterns and structures resulting from colonialism and represented by conventional extractivism with regard to natural resources, remained relevant after the independence of African countries. Due to the profitable nature of resources and human greed for wealth, African leaders continued with natural resource extraction and export without further consideration, which resulted in the current extraction patterns and related negative impacts of conventional extractivism (Twineyo-Kamugisha, 2012:17; Ocheni and Nwanko, 2012:51-52).

After the commodity boom between 1973 and 1974, natural resources gained more attention and importance on the global and African agenda. The additional boom that started between 2007 and 2008 encouraged further research and consideration of natural resources (Carter et al., 2011:89-91), following mainly the principles of conventional extractivism based on historical patterns (Aguilar, 2012:5). The opinions of the McKinsey Global Institute (2010) are typical of the optimism with regard to natural resources and their role in the development process of Africa. These considerations include only limited aspects of the pessimistic view of the African continent that influences the global society, as expressed by the economist (2000 cited in Martin, 2008a:339) and Ayittey (1999 cited in Andreasson, 2005:972). The profits of natural resource exports seem to be expected to solve the major problems of the African economy and society. Irrespective of challenges as a result of extractive industries, economies follow mainly the path of natural resource intensity, which is reflected in the McKinsey report (2010:2) and depicted in Figure 2-1. Additionally, the World Bank Report (2011:8) emphasised the increasing volume of natural capital in low and middle income countries which is shown in Figure 2-2:

Figure 2-1: Africa's growing sectors; Source: McKinsey Report, 2010:2

Africa's growth was widespread across sectors

Sector share of change in real GDP, 2002–07

Percent, 100% = \$235 billion¹

Compound annual growth rate, %

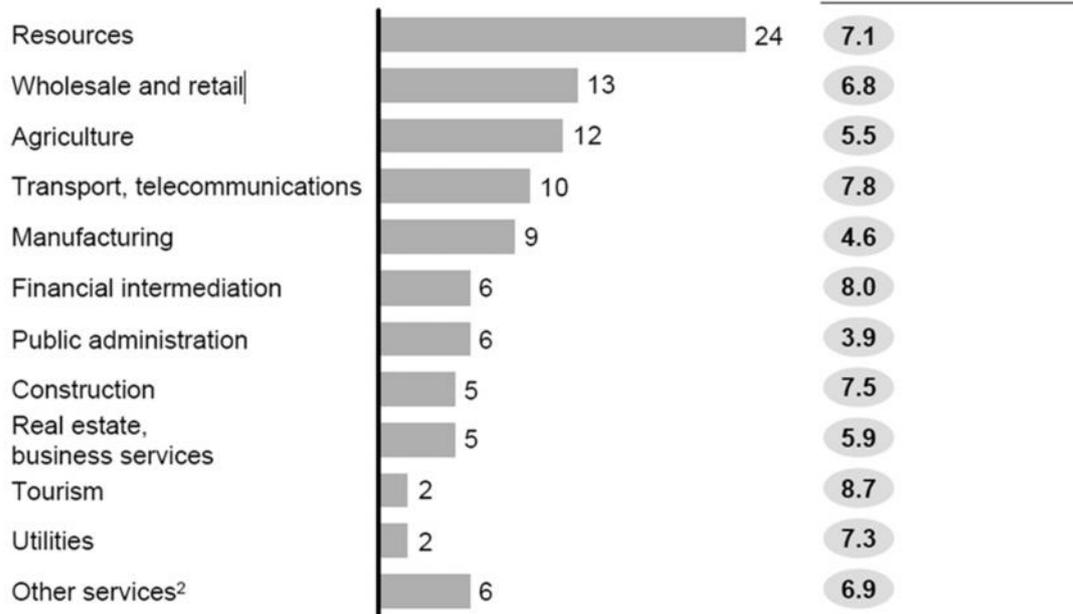
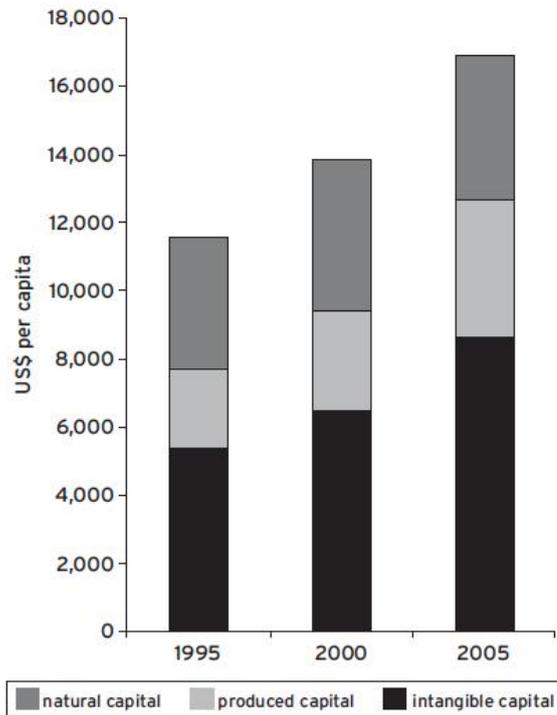


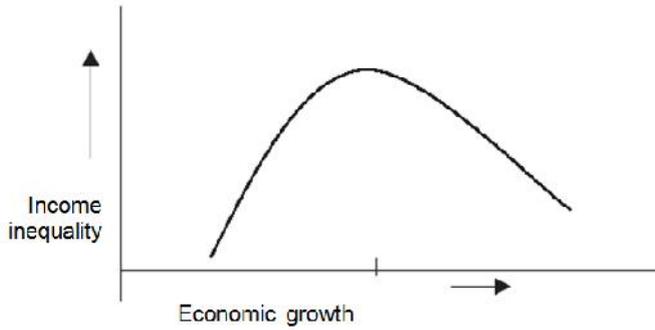
Figure 2-2: Natural capital in Lower-Middle-Income Countries; Source: World Bank, 2011:

Changing Volume and Composition of Wealth in Lower-Middle-Income Countries, 1995-2005

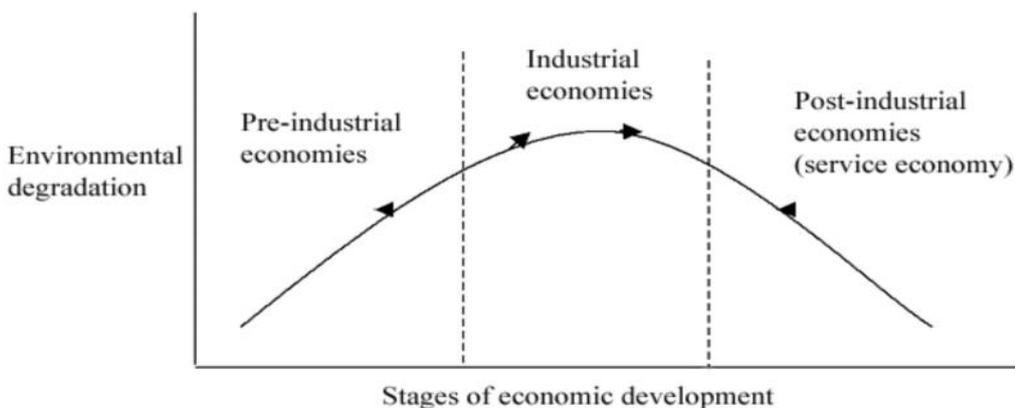


From an economic viewpoint, commodities generate significant revenues in Africa, which are essential in order to limit the existing challenges of underdevelopment. Furthermore, Africa has additional potential for resource extraction driven by high demands on the global market, which shows a strong international involvement in and dependency on conventional and neo-extractivism (Gudynas, 2010:4). Although there is a tendency to increase the non-renewable resource sector, it is characterised as finite. Wright and Czelusta (2004:35) mention the possible extension of non-renewable resource reserves due to exploration, technological process and the improvement of knowledge. This assumption initiates the same principles as conventional extractivism with limited consideration of long-term effects and with optimism regarding future improvements, as described by the environmental Kuznets' curve.

The consideration of environmental impact in the extraction process is devalued by the hypothesis of the environmental Kuznets' curve. In 1955 Simon Kuznets discovered the relationship between economic growth and income inequality and presented it as an inverted U-curve. At the beginning of the curve, income starts to increase, which also increases income inequality. After reaching a turning point, income inequality declines while income continues to rise (Kuznets, 1955 cited in Dinda, 2004:433). This phenomenon is presented in Figure 2-3 below:

Figure 2-3: Kuznets' Curve; Source: Kuznet, 1955

In the 1990s, the Kuznets curve received a new dimension. Based on empirical research an inverted U-curve was identified, by analysing the interconnection and transformation of environmental degradation and income or economic development within a country (Caviglia-Harris et al., 2009:1149-1150). Panayotou (1993 in Dinda, 2004:434) was the first to describe this inverted U-curve as an “Environmental Kuznets’ Curve” (EKC); this was based on the research of Kuznets in 1955 but Panayotou included environmental aspects instead of income inequality. Additionally, economic developmental stages were related to the shape of the curve. The starting point correlates with increasing environmental degradation during the move from agriculture towards an industrialised economy. The curve reaches its peak during the development of industries due to extensive use of resources within a country (Panayotou, 2003:45-46), while income achieves an equivalent growth (Caviglia-Harris et al., 2009:1149-1150). Then environmental degradation decreases during the stabilisation of industries towards a service economy due to sufficient and stable income as an outcome of advanced economic development (Stern, 2004:1419). The described stages of the EKC are summarized in Figure 2-4.

Figure 2-4: Environmental Kuznets’ curve; Panayotou, 2003:46

According to the hypothesis of the EKC, Africa can stop thinking about further environmental risks resulting from extractive industries due to the automatic transition towards service industries. The continuation of a resource intensive economy would be feasible because critical environmental impacts will decrease automatically after the achievement of a specific standard of economic development. As in the conventional extractivism and neo-extractivism, economic development remains a high priority in the EKC with the danger of an expanded phase of industrial economies dominated in Africa by the extractive industries.

Although, there is an enormous amount of literature available which supports and analyses the theory of the Kuznets curve (Giovanis, 2013; Azadi et al., 2011; Rock and Angel, 2007; Panayotou, 1993), other authors view it critically (Stern, 2004; Cole, 2003; Dina, 2004). For instance, Cole (2003:560-562) criticises various aspects of the methodology and interpretation of results in the EKC theory. He highlights the issue of the practical application of the environmental Kuznets' curve and the needed time frame for reaching the turning point. Similarly, Dinda (2004:434) points to the ambiguity of the EKC development with regard to time. Generally, it is seen as a long-term process, but an estimation of the time needed for each stage is not analysed. Viewing past experiences could bring more clarity but this clarity is limited due to the increasing pressure on the environmental system in recent times compared to the past (UNEP, 2010; Swilling and Annecke, 2012:29). Faster progress in the alleviation of environmental degradation could be brought about by improved technology and advanced knowledge (Wright and Czelusta, 2004:35).

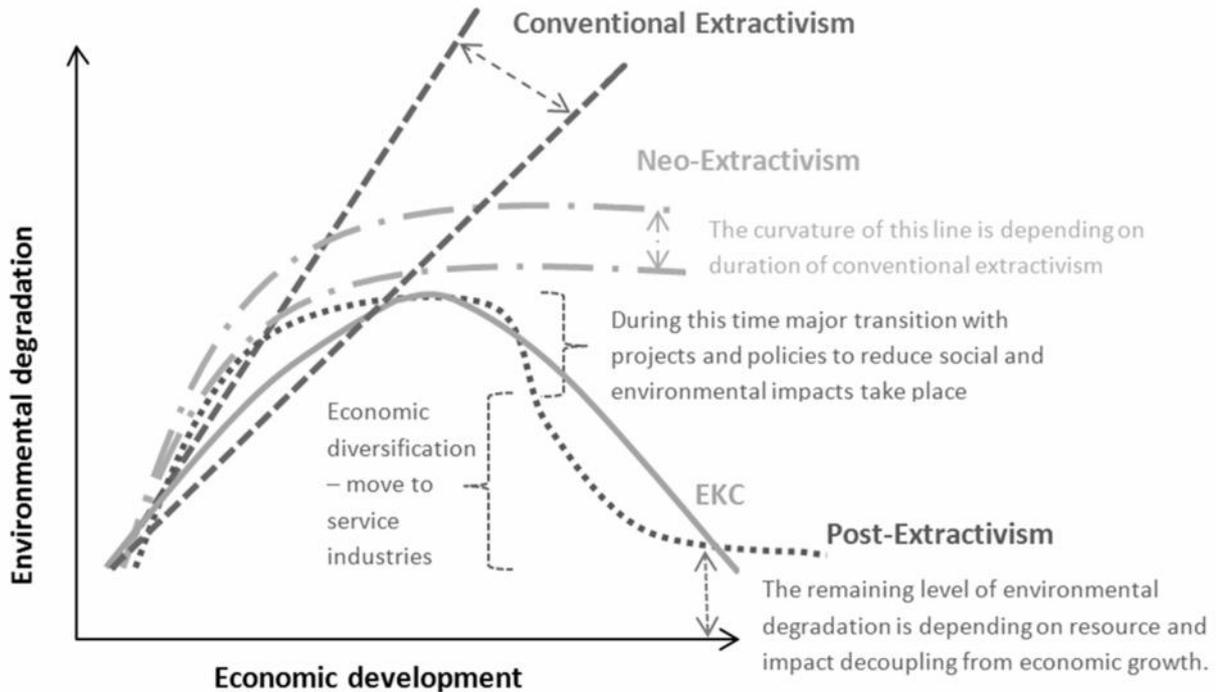
When applying the approaches of extractivism and the current status of Africa's development to the theory of the EKC, different forms appear. Conventional extractivism, which is the dominant approach in Africa, is followed by a sharp increase in environmental degradation with limited economic growth based on the resource curse phenomenon. It could be assumed that conventional extractivism follows the principle and shape of the EKC due to increased awareness of environmental value as a result of improved development, but past experiences in Latin America and Africa rather point to an increase of risky environmental impacts when following the approach of conventional extractivism which makes the automatic transition based on the EKC most unlikely.

Conventional extractivism has primarily taken place since the exploration of significant natural resources like fossil fuels in Africa, which increased environmental degradation. A stabilisation of environmental degradation with further economic growth and a consideration of resource nationalism could be achieved via a transition towards neo-extractivism as the first step of transition and secondly towards post-extractivism. Post-extractivism most certainly leads to a sharp decrease in environmental degradation due to the transition from existing mind-sets and approaches towards prioritised environment and social systems. In post-extractivism economic growth through resource extraction is not seen as the highest priority, the economy is focused on diversification for stability and growth (Aguilar, 2012:8). Thus, the form of the 'curve' is dependent

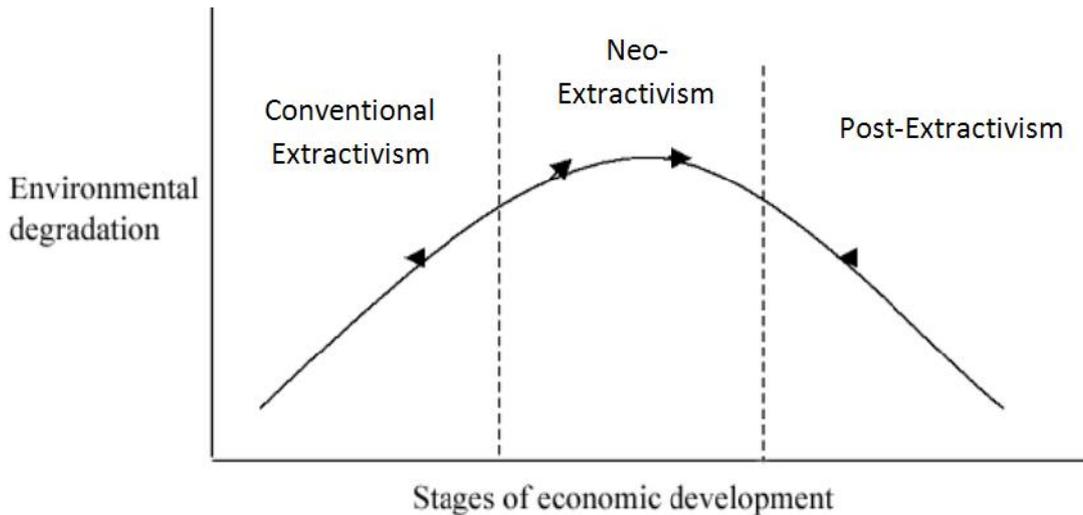
on the type of extractivism approach and the current status of Africa's development regarding extractive industries which is depicted in Figure 2-5.

Figure 2-5: Extractivism in Africa based on EKC theory

*Assuming Africa's development status in which conventional extractivism is the first and currently existing stage, the picture presents possible outcomes based on the chosen approach.



Additionally, Figure 2-6 shows the most reasonable transition based on the current development status of extractive industries in Africa and the experience in Latin America. Currently the majority of African resource-rich countries follow the path of conventional extractivism, with some exceptions which have implemented policies and tools associated with neo-extractivism principles. Although, there is no country in Africa which practises post-extractivism, this approach reduces environmental degradation significantly, while the economy is constantly growing, which is the final objective of sustainable development. Achieving the shape of an inverted U-curve as stated by the EKC, the transition starts from conventional extractivism and changes to neo-extractivism and finally to post-extractivism.

Figure 2-6: Developmental stages of extractivism in Africa

The strategy of “pollute now and clean up later”, however, is based on the same principles as the environmental Kuznets’ curve. Following the example of developed countries, developing countries need to achieve a specific standard of development to make pollution mitigation feasible. Azadi et al. (2011:78) declared the development path of “pollute first and clean up later” as inevitable. Risks of pollution like in the history of Western countries are eliminated due to improving and faster adapting technologies. Additionally, Azadi et al. (2011:79-81) highlight the relationship between education and environmental degradation and state that uneducated citizens value the cleaning process of nature less than educated people do because education increase the awareness of the importance of nature. Thus, improved education is strongly linked to improved development within a country. This interconnection encourages the ‘unavoidable process’ of growing before environmental protection can be relevant (Azadi et al., 2011:79-81). This statement is based on the assumption of an increasing/improving education system within a country, while economic development is advancing, although Gylfason (2001:850) criticised the limited reinvestment of profits from natural resource exports by resource intensive developing countries in education. This is a major problem associated with conventional extractivism (Gudynas, 2010:2). However, following the principle of the environmental Kuznets’ curve would give relief to extractive industry regulations. Conventional extractivism as explained in the previous paragraph (see Section 2.2) would remain until the achievement of a specific developmental level and a transition towards neo-extractivism or post-extractivism. The questionable aspect is the time available for such transition before the country will have to deal with more serious and possibly irreparable damages. As presented in Figure 2-5, various options of lines are possible based on the type of extractivism, while the EKC or inverted U-curve requires an initiated transition from conventional extractivism to neo-extractivism and post-extractivism due to limited assurance of an automatic change. Without this transition Africa will be left with increasing or continuing environmental degradation.

2.6. Risks of extractive industries

Critical analysis of the pros and cons of conventional extractivism reveals deeply rooted issues. The extraction of natural resources increases risks in various areas, in which Africa requires improvements in order to achieve a higher standard of living (Daly, 1991 cited in Panayotou, 2003:45). When examining the importance of natural resources as presented in the previous paragraph, it can be seen that general considerations emphasise export growth rather than the improvement in living standards. This is to the disadvantage of the most vulnerable citizens within each country (McKinsey, 2010; Ross, 2001). This situation is based on the general assumption that economic growth will solve all problems and that the citizens will achieve a better standard of living (Ross, 2001:9). When reviewing development strategies, it is obvious that economic growth is highly prioritised while environmental quality and social capital take the backseat due to the appearance of theories which support automatic transformations over time, such as the EKC (see Section 2.5; Andreasson, 2005:979). This mind-set is represented primarily by conventional extractivism causing various social and environmental impacts.

