

# Constructing a sustainable Africa:

Chinese sustainability policies and its involvement the Bui  
Dam

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# Abstract

This master's thesis analysed sustainable development policies in China's 11<sup>th</sup> Five-Year Plan and sustainable development considerations at the building of the Bui Dam in Ghana. The theory section discusses and defines sustainable development, and in the method section, 'ideal-types' of economic, social and environmental development were developed. These ideal-types were then used as reference points for the author's analysis of the level of sustainable development in China's 11<sup>th</sup> Five-Year Plan. The Bui Dam project in Ghana was analysed with a number of economic, social and environmental sustainability indicators for infrastructure projects. The Bui Dam was constructed by the Chinese state-owned company 'Sinohydro', and by analysing both policy and project level, it was possible to compare the two analysis levels and see if they corresponded. Furthermore, 'trade-offs' have been a central concept of this master's thesis: the empirical section and its analysis have tried to identify if trade-offs between the economic, social and environmental sustainability sectors have occurred, both on the policy level and on the project level.

The methods that were used to achieve this were the qualitative text analysis and the qualitative source analysis. The results show that sustainable development has become increasingly important for China as a means for building a 'harmonious society'. Some trade-offs were nonetheless identified both at policy and project level. Furthermore, China's actions regarding its overseas investments are context-specific and can be traced back to its non-interference policy and its pragmatic foreign policy.

*Key words:* sustainable development; trade-offs; Sino-African relations; ideal-types.

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# 1 Introduction

There are currently 48 so called ‘least developed countries’ (LDCs) in the world, 33 of which are located in Africa, south of the Sahara desert (Schwayder, 2013). Whilst other largely developing regions have experienced rapid growth and development, human as well as economic, during some 50 years, Sub-Saharan Africa (SSA) has, for the most part, been stagnant. The reasons for Africa’s recent history of underdevelopment are numerous; the issue is complex and to a certain extent disputed. However, the reasons thereof are both of external and internal character (Simensen, 2008); most African nations have a very limited experience of being independent, and the postcolonial baggage is to a greater or lesser extent present in as good as all cases. Moreover, weak institutions, tribalism or ethnic conflicts and heavy corruption are other often-cited reasons for the current situation (*Ibid.*). No matter what the exact reasons are, African nations are in need of developing, and fortunately things are starting to happen. According to Lucas Kawa (2012), a reporter on the ‘Business Insider’, 10 of the 20 fastest growing economies in the 2013 to 2017 period will be from SSA.

If the problems that many African countries face are due to a combination of internal and external factors, the same can be said about its recent path to development. One external actor that has become increasingly important in later years is China. China has been described as the “manufacturing powerhouse of the world” (Shapiro, 2012:42), and the country has deliberately sought to strengthen its relations with, foremost, resource rich African nations. Unfortunately, China’s environmental track record is dubious at best, and the question one can ask is hence how China’s engagement in Africa affects African nations from a perspective of sustainable environmental, social and economic development?

## 1.1 Research problem

Sino-African relations date back a long time, and the first encounters between the two regions occurred as early as the T’ang dynasty (618-907). The interactions increased between 1417-1431 when the Ming dynasty emperors launched large-scale expeditions to the African continent (Rotberg, 2008:vii). In the modern era however, Chinese-African relations go back to the middle of the 20<sup>th</sup> century when Mao Zedong “funded and educated sub-Saharan African anticolonial liberation movements and leaders”, (Rotberg, 2008:viii) and made investments in African infrastructure (Broadman in Rotberg, 2008:87).

These early encounters and investments aside, trade and investment really took off in the beginning of the new century; “[s]ince 2000 there has been a massive

increase in [trade and investment] flows between Africa and Asia" (Broadman in Rotberg, 2008:87). In a short period of time, China has become Africa's largest trading partner, and estimations show that trade between Africa and China surpassed US\$ 200 billion in 2012. This figure has increased by 20 times since 2000 (Smith, 2012).

Africa's importance for China, and China's importance for Africa cannot be overstated. The fact that the first overseas trip that Xi Jinping took as the new leader of the People's Republic of China went to the Republic of Congo and Tanzania, (Bacchi, 2013) proves the importance of the relationship between the two. Resource rich African nations such as Nigeria, Sudan and Angola are of special interest for China, as they fuel the Asian giant's continued industrial production and thus also economic growth. In order to access the often remote mineral resources that China desires, there is usually a need to develop the crumbling infrastructure in the host country (Taylor, 2007:19). This is also something that China does on a large scale in Africa. The advocates of Sino-African relations describe this process and its outcomes as "resting on a foundation of mutual benefits" (Rotberg, 2008:65). China can access natural resources that are vital to the country's continued economic growth, while African countries receive infrastructure development, which in turn can lead to economic development for Sub-Saharan African countries.