Natural capital is an important contributor to the quality of life of humans, and it represents various functions essential to every individual directly or indirectly. The main manifestations of natural capital are air, land and water with various goods and services like different resources as sub-categories, which are mainly used to fulfil human needs (Andreasson, 2005:979). Economists tend to see only a narrow picture of human well-being with a growing economy as the major indicator, as presented in conventional extractivism. Economic growth generates profits for the whole country, which could be used to build infrastructure, to implement proper social services and to find substitutes for lost natural capital through improved research and development. Although humans are creative and innovative in finding solutions for numerous existing and occurring problems, natural capital cannot be replaced completely by human made substitutes (Costanza and Daly, 1992 in Costanza et al., 1997:255). Nature plays a significant role of every individual's life directly or indirectly, and thus it is important to protect it and to consider it in further development strategies and activities (Andreasson, 2005:979). If serious environmental facts and consequences are further ignored, the environmental quality will rapidly decrease and therewith the quality of life (Daly, 1991 cited in Panayotou, 2003:45). Therefore, the continuing and intensive destruction of the natural environment and the resulting negative impacts demand urgent attention to incorporate environmental quality into the African development process by adapting the neo-extractivism approach.

While natural resource availability is finite, economic interest in these resources increases. Based on the empirical evidence, higher resource prices are assumed to reduce extensive resource extraction and higher prices are profitable for economic growth (Krautkraemer, 1998:2066). The

extractive industry in Africa benefited from the commodity boom (Collier, 2006:1). However, limited effective actions were taken to ensure that environmental conservation would reduce the rate of natural resource extraction and related environmental and social impact (Behrens et al., 2007:451-452). This supports the need for an initiated transition from conventional extractivism to neo-extractivism rather than an automatic reduction of environmental degradation due to economic growth (see Section 2.5). The extractive industry plays a significant role in Africa's economy (Schandl and Eisenmenger, 2008:167-137). Therefore continuous extraction is necessary to sustain the economic cycle and especially the incoming revenues, which are essential for further development in developing countries (Twineyo-Kamugisha, 2012:11-13). Unfortunately, resource extraction involves environmental destruction, land and water theft, conflicts and pressure on citizens (IANRA, 2012). These aspects are underestimated and ignored by economists and politicians in conventional extractivism, and environmental and social impacts being seen as sacrifices for greater benefits (Gudynas, 2010:7).

Colonialism generated environmental debt due to irresponsible extraction of resources in the global South. While achieving the benefits of natural resources, Southern countries faced environmental destruction which had a big influence on the local population (Ocheni and Nwanko, 2012:51-52). Furthermore, colonising countries imposed production patterns on host countries based on their own needs rather than on the common good, shaping principles of conventional extractivism which resulted in long term negative consequences for Southern countries (Aguila, 2012:5). McLaren (2003) argues that European countries were able to develop their standard of living and economic structure only due to exploitation of African resource deposits. Unequal distribution patterns result from this interference in the past, which lead to the discussion of obligations to pay back "environmental/ecological debts". Even if the agreement of European countries to pay off their debts can be achieved, challenges of an accurate measuring process will appear (McLaren, 2003:30-32).

Rural areas in Africa depend primarily on agriculture (Sturmer, 2010:5). Land and water is an essential driver for the productivity of agriculture, as well as the source of livelihood of numerous citizens (IANRA, 2012). In the context of extractive industries, land grabbing receives a supplemental meaning. While the grabbing of land involves generally a violation of ownership rights because locals are forced to leave their land to allow industries to extract natural resources, the whole eco-system is destroyed by these activities which influence even more citizens negatively (Sibaud, 2012:11). Extraction pollutes the soil and water through leakage of toxic chemicals. A deep entering into the earth cannot be practised without more or less severe damage to the eco-system. These procedures affect the citizens directly dependent on the land, the surrounding area and even the global community in terms of climate change (Sturmer, 2010:4; Ekins et al., 2003:169-171). Due to pollution and land theft, food security is threatened which is dangerous for Africa with a rural poverty rate of about 87 per cent (IANRA, 2012).

In Nigeria, oil resources dominate the Niger Delta region, and extraction is based on predatory extractivism principles (Aguilar, 2012:9). The Ogoni people, who make up the major part of the ancestral community living in the Niger Delta or Ogoniland, face the serious consequences of extraction activities (Sibaud, 2012:20). According to UNEP (2011 cited in Sibaud, 2012:20), the soil in Ogoniland is polluted up to 5 metres deep, and water sources, which are the only drinking source for citizens, are also polluted. The levels of benzene in the water and air are approximately 900 times above the defined level of the World Health Organisation standard. Benzene is a chemical compound known to cause cancer (UNEP, 2011 cited in Sibaud, 2012:20). These environmental damages increased the level of poverty dramatically due to the dependency of citizens on nature. Before the discovery of oil, farming and fishing were the main economic activities. The community depended solely on nature as their source of livelihood (Aluko, 2004:64-66). According to UNEP's estimations, the cleaning up process of the land and water system will take about 35 years and will require about one billion US dollars to start with (UNEP, 2011 cited in Sibaud, 2012:20). Due to unequal distribution of oil revenues, citizens of the Niger Delta felt ignored and demonstrated their frustration in the form of non-violent protests (Manby, 2000:1). As democracy was institutionalised in 1999, people hoped to find peace but the new government underestimated these protests and deep-rooted problems. As a result of the limited response to protests, violence occurred when the citizens of the Ogoniland fought for their rights because they were left without future expectations and reimbursement (Ikelegbe, 2005:208-209). This local movement became more military. The "Movement for the Emancipation of the Niger Delta" about which reports often appear in the media because of kidnapping, sabotage and attacks on security forces, has the goal of local control over natural resources and is an example for violent movements (Obi, 2009:121-123). Violent movements have been identified as being indicators of the resource curse. As seen in the example of Nigeria, these conflicts appeared due to limited consideration of social and environmental challenges which were primarily ignored in conventional extractivism and partly in neo-extractivism (Gudynas, 2010:7).

As shown by the example of the Niger Delta, social aspects affect the entire community. Women and poor citizens are more vulnerable and thus highly influenced by the social impacts of extractive industries. Sexual abuse and rape are common in mining settlements. Women, with a desperate need for an income, offer domestic and sexual labour. This occurrence increases health problems especially the rate of HIV (IANRA, 2012). Extractive industries require low-skilled workers, and these positions are usually filled by local citizens (Gylfason, 2001:858). The death rate at work is enormous and some workers are employed illegally with limited employee protection (Aguilar, 2012:7). Extractivism challenges citizens on a daily basis and threatens the dignity of humans and especially of women (IANRA, 2012). Therefore, protests take place in various ways, but these are often ignored in conventional and neo-extractivism (Gudynas, 2010:7). These protests either take the form of peaceful or violent demonstration and they critically affect political stability and economic efficiency.

These are examples of some aspects of the additional pressure of extractive industries on poverty. Although poverty is a broad term, various measurement tools exist (Väyräryne, 2005:11). The Human Development Index (HDI) is a highly supported and used indicator for measuring the level of poverty. It combines data of income, education and health within a country and this information is used to define the standard of living in a country. As expected and as shown by the example of the Niger Delta, resource intensive economies are unable to improve the conditions of the poor. Economic growth is declared by experts to have a positive influence on the poverty rate within a country (Ross, 2001:6-8). Although the practitioners of neo-extractivism do take poverty into consideration, they assume that society will benefit due to a trickle-down effect (Gudynas, 2010:10). However, recent statements highlighting the positive effects of economic growth in resource-rich countries (see Section 2.5) are contradicted by the problems experienced and the low levels of human development (UNDP, 2013). Botswana as an example of a neo-extractive country in Africa still experiences poverty and inequality despite the transition from conventional extractivism to neo-extractivism (Aguilar, 2012:6; see Section 5.8).

The emphasis on economic growth rather than on the standard of living is questionable. According to Ross (2001:9) there are different types of economic growth and this distinction is relevant to poverty alleviation. Pro-poor growth increases opportunities for poor citizens and decreases difficulties like the limited health system or education access. Resource-rich countries struggle with the quality aspect of their economic growth. Various indicators and resulting challenges have been analysed in various ways which are presented in the discussion of the resource curse in Section 2.4. Because of these barriers to economic growth with high quality, and the fact that extractive industries generate an increase in poverty rather than alleviation, specific actions should be taken to realise the opportunities and reduce the risks associated with extractive industries which is discussed in the next section. The transition to post- or neo-extractivism requires more than keeping the traditional structures in place and continuing with the old strategies with the emphasis on easily gained short-term revenues.

2.7. Opportunities created by extractive industries

The ultimate goal of development is to improve the standard of living of all citizens, especially the poor (Moss, 2007:2-3). In this process, economic growth is an essential role player (Ross, 2001:9), and in the case of Africa natural resources are the dominant factor in the economic system (McKinsey, 2010:2). There are various predictions and opinions on possible future development trajectories of Africa, as described in previous paragraphs. For instance, Collier (2008a:205-210) outlined three possible development paths for Africa (see Table 2-3). The first option is guided by China as role model, where the economy experienced a strong boost while political growth and human rights remain limited. The second possibility describes a state in which economic growth

supports the political transition towards stability, while the third possibility presents economic growth as a short-term experience without improved living standards as a result of the economic short-term boom (Collier, 2008a:205-210). Keeping in mind the overall objective of development, which is to improve the standard of living, the first and last options are not preferable for Africa. Unfortunately, the historical importance and role of raw materials has encouraged African countries to rely on their natural resources without developing in a broader and more sustainable way (Swilling, 2010:1). This dependence on natural resources in the form of conventional extractivism can easily lead to the third option discussed by Collier (2008a:209-210), which is risky especially for Africa and the economic system. A transition towards neo- and post-extractivism is required to provide a foundation for the second option of development.

Table 2-3: Possible Economic Paths for Africa; Source: Collier, 2008a:209-210

Possible paths	Description	Consequence(s)
1. Strong growth	Remaining political instability	→ Limited change on the level of inequality
2. Transitional growth	Economic improvement supports political transition	→ Long-term transition depending on regulations
3. Short-term growth	Limited benefits due to short-term economic boost	→ Short-term benefits with long-term consequences

According to the theory of the resource curse, various factors influence the economic growth of a resource-rich country (see Section 2.4). Ross (2001:9) mentions the different types of economic growth; these can be grouped as either high or low growth quality. Specific aspects have to be considered in order to achieve high quality growth. Some of these aspects support the second option of Africa's development path as described by Collier (2008a:209-210). High quality growth cannot be achieved by conventional extractivism, the narrow consideration of economic growth and the non-inclusion of other essential aspects which influence the standard of living.

According to Ross (2001:6), economists in the 1940s to the 1960s, saw oil and mineral resources as an opportunity to escape the poverty trap. Based on the "staple" theory, extractive industries or natural resources attract foreign investments and the resulting revenue can be used for

reinvestment. This process allows resource-intensive economies to move from, for instance crude oil exports, to the export of manufactured products like plastic resins, which would be a transition from conventional extractivism towards neo-extractivism. As a final outcome, the economic system is more diversified and income is more stable. However, due to limited transition, African countries have achieved the first aspect of this hypothesis, while the reinvestment and diversification processes were not implemented (Gylfason and Zoega, 2006:1098). Accelerator and multiplier effects are rooted in investments (Sowa, 2006:4), which are essential for economic growth. Historically, Africa did not emphasise this principle of reinvestment because principles of conventional extractivism were followed. Colonising countries took their profits and left Africa with minimal benefits. Although, some aspects of the colonial era belong to the past, Africa now faces the difficulty to improve the colonial structures in order to improve the accelerator and multiplier effect by domestic reinvestment of revenues to increase the overall economic growth within the continent (Ocheni and Nwanko, 2012:52).

Walker and Jourdan (2003:25) identify the key aspect of economic success in resource rich countries like Australia, Norway and Canada as economic diversification. Extractive industries are only used as a stepping-stone in a diversified economy. Gylfason and Zoega (2006:1093) state that savings and investments are key indicators for a successful economy in resource-rich countries. These statements are not necessarily a contradiction. For the diversification of an economy, new investments and savings need to be arranged (Ross, 2001:6). Savings could occur in the form of liquid funds or investments which are used to prepare for fluctuations and possible loss (Sala-i-Martin and Subramanian, 2003:18; Sandbu, 2006:1158). However, the crucial decision about the amount and the place of investments has to be made (Collier et al., 2010:85). This could be challenging in the case of Africa's unstable institutions. According to Swilling (2012:17) investment in social capital and infrastructure are essential in the process of sustainable growth. While neo-extractivism encourages reinvestment in social projects, the diversification of the economy based on the neo-extractivism principle is limited. There are a variety of ways in which savings and investments can be used. The priority of diversification should be the creation of economic stability and an increase in job opportunities, as emphasised in post-extractivism (Gudynas, 2010:7-9).

Kelley (2012:38) assesses Chinese investment in infrastructure as a possible cure for the resource curse. Africa's infrastructure is underdeveloped, which reduces productivity due to expensive and time-consuming transportation. Therefore, a reinvestment into infrastructure is needed for further economic improvement. The danger of investment in infrastructure in conventional and neo-extractivism is the focus on narrow aspects of extractive industries without common benefits for the country as a whole and the vulnerable citizens. Furthermore, infrastructure increases the pressure on the environment and could affect citizens negatively rather than positively, as experienced in countries where the neo-extractivism approach is followed (Verdum, 2010:4-7). Resource intensive

economies tend to draw attention to investment in the core business of extractive industries. Manufacturing is limited, although it would diversify the economy, and it would increase technological progress, capacity building and new demand (Kaplinsky et al., 2011:4). The diversification of an economy is crucial to improve a country's competitiveness on the global market (Walker and Jourdan, 2003:25) and to stabilise a country's income flow and position against shocks (Kaplinsky et al., 2011:2).

Diversification does not mean a move away from extractive industries rather it involves the promotion of activities surrounding resource extraction for the benefits of citizens. Diversification is accompanied by an increase in technology-based and labour-based exports like consultancy, equipment manufacturing, further processing or utilisation (Walker and Jourdan, 2003:30; Kaplinsky et al., 2012:19-22). However, skills and knowledge have to be available to realise a diversified economic structure. Implementing different technologies for old or new types of processing requires skilled citizens to work with these emerging technologies (Psacharopoulos and Patrino, 2004:111). That results in job creation or a change in job requirements, which leads to a higher demand for education in order for employees to acquire the required skills, and this can result in a reduction of the unemployment rate (Johanson and Adams, 2004:1-3). Job creation is one of the main objectives of post-extractivism (Aguilar, 2010:8-9). Additionally, available human capital creates new opportunities for absorbing innovative technologies (Barro, 2001:14), to contribute to a higher competitiveness on the market. Numerous classical theorists like Adam Smith, John Stuart Mill or Alfred Marshall (Gylfason, 2001:852) were aware of the significance of education as a component of economic development. For instance, a higher quality and quantity of education produces a more efficient work force (Gylfason, 2001:852-858), reduces the level of inequality (Birdsall et al., 2000:4-6), and influences democracy and good governance indirectly (Gyimah-Brempong, 2011:233).

Institutions are responsible for coordinating investments to achieve long-term and equally distributed benefits (Kaplinsky et al., 2011:18-20). Resource abundant countries struggle with poor governance. This has been identified as one of the indicators of the resource curse (see Section 2.4), and this is one of the motivations for resource nationalisation. According to Mehlum et al. (2006 cited in Collier, 2010:1126) stronger emphasis on the quality of the state's institutions in resource-rich countries is necessary to achieve sustainable growth and control over natural resources. The transition to neo- and post-extractivism shifts more power to the state allowing more involvement of government in resource management activities (see Section 2.2). Government has specific responsibilities, relevant for the process of managing natural resources, but a democratic structure is insufficient to guarantee sustainable resource management. Furthermore, the transfer of responsibilities to the government does not assure efficient application. According to the theory of the resource curse, resource rents are an additional burden to the functioning of a democracy. Corruption is a common result (Kelley, 2011:37). Transparency

and accountability to citizens is a key way of dealing with this challenge (Isham et al., 2005:163). Policies which provide practical tools to facilitate transparency and related checks and balances, are indispensable.

Some specific initiatives are recommended for resource-rich countries and some examples are outlined below. It has to be considered that every country is an individual entity and requires individual solutions to individual problems, therefore it is advisable to use the recommended tools in an adapted form (Watson, 2009:172).

- The “Kimberly Process” is a certification programme for diamonds intended to reduce illegal acquisitions and transactions. This system could also be used for the tracking of other natural resources as suggested by Nigerian President, Yar’ Adua, in 2008 (Collier, 2010:1127).
- The “Extractive Industry Transparency Initiative” (EITI) was invented by British Prime Minister, Tony Blair, to use natural resources as a foundation for sustainable growth. The increased transparency in the resource management process burdens illegal actions of companies and of governments (Haufler, 2010).
- Public auctions highlight the corruption in the conceding of extraction rights. An auction is a way of revealing the real value of a right, and it allows a fair competition (Collier, 2010:1128). Secret negotiations of extraction licences nurture the bribery of officials (Swilling, 2012:19), and result in increasing benefits for an elite group without consideration of the whole society.
- The reinvestment process could be secured by for instance a “Sovereign Wealth Fund” (SWF). The basic idea originates from the Norwegian strategy to benefit from oil resources by reinvesting a specific part of the commodity revenues into social projects (Swilling, 2012:19).
- Taxation involves citizens in the resource management process and increases the need for higher accountability of the government to citizens. Sturmer (2010:23) describes different options for how tax revenues could be collected from extractive industries, while Sandbu (2006:1157) proposes the idea of a national wealth account for tax revenues in order to achieve higher control.

These supportive tools are primarily aspects of neo-extractivism which can lead to a more accountable government. Economic growth could be more stable due to reinvestment in infrastructure and human capital and the resulting diversification of the economic structure. However, these mentioned initiatives primarily prevent corruption without ensuring proper governance and planning systems to reinvest resource rents in infrastructure, human development and restoration. Natural resources could bring wealth to African countries but a further transition towards post-extractivism and revised priority setting are required for diversification. The critical

question is if African countries are willing to change and emphasise resource management rather than short-term revenues.

2.8. Future perspectives and conclusion

Natural resources are essential and can beneficially contribute to the African economy. Positive examples like Norway or Australia encourage Africa to use natural resources for further growth. The natural resource curse theory, which means limited economic growth in resource abundant countries, is empirically supported, but there is no common agreement on the cause of this curse. In this research conventional extractivism was identified as the cause of multiple aspects of the resource curse. Various theories are discussed in different forms in the literature. For instance, commodity price volatility, limited reinvestments or lack of political accountability and involvement of the state are identified problems of a sustainable resource management. Modern forms of extractivism like neo- and post-extractivism are aimed at mitigating these problems.

There are positive and negative aspects of extractive industries. The resource sector is continuously increasing its importance by generating higher revenues and economic growth. According to the environmental Kuznets' curve (EKC), the economy will transform automatically to a less environmentally damaging stage after reaching a specific level of development. Although, environmental and social impacts, especially the impact on poor citizens, are intensive, there are supporters of the EKC who follow the principle of "pollute now and clean up later". However, a transition from conventional extractivism to neo-extractivism and finally to post-extractivism has to be initiated in order to achieve an inverted U-curve. The critical aspect of the EKC assumption is the time frame of the development to a less-resource intensive and environmental-friendly economy. A detailed discussion about availability of time for the transition from conventional- to neo-extractivism and from neo- to post-extractivism would be a relevant research topic. Furthermore, viewing experiences of resource-rich countries in Africa, transitions to neo- or post-extractivism have occurred only occasionally for instance in Botswana. Therefore, a transition has to be initiated to change traditional structures which are based on principles of conventional extractivism.

Natural resources are essential for human consumption and for a healthy economic system. Increasing demand and potential of new discoveries of natural resource reserves focus attention on Africa as a predicted future global role player in the economic system. Multiple opportunities could result from sustainable resource management reducing the danger of a resource curse by transition from conventional- towards neo- and post-extractivism. Reinvestment of commodity revenues and saving for future generations stabilise the domestic economy. Additionally, an economy diversified by activities related to resource extraction offers new opportunities and establishes the first step towards a non-resource intensive or service-oriented economy as desired

in post-extractivism. Inefficiency of the state limits these opportunities. Therefore, tools like EITI or public auctions have to be implemented to achieve higher transparency, limit corruption and achieve a more equal distribution of profits. Citizens and in particular poor citizens have to be involved in these policies and applications due to the high impact on their standard of living. However, post-extractivism is more than an implementation of various tools to achieve higher transparency, rather it encourages a new way of thinking by equally considering the social, environmental and economic systems.

In conclusion, it is impossible to dispense with natural resources due to interconnections in existing systems and structures. However, a continuing process of transformation is necessary to achieve sustainable development and a bright future for our next generation. The different types of extractivism can be used to illustrate the need for transformation. While in the past conventional extractivism emphasised economic profits without consideration of other effects, neo- and post-extractivism are the advanced forms which lead to a more sustainable future. The practitioners of neo-extractivism take the impacts of the extractive industries on society and the environment into consideration. For instance, social projects are financed by resource revenues to improve the standard of living. Extractive industries remain the dominant driver of economic growth and the positive effects of supported social projects are limited due to negative social impact of extractive industries. Post-extractivism is a stricter and deeper transformation of resource extraction, where regulations and policies are established in order to use more efficient alternatives, and nature is considered as being as important as economic growth. These new streams of extractivism can be used to reduce the risks of extractive industries for the present and future generation. Small transformative steps can be taken on the long road to a sustainable future.

3. Research design and methodology

The distinction between research design and methodology is made by the explanations of Mouton (2011:44-61). Additional literature, which is used to explain specific topics, is presented and acknowledged by in-text references

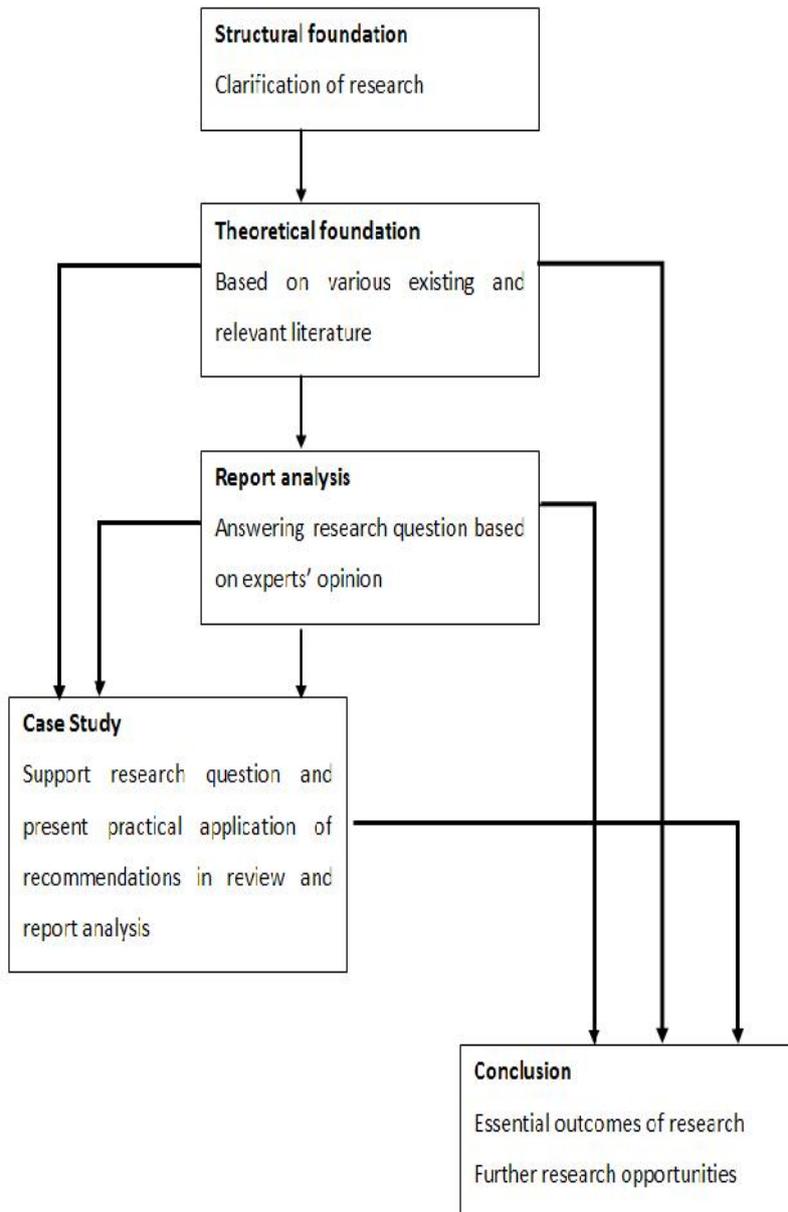
3.1. Research strategy/design

The introduction of this research includes an overview of discussed topics and the motivation behind the chosen research topic. The importance of this research and the detailed research questions supported by research objectives are part of the structural foundation. In Chapter 3 further details regarding the research methodology and design are given.

The theoretical foundation of this study is presented in Chapter 2. While Chapter 2 mainly comprises existing literature on the research question, Chapter 4 comprises three reports by experts that will be used to analyse existing perspectives, and recommendations by experts on extractive industries/natural resources and development in Africa.

In Chapter 5 the practical application of the topics mentioned in previous chapters, is discussed. Findings and recommendations are applied to a situation to prove the relevance and feasibility. Additionally, the significance of the research topic is discussed.

In the concluding Chapter essential aspects and results are summarised. The results are based on theoretical foundation, and on views of experts which lead to a broader understanding of extractive industries in Africa. Further research directions are outlined at the end.

Figure 3-1: Research Design

3.2. Research methodology

The methodology of this research clarifies the practical action of the desired design (see Figure 3-1) and final outcome. Theoretical insights are discussed in the form of a literature review, which provides an overview of existing debates, views and theories on extractivism. The literature review is structured by theme (Mouton, 2011:94), starting with general aspects as a foundation, comparing three different types of perspectives and ending with specific issues and recommendations to introduce the content analysis in Chapter 4. Various types of literature review exist which were defined by Petticrew and Roberts (2006:39-40). The critical and conceptual reviews are essential for this research, as outlined in the next section:

1. *Critical review:*

“term sometimes used to describe a literature review that assesses a theory or hypothesis by critically examining the methods and results of the primary studies, often with a wealth of background and contextual material, though not using the formalised approach of a systematic review”

2. *Conceptual review:*

“a review that aims to synthesise areas of conceptual knowledge that can contribute to a better understanding of these issues. The objectives of these syntheses are to provide an overview of the literature in a given field, including the main ideas, models and debates”

A significant aspect of the critical review is the inclusion of different methods, views and studies to achieve a broader overview and understanding, and to identify interconnections of specific topics by comparing and assessing significant ones, which is crucial for the content analysis in Chapter 4 of this research, where existing data, based on the three reports – UNCTAD (2012), The World Bank (2011), McKinsey Global Institute (2010) – will be analysed. Conceptual review is relevant in this study; it is required to create of a basic understanding of the different issues surrounding the research question like the approach of extractivism, the phenomenon of resource curse and the influence of natural resources on Africa. This foundation will be used to support the analysis of existing views on extractive industries in Africa. The analysis will present the pros and cons of these views regarding principles of sustainable development. While the emphasis of this research is an overview of various aspects of extractive industries in Africa, possible improvements and changes are outlined to identify opportunities for extractive industries to make a positive impact on the society, economy and environment.

The second part is a content analysis of three reports, which are classified as existing/secondary data and dominated by textual data (Mouton, 2011:165-179). Content analysis is defined as *“a technique used to extract desired information from a body of material by systematically and objectively identifying specified characteristics of the material”* (Smith, 2000:314). The analysis of reports will be based on this definition and the process will follow the standard process of content analysis. Content analysis can be qualitative and quantitative. Although, qualitative and quantitative content analyses involve similar factors, the role of the text is identified in different ways. The qualitative method uses text to explore concepts and patterns. More narrowed units are used to discover details of essential aspects in the document, while a quantitative content analysis emphasises the interconnection of existing research to formulate a hypothesis (White and Marsh, 2006:34).

Influences of a resource intensive economy in Africa are the main focus of this research based on a research question, and qualitative analysis is an applicable tool in this context. However, specific steps for this analysis have to be defined and followed in order to achieve a scientific support and an analysis high in quality. Depending on the author, the process is described in slightly different

ways but main components overlap (Weber, 1985; Berg, 2009; Neuendorf, 2002). Based on the requirements of this research, the process is described as follows:

1. Description of **research question** (Berg, 2009:362), which is the critical starting point for a content analysis, influences every individual step in the process and is essential to achieve an answer as a final outcome of this research (White and Marsh, 2006:39).
2. **Sampling** is the process of choosing “most relevant” documents to answer the research question. The method defines which criteria are used to identify necessary documents to support the research process and the final outcome (Smith, 2000:319; Krippendorff, 2004:111). Based on the defined research question (see Section 1.4) numerous articles would be relevant. A reduction to a manageable number of reports is needed to make a qualitative content analysis within the research scope feasible. Thus, three articles have been chosen to answer the research question. Each article has an individual approach to development and was published between 2010 and 2012. These articles were prepared by experts with the know-how in different areas of development.

The UNCTAD report (2012) presented the interconnection of resource use, environmental impact and development. While the first two chapters of the report identified paths of development with the emphasis on resource use shown by material flow analysis, the rest of the report highlighted the importance and practical steps of a sustainable structural transformation.

The World Bank (2011) report – the changing wealth of nations – drew a broader picture of development by including various aspects of wealth within a country. Total wealth is presented as the main goal of development in this report involving various components like intangible capital, natural capital and produced capital.

The McKinsey Global Institute (2010) report emphasised the economic aspects of current development and further opportunities in Africa involving specific economic figures like GDP.

The final outcome of the sampling stage is the definition of the sampling unit (selected documents) (White and Marsh, 2006:29).

3. **Coding** is the identification of “recording units” and “data collection units”. Various categories exist for the definition of record units or units of analysis. The theme has been identified as most relevant category of a recording unit in this research based on research question and objectives (Weber, 1985:22; White and Marsh, 2006:29). Four themes are classified as broad recording unit – impact of extractive industries on the environment and society; influence of resource revenues on environment, society and economy; level of economic diversification; and institutional/governmental quality in Africa as a resource

intensive economy. Further sub-units include risks, advantages and opportunities of extractive industries in Africa.

Data collection unit or context unit is the framework for the choice of involved information. A high quantity of information results in inaccuracy. Therefore, data collection units or context units can be used to limit these challenges (Krippendorff, 2004:98-103). Data collection units in this research will be the interconnection of recording units with sustainable development in Africa, the critical aspects of the resource curse phenomenon and the extractivism approaches followed in Latin America.

4. **Testing** and revising the coding system: To limit the risk of irrelevant outcomes of the content analysis, a section of a report can be used to test the coding system (Weber, 1985:23-24). In this research, the first report of McKinsey was used to test identified recording units. They showed significant results in connection with discussed topics of the literature review; therefore, the process could be continued.
5. **Continuing with analysis** of the whole text: If the test shows results with high reliability and validity, the analysing process will proceed.
6. **Assessing results:** Reliability and validity are the dominant tools to measure the outcomes of a content analysis. Firstly, reliability is divided into stability, reproducibility and accuracy. During the repetition of the study changes could occur. Stability requires a low degree of changes. Reproducibility represents the application of findings to another context. Accuracy is the confirmation of the interconnection between observation and the final conclusion. Secondly, validity presents reasons for the acceptance of the research as true. Basically, acceptance is dependent on whether the analysis outcomes are the intended outcomes, but further tools are available to specify validity like social validity and empirical validity (Krippendorff, 2004:313-338).

This process will be followed in Chapter 4. The last stage in the assessment process can be found in the conclusion of Chapter 4 and in the main conclusion of this research. However, the deep connection to discussed topics in the literature review and the identified answer of the research question in various way, clearly verify the reliability and validity of this content analysis. Additionally, the stated aspects of development could be used by other developing countries and to establish the principles of sustainable development in resource-rich countries.

In Chapter 5 two practical case studies will be presented to support the argument in the literature review and to highlight the practical aspects of suggested recommendations. Mouton (2011:149-151) identified case studies as ethnographic research, which means *“studies that are usually qualitative in nature and that aim to provide an in-depth description of a small number (less than 50) of cases”*. Instead of field work, different types of literature are the foundation of the two chosen case studies which will be used to find a final answer to the research question. Nigeria and

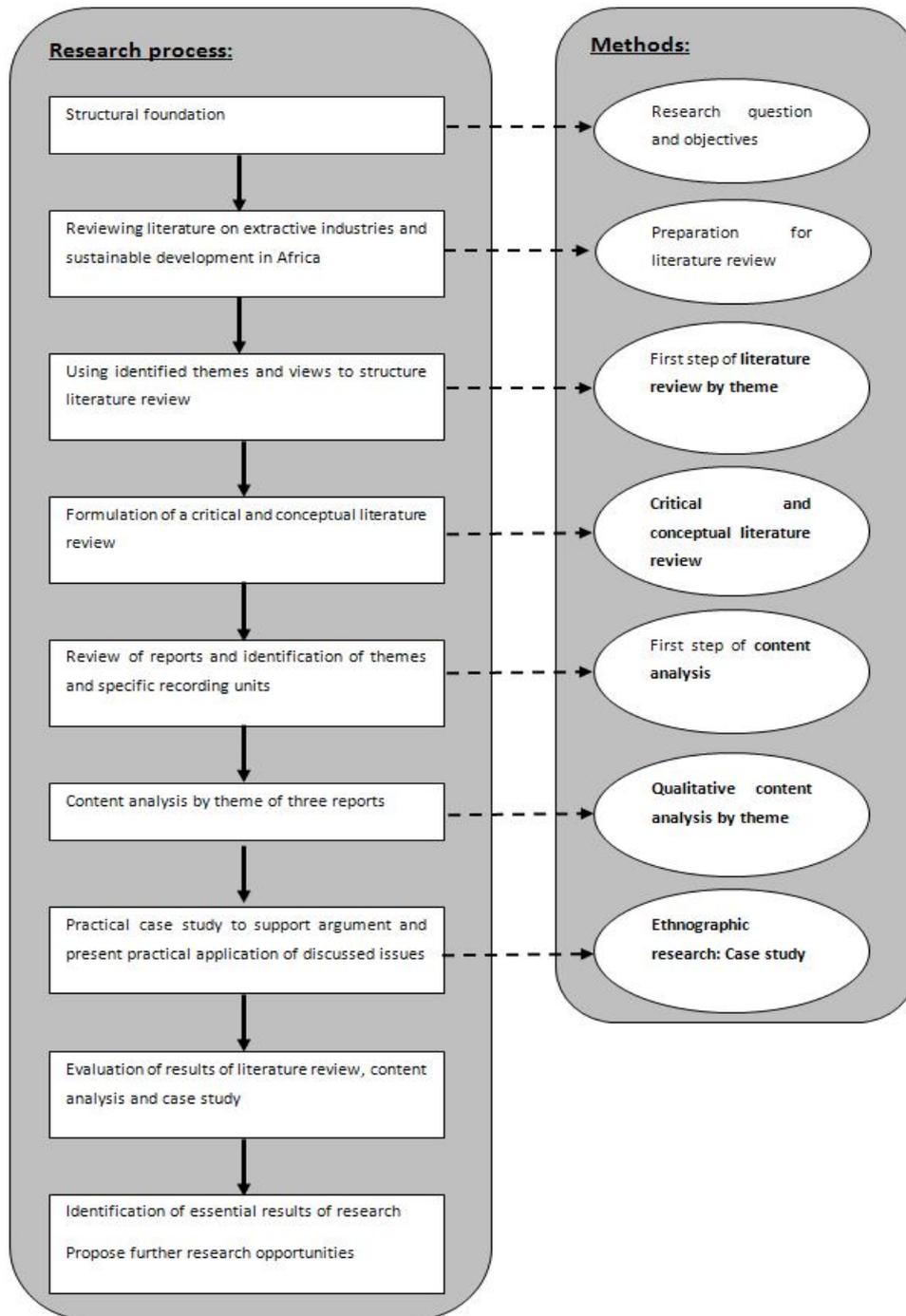
Botswana are the two countries involved in the case studies presented in Chapter 5. Both countries are resource-abundant but with different levels of development. Nigeria, as a representative of conventional extractivism with a tendency to neo-extractivism, struggles with numerous aspects of the resource curse which limit the efficiency of implemented tools and policies. Botswana is an example of a country which follows neo-extractivism principles which are a more sustainable approach than conventional extractivism, but the remaining challenges require further improved development, like the transformation to post-extractivism. Due to the different stages of development and different existing challenges, the analysis of both countries will broaden the understanding of extractive industries and development in Africa.

In the conclusion there is a summary of significant results and the focus is on the answer of the key research question and further recommendations.

3.3. Research instrument/methods

Figure 3-2 presents the research process and instruments used for each step. The three main methods are content analysis, literature review and case study. The specifications for each method were given in the previous section. This figure illustrates the interconnection between process and the methods used to support each step.

Figure 3-2: Research Methodology and Process



4. Content Analysis

4.1. Introduction

Extractive industries play a significant role in the developmental process of Africa and have a critical influence on the local and global socio-economic system in various ways. The impact of extractive industry in Africa will be discussed in this chapter, based on a content analysis of three reports from sources of public importance and great expertise. These are the McKinsey report: Lions on the move; the UNCTAD report: Economic development in Africa; and the World Bank report: The changing wealth of nations.

The McKinsey Global Institute focuses its research on management, technology and economy, and combines these three spheres to support leaders in the public, commercial and social sectors. Therefore, its view on extractive industries is mainly from a macro- and microeconomic perspective. The foundation of this report is based on the past economic stagnation of Africa and the increasing improvements since the late 1990s. The McKinsey Global Institute predicts an enormous rise in the importance and economic growth of African countries due to their potential in different areas especially natural resources.

The UNCTAD report is in agreement with the McKinsey report on the rapid growth of Africa, but UNCTAD criticises the missing sustainability aspect of Africa's growth path. Different reasons are given to support this criticism. Firstly, Africa's economy is strongly dependent on natural resources like oil, gas and coal which are mostly non-renewable. The fast increase in the rate of extraction and the volatility of commodity prices has a negative impact on prediction and further planning. Secondly, agricultural productivity is still low and this influences food security and other social issues. Deindustrialisation across Africa took place from 1990 to 2008. This resulted in a decline of manufacturing industries. Urban expansion due to population growth is also experienced in Africa and is driven by resource export, while industrialisation and industrialised agriculture is necessary to provide employment opportunities for the increasing population in cities. While a high number of young people is beneficial for economic growth, more job opportunities have to be generated which cannot be done by extractive industries due to the fact that they generate mostly low-skilled jobs and limited opportunities.

Although UNCTAD recognises the fact of structural transformation in Africa, it criticises the existing type of transformation that is based on natural resource extraction with a limited increase in productivity. The desired economic growth resulting from structural transformation is necessary to reduce poverty; this also involves a higher impact on the environment. Sustainable development is not only progress in the economic system, rather it creates a balance between economy, social issues and environmental quality improvements. The UNCTAD report describes aspects of structural transformation associated with sustainable development in Africa.

The World Bank report published in 2011 gave a broader view on the global understanding of development, the difficulties of narrow views and the importance of sustainable development especially in developing nations. At the centre of every development process is the improvement of humans' well-being or "wealth" (World Bank, 2011). The distinction between produced, natural, human and institutional capital as the foundation of wealth creates a broader understanding of development and encourages developing countries to generate sustainable development strategies. Different topics associated with this main issue, were discussed in the report such as natural resource management, environmental quality and policies. The report also highlighted the dominance of natural resources in the economic system as the McKinsey Global Institute and UNCTAD reports did, but the emphasis on GDP measurement primarily used by the McKinsey Global Institute is identified to be insufficient to depict a clear picture of development and wealth.

Based on the research question and literature review four themes have been identified, which are the impact of extractive industries on the environment and society; the influence of resource revenues on environment, society and economy; the level of economic diversification; and institutional/governmental quality especially in Africa as a resource intensive economy. The first two sections are primarily associated with conventional extractivism, while the last two are associated with neo-extractivism and with an additional detailed consideration, they could result in post-extractivism. Sub-units in each section are risks, advantages and opportunities of extractive industries in Africa. Each report will be analysed based on these four themes. Therefore, the main paragraph is divided into three sub-sections, one section for each report.

4.2. Social and environmental impact

4.2.1 The McKinsey Global Institute (2010) Report

According to the McKinsey report there is evidence of economic growth in Africa, but major problems remain. Urbanisation, high unemployment rates, and limited quality of education are examples of existing problems. High consumer spending could take place due to the improved level of income, as shown in the countries with diversified economies like South Africa and Egypt. However, living conditions are below average and have only slowly started to improve.

Furthermore, based on the progress observed in agricultural production, it is estimated that the agricultural sector will grow significantly over the next 20 years mainly in Angola, Cameroon, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Mozambique, Nigeria, Sudan, and Tanzania. This can lead to future growth and especially food security on the continent which has a growing population. However, achieving this agricultural capacity could put more pressure on the eco-system and natural resources depending on the type of agricultural practice implemented. Further industrialisation and an increase in extractive industries will generate more CO₂ emission, which influences the eco-system and land productivity due to climate change. Conventional extractivism

is present due to the high level of social and environmental risks in Africa, which are rarely considered in this type of developmental approach. As McKinsey (2010) states Africa still has a long way to go to improve its standards of living significantly. Therefore, a transition towards neo- and post-extractivism is required to limit negative impacts and improve living conditions.