Development is, however, more than economic growth; the concept can include, for example, human development and environmental protection. By combining these three aspects of development – the economic, the social and the environmental – the foundation for sustainable development is laid. China has become an economic growth miracle: the value of China's export grew 146 times between 1978 and 2008 (Shapiro, 2012:42), whereas the social conditions for many workers in Chinese factories, and mounting environmental problems have received a great deal of attention too. For example, when the Time Magazine listed the ten most polluted cities in the world, the top two, Linfen and Tianying, were Chinese (*World's most polluted places*, 2013). With these issues in mind, one can question just how well China works for the implementation of sustainable development. Moreover, in relation to the ever-closer ties between China and many African nations, one can also question how well China and Chinese state-owned companies work for sustainable development in their investment projects in Africa.

The research problem of this master's thesis relates to these two central areas of development studies: first of all, South-South cooperation in the form of Sino-African relations and China's increased role in Africa, and second of all, sustainable development. My aim in this paper is to investigate the relationship between these two areas and the implications it has on sustainable development. In order to do this, I will examine Chinese policies, most notably sustainable development policies, by using a qualitative text analysis. Moreover, I will analyse the economic, social and environmental impacts of the Bui Dam in Ghana, which was built by the Chinese state-owned company 'Sinohydro' between 2009 and 2013. Based on an ideal type of what constitutes sustainable development, I will assess Chinese sustainable development policies as they were

outlined in the 11<sup>th</sup> Five-Year Plan, which covered the 2006 to 2010 period, the period for the planning and launch of construction of the Bui Dam hydropower project. Furthermore, I will be able to measure the implementation of China's sustainable development policies by assessing the economic, social and environmental consequences of the Bui Dam in Ghana. My aim is to analyse where trade-offs occur between the sustainability sectors on the policy level as well as on the project level and in the end analyse the implications of Chinese infrastructure investments in Africa.

### 1.1.1 Research questions

My main research question is related to trade offs between the sustainability sectors and how Chinese sustainable development policies correspond to the implementation of these policies in regards to overseas investments, which gives the following research question:

- ‘How are the sustainability sectors weighed against each other and to what extent do trade-offs occur between them, both in terms of Chinese sustainable development policies and in the Bui Dam project in Ghana? Do sustainable development on the policy level and on the project level correspond?’

To make this long research question more graspable and to fit the layout of the two-fold empirical section, I have split this question into the following two sub questions: the first one applies to the investigation of China's sustainable development policies and the second one applies to the assessment of the Bui Dam:

1. ‘How are China’s sustainable development policies outlined in the 11<sup>th</sup> Five-Year Plan?’
2. ‘What were the economic, social and environmental consequences of the China-built Bui Dam project in Ghana?’

Finally, I aim to contextualise my study by putting it into a broader perspective, which gives the following question:

- ‘Are the sustainability implications from the Bui Dam representative for Chinese infrastructure projects in Africa?’

### 1.1.2 Delimitations

The scope of this study is vast, and therefore in need of some delimitations. First of all, the Chinese sustainable development policies that I will investigate are all found in the Communist Party of China's (CPC's) 11<sup>th</sup> Five-Year Plan (FYP 11).

FYP 11 covers the 2006 to 2010 period and is thus not the most recent five-year plan. The reason for choosing this set of documents is that the planning and start of construction of the Bui Dam took place during this time period. Investigating FYP 11 can thus show the correlation between the sustainable development policies and the dam project.

The next delimitation is the focus on the Bui Dam. Numerous Chinese companies participate in even more infrastructure projects on the African continent, and it would be impossible to assess them all. By focusing on the Bui Dam, I am able to strengthen the focus of this study.

## 1.2 Literature review

This thesis deals with two central concepts in the field of development studies: sustainable development, and China's emerging role in Africa as a part of South-South cooperation. The theoretical part of this paper will deal with the concepts of sustainability and sustainable development in some detail; therefore, this literature review will focus on 'South-South cooperation and China's emerging role in Africa, with an added focus on the implications that this relationship has on sustainability issues on the African continent.

### 1.2.1 South-South Cooperation

Although not a new concept, South-South cooperation is an emerging trend in development cooperation as it is growing in importance. In a report on economic development in Africa, the UN proclaims that South-South cooperation "is a concept that is frequently used but rarely defined". They then go on to define it as a concept that "refers to the processes, institutions and arrangements designed to promote political, economic and technical cooperation among developing countries in pursuit of common development goals" (UN, 2010:1). South-South cooperation crosses the traditional 'North-South divide' in the field of development, as developing countries are interacting directly with one another. Traditional development cooperation between the developed north and the developing south has often benefited the creditor countries more than it has benefited the debtor countries, and the unequal relationship has been likened to "extracting blood from a stone" (George, Susan, in Bawtree & Rahnema, 1997:208).

Compared to North-South cooperation, South-South cooperation has both benefits and drawbacks; while many African leaders generally appreciate the large volumes of official development assistance (ODA) that traditional 'north' creditors provide, "its slow pace of decision making and over-complex institutions" are criticised (Rampa et al., 2012:258). Senegal's former president Abdoulaye Wade, also pointed this out in an article in the Financial Times: "China, which has fought its own battles to modernise, has a much greater sense

of the personal urgency of development in Africa than many western nations” (Wade, FT, 23 January 2008).

All in all, South-South cooperation offers a new alternative for developing countries, and perhaps the fact that an alternative exists is the most important part of South-South cooperation. Developed and developing countries can learn from each other as they have different strengths and different weaknesses. “One of the advantages of the new wave of partnerships is the choice of donors to choose from for Africa, with CIB (China, India and Brazil [my note]) and traditional donors” (Rampa & Bilal, 2011:14). In some matters, such as peace and security, the EU is perhaps the preferred partner, whereas in others, CIB countries are regarded as superior (*Ibid.*). No matter what one’s opinions regarding South-South cooperation may be, the Sino-African relations are a forceful part of this emerging trend.

### 1.2.2 China’s engagement in Africa

Chinese engagement in Africa has proved to be a rather polarising topic. Opinions concerning China’s increasing interests on the African continent range from very positive to very negative. In China, the attitudes towards the Sino-African relationship are generally positive. For example, the director of ‘the Africa research centre’ at Shanghai University describes the relationship as resting on a foundation of mutual benefits (Yunguo, 2010). Furthermore, he claims that some “western media groups take every chance to poke at China’s African policy and even “demonize” China” (*Ibid.*). On the other hand, it is no secret that China’s partnership with many African countries is based on geopolitics and access to raw-materials (Uchehara, 2009:102). Some analysts even go so far as to call China’s actions ‘a new scramble’ and thus describing them as neo-colonial. Even though one can certainly question China’s actions in Africa on many occasions, for example by its lack of upholding human rights, and claiming that “there are no rogue states”, (Taylor, 2007:16) most analysts would not go so far as to call Sino-African relations neo-colonial. For example, China respects the sovereignty of its African partners, and Chinese corporations treat African people as individuals and as consumers, not merely as labourers (Rotberg, 2008:65). These are crucial differences between a neo-colonial approach and one that is guided by economic exchange (*Ibid.*).

While China’s engagement in Africa generally is a well-documented topic, there are areas of this debate that are in need of more research. When it comes to Chinese infrastructure projects in Africa, this is an area which is not very-well studied; “[w]hile the debate about the conceptual and practical differences of development between the countries in the Organization for Economic Cooperation and Development (OECD) and China is well documented, little is known about the detailed involvement of Chinese infrastructure companies in project planning and implementation” (Frauke et al., 2012:259). The same thing can be said about China’s engagement in Africa in terms of sustainable development; “[a]s there are still hardly any reliable data and only few empirical investigations on hand, one of

the central questions is whether China is effectively contributing to sustainable development in Africa; or, rather, is China's primary concern to gain access to Africa's raw materials and to open up new markets?" (Asche & Shüller, 2008:3). This study will focus on the aspect of sustainable development in relation to the Bui Dam in Ghana, a specific infrastructure project carried out by a state-owned Chinese company. As a result, this thesis will combine the two aforementioned areas and it therefore serves the purpose of filling a knowledge-gap and improving the understanding of an issue that that is in need of more research.