4.2.2 The UNCTAD (2012) Report

Due to limited industrialisation, Africa's contribution to global greenhouse gas (GHG) emission is small but the effect of climate change is strong in Africa. Agriculture is a dominant aspect of Africa's domestic economic system. Agriculture is dependent on the eco-system; hence, climate change could impact harvest directly or indirectly through for instance changes in productivity. Both types of impact will result in a reduction of biomass in the system. In Africa the impact on humans is low but it is increasing sharply due to land degradation and conversion. The efficiency of land use is low and Africa does not present indicators of improvement. Northern Africa is an exception. Due to industrialised forms of agriculture, advanced efficiency could be achieved. The downside of industrialised agriculture is the requirement of fossil fuels which are identified as non-renewable resources.

Generally, economic growth is seen as a solution to environmental issues rather than a threat as for instance presented in the EKC (see Section 2.5). Neoclassical economists, who follow this way of thinking, consider resource scarcity as a price boomer and as an initiator to create human made substitutes. Due to decreasing availability of non-renewable resources, prices will automatically rise which will cause a declining demand. The sustainable development approach views the eco-system as the main system with the economy as a sub-system, which is contradictory to the view of economists who see the economy as central to the global system. African countries face numerous social challenges. Economic growth is required to limit these challenges with consideration of the involved ecological constraints. Furthermore, major environmental pressure exists in Africa, while limited benefits result from an intensive export structure. A redistribution of initiator and cost bearer of environmental pressure is required to achieve sustainable growth in Africa. Trade has to be considered due to the partly unequal transfer of environmental pressure and economic profits. This subset of sustainable development is called "green economy" and "green growth". Although, there is no shared explanation of green economy available, significant indicators are human well-being, social equity and environmental quality. Policy makers are continuously including more aspects of green growth in policies, but critics question the profitability of green economy due to unclear definition and unsupported optimism. Its influence on society and in particular on poor citizens is critical.

Three major views on the interactions between environmental impact, resource use and development are discussed in the UNCTAD report (2012). Firstly, the IPAT equation identified three aspects as influencing factors on the level of environmental impact.

$$\text{Environmental Impact (I)} = \text{Population (P)} \times \text{Affluence (A)} \times \text{Technology (T)}$$

A growing population requires a higher amount of resources, which results in increased environmental impact. Advancing consumption patterns increase demand for natural resources and energy, and result in higher waste and pollution generation. This is represented by factor A – consumption per capita. Technology describes the efficiency of resource use which is divided into resource intensity and pollution/waste intensity. The coordination of these three indicators could lead to more or less sustainable development. These three components have to be considered in the extractivism approaches, and the risky existence and composition of these indicators emphasise the need for a transition towards neo- and post-extractivism.

Secondly, the Environmental Kuznets' Curve (EKC) describes the relationship between environmental degradation and economic growth in the form of the inverted U-curve which was discussed in Section 2.5. Industrialisation and increased economic growth lead to environmental degradation, but after a turning point environmental degradation decreases due to transition to less resource-intensive economies like the service economy. A wide range of empirical evidence supports the hypothesis of EKC, but some authors criticise it. In the long-term and through a global perspective, this principle is not enough to achieve sustainable development, but it could be used as a guideline to advance development faster and more sustainable, for instance through technology transfer from more developed countries to developing countries. The relationship between EKC and extractivism was outlined in Chapter 2.

Thirdly, socio-ecological metabolism is the process of resource extraction, energy acquisition and the further processing to prepare extracted natural resources for consumption. The by-products of this process are waste and pollution. Structural transformation occurred in the past within an era and from one era to another. For instance, the agrarian society only planted what he and his family consumed which was limited due to small size of population. Advanced knowledge and development created a system with a higher impact on the eco-system due to increased productivity and population growth. During the transition to the industrial regime, non-renewable resources and technological change were significant. The intensive resource extraction in this era is critical for the eco-system based on the fact that some resources are finite. The UNCTAD report identified these regimes or eras as metabolic profiles. Conventional extractivism without consideration of influencing factors of extractive industries creates significant challenges for the eco-system by participating in the industrial regime.

Sustainable structural transformation (SST) is identified as being the solution to the challenge of balancing a growing population, needed development and environmental pressure (UNCTAD,

2012). The principles of SST are a “decline of low-productivity in agriculture, low-value added extractive activities and a rise of manufacturing and high-productivity services”. The foundation of SST is the principles of decoupling, which means simplified the separation of economic growth and resource extraction/environmental impact. Africa needs economic growth to improve the standard of living, while natural resources and pollution have to be decoupled from this growing process. One aspect of decoupling is to increase productivity. This is referred to as ‘resource decoupling’ mainly through innovative technologies. Another decoupling approach is ‘impact decoupling’. This involves the reduction of waste/pollution mainly by usage of improved and efficient technologies. Decoupling follows a principle of dematerialisation rather than a total abandonment of natural resource extraction which is currently impossible, due to global dependency on natural resources (Fischer-Kowalski and Swilling, 2011:5). SST is a supportive tool for the transition towards neo- and post-extractivism which is required in Africa due to resource intensive economies with various risks to society and the environment.

Dematerialisation in the decoupling process could be absolute and relative; absolute decoupling represents a constant economic activity without further growth, while a reduction of resource usage takes place; and relative decoupling means a reduced growth rate of environmental factors like resource use or specific environmental impacts in comparison to the level of economic growth (Fischer-Kowalski and Swilling, 2011:5).

Based on this knowledge, SST can be defined as relative decoupling of resource use and environmental impact through technological innovation, new economic activities, labour productivity and policies/regulations (UNCTAD, 2012:30) which are significant criteria to support a transition to the final stage of extractivism namely post-extractivism. Depending on the situation of a country, SST will be applied differently as the extractivism transition process will occur differently. For instance, economies where the emphasis is on agriculture and commodity export, have to move towards a more diversified economy, while labour-intensive economies have to move towards a skilled- and capital-intensive economy. However, Africa has to follow the principles of relative decoupling with accelerated growth and energy and resource consumption, as the emphasis on increased productivity limits environmental pressure.

The reason for the need of SST is strong pressure on the environment despite a low level of material consumption (DMC per capita). The economic system of Africa is unsustainable because the eco-system has to be seen as an essential asset which decreases if it is wrongly used. Considering future aspects like the growing population and rising living standards, an economic path with high pressure on the environment will lead to an increased burden for society, the environment and the economy. Additionally, further damage will increase the costs of changes and solutions for appearing problems in future. For instance, infrastructure is limited in Africa and improvements will take place in the next decades. If infrastructure is built in an unsustainable manner, Africa will deal with the consequences over a long period of time. If conventional

extractivism is practised continually without transition taking place, social and environmental impacts will intensify.

4.2.3 The World Bank (2011) Report

Intangible wealth is defined as human, social and institutional capital and is associated with education and health. This aspect/type of wealth is the fastest growing component in countries independent on the level of income. Intangible wealth accounts for 81 per cent of the total wealth in high-income countries and 57 per cent in low-income countries (World Bank, 2011:27). It was identified that natural capital is the essential platform for development due to the reinvestment of resulting profits in human and institutional capital. When considering different income levels, it can be seen that natural capital has higher priority in low-income countries and that decreases when income increases. With the reduced importance of natural capital, the priority moves to intangible capital dominated by education and governance/quality of institutions. China is an example of the increasing importance of education in line with the improvement of economic development. Countries, which follow the principles of conventional extractivism, have a low level of human capital which hampers further development (Gudynas, 2010:2).

It is difficult to measure intangible capital. Human capital as part of intangible capital is defined by education with, for instance, years of schooling as a measurement tool, and by the level of health of a country's population with, for instance, mortality rate as measurement. Institutional quality is based on the trust of citizens in the existing rules and on the level of law-abiding. Lastly, technological change or progress is part of intangible wealth and is presented by the factor of time. According to the World Bank report the most important component of intangible wealth is human capital and this has to be considered by governments in the policy making process. Furthermore, intangible capital affects production in developing and in developed countries, therefore focusing only on natural and produced capital does not lead to long-term economic growth. Investment in human capital is essential for governments, not only to reduce the risk of the resource curse (see Section 2.7) but also to increase total wealth within a country. Reduction of inequality and poverty is a positive effect of advanced human capital. Therefore, human capital is an essential criterion for post-extractivism due to the priority of inequality and poverty reduction (Aguilar, 2012:7-10). Additionally, the interconnection of different aspects of wealth encourages the improvement of other areas such as investment in infrastructure due to the improvement of intangible capital.

The difficulty with extensive resource extraction and degradation is the generally irreversible change in the eco-system. CO₂ emissions affect the value of human well-being especially in developing nations. The resulting danger of climate change is a greater burden for developing countries. According to the World Development Report, about 80 per cent of the problems due to climate change will be experienced by developing countries (2010 in World Bank, 2011:77). The

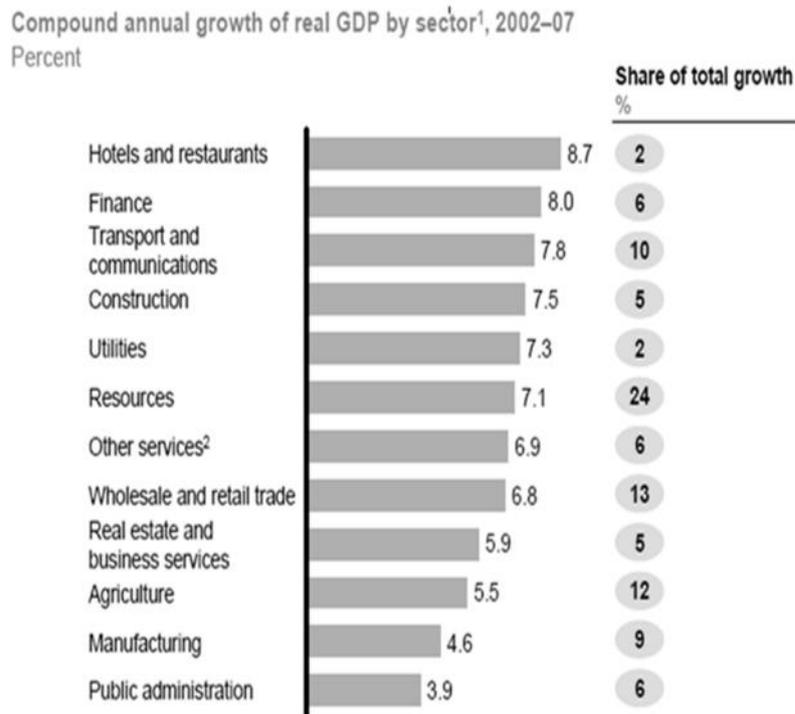
reason for this high percentage is the interconnectedness of the system of developing countries and natural resources. Although, the effect of climate change is highest in developing countries, their contribution to greenhouse gases accounts for approximately 1 per cent of the total amount, while developed countries are the major emitters. Transitional economies like China, India and South Africa are large contributors to the total CO₂ emission.

Africa as a continent with great potential for further growth (McKinsey, 2010) will increase its emissions because of industrialisation, if the importance of structural transformation is ignored in the transitional phase. Additionally, the reduction of CO₂ emission generation is not exactly the same amount as the reduction of the CO₂ stock. Therefore, an increased value of CO₂ emission by adding the future damage of CO₂ generation has to be considered. The measurement of the CO₂ impact of current emissions including the future damage is called the “social costs of carbon” (World Bank, 2011:78). This calculation supports the wealth assessment in a country. Although, the analysed report of the World Bank included a critical discussion of various options for the treatment of CO₂ emission, the main theme is the unsustainability of high-carbon intensive economies and the fact that there must be change in the form of structural transformation supported by policies like an international environmental law with an agreement on an emission cap. Extractive industries contribute to CO₂ emissions. While conventional extractivism ignores outcomes of high CO₂ emissions, neo- and post-extractivism consider the value of the social and environmental system (Aguilar, 2012:9-10).

4.3. The influence of resource revenues

4.3.1 The McKinsey Global Institute (2010) Report

Africa ranks amongst one of the fastest growing economies in the world. Although, Africa benefited from the rising prices of and demand for commodities, the McKinsey Global Institute identified more aspects of African growth. The resource sector occupied only the sixth position in the list of fastest growing sectors, with 24 per cent of the total annual growth of GDP. This is the highest percentage followed by 13 per cent and 12 per cent for “wholesale and retail trade” and “agriculture”, respectively, as depicted in Figure 4-1 below. Other sectors such as “hotels and restaurants” and “finance” were recognised as the fastest growing sectors. Although, the contribution of “hotels and restaurants”, and “finance” to total growth are amongst the lowest, they are seen as having potential.

Figure 4-1: Africa's economic sectors; Source: McKinsey, 2010

1 Due to data constraints, comprises 15 countries that account for 80 percent of Africa's GDP: Algeria, Angola, Cameroon, Egypt, Ethiopia, Kenya, Libya, Morocco, Nigeria, Senegal, South Africa, Sudan, Tanzania, Tunisia, Zimbabwe.

2 Education, Health, Social Services, Household Services.

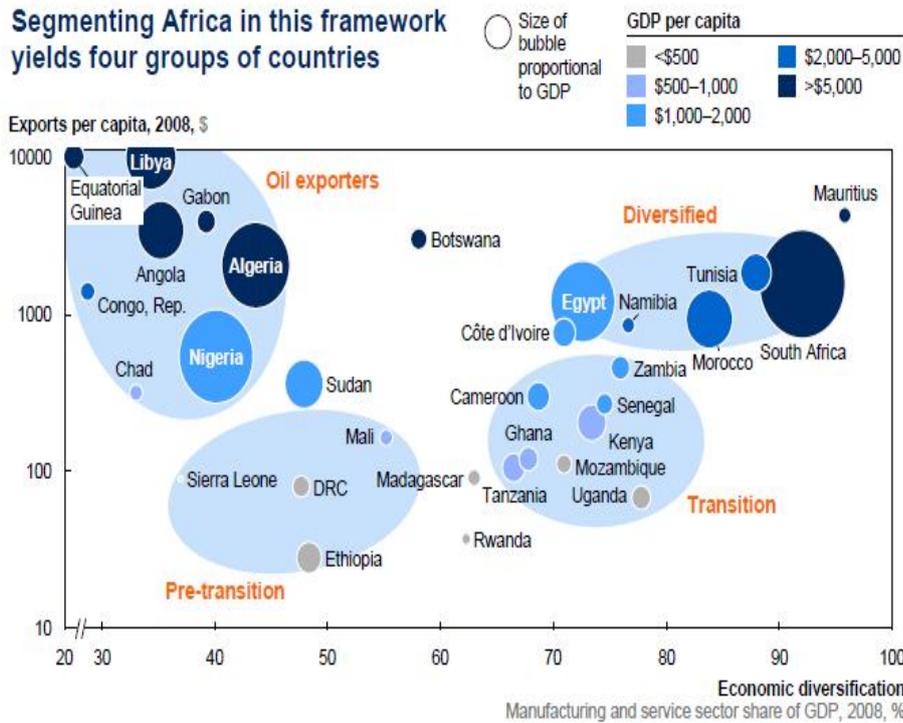
SOURCE: Global Insight; Arab Monetary Fund; African Development Bank; McKinsey Global Institute

Africa's growth is more than a short-term commodity boom (McKinsey, 2010:9). Growth acceleration was identified on the whole continent and in all sectors. While the resource sector is benefiting from the increasing demand for and prices of commodities, the domestic producers are able to generate higher levels of production. According to the theory of the resource curse, resource-rich countries experience more limited growth than non-resource-rich countries (see Section 2.4). According to the McKinsey Global Institute, Africa presents results which are contrary to this theory, which also reduces the importance of extractivism transition outlined in Chapter 2. There was equal GDP growth across all countries with 5.4 per cent in resource-intensive economies and 4.6 per cent in others.

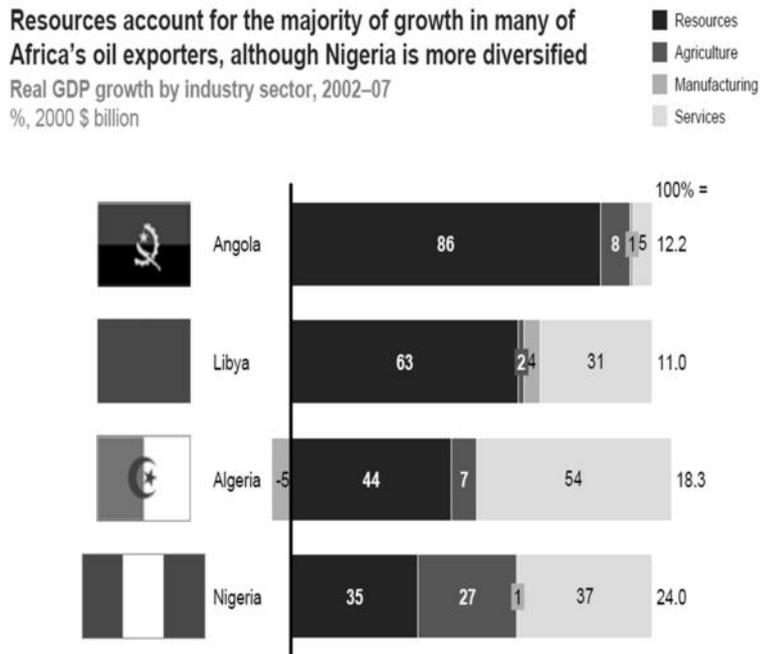
Increasing consumption of oil, gas, minerals and other resources boosts African economy due to existing reserves. Africa has 80 to 90 per cent of the world's reserves of the chromium and platinum metal group, 40 per cent of gold and 10 per cent of oil reserves, not considering undiscovered potential. New partnerships emerge out of new demands with a special focus on the South-South trade. Other interested parties like China, South America and India increase competition on the global market for natural resources.

The McKinsey Global Institute (2010) classifies the African economy into four clusters – diversified economies, oil exporters, transition and pre-transition economies (see Figure 4-2):

Figure 4-2: Four clusters of African economy; Source: McKinsey, 2010



Examples of oil exporting countries include Angola, Algeria and Nigeria. Although, countries with high oil export have the highest GDPs, the level of diversification within their economy is the lowest, which supports the discussed aspect of the resource curse and the emphasis on conventional extractivism in Africa (Aguilar, 2012:7). High revenues are mostly used to reduce foreign debts, to generate fund investments and foreign exchange reserves. Economic growth is directly linked to oil and gas exports, while manufacturing and the service sectors make a small contribution to domestic economic growth (McKinsey, 2010:30). This aspect could easily be changed as it was done in Indonesia where the contribution to GDP of other sectors was increased. Nigeria is starting to transform its system slowly to a more diversified economy. Revenues of oil exports could be used as a platform for further transformations. There are enormous opportunities for Nigeria and Africa as a whole, which is in line with the “stable theory” discussed by Ross (2001:6) (see Section 2.7). But an initiated transformation towards a more diversified economy and thus to neo-extractivism and finally to post-extractivism has to take place. However, governments face many problems and find it difficult to initiate this transformation.

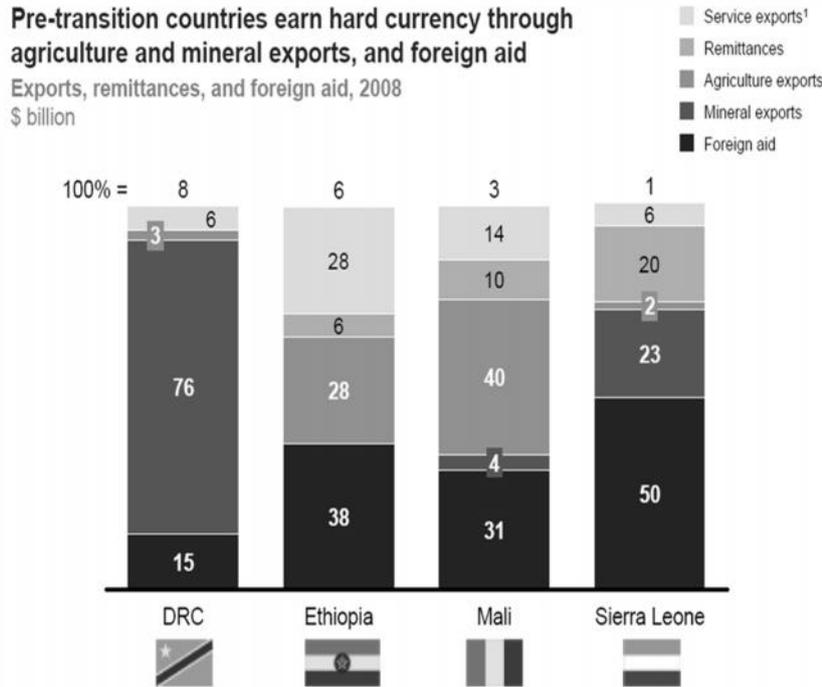
Figure 4-3: Economic sectors of oil exporters; Source: McKinsey, 2010:31

The economies of another group of countries are in the transition stage. Their GDPs are relatively low in comparison to countries with diversified economies and those which export oil, but they are moving towards a more diversified economy. Examples of countries in this group are Ghana, Kenya, Uganda or Zambia. Their resource sectors and agriculture are dominant and account together for two-thirds of their total exports. Because they are in the process of diversification, the export of manufacturing goods like processed fuels and apparel increased more than nine times from 2000 to 2008. The productivity of these industries is comparable to that of Chinese factories, but regulations and poor infrastructure result in a need of a cost reduction (McKinsey, 2010:32). The focus should be on the reinvestment of commodity revenues in infrastructure, as discussed in Section 2.7 and on the reduction of governmental inefficiency. This must be done if African countries are to achieve the higher and long-term profits (see Section 2.7) which are the priorities in neo-extractivism due to the stronger role of the state and various social projects (Verdum, 2010).

Pre-transition economies in countries such as Sierra Leone, Rwanda or the Democratic Republic of Congo are very poor (see Figure 4-4). Some of these countries have natural resources but weak government and the results of long-lasting conflicts are the major barriers to economic growth. The stabilisation of governmental structures can bring about broad economic opportunities such as stronger partnerships through stable export, equal distribution of profit or reinvestment projects. For instance, the Democratic Republic of Congo owns about a quarter of world's diamond resources and half of the world's cobalt assets (McKinsey, 2010:36). In countries with major political challenges a transition towards neo-extractivism with a simple focus on resource

nationalism is insufficient due to the importance of political stability supported by various tools, as mentioned in Chapter 2.

Figure 4-4: Economic structure of pre-transition countries; Source: McKinsey, 2010:37



Future opportunities for Africa are strongly related to natural resource extraction. A growth rate between 2 and 4 % of commodities in the next 8 years is predicted with the main contributors being oil, gas and coal. New discoveries, higher demands and improved political stability could improve these figures. The crucial aspect is the attractiveness of investments in Africa. If investments take place, countries have to ensure that there are socio-economic benefits which can take the form of taxes, capacity building or infrastructure. Infrastructure like transport, telecommunications, energy and water and sanitation play a key role in providing further opportunities. Compared to BRICS countries – Brazil, Russia, India, China – Africa requires major improvement. For instance, BRICS countries have almost five times more kilometres of roads than African countries do. High investments need to take place to achieve an adequate standard of infrastructure. Therefore, different sources are required like Chinese investment, private investment and public investment. The problem with investment is the usage of available investment for further extractive activities especially in conventional extractivism where the coordination of investments is difficult and unbalanced due to instable institutions (Aguilar, 2012:7-9).

4.3.2 The UNCTAD (2012) Report

Although the total domestic material extraction in Africa increased from 2.8 billion to 5.3 billion tons from 1980 to 2008, the domestic material extraction per capita decreased from 5.9 to 5.4 billion tons primarily due to population growth (UNCTAD, 2012:37). At the same time de-industrialisation took place in Africa, which decreased economic stability and reduced job opportunities (see Section 2.7). Biomass (agriculture, forestry and fishery) is the most significant type of natural resource in Africa in terms of quantitative resources extraction which accounts for 53 per cent of the total resource extraction. A new trend was identified namely the increased extraction of non-renewables like metals, fossil fuels and minerals from 38 to 47 per cent.

Total trade volume of Africa rose sharply but this cannot compete with global trade growth, which accelerated faster than African trade. The differences between physical and monetary trade have to be considered due to a broad gap. The share of African trade on the global market was 4.9 per cent in physical terms in 2008, while the share measured in monetary terms was only 3.3 per cent. The main reason for this variation could be the low level of commodity prices. While biomass is identified as the main material in terms of quantitative material extraction, fossil fuels dominate the export and import market of Africa. 75 per cent of total exports in 2008 were fossil fuels. In a global context, Africa's share on fossil fuels supply declined from 13.2 to 10.5 per cent, which is in line with the general situation of Africa's participation on the global market. Metals dominated by iron ores and concentrates, make up the second largest part of African exports namely 11 per cent in 2008, which declined from 13 per cent in 1980 due to the increased export of fossil fuels. Thirdly, the share of minerals in African exports declined from 10 per cent in 1980 to 7 per cent in 2008. Fossil fuels and biomass are the first and second largest African imports. While the share of fossil fuels is low with 33 to 37 per cent compared to the global average of between 50 to 55 per cent, biomass imports accounted for 32 per cent in 2008 which is extremely high compared to a global average of 16 per cent.

Physical trade balances (PTBs) measure the outcome of imports minus exports. This indicator identified that Africa is a net supplier of resources. Considering the specific composition of materials, Africa is a net exporter of fossil fuels, minerals and metals defined as non-renewable resources and a net importer of biomass defined as renewable resources. The enormous amount of biomass import is contrary to the enormous potential of crop land stated in the McKinsey Report (2010).

Domestic material consumption (DMC¹) accounts for 5.3 tons in comparison to 10.4 tons per capita as the global average. The regional composition of DMC varies dramatically. For instance, South Africa and Seychelles have a higher DMC than the global average, while the African average is

¹ DMC, is total material use of a country, which could be also defined as the domestic extraction (DE) reduced by the exports and imports added together (Fischer-Kowalski & Swilling, 2011:10).

extremely low with Malawi and Cote d'Ivoire at the bottom of the list. Even Nigeria has a low level of DMC per capita. The total DMC increased by almost 90 per cent in Africa between 1980 and 2008. Africa's share of the global DMC rose from 6.8 to 7.2 per cent which is still at the bottom of the global DMC. In comparison, Asia is the continent with the highest share namely 49 per cent in 2008. The variation between countries is strongly dependent on the size of the population. The countries with the highest populations – Egypt, Ethiopia, Nigeria, South Africa and Sudan – accounted for 47 per cent of Africa's total DMC, while 44 per cent of Africa's population live in these countries. Furthermore, a high DMC can be related to high levels of industrialisation measured in 'manufacturing value added' (MVA). For instance, South Africa and Algeria have high DMC and MVA, while Malawi and Togo have low levels of DMC and MVA. Sudan and Mali are an exception to this theory, due to a DMC level higher than the average and a low level of MVA.

Material productivity has increased in Africa but it is still below the global average. Resource-based economies, especially those with a high share of agriculture, have limited material productivity, while industry- and service-based economies are more materially productive. According to the McKinsey Report (2010) most African countries emphasise resource extraction and export. This is in line with conventional extractivism which is the first stage of the EKC and associated with an increased amount of environmental degradation (see Section 2.5). Energy consumption increased slightly over the analysed period, but in comparison to the material consumption growth of 92 per cent, the 16.3 per cent increase in energy usage is low, indicating limited industrialisation which requires a high amount of energy.

In conclusion, the presented facts indicate that agriculture is the dominant aspect of domestic economy, while the trade structure puts emphasis on the export of fossil fuels. The transition to an industrialised economy will take place sooner or later. Because of the shift from renewables to non-renewables, Africa will face structural transformation soon. Side effects of this transformation are pollution and waste generation. Due to the importance of extractive industries in Africa, policy-makers are required to support sustainable transformation and the introduction of the principles of neo-extractivism.

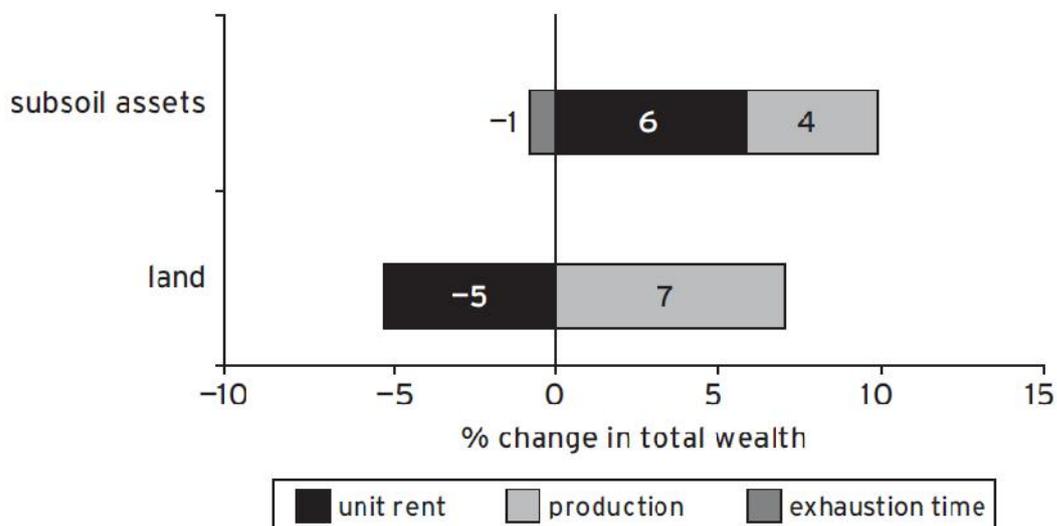
4.3.3 The World Bank (2011) Report

Natural capital is an essential component of wealth in developing countries which appears as an advantage to the domestic system. According to empirical research, the phenomenon of the "resource curse" states limited development rather than prosperity in resource abundant countries. The World Bank cites the same indicators of resources curse as outlined in Section 2.4, namely currency appreciation or Dutch disease, volatility of commodity prices, inefficient management, political risks and limited reinvestment of resource revenues, all of which reveal a strong connection to conventional extractivism.

As stated in a previous chapter, natural capital is used as a platform to achieve higher development with the appropriate resource management and the right extractivism approach. Low-income countries use natural resources as dominant drivers of their economies with 30 per cent of their total wealth in comparison to 2 per cent in high-income countries. The value of natural capital could be assessed in different ways like the physical quantity of natural capital or the price effect. Globally, subsoil rents are dominant drivers of the high value of natural capital. Developing countries depending on natural capital face the challenge of limited economic performance due to various factors associated with resource curse. Extraction of non-renewable resources is unsustainable, but a reinvestment of produced revenues could lead to new opportunities and the beginning of a structural transformation to a less resource dependent economy.

Between 1995 and 2005 intangible capital contributed the highest amount to an increased standard of wealth in developing and developed countries, while in developing countries natural capital accounted for 13 per cent of total wealth growth and only 1 per cent in countries of the Organisation for Economic Co-operation and Development (OECD). The assessment showed a decline of the influence of natural capital on wealth in Sub-Saharan Africa. The impact of natural capital varies depending on the type of resource. Therefore, a detailed analysis is crucial to understand the function of natural capital and its participation in the development process. In developing countries, subsoil assets are dominant drivers of growth considering the influence of natural capital (see Figure 4-5). Significant factors of natural capital are prices/unit rent and physical quantity. Between 1995 and 2005 unit rents of subsoil assets were the biggest contributor to total wealth change with 6 per cent while exhaustion time followed with 4 per cent as depicted in following Figure:

Figure 4-5: Influence of natural capital on total wealth in developing countries; Source: World Bank, 2011:54



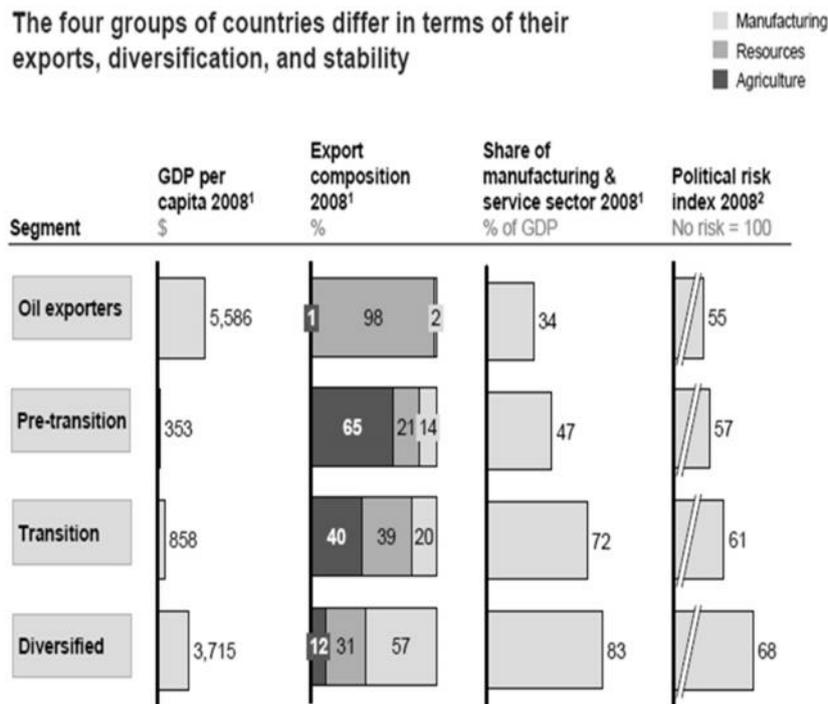
Due to differences between different regions, the World Bank divided the developing countries into categories. Sub-Saharan Africa together with South Asia are the most significant regions in this content analysis. In these regions, land value and pastures declined by 25 per cent and 23 per cent respectively, with Nigeria and South Africa being the largest contributors. While, in the other countries the impact remained constant. The primary influencing factor was the fall of prices. The subsoil assets increased in value by 17 per cent between 1995 and 2005 which remains central even after the exclusion of Nigeria. This growth was influenced by price and production increase. North Africa falls in the same category as the Middle East, a region where subsoil asset value growth took place.

4.4. Level of economic diversification

4.4.1 The McKinsey Global Institute (2010) Report

Historically, Africa attracted foreign investment due to the fact that it is rich in natural resources, but the importance of other sectors like telecommunication, banking or tourism has increased. In addition to financing development, foreign companies can help with the transferring of technology and skills.

One of the four ways in which African countries are classified, is according to the rate of diversification of their economies. Morocco, South Africa, Tunisia and Egypt are examples of countries with diversified economies which means they have advanced manufacturing industries and service sectors (see Figure 4-6). Furthermore, they are also essential players in Africa's growth path. Citizens of countries with diversified economies have a discretionary income which improves the domestic economy due to higher consumption and investment. The challenge facing diversified African countries is the need for the further improvement of qualitative and quantitative exports. Additionally, countries have to increase their service sector to achieve higher employment opportunities. Employment in the service sector involves higher education which is lacking in African countries. Although a diversified economy signifies post-extractivism, diversified African economies face the difficulties of high unemployment and limited human capital, which are negative aspects of neo-extractivism. Therefore, a complete transition towards post-extractivism is required to increase standards of living.

Figure 4-6: Four clusters of African economy; Source: McKinsey, 2010

4.4.2 The UNCTAD (2012) Report

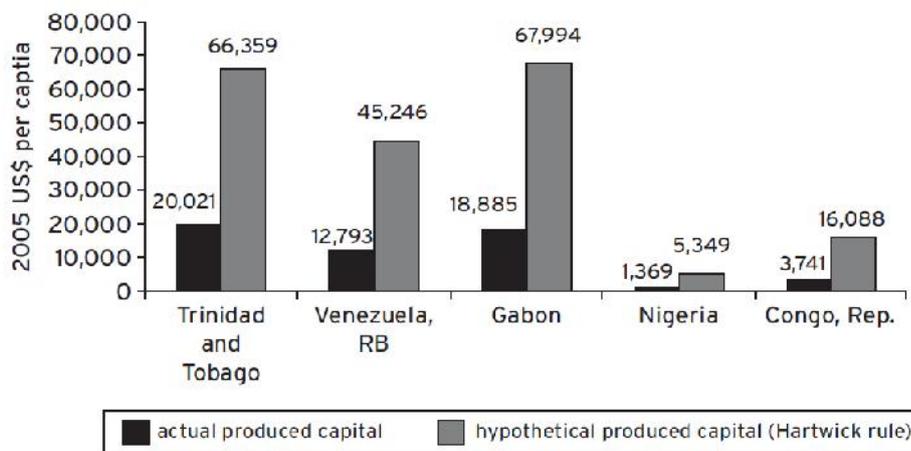
UNCTAD suggests sustainable structural transformation (SST) as the solution to Africa's problems. While, the general meaning of SST is defined by UNCTAD, practical application will vary from country to country due to different challenges, resources, potentials, etc. Major parts of Africa were identified as basing their economy on agriculture and commodity exports, and as requiring a transition to a more diversified economy namely to post-extractivism to provide more job opportunities and economic stability.

The literature review identified investment as a component of growth economy in Africa with benefits for a wide range of participants (see Section 2.7). The UNCTAD report stated the key role players of SST as being investment and technology, which are interconnected due to the need of investment in technology. Resource rents are the engine of economic growth in Africa, as outlined in the McKinsey report as well (see Section 4.3.1). As stated by Ross (2001), resource rents are a platform for further growth, but proper management has to take place. This involves for instance reinvestment. The percentage and type of reinvestment will vary from country to country, but government has to make decisions based on consultation with various stakeholders. In the neo-extractivism approach state activities and responsibilities increase which is a requirement for a sustainable reinvestment process (Aguilar, 2012:7) but it also shows difficulties in the application process due to unstable governments. Funds could be used for the reinvestment process, subject to strict controls and guidelines. Furthermore, UNCTAD identifies technology as the common factor of SST, especially to improve productivity.

4.4.3 The World Bank (2011) Report

The definition of sustainable development in the World Bank report is based on the Hartwick rule (Hartwick, 1977 in World Bank, 2011:9) according to which further extraction of natural resources is acceptable if the resulting revenues are reinvested. An aspect of resource curse is the limited reinvestment of natural resource revenues (see Section 2.4). The World Bank report evaluated the actual reinvestment in produced capital and the possible outcome of total reinvestment in produced capital in five resource-rich countries as shown in Figure 4-7 below:

Figure 4-7: Comparison of actual and hypothetical produced capital; Source: World Bank, 2011:10



The extensive gaps between actual and hypothetical produced capital are depicted in Figure 4-7, which supports the hypothesis of limited reinvestment in resource-rich countries, as described by McKinsey (2010), and the existence of mainly conventional extractivism. An assessment of a large number of resource abundant countries reflects an increasing gap between actual and hypothetical produced capital.

The improvement of the standard of living requires national wealth in combination with investments and savings as a financial tool (World Bank, 2011:37). Measurement of adjusted net saving (ANS) represents the level of sustainable growth which reduces the net national savings by environmental degradation and adds education expenditures. Positive results appear by reinvesting resource rents into other types of capital. This measurement is a supportive method to improve extractive industries by introducing neo-extractivism and finally post-extractivism. The emphasis on non-renewable resources is critical for future generations due to their finite nature. Depletion of these resources without replacement will affect the global system negatively at some point in the future.

Once essential natural resources are depleted and the country has to find other options for further development. Measuring ANS is a helpful tool for a general overview of wealth, but details are questionable like the equality of national wealth distribution especially in the areas where environmental degradation takes place (World Bank, 2011:37). Other countries achieve higher benefits but they do not face challenges resulting from resource extraction. Additionally, environmental pollution also influences other countries globally. However, reinvestment in sustainable assets like human capital and manufactured products are unavoidable in resource-intensive economies following principles of sustainable development by initiating a transformation towards post-extractivism.

4.5. Institutional / governmental quality

4.5.1 *The McKinsey Global Institute (2010) Report*

It is often alleged that natural disasters, war and poor government policies could terminate growth in Africa. The McKinsey Global Institute highlights the existing potential of growth which is stronger than these threats. Although, there are a variety of challenges like poverty, diseases and civil strife, growth causes internal structural changes in Africa, which result in a higher level of stability.

The resource curse phenomenon identified governmental structure as contributing to or working against the resource curse (see Section 2.4) which led to a special acknowledgment of governmental actions and responsibilities in neo-extractivism. The McKinsey Global Institute stated that the reduction of serious political conflicts² (from 4.8 in the 1990s to 2.6 in the 2000s) encouraged and nurtured economic growth. The increased political stability was related to the reduction of the inflation rate (from 22% in the 1990s to 8% in the 2000s), foreign debts (from 82% in the 1990s to 59% in the 2000s) and budget deficits (from -4.6% in the 1990s to -1.8% in the 2000s). Policy up-grading improved economic growth significantly. Although Africa started only with policy up-grading as the first step of improved governmental quality, good results emerged from the reform. A general trend of higher political stability introduced new business opportunities and an estimated annual revenue of \$2.6 trillion by 2020. Additionally, these improvements make it possible to hope for further transitions of extractive industries in Africa.

4.5.2 *The UNCTAD (2012) Report*

According to the UNCTAD report, Africa has to initiate a sustainable structural transformation (SST) which involves policies to support desired transformation including the relative decoupling of

²Serious conflicts were measured when the death rate was higher than 1000 people a year (McKinsey, 2010:12).

natural resource use and environmental impact from the economic growth process. When taking Africa's existing challenges into consideration, it is obvious that it is important not just to achieve simple economic growth but rather economic growth of high quality (see Section 2.7).

Designing a SST strategy opens up numerous questions of priority ranking. Government has to identify sectors and resources with premier opportunities and potential to sustain long-term growth. Therefore, various strategies will arise depending on the context of a country. General aspects have to be included in all strategies, like productivity in agriculture, industry and energy. Additionally, manufacturing activities are a priority in the process of ensuring a sustainable future, resource efficiency and pollution/waste mitigation. In terms of food supply, agriculture contributes to Africa's system due to its high potential and the dependency of citizens on agriculture for their livelihood. The global trend towards renewable energy is an opportunity for Africa to fill increasing energy demand.

The reinvestment process, which was identified by UNCTAD to be a crucial component of SST, neo- and post-extractivism, requires governmental control and further tools to ensure that revenues are well-spent. Accountability and transparency are the key words in this context, for instance through publication in newspapers. Furthermore, decisions made by the government have to involve a variety of stakeholder to ensure acceptance and beneficial results.

SST has to be supported by a "developmental state" as stated by UNCTAD. While there are different meanings of developmental state, some crucial aspects are outlined in the report under discussion. The government has to be strong and take control over the economic system via policies and institutions without eliminating the private sector as suggested by neo-extractivism. Clear settings of SST objectives are coordinated by the government plus incentives for proper and penalties for inadequate fulfilment. This involves proper measurement of outcomes of implemented policies in form of monitoring and evaluation. Adequate capability is required from the government to initiate a structural transformation. This aspect is problematic in most African countries. For instance, monitoring and evaluation is limited in Africa but essential for a progressive transformation. A supportive tool to existing and deeply rooted governmental challenges is the international community. Technical support from for instance the United Nations, or transfer of new technologies could be helpful. A variety of policy options was presented in the report regarding energy, industry and agriculture with the emphasis on decoupling of resource use and environmental impact from the growth process and productivity improvement. Every individual country has to choose needed and helpful policy tools. SST cannot be seen as a "one-size-fits-all" solution.

4.5.3 The World Bank (2011) Report

Aspects of the resource curse listed in the previous section (see Section 2.4) can be changed by proper resource management or in other words by transitions towards neo- and post-extractivism. Policies play a major role in this process. The primary duty of government is the implementation of policies in support of “social welfare” which is limited by unsustainable resource management (Kelley, 2012:37). Non-renewable resource extraction is unsustainable, but revenues can be used to improve other forms of capital which influence the total wealth composition. Three areas have to be supported by policies initiating a transition towards neo-extractivism or post-extractivism. Firstly, the efficiency of resource extraction has to improve to increase resource rents, which have to be managed by policies. Taxation and royalties systems have to be supported by adequate policies. Lastly, clear policies have to be generated for the reinvestment process (World Bank, 2011:207). The successful implementation of policies is another risk due to the partly limited quality of government, and resource availability. Good governance and accountability are essential for the functioning of these policies. Transparency is used as a tool to support aspects of good governance. Accountability involves information and evidence, which can be generated by transparency. Additionally, it can put pressure on the decision makers to justify their actions to citizens. Strong institutions support this process, while resource extraction has the tendency to limit the quality of weak institutions even more. The quantification of natural capital and the total wealth account provides a better understanding for all participants, which endows policies with higher quality and the required accountability. Governance of high quality should be associated with the more sustainable forms of extractivism, namely neo- and post-extractivism.

The whole value chain of resource extraction has to reflect accountability. For instance the Extractive Industries Transparency Initiative (EITI) established in 2002 at the World Summit on Sustainable Development promotes sustainable development by monitoring the whole value chain of extractive industries. Additionally, EITI++ developed by the World Bank Group monitors generated, invested and captured resource rents in the whole value chain. A combination of EITI++ and a wealth account leads to the participation of extractive industries in long-term development. A wealth account will show that the loss of natural capital should be replaced by investments in manufactured or human capital. Botswana sets an excellent example of good resource management. Although, EITI has not been implemented due to the existence of high quality institutions, Botswana’s government publishes resource revenues in public papers and practises open discussion of revenue usage. A thorough monitoring of resource extraction and transformation into sustainable capital has led to the increased growth of total wealth in Botswana.

Wealth accounting is a supportive tool meant to help achieve sustainable development and thus post-extractivism. The World Bank strives to a broad implementation of wealth accounting systems which can produce more accurate data than assessments of the World Bank. Furthermore, the resulting data influence existing and appearing policies within a country. Detailed information about

a country's situation regarding wealth composition allows the government to take better actions based on qualitative information. The World Bank analysed the existence of wealth accounting systems in various countries and found that there was limited implementation. Although, developing and developed countries have implemented wealth accounting systems, the majority of African countries have not done so and have not faced the problem of lack of resources to implement such an account.

In addition to the management of resources, policy makers have to consider the problems associated with resource extraction. In Section 4.2 social and environmental impacts were outlined which put intense pressure on local and global societies and which are primarily caused by conventional extractivism. For instance, policies considering economic and climate aspects are necessary to limit the social cost of CO₂ emission. Extractive industries are CO₂ emitters, and thus, policies regarding climate change or emission reduction influence them directly. On the other hand Africa with its high poverty rate has to consider the social aspects in policies by supporting the most vulnerable citizens (Ross, 2001:9; see Section 2.6).

4.6. Conclusion

This analysis revealed significant aspects regarding extractive industries and the role of natural resources in Africa. Numerous aspects are in line with issues discussed in the literature review, but it is also crucial to consider some new approaches outlined in the three reports. The McKinsey Global Institute, UNCTAD and the World Bank reports specialise in various areas and they analysed various issues, in particular focusing on development in Africa/developing countries. Agreements on some areas were identified, like on the importance of a diversified economy. The resource-intensity in Africa and in developing countries is mentioned in every report. While, the McKinsey report identified it as a huge potential for further development, UNCTAD and World Bank emphasised the needed diversification of an economy if it is to achieve sustainable growth. Proper natural resource management supports the first step of development but long-term growth can only be achieved by reinvesting resource revenues in other types of capital. A necessary transition towards neo- and post-extractivism can be achieved based on the discussed topics such as diversification, reinvestment, governmental stability and consideration of social and environmental impact. Additional aspects broaden the understanding of neo- and post-extractivism.

A limited assessment based on a narrow view is dangerous by producing unreliable data. The economic perspective is indeed essential for every development process, but the consideration of GDP as the only indicator for economic growth is problematic. As presented in the World Bank report, total wealth of a nation is dependent on three types of capital – natural, produced and intangible – which are measured in different ways like level of school enrolment or mortality rate. The UCTAD report used material flows to highlight the significance of natural capital in the

economic process and further. Although UNCTAD identified a continuous growth in various areas like material extraction, trade or consumption, Africa growth is limited and requires more nurturing, considering the global average and the difference between total and per capita figures. Because of the highlighted importance of a broad perspective, extractivism and the resource curse have to be viewed from different angles.

Social and environmental impact

McKinsey stated the existence of social risks in Africa and the requirement of further improved human wellbeing, while details were presented by UNCTAD and World Bank. The UNCTAD report described the high costs of further unsustainable development which generates greater pressure on an increasing number of citizens in Africa and the high level of poverty, and it is associated with conventional extractivism. The environment is used as a tool to achieve economic growth without consideration of the resulting risks. GHG emission is an initiator of climate change which has an impact on the eco-system. There is an imbalance between the costs of the producers of emissions and those who have to face challenges as a result of GHG emission. Industrialised countries are the biggest emitters, while Africa has to struggle with the consequences of climate change. Furthermore, trade involves another critical aspect of burden transfer. Resource extraction takes place in Africa and has an impact on the eco-system, but a larger share of the profits accrue to industrialised countries which use raw materials to manufacture goods, thereby producing job opportunities and higher revenues due the additional value of end products.

The difficulties associated with climate change and the distribution of emissions was outlined in the World Bank report as well. The social aspect was discussed in the form of intangible capital making the highest contribution to wealth growth in developed and developing countries. Human capital in particular is essential to achieve an increase in total wealth. The transition from natural capital to a higher priority of intangible capital is reflected in the EKC and in the transition towards neo- and post-extractivism. Natural resources are primarily used in industrialised economies rather than service economies which require intangible capital.

The influence of resource revenues

According to all three reports natural resources are the foundation of Africa's growth. This highlights the importance of the practiced approach of extractivism. The McKinsey Global Institute supports further development based on natural resources due to their enormous potential. Four clusters of economies were identified in Africa, and three of them primarily use natural resources as economic driver. The cluster of oil exporters generates the highest GDP in Africa, while opportunities for transformation to a more diversified economy are available. Transitional and pre-transitional economies are less developed than oil exporters and diversified economies, but

existing potential like diamonds in the DRC could lead to sharp development acceleration after the achievement of political stability and the application of sustainable resource management.

The UNCTAD report agrees on the general tendency of growth in Africa. However, detailed analysis showed that it is limited growth in comparison to global growth. Additionally, population growth reduces development progress. This is represented by the comparison between total and per capita figures. Non-renewable resources are key role players in material extraction and export, while consumption per capita is below the global average. Limited sustainable development primarily represented by conventional extractivism, is reflected by low material productivity which is urgently required to lift the burden on the environment.

The contribution of natural capital in particular subsoil assets to total wealth is higher in developing than developed countries. In agreement with McKinsey and UNCTAD, the World Bank recommended using commodity revenues as a platform for further sustainable development, instead of seeing natural resources as a long-term development option.

Level of economic diversification

Although, diversified economies generate less GDPs than oil exporters, they have a higher level of income, job opportunities and political stability. The McKinsey Global Institute identifies natural resource as an initiator of further investment, which results in higher levels of diversification and managed sustainability. The UNCTAD report suggests sustainable structural transformation as a solution to balance the needs of economic growth and the danger of environmental pressure. This supports an initiated transformation towards neo- and post-extractivism, as stated in Chapter 2. Investments especially from resource revenues are necessary to achieve a diversified economy, which is supported by the World Bank report as well. The phenomena of resource curse and conventional extractivism limit the sustainable reinvestment process in resource-rich countries. Tools, like the adjusted net saving (ANS) measurement, ensure real wealth contribution rather than narrow economic growth. This is helpful in ensuring the transformation of extractivism in line with sustainable development. For instance, ANS reduces national net savings by environmental degradation and by adding education expenditures. Measurement and monitoring results are identified to be the responsibility of the government.

Institutional/governmental quality

Political stability and strong institutions are an advantage for sustainable growth. Additionally, according to McKinsey's analysis, growth caused structural changes in Africa. Sustainable structural transformation, according to UNCTAD, requires policies to support productivity, priority ranking of governments and control of investments with major consideration of accountability and transparency. A developmental state has to fulfil these requirements. The World Bank outlined

three sections of policies to support social wealth – efficient extraction, royalties and taxation systems, and reinvestments. Furthermore, specific policies have to consider environmental and social impacts as stated at the beginning of this report. While neo-extractivism encourages an active state with its involvement in resource management, details of an efficient government are limited. Criteria like accountability or transparency add essential factors to neo-extractivism.

In conclusion, a sustainable structural transformation is a priority in Africa if it is to achieve an improvement of total wealth by reducing the pressure on the environment, and to achieve a diversified economy. This statement is linked to extractivism transformation. The needed move away from conventional extractivism, which is the main contributor to social and environmental impacts, highlights the importance of practicing neo- and post-extractivism in Africa. Potential of natural resource could be used as a platform to a more sustainable and developed economy by the reinvestment of resource revenues. A narrow consideration of GDP growth is insufficient due to the wide range of existing challenges which are not necessarily removed by simple GDP growth.

Table 4-1: Overview of content analysis: McKinsey, 2010; UNCTAD, 2012; World Bank, 2011

	McKinsey	UNCTAD	World Bank
Social and environmental impact	Limited consideration	Costs in future for unsustainable development put pressure on growing and poor populations.	Intangible capital contributes significantly to total wealth.
		Climate change affects Africa, although its contribution is small compared to that of industrialised countries.	

Resource revenues	Oil exporters contribute highest GDP. Transitional and pre-transitional economies have great potential for accelerated development based on natural capital, after achieving political stability.	African growth is limited in comparison to global average and population growth. Major focus is on non-renewable resources.	Natural capital contributes to total wealth composition in developing countries rather than developed ones, which could be used as a platform for further sustainable development before the limits of
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			resources are reached.
Importance of natural resource revenues for the economic system in Africa/developing countries			

Diversified economy	Diversified economies have lower GDP but better standards of living like job opportunities, and higher income and political stability compared to oil exporting countries.	SST requires investments to achieve a diversified economy.	A sustainable reinvestment process is limited in resource-rich countries. Tools like ANS could be used to ensure this process.
	Importance of a diversified economy to sustain economic growth and improved human well-being		

Institutional/governmental quality	Growth caused structural transformation in Africa and political stability influenced growth.	SST requires support of policies to improve productivity, control investments and monitor priority rankings.	Policies for efficient extraction, royalties and taxation, reinvestments, as well as specific challenges existing in a country increase social welfare.
	Importance of institutional/governmental stability and efficiency		

5. Case Studies

5.1. Introduction

Natural resources are key role players in the economy of various African countries. As a narrow consideration of GDP growth has been identified as insufficient, a broader perspective of two resource abundant countries is presented in this report. Based on the gained knowledge of the literature review and content analysis in the previous chapters, Nigeria as an oil exporter and representative of conventional extractivism and Botswana as a mineral rich country with more stable institutions and a representative of neo-extractivism are assessed, adding a practical aspect to the foregoing sections.

Nigeria is known for its oil and gas resources, these contribute about half of the national GDP, 85 per cent of government's revenues and more than 90 per cent of exports (Gboyega et al., 2011:7). Other natural resources especially agricultural products such as cocoa, cashew, and yam, as well as minerals like limestone or granite are available in Nigeria but rarely used (Omofonmwan and Odia, 2009:26). Although Nigeria possesses a huge variety of non-renewable and renewable resources, a high percentage of the population lives below the basic standards due to unemployment, poverty and political instability (Gboyega et al., 2011:7). National statistics present one of the highest figures of poverty in the region of the Niger Delta, where oil and gas resources are primarily extracted (Omofonmwan and Odia, 2009:26-29). Resource extraction in the Niger Delta impacts the environment and society in various ways and with different intensities. Poor citizens within this region suffer from a lack of opportunities due to the destruction of their sources of livelihood and from poor health due to pollution and destruction of the environment. Before the discovery of oil, the majority of the population in the Niger Delta practised agriculture and fishery to make a living (Aluko, 2004:64-66). Then the existing reserves of the "black gold" attracted multinational companies. Oil explorers considered revenues rather than social risks and environmental pressure. This resulted in a rising poverty rate and the frustration of citizens. Political instability in Nigeria is rooted in the oil extraction and unequal resource management which is made worse by wide-spread corruption (Muller, 2011:81-82). Due to increasing awareness of a needed change or due to the global pressure, Nigeria took the first steps towards the transition to neo-extractivism - a more sustainable system and one that will benefit the Nigerian population rather than a limited elite group or international businesses.

Botswana is a mineral exporting country with main resources like diamonds, nickel, copper, gold and coal. Natural resources accounted more than 80 per cent of total exports in 2002, while contributing about 40 per cent to nation's GDP (Iimi, 2007:669). Diamonds are the strongest component of natural wealth in Botswana with about 95 per cent of the total natural/mineral capital. This has been used to transform the economy. Botswana follows the neo-extractivism approach by

continually attempting to reinvest resource revenues. There are strict regulations with regard to sustainability aspects. Mineral resources are the key role player in Botswana's economic structure (Lange and Wright, 2004:493-495). According to an analysis in 2007, diamonds contributed 45 per cent to the government's revenues, and accounted for 35 per cent of Botswana's GDP and 75 per cent of country's export revenues (Martin, 2008b:40). Stable government and regulations support sustainable resource management in Botswana, generating economic growth instead of being trapped in the resource curse. Although, researchers view Botswana as a role model for adequate resource management, a drop in the Human Development Index (HDI) due to low standards of living, a challenging HIV/Aids rate, and a high level of poverty and inequality lead to a critical evaluation of existing structures and the rate of transformation towards post-extractivism.

Both case studies have been chosen to highlight the problems associated with the extractive industry and mentioned in the literature review, and to add a practical application. Botswana is identified as a positive example of sustainable resource management and accelerated development. However, existing challenges are interconnected in the system and this plagues the country despite continuous development and economic growth. On the contrary, Nigeria generates high GDPs but social and political instability overshadows this positive growth. Efforts to transform the existing system are identified in Nigeria but limited results can be presented.

These countries were chosen due to their state of development and the types of extractivism practised. They are resource-intensive economies with transformation initiatives being implemented. Both countries are evaluated in the next paragraphs. The main focus is on the existing problems, the implemented or intended transitions with their complications and benefits. There are differences between oil/gas resources and mineral resources which are insignificant for the purpose of this research. The difficulties in resource management and the implementation of proper regulations depend on the context of the country. In this research an example is presented in order to challenge existing theories regarding the process of practical application. There is no attempt to be comprehensive.

5.2. The background of Nigeria and its extractive industry

After a long searching period of around 30 years, Shell, as a foreign company, could present evidence of oil reserves in the Niger Delta of Nigeria in 1956 (Omofonmwan and Odi, 2009:28). Within two years, oil became an essential exporting product yielding high revenues. Presently, Nigeria is Africa's largest oil producer and the seventh largest exporter in the world (Reuters, 2010 in Okpanachi, 2011:27). The oil and gas sector is the strongest player of Nigerian's exports, accounting for 90-95 per cent of exports (Okpanachi, 2011:27). The Niger Delta is commonly mentioned as the largest area of oil extraction in Nigeria, but in fact, 9 of the 36 states contribute to domestic oil production. Additionally, Nigeria produced more than 37 billion barrels of petrol

reserves and over 5 trillion cubic metres of natural gas in 2008 (Gboyega et al., 2011:9). Although, the oil and gas resources have the potential to contribute to the acceleration of development in Nigeria, various challenges have occurred due to the resource extraction being based on the conventional extractivism approach, and historical events which limited the realisation of possible benefits and opportunities.

After independence in 1960, two military regimes from 1966 to 1979 and from 1984 to 1999 took control of Nigeria's political system. There was also a civil war and a low standard of living (Gboyega et al., 2011:11). During this time, rulers managed revenues unsustainably and carelessly. Between 1960 and 1999 the military rulers stole around 400 billion dollars of oil revenues. This was revealed by the Economic and Financial Crimes Commissions (EFCC). According to data, Nigeria's population suffered as a result of management and leadership based on individual short-term interests. For instance, by 1999, 67 per cent of the citizens lived below the poverty line and 33 per cent in extreme poverty. The attendance of primary school dropped, which led to a high rate of illiteracy and unskilled citizens. The lack of infrastructure and unemployment contributed to a situation of underdevelopment and dramatically reduced human well-being (Okpanachi, 2011:27-28). These challenges are related to social and environmental impacts resulting from an unsustainable form of extractivism namely conventional extractivism.

In 1999, democracy was established in Nigeria introducing hope of structural transformation and an improvement in the living standards of citizens (Okpanachi, 2011:28). Reorganisation and reforms took place which raised hopes that there would be a transition towards neo-extractivism, but deeply rooted corruption has enriched a minority rather than the majority of the population (Smith, 2010:255). The political system is dominated by the three main ethnical groups - Hausa-Fulani, Igbo and Yoruba (Manby, 2000:3). Before independence, a system of central (federal) government and regional governments were implemented. At the beginning of this implementation only three regional governments were registered but this number increased steadily, and by 1999, 36 governments were officially registered with major power being vested in the federal government and strong dependence of regional governments with regard to national revenues. The central or federal government is ruled by the three major ethnic groups, which causes tension between major and minor ethnic groups (Manby, 2000:3). One of about 250 minority groups lives in the Niger Delta, where oil extraction takes place (Obi, 2009:114).

Because of the historical relationship with European countries and especially with Great Britain as the colonising country, Nigeria is connected to foreign countries, and allowed the entry of multinationals into the oil sector. Shell, Exxon-Mobil, Chevron-Texaco, Total and Agip were the main international oil companies in Nigeria. Oil production is founded in joint ventures and production-sharing contracts controlled by multinationals, while the government holds around 60 per cent of the equity. An attempt to introduce local companies into the oil sector achieved limited success due to the dominant position and stability of international corporations (Gboyega et al.,

2011:10). In addition to the tension between the federal government and the community in the Niger Delta, multinational concerns participate in the existing conflict by receiving the major amount of oil revenues (Muller, 2011:73). This is one of the major challenges associated with conventional extractivism. The influence of foreign companies and historical structures has various effects on Nigeria. These will be discussed in the following section.

5.3. Problems experienced by Nigeria due to the extractive industries

The main source of oil and gas resources is the Niger Delta. With 80 per cent of the national revenue, this region contributes the most to Nigeria's economy, but citizens in this area suffer from poverty as well as poor infrastructure, unemployment, HIV/Aids and inequality (Omofonmwan and Odia, 2009:26). Oil extraction continually destroys the eco-system and this has an impact on the indigenous society which used to base their style of living on nature. Fishing and farming became impossible while no new opportunities were created. This increased the poverty rate (Aluko, 2004:64-66). There is inconsistency between economic growth and human well-being in the Niger Delta. Therefore, narrow assessments based on indicators such as GDP are unbalanced and misleading as stated in the content analysis (see Chapter 4). A broad picture of the situation within a country or region has to be drawn in order to make the right decisions with regard to the further development process and in order to support the transition towards neo-extractivism as a first step.

Based on the connection between the political system and resource management in Nigeria, aspects of neo-extractivism were identified. The federal government has complete control over resource management as stated in the constitution of Nigeria. Local governments are strongly dependent on revenue distribution organised by the federal government (Manby, 2000). The Nigerian National Petrol Corporation (NNPC) is the coordinating tool for resources on behalf of the government, with the responsibility of granting licenses for oil extraction (Muller, 2007:74). Multinational companies receive permission to extract oil without due consideration of environmental impact assessment and strict restriction regarding the level of pollution allowed in the air, water and soil; removal of oil spills or limitation of gas flaring. There is no penalty fee for environmental destruction, which frequently occurs due to sabotage or general resource extraction. Therefore, oil producers ignore the option of, for instance, security to reduce risks of sabotage and further pollution (Mandy, 2000:4). While, local citizens practised agriculture and fishery before oil was discovered, a large percentage of land is now unproductive due to pollution with estimations of irreparability. The possibility of making a living from the ocean has decreased due to health risks like cancer and bronchial asthma and fishermen are now often unemployed (Aluko, 2004:65). Ignorance regarding protection, due to the assumption of the land belonging to someone else, influences the social and economic system. The Niger Delta faces problems such as environmental destruction, instability, illegal activities, health risks, poor infrastructure and high

unemployment of indigenous citizens (Omofonmwan and Odia, 2009:26), although, a transition from military regime to democracy took place more than ten years ago. The political transition brought the hope of improvement and stability (Okpanachi, 2011:27-28). The existence of social and environmental impacts and the governmental control over natural resource management, presents aspects of conventional extractivism and neo-extractivism. In Chapter 4 – a content analysis - the challenges of balancing the interests of the emission producer and the cost bearer were discussed. Although, the UNCTAD report (2012:54-55) described the tension associated with climate change in a global context, the arguments could be applied to a national context in Nigeria. The Niger Delta has to deal with intensive consequences of resource extraction but natural resource revenues flow to the federal government and to oil producing companies which are primarily situated outside Africa (Muller, 2011:73-74). If there is to be sustainable development in Nigeria, there is a need for redistribution of revenues directly or indirectly through investments in specific projects. The neo-extractivism approach should be followed which has to consider an equal redistribution.

However, the unequal distribution of resource revenues is a fundamental challenge to the proper functioning of the extractive industry in Nigeria, even in the practice of neo-extractivism. The differences between ethnic groups and between regions are initiators of conflicts and hamper further development. The government has the responsibility of coordinating and easing these challenges. Policies are tools that should support a stable structure of redistribution and other aspects of the extractive industry (Obi, 2009:111). However, corruption influences every system and a deeply rooted corruption can bring a whole system to a fall. Nigeria is a young democracy with structures entrenched in the colonial era, further transformation is required, but corruption limits the effectiveness of such transformation (Muller, 2011:81-82). One essential aspect of sustainable resource management is the stability of institutions. Weak government policies nurture unequal actions with a misleading hope of a trickle-down effect. Natural resource have to be managed adequately to achieve improvement in the standard of living, otherwise greed and corruption take over in a system even if it is based on democratic principles, resulting in political instability (see Chapter 2, Section 2.4.2). If the neo-extractivism approach is followed, the state has more control and carries more responsibility with regard to natural resource management. If there is no stability, the chances of a higher standard of living for the society are limited.

The limited flow of revenues to the Niger Delta caused frustration in the region. Non-violent protest was ignored and led to the death of Ogoni activists (Mandy, 2000). After the implementation of democracy in 1999, citizens hoped for a change, for increased awareness and for government support. When it became obvious that these hopes were unfounded, protests became violent. Movements like the “Movement for the Emancipation of the Niger Delta” (MEND), are notorious and often mentioned on the news in connection with kidnapping, sabotage or violent attacks on security forces. In support of a minor ethnic group, MEND’s objective is to take local control over oil

and gas resources (Obi, 2009:121-123). Various researchers have analysed the interconnection of natural resources and rebellions as a factor of the natural resource curse phenomenon which is primarily the outcome of conventional extractivism. There are different types of rebellion like conventional civil war, state-society conflicts or rebellion due to the operation of multinational companies (Swilling, 2012:5). While there is conflict between the state and the Niger Delta, the intervention of multinationals is more important due to the direct appearance of oil producing companies at the place of destruction (Muller, 2011:73).

Multinational oil companies in the Niger Delta, like Shell as the main producer, receive high revenues from oil and gas resources without contributing to the welfare of the community or country (Muller, 2011:73). Infrastructure is limited to the oil extraction process which is perceived as irrelevant or even challenging rather than beneficial by the citizens. Employment is another critical topic in the Niger Delta. Although, oil producing companies have a need for employees, jobs with a high-income level are given to foreign experts due to the lack of skills and expertise of locals (Omofonmwan and Odia, 2009:28). This situation is an example of lack of reinvestment. Revenues are generated with 70 per cent flowing to the central government (Muller, 2011:74) and there is no sustainable reinvestment in other assets like education or infrastructure (see Section 2.7). Neo-extractivism lays the foundation for post-extractivism which provides increasing job opportunities and reduced poverty as a result of a diversified economy, therefore reinvestment has to be practised during the neo-extractivism period with the objective of creating a diversified economy (see Section 2.5).

Furthermore, the lack of policies allows multinational companies to ignore their responsibilities (Aluko, 2004:65). Economic growth might contribute to sustainable development if the principles of sustainable resource management are followed and supported by policies and regulations. As stated in the content analysis in Chapter 4, a limited perspective of development is insufficient. Human well-being is influenced by multiple factors and all problems are not solved by an increase in GDP. In the case of the Niger Delta oil revenues cannot solve the problem of poverty, as reflected by past experience (Omofonmwan and Odia, 2009:28). Stricter regulations are required to ensure a general improvement of humans' well-being. Corruption challenges the efficiency of policies and institutions. The malfunction of social projects and regulations is often caused by corruption, which is dominant in Africa and especially in the oil industry (Mandy, 2000:4).

5.4. New trends and transitions in Nigeria

Due to violence in the Niger Delta, special security committees for oil producing areas were formed after 1999 to promote peace in this area. The Nigerian National Petroleum Cooperation (NNPC) and oil companies supported efforts to bring about peace and reforms by introducing various projects to develop infrastructure, the community system, or the human capital through training

programmes, scholarships or health support. But real transformation was seldom seen due to the corruption of governmental officials and lack of resource for detailed monitoring and evaluation (Okpanachi, 2011:34-37). This highlights importance of neo-extractivism and appearing problems of governments in the transformation to neo-extractivism.

The Nigerian government has established different ways of ensuring that an appropriate share of revenues remains in the country and that the outflow to foreign countries is reduced. According to Gboyega et al. (2011:32) 13 per cent of oil revenues are paid to the oil-producing state, although these states need far more in order to meet the challenges they face. A new Sovereign Wealth Fund (SWF) to support infrastructure, savings and stabilisation of oil price fluctuation is on the cards. Past experience shows that the Nigerian budgeting process is inefficient. Although there are public investments, beneficial results are restricted. For instance, spending in the health sector was approximately 6 per cent of the gross domestic product (GDP). The education sector has been receiving funding for the last five years which improved the quantity but rarely the quality of the education system (Gboyega et al., 2011:32-35). The Federal Ministry of Information and Communication (2007) outlined several existing projects in various areas like education, electricity supply, transport system, health and specific projects in the Niger Delta related to its particular situation following the neo-extractivism approach. Although, federal government views these projects as a positive contribution to development, independent evaluation reveals that the major purpose of these projects is political rather than to make an impact on the standard of living of the citizens (Okpanachi, 2011:35).

Environmental destruction as a result of conventional extractivism lowers the standard of living, and thus, stricter rules are required for the protection of the eco-system. The first democracy led by President Obasanjo, introduced a National Oil Spill Contingency Plan to reduce environmental impact. Other measurements like compulsory Environmental Impact Assessments (EIA), stricter controls for and compliance by oil companies were implemented to reduce further damage to the eco-system in the Niger Delta and thereby local communities and the entire country. Monitoring of law-abiding is coordinated by the federal government despite the major destruction on regional level limiting the efficiency of the monitoring and evaluation processes (Okpanachi, 2011:36-37). The Department of Petroleum Regulation (DPR) is an independent regulator of oil management established to supervise oil companies, monitor legal and illegal activities, process licences and enforce mandatory payments. The practical function of the DPR is limited due to lack of human and financial resources. The NNPC, founded in 1971 as the Nigerian National Oil Corporation (NNOC), is the major role player in the petroleum sector. A connected law states a minimum Nigerian ownership of 60 per cent of all foreign businesses. State-owned equities are managed by NNPC. The Nigerian government was granted responsibilities and power in the petroleum sector, which is rarely used (Gboyega et al., 2011:27-28). There are different forms of resource nationalism as major aspect of neo-extractivism, and Nigeria's nationalism could be classified as

revolutionary nationalism due to the creation of new laws and policies (see Section 2.2). This step was necessary in order to move away from the old structures practised during the military regimes, but the new governments did not use their power to the benefit of citizens, especially in the Niger Delta.

Because of problems with institutional and governmental quality, Nigeria established the “Nigerian Extractive Industries Transparency Initiatives” (NEITI) in 2002. Furthermore, Nigeria was one of the first countries which backed up this initiative with a national law - the NEITI Act – in 2007 (Okpanachi, 2011:37). NEITI involves three parties – the government, oil producing companies and civil society. The local citizens are represented by civil society. Transparency involves accountability and providing information about resource management, gaining the trust of citizens and improving the actions of responsible parties. Although, the Nigerian government requires structural processes like audit reports to increase quality and accountability, the contents of these reports are questionable due to inconsistency. For instance, in the audit report for the period 1999 to 2004, there were missing receipts for a total amount of 8.8 million dollars. Additionally, oil producing companies possess power and freedom, which influences the accuracy of what is reflected in the audit reports (Muller, 2011:70-71).

In an attempt to bring about higher accountability in the licensing process, auctions were introduced in 2000 providing competition and openness. In 2005 an auction took place which was attended by experts from Norway and Brazil. During the implementation of open auctions, the concept of “local content vehicles” was introduced. This requires the licence holder to select one Nigerian partner with a minimum share of 10 per cent. Although, the use of public auctions was supported by experts in an attempt to improve transparency in the management of natural resources (see Section 2.7), however, the auction process brought about only partial improvement in Nigeria. Some awards are granted in secret with the government neglecting its responsibility to act with transparency and accountability. The Nigerian government attempted to create a diversified petroleum sector with the participation of the local population but there have been positive results due to increase of transparency and involvement, but negative results like the granting of secret awards and the granting of licences to companies without adequate financial means have dominated (Gboyega et al., 2011:26-27).

The Niger Delta Development Commission (NDDC) has the objective to achieve the sustainable development in the Niger Delta and has attempted to do so in various ways, but consistency and stricter regulations are required in order to ensure further development and for a move towards neo-extractivism (Okpanachi, 2011:36-37).

5.5. Existing opportunities for Nigeria

According to the literature review and the results of the content analysis, natural resources are profitable if a country manages them in the proper way but views on the explanation of the 'proper' way vary. As Ross (2001) stated, resource revenues encourage new investments and prepare a platform for further development. Additionally, the UNCTAD report (2012) and the World Bank report (2011), analysed in Chapter 4, describe the importance of using resource revenues by investing in sustainable assets like human capital. A sustainable reinvestment process results in an economy becoming more diversified by using existing opportunities to finance further development. However, the extractivism approach linked with the EKC requires a transition towards neo- and post-extractivism in order to achieve a diversified economy (see Section 2.5).

Various types of natural resource are available in Nigeria but these faded into the background after oil exploration in 1956. According to Odukoya (2006:254) Nigeria moved from being a net exporter of food to being an importer of food. Various types of food like cocoa, cashew, yam, rice and oranges grow in Nigeria. The timber industry and a diverse range of minerals like marble, clay or granite provide further opportunities to diversify the economic structure of the country. Furthermore, Nigeria is one of the largest producers of cassava and rubber globally (Omofonmwan and Odia, 2009:26). These resources provide opportunities to build the domestic food supply and to diversify the economy. Diversification of other types of natural capital is possible but should be backed by investment in other assets like intangible and produced capital.

Furthermore, the growing population presents the challenge of providing adequate services to fulfil basic needs, but this could be also seen as an opportunity. With reinvestment in human capital, Nigeria's youth will accelerate structural transformation, while the standard of living will improve due the higher level of education and better paid jobs. Educated citizens participate in the reinvestment process and increase labour productivity (Gylfason, 2001: 852). Indirect effects of improved human capital are a higher level of equality, lower fertility rate and better health conditions (Birdsall et al., 2000:4-6). Although, higher quality of education and jobs are beneficial in various ways, one of the problems in Nigeria and in most African countries is so-called "brain drain". Educated citizens move to other countries due to better opportunities, higher incomes and a more sophisticated standard of living (Moss, 2007:177). The loss of citizens pressurises domestic development due to investment in human capital without positive impact on the country (Martin, 2008a:344-345). Development strategies have to take the possibility of brain drain into account by specific regulations and the provision of opportunities.

The Nigerian government cannot be accused of ignorance. Multiple attempts have been made to improve the existing situation, but difficulties have been encountered with the transformation process. The implementation takes place but regardless of the situation or the tool used, multiple problems are revealed during the process despite monitoring and evaluation. A strong driver of this challenge is corruption. Recommendations are related to increased accountability and

transparency through tools like monitoring and evaluation, as well as public auctions, etc. These are required in resource nationalism to develop sustainability. However these tools have proved to be insufficient in Nigeria. Rooted structures and problems are stronger than the newly implemented policies and regulations. Therefore, more detailed policies and regulations as well as higher quality of politicians should be introduced to support the structural transformation to a sustainable Nigeria. Additionally, the diversification process has to be improved by the enlargement of the manufacturing and service industries in Nigeria in order to provide more job opportunities for skilled citizens. These are actions which support the transition towards post-extractivism.

5.6. Background of Botswana's extractive industries

Botswana was colonised by Britain in 1885. After independence in 1966, governmental organisations were established based on traditional aspects of the Tswana culture and British structures. Two aspects of existent institutions at the time of independence were significant in terms of further development. Firstly, political elites had only limited power as the government was accountable to the citizens. Secondly, public participation is part of the Tswana culture, and thus, it was directly implemented in Botswana's new structures. Although, other ethnic groups beside the Tswanas live in Botswana, government could achieve a peaceful and integrative form of development (Martin, 2008b:40-41).

In 1966, Botswana was one of the poorest countries globally (Lange and Wright, 2004:502). Unlike most African countries such as Kenya, Botswana lacks fertile agricultural land (Martin, 2008b:41). Although, there was some mining activity before independence, the discovery of diamonds in 1967 brought about great change. Mineral resources and in particular diamonds have been the main contributors to Botswana's economic growth and transition from an extremely poor country to an upper-middle income country (Jefferis, 2009:61). Almost 80 per cent of the land surface is covered by the Kalahari Desert with seasonal land productivity suitable for cattle breeding (Martin, 2008b:40). Before independence, agriculture dominated by cattle-rearing, accounted for 40 per cent of GDP, but mining industry became dominant after the discovery of diamonds (Jefferis, 2009:62). Due to the focus on rural areas and agriculture, the Botswana Democratic Party (BDP) initially directed its development path towards the improvement of the rural economy and the infrastructure (Martin, 2008b:42). Jefferis (2009:62) states that by 2006 the contribution to GDP of agriculture had decreased to 2 per cent and that of the mining industry increased to 40 per cent.

An abundance of natural resources often leads to rebellion and conflicts within a country. This has been labelled the resource curse (see Section 2.4). Seretse Khama, the first president of Botswana, wisely strengthened the authority of the state with regards to mineral resources. He also did not favour his own tribe but pursued the objective of national wealth, thus reducing the risk of conflicts within the country (Martin, 2008b:44). As described in previous sections, Nigeria faces

rebellion in the Niger Delta due to the unequal distribution of resource revenues (see Section 5.3), which hampers further development. In contrast the political stability in Botswana has kept the country conflict-free and laid the foundation for neo-extractivism.

Although, many countries that are dependent on natural resources in Africa, follow the conventional extractivism approach and have limited economic growth (see Section 2.4), Botswana seems to be an exception due to a constant real per capita income growth of 5.4 per cent per annum (Lange and Wright, 2004:487). Stable institutions established immediately after independence and the discovery of diamonds prepared the way for the transformation from natural capital to other assets, giving Botswana the advantageous edge on other resource-rich country like for instance Nigeria. This advantage is also based on the present practice of neo-extractivism instead of conventional extractivism.

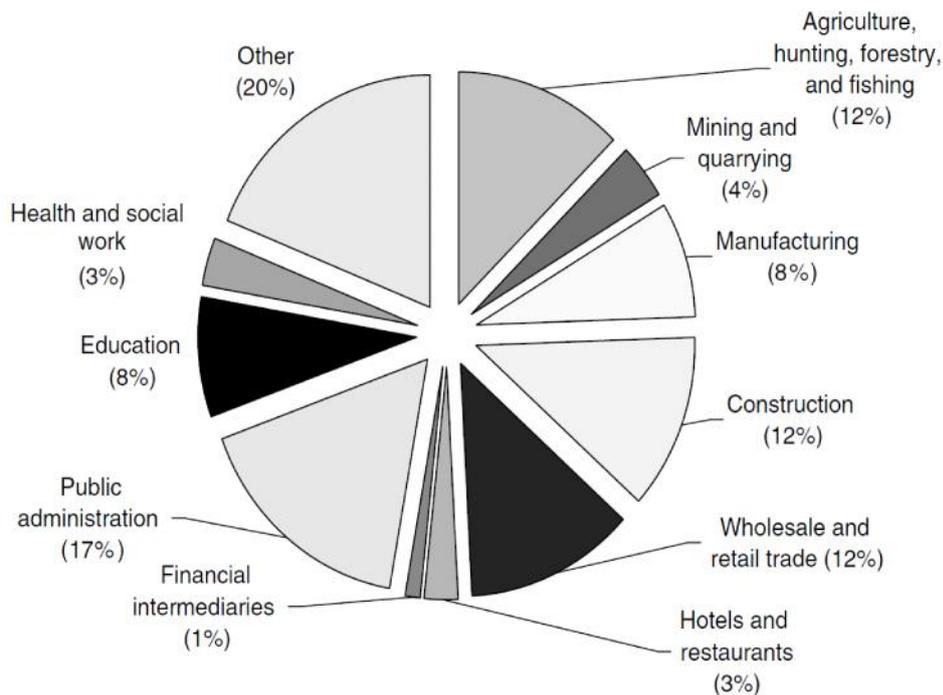
5.7. The status quo in Botswana – economic, social and political

Botswana is the 18th largest natural resource exporter globally with diamonds, copper/nickel and coal as the largest contributors. Above 80 per cent of total exports are minerals. In the last thirty years, Botswana has experienced economic growth, primarily due to the export of diamonds (Iimi, 2007:669). As identified in previous paragraphs and chapters, economic growth based on natural resources tends to be unsustainable (see Sections 2.4 and 4.5.3). Extractive industries are dominated by two companies, De Beers and Anglo American with the increasing appearance of smaller companies (Jefferis, 2009:68). Although, Botswana had to attract foreign investors to implement a proper infrastructure for the mining industry (Martin, 2008b:43), the government ensured the practice of neo-extractivism through strong participation and integration in the extraction process as a shareholder and supervisor (Iimi, 2007:676). The prices of diamonds are regulated by De Beers which has the strongest position in the world diamond market which results in diamond prices being more stable than those of other natural resource prices. Due to the partnership between Botswana's government and De Beers, the diamond industry could achieve high revenues and improve the country's development process (Martin, 2008b:43).

Mining industries provide low-skilled jobs and generally limited job opportunities (Gylfason, 2001:858). Employment distribution in Botswana is depicted in Figure 5-1 below. While African countries are strongly dependent on nature due to the agricultural industry (McKinsey, 2010), extractive industries impact the eco-system negatively, removing job opportunities without creating new ones (Marques, 2008:4). Challenges of unemployment and poverty are emphasised in post-extractivism which encourages a transition towards this approach. The mining industry affects local communities in a similar way as the oil extraction in the Niger Delta described in previous sections. While Nigeria is a densely populated country, Botswana has more opportunities to find new land due to low population density (Jefferis, 2009:74). Although, the lower population rate in Botswana

is to its advantage, the displacement of communities due to mining activities, has a social impact for instance due to the loss of ownership and rights. Additionally, living conditions are influenced by the pollution caused by the mining industry affecting communities living in the surrounding areas directly. Furthermore, sulphur dioxide emission due to mining has an effect on the climate in Botswana and thus has an indirect impact on the entire country (Jefferis, 2009:74-75). Transportation costs in the mining industry in Botswana are extremely high due to lack of access to the sea (Iimi, 2007:669-670).

Figure 5-1: Employment share of industries in Botswana; Source: Iimi, 2007:673



The quality of government and institutions affects the management of resource-abundant countries (see Section 2.4.2). Nigeria experiences problems due to deeply rooted corruption limiting the efficiency of diverse policies and structures (see Section 5.5), Botswana on the other hand is identified as having a stable state with strong institutions and regulations. International assessments confirm the good performance of Botswana's government. Transparency and accountability is supported by various policies. The Sustainable Budget Index (SBI) is used in order to reinvest resource revenues in an adequate manner. Additionally, government manages a Pula Fund for assets which are specifically used for long-term investments. Generally, natural resource management and regulations are controlled by the government in the form of the Ministry of Minerals, Energy and Water (Iimi, 2007:675). In Botswana resource revenues are consistently reinvested in other assets with the main objective being economic diversification (Lange and Wright, 2004:487). The World Bank (2011) identified the importance of total wealth composition in

a country. Lange and Wright (2004:493-494) divided the total wealth of Botswana into three categories: produced assets, mineral assets and foreign financial assets. Between 1980 and 1997 the contribution of mineral resources to the total wealth declined from 57 to 44 per cent, while foreign financial assets increased sharply from 2 to 19 per cent. There are two kinds of produced capital, private and public produced capital. Private produced capital contributed 22 per cent to total wealth of Botswana in 1998, which is a decrease from 29 per cent in 1980. But the share of public produced capital rose from 13 to 16 per cent. Although there is a slight change of wealth composition in Botswana, mineral resources still contribute the highest percentage (Lange and Wright, 2004:494).

In Botswana there is an independent body, established in 1994, that fights corruption. The Directorate of Corruption and Economic Crime has the right to report corruption directly to the President. The low level of corruption in Botswana shows the efficiency of this framework. Furthermore, it proves that there is proper resource management, which is influenced by corruption as presented in the case of Nigeria (see Section 5.5; Iimi, 2007:676)

Botswana's development can be measured by its economic growth but social aspects have also improved since 1966. The level of poverty is high but, according to Jefferis (1997 in Lange and Wright, 2004:487), on the decrease. The almost free education system has resulted in adult literacy increasing from 34 to 81 per cent between 1981 and 2006. The majority of students at primary, secondary and university level are female. The infrastructure has been improved by a broad road network and a telecommunication system. Although Botswana has achieved extensive improvements, various existing challenges such as unemployment and inequality hamper the process of sustainable development and have to be considered in the future. The goal must be transformation of extractivism to post-extractivism (Martin, 2008b:45).

5.8. Challenges and opportunities

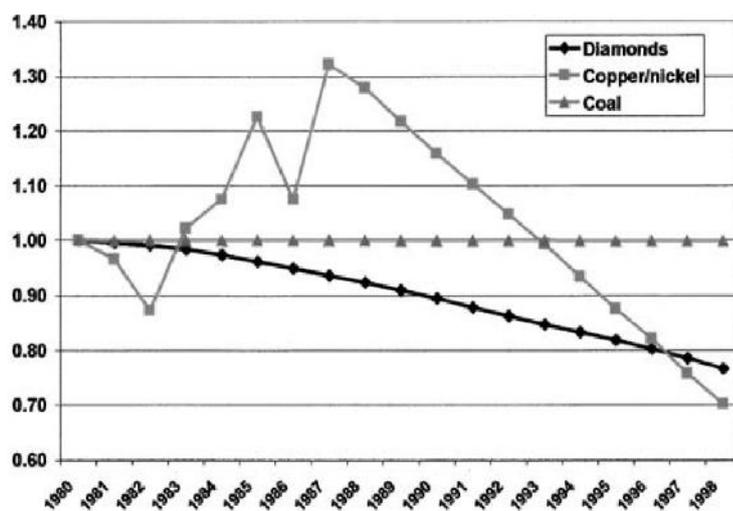
Although Botswana has consistently followed the path of economic diversification, manufacturing industries make up only 5 per cent of the economy and business services make up 10% (Martin, 2008b:45) demonstrating the need for post-extractivism. Natural resources and in particular diamonds are dominant role players in the economic structure (Lange and Wright, 2004:493), bringing about improvement in many various economic sectors, but social change is limited. Mining industries are identified as providing an insignificant number of jobs. Although the population benefits from the improved education system (Lange and Wright, 2004:497), approximately 40 per cent of Botswana's workforce is unemployed. Young and/or educated citizens face the challenge of finding a job. The government and state-owned companies provide employment opportunities for

45 per cent of existing workforce (Martin, 2008b:46). Additionally, inequality levels reached 0.6³ in 2006 (Gini coefficient) which is one of the highest levels in the world (Hillbom, 2008:206). The exclusion of minorities like the Basarwa/San group is reflected in this high Gini coefficient (Martin, 2008b:46). Inequality is interconnected with poverty and often used in addition to poverty as a detailed measurement of the standard of living (Vayrynen, 2005:10). In Botswana, 47 per cent of the people live below the poverty line despite the significant economic growth (Hillbom, 2008:206).

The high HIV/Aids rate is commonly blamed on the mining industry due to migration and the absence of families (Jefferis, 2009:74). Although Botswana's government provided a high quality healthcare system, 37.3 per cent of citizens between 15 and 49 years live with HIV/Aids (Martin, 2008b:47) requiring high public expenditures to the health sector (Iimi, 2007:690). As a result life expectancy decreased from 65 to 35 years between 1992 and 2005, influencing the socio-economic structure. Because of the HIV/Aids rate and the low level of living standards, Botswana's position on the Human Development Index dropped. In 1992 Botswana was in the 95th position, but by 2002 it had dropped to 126th in ranking. This indicates a decline in human well-being despite economic growth (Martin, 2008b:47).

Physical reserves of minerals in Botswana are declining due to more minerals being extracted than discovered. Although, Lange and Wright (2004:492) only studied resource extraction from 1980 to 1998, their findings add to the understanding of natural resource usage and the aspect of a finite level. Coal reserves are constantly available without major extraction or new discoveries, but the reserves of diamonds and copper/nickel are decreasing sharply. This is presented in Figure 5-2.

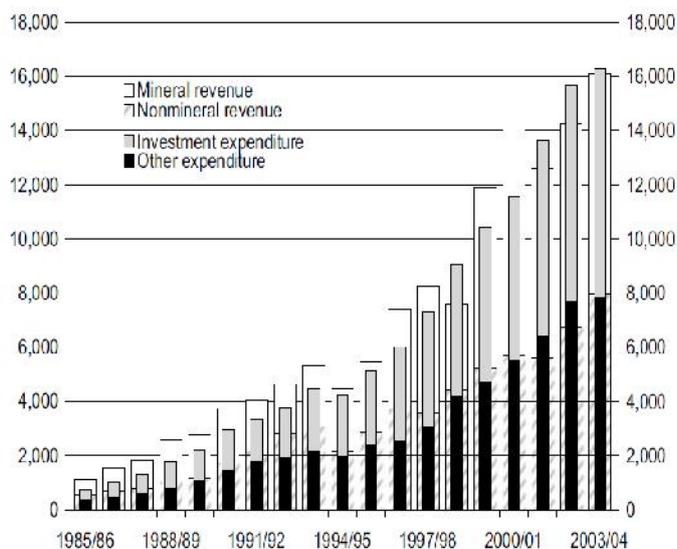
Figure 5-2: Index of mineral reserves from 1980 to 1998; Source: Lange and Wright, 2004:492



³ The Gini index is the most commonly used tool to measure inequality. While 0 presents complete equality, 1 is the highest level of inequality (World Bank, 2013).

Strong decline of diamond reserves demonstrates the importance of reinvestment in other assets before the level of final exhaustion is reached. Botswana follows a strict path of reinvestment of resource revenues by assessment. Figure 5-3 depicts the increase of investment expenditure between 1985 and 2004. Public capital including human capital, manufactured capital and foreign financial assets, is the highest recipient of reinvestment (Lange and Wright, 2004:495-497).

Figure 5-3: Mineral revenue and investment expenditure; Source: limi, 2007:676



Botswana has the advantage of a stable government with supportive policies and a low level of corruption, which are recognised as factors that reduce the risk of resource curse and the negative consequences of neo-extractivism. Diverse regulations emphasising the common wealth instead of an elite minority or ethical group were introduced immediately after independence providing Botswana with more than 40 years of resource management experience. Constant economic growth was identified based on the major contribution of mineral wealth with the essential aspect of reinvestment in sustainable assets. Despite the extraordinary improvement in comparison to other resource-abundant countries in Africa, Botswana faces social challenges like inequality, poverty and unemployment. Therefore, further strategies and regulations are needed to solve these problems and improve the standard of living. The practice of post-extractivism rather than neo-extractivism is necessary to solve existing problems by economic diversification, decrease of extractive industries and the equal consideration of social, environmental and economic systems.

5.9. Conclusion

The existence of the resource curse phenomenon and the importance of extractivism were underlined by the two analysed case studies. Resource abundance within a country provides opportunities and challenges. While, the resource curse highlights the negative aspects of resource intensive economies due to the practice of conventional extractivism, natural resources used as a platform for investment leads to further growth (Ross, 200) (see Chapter 4). Botswana made full use of its opportunities after the discovery of diamonds by establishing structures and regulations for more sustainable resource management. Nigeria was trapped in the socio-political challenges of conventional extractivism which overshadowed the importance of oil and gas resources, in terms of development.

Although Nigeria established tools to improve accountability and transparency in the oil and gas industry, historical instability, conflicts and mismanagement shape the current government. After independence Nigeria experienced military regimes and civil war with self-centred leaders exploiting oil resources for their personal advantage. While Botswana started its resource management based on democratic principles in 1966, Nigeria began more than 20 years later, resulting in less experience than Botswana. High quality of government is reflected in monitoring and evaluation report. In Botswana various details about the extractive industries are included in reports. Although, reports of monitoring and evaluation processes are written regularly in Nigeria, deeply rooted corruption reduces the quality of these reports. For instance, unavailable receipts of payments and secret transactions reveal limited accountability of government despite established regulations.

Both countries have a high unemployment rate and inequality/poverty level. Despite economic growth, citizens and in particular poor citizens, experience difficulties in improving their standard of living. Major problems could be related to extractive industries presenting limited job opportunities and destroying the main source of livelihood of indigenous people. Emphasis on human capital is identified as being sustainable but only if there is growth in the manufacturing and service industries which provide employment. This is not happening in Nigeria or Botswana. The distinction between different types of wealth like natural capital, intangible capital and produced capital helps with the assessment of the situation in a country. Economic growth primarily measured by GDP is a participant to a country's development process but a narrow focus on one aspect of development presents a misleading picture of the real situation within a country. Nigeria and Botswana achieved economic growth due to natural wealth, but intangible and produced capital which are required for sustainable growth, are missing.

The description of the two countries which follow different approaches to extractivism shows the advantage of transition towards neo- and post-extractivism. Botswana has various advantages like a stable economic growth, a higher level of education and limited corruption, due to the practice of neo-extractivism, while Nigeria practices mainly conventional extractivism with some aspects of

neo-extractivism. Nigeria faces deeply rooted corruption, political instability and strong social-environmental impacts as a result of unsustainable resource management. Although additional factors like size of population and historical experiences shape the development process, the practice of neo-extractivism will support Nigeria's development to a more sustainable future by prioritising social and environmental aspects. Botswana has to highlight the aspect of economic diversification and equality supported by post-extractivism, in its development process.

6. Conclusion

Before the discovery of non-renewable resources such as coal, diamonds and oil in Africa, the continent was dependent on agriculture. Thus, Africa relied solely on the eco-system. Post-discovery Africa moved from agriculture-driven to resource-intensive economies based on non-renewable resources. It is crucial to consider different opinions on extractive industries in Africa. The economic perspective encourages further resource extraction due to increasing demand for various types of natural resources. Ross (2006) states that the existence of natural resources within a country encourages foreign investors and these investments can be used as a platform to further development. Newly industrialised countries like China follow the principle of Western countries by polluting now and cleaning up later. According to the principle of the Environmental Kuznets' Curve (EKC), environmental degradation decreases after the achievement of a specific level of development. Different arguments support this theory. Higher education and income as a result of development increase awareness of environment and related issues. Furthermore, sophisticated technologies reduce pollution and improve productivity. This path led to a high standard of living in developed countries. Therefore, developing countries intend to follow the same principles hoping for the same outcome. The critical aspect of this theory is the timeframe of environmental degradation. In Northern countries, the problem of pollution and environmental destruction started with the process of industrialisation. Developing countries have to consider an additional aspect due to the existing level of pollution and the increased size of the world population. Following the same development patterns without due consideration of different contexts could result in dramatic consequences. Furthermore, viewing the different approaches of extractivism based on EKC, a transition and most likely an initiated transition from conventional extractivism to neo-extractivism and finally to post-extractivism is necessary.

Extractive industries and specifically conventional extractivism has impacts on society and the environment in various ways. While economic considerations put emphasis on the trickle-down effect of economic growth instead of environmental conservation and improved standard of living, Africa deals with high level of poverty and inequality in spite of economic acceleration generated by extractive industries. The increase of revenues due to resource extraction has improved standards of living for a small minority while the majority of citizens have to deal with the consequences instead of enjoying advanced wellbeing. Furthermore, the resource curse theory identified various problems resulting from conventional extractivism in resource-abundant countries. Governmental instability, different types of rebellion, and short-term resource revenues limit benefits of available natural resources.

The deep interconnection of natural resources and Africa's economic system reduces the possibility of the complete removal of extractive industries and encourages the transition of extractivism to a more sustainable approach of extractivism. Based on the content analysis in

Chapter 4, it is possible to declare sustainable management of natural resources as an essential advancement of development within a country. Different measurements depending on the situation in a country have to be taken to improve the standard of living and that of future generations, rather than allowing short-term economic growth without a positive impact on the citizens. As presented in Chapter 5, Nigeria has to move towards neo-extractivism while Botswana as a representative of countries following the neo-extractivism approach, requires making a transition towards post-extractivism.

In the literature review, content analysis and two case studies various essential aspects of sustainable development in a resource-abundant country supported by extractivism approaches, were outlined. The UNCTAD report defined the necessary transition as “sustainable structural transformation” (SST) and identified the relative decoupling of resource usage and environmental impact by “improving agricultural productivity, adding value to extractive industry products and growing manufacturing and service industries”, all of which are associated with post-extractivism. In support of this transition various tools are required in resource-intensive economies. Regarding the phenomenon of the resource curse, economic and political challenges reduce economic growth within a country. The simplistic focus on conventional extractivism without diversification of the local economic structure, results in short-term revenues. Reinvestment in other assets is required. The World Bank (2011) divided total wealth into three sub-sections – produced, intangible and natural wealth. While African (developing) countries emphasise natural wealth, intangible wealth makes the strongest contribution to total wealth improvement. Therefore, resource-intensive economies should reinvest in intangible and produced capital in order to increase wealth within a country. Human capital and manufacturing are crucial if sustainable development is to take place. As can be seen in Botswana, reinvestment in human capital without improving other aspects decreases the benefits of advanced human capital. For instance, Botswana provides a qualitative and quantitative education system with access for various income groups, but lack of job opportunities results in a high unemployment rate with limited advancement of living standards. Additionally, the SST requires increased productivity supported by advanced technologies and a move towards service-oriented industries in order to reduce resource involvement and environmental pressure.

Furthermore, government, as the coordinator of policies and regulations, should be accountable and stable. Deeply rooted corruption and rebellion as in the case of Nigeria, further hamper development. High levels of poverty, inequality and unemployment limit human wellbeing despite economic growth. Transparency, monitoring and evaluation lead to improved accountability of government. Different tools can be used to achieve transparency in the resource sector. The Extractive Industries Transparency Initiative (EITI) is a globally accepted tool used to improve transparency in the oil sector by monitoring transactions and reporting regularly for instance in newspapers. Public auctions can be used to prevent corruption in the process of granting licences

for resource extraction. An auction reveals the real value of a license because various interested parties are involved and the publicity ensures that no secret negotiation takes place (Collier, 2010:1128). Although, Nigeria established an EITI, supported by a national law, and a public auction system for extraction concessions, the accountability of government is influenced by corruption. These aspects have to be included in the application of extractivism in Africa due to the problems that exist as a result of corruption and political inefficiency.

Natural resources and historic problems within a system limit the efficiency of a state. Since independence Botswana has had a strong government with high accountability and transparency. Nigeria has difficulties with the implementation of an efficient government due to years of selfish leaders and corruptive actions. These differences reflect the importance of the context in each situation. As stated in the UNCTAD report (2012) there are no “one-size-fits-all” solutions. Every country has to make use of the recommendation in an adapted form. Reinvestment in human capital and manufacturing takes place in different ways in different countries. For instance, Botswana has limited problems with corruption due to public participation as part of their culture, but difficulties with job creation require consideration of reinvestment in sectors with higher job opportunities than the extractive industries. Furthermore, there are guidelines for each approach to extractivism with the details depending on the specific situation in the country. Therefore, the study of extractivism approaches adds to the understanding of extractive industries in Africa and presents a necessary transition, but the application has to be adapted to each country.

Thus, a narrow perspective of economic growth is insufficient to improve the current situation in Africa. Wealth consists of various aspects like natural, produced and intangible capital which contribute in different ways to human wellbeing as the final objective of development. A sustainable composition of wealth is necessary to improve Africa’s situation especially with regard to the extractive industries. Extractive industries can impact society and the environment negatively and lead to a low standard of living. Pressure on the eco-system, increasing populations and the physical limits of non-renewable resources make a transformation to a diversified economy with future opportunities despite the restrictions of natural resources, necessary. The process towards a diversified economy can be supported by natural resources attracting foreign investments and initiating revenues. In the third step of transition which is post-extractivism, the dependence on natural resources is reduced by diversifying the economies and giving equal consideration to social, environmental and economic systems.

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