## 2 Theory

*“The concept of sustainability has now acquired such pedigree that no contemporary discussion on environment and development is complete without it.”* (Trzyna, 1995:7)

*“It has been suggested that the difficulty [of an accurate definition] arises because sustainability is a concept like ‘love’, ‘hope’ or ‘freedom’, and as such tend to remain ‘fuzzy’ until applied in a specific context.”* (Pope et al. 2004:4)

These two quotes capture the dilemma of sustainability and sustainable development. While they are important concepts to include in the developmental and environmental debate, they are, as Pope et al. describe it, “fuzzy” and unclear. The research questions in this study refer to the concept of sustainable development, but how can a clear answer be given to a fuzzy question? Hedenfelt claims that in order to study and analyse sustainability and sustainable development, the terms and concepts need to be discussed (2011:9). She argues that the fuzziness can be both strength and a weakness; the strength is that the concepts are flexible and dynamic, and that they therefore can be applied by different actors and to local contexts. The downside of this is that different actors can mean different things when referring to sustainable development, and thus bend the dynamic concept to suit specific interests (*Ibid.*). The fuzzy and dynamic nature of sustainable development makes it necessary to present a context specific and clear definition of what is meant by it. The theoretical part of this paper will therefore consist of an in depth presentation and discussion of the concepts of sustainability and sustainable development. The theoretical discussion will serve as the foundation for the methodological process of developing ideal-types of sustainable development and indicators, which subsequently will serve to measure this fuzzy concept in the empirical section.

In this chapter, I will present a brief historic overview of sustainable development. Thereafter, I will present some central sustainability theories and concepts such as the triple bottom line (TBL) and ecological modernisation, as well as an overview of the sustainable development debate. Moreover, I will discuss and criticise the concept of sustainable development.

## 2.1 Sustainable development: An historic overview

During the time that led up to the ‘United Nations Conference on Human Environment’ in Stockholm in 1972, it had gradually become evident that environment and socioeconomic development were partly conflicting ends (Trzyna, 1995:7). Vague concepts such as ‘eco-development’ had been identified as aims ‘which societies should aspire to’, but no well thought out plans as to how ‘eco-development’ could be reached existed. The concept remained rather unclear until 1980, when the International Union for Conservation of Nature (IUCN) in cooperation with the World Wildlife Foundation (WWF) developed the ‘World Conservation Strategy’ (Trzyna, 1995:15). This was a first step towards a conceptualisation of sustainable development. However, the term ‘sustainable development’ was not defined according to its common characterization until 1987, when it appeared in the report ‘Our Common Future’, also known as the Brundtland Report, called so after its chairman, the former Prime Minister of Norway, Gro Harlem Brundtland.

In Our Common Future, sustainable development is defined as “a development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987:43). Though it is far from the only definition of sustainable development, this definition of the term, popularised in 1987, is arguably the most widespread and well-known one. Another influential definition of the term sustainable development originated in the report ‘Caring for the Earth’; in it, sustainable development is defined as “[i]mproving the quality of human life while living within the carrying capacity of supporting ecosystems” (IUCN, UNEP, WWF, 1991:211). Thus, in the two aforementioned reports, the concepts of ‘intergenerational equity’ and ‘carrying capacity’ had been outlined and described. These two concepts still make out important conceptual tools for the on-going debate that surrounds sustainable development. Nevertheless, even though both concepts help provide a conceptualisation of what sustainable development is, they are far from clear, and more than anything else, they serve as normative principles which societies ought to aspire to.

## 2.2 Strong and weak sustainability

Sustainable development is typically described as having three pillars or sectors: an environmental or ecological pillar, a human or social pillar and an economic pillar. The social, environmental and economic pillars can be translated into representing social, ecological and economic capital, and in order for sustainable development to transpire, the social, economic and environmental responsibilities must overlap, and the three pillars must be given equal importance (Pope et al., 2004:4).

This focus on equal importance between economic, social and environmental capital differentiates sustainable development theories from neoclassical economic theory, where the three different types of capital are substitutable. For example, taken to its extremes, neoclassical economic theory suggests that all social and environmental capital can be turned into economic, man-made capital, and as long as the total sum of all capital increases, the development can be said to be sustainable (Hedenfelt, 2011:12) Obviously, a world with only man-made capital is a dead world as it will not be able to regenerate itself and such a world can hardly be called sustainable. The process of exchanging progress in one sustainability sector for more progress in one or two others is called a ‘trade-off’. If the sustainability sectors are not given equal importance, trade-offs are likely to occur. The conceptualisation of sustainability where the sectors are interchangeable is sometimes referred to as ‘weak sustainability’ (Hopwood et al., 2005:40).

Weak sustainability is opposed to ‘strong sustainability’, which occurs when positive development takes place along all three pillars at once (Hedenfelt, 2011:12). Proponents of strong sustainability argue that just because the majority of indicators have developed in a positive direction does not mean that the development is sustainable; it simply means that the development in certain areas has not become more *unsustainable* (*Ibid.*). The upcoming sections will describe some central models of sustainable development and develop the conceptions of strong and weak sustainability further.

### 2.2.1 The Triple Bottom Line model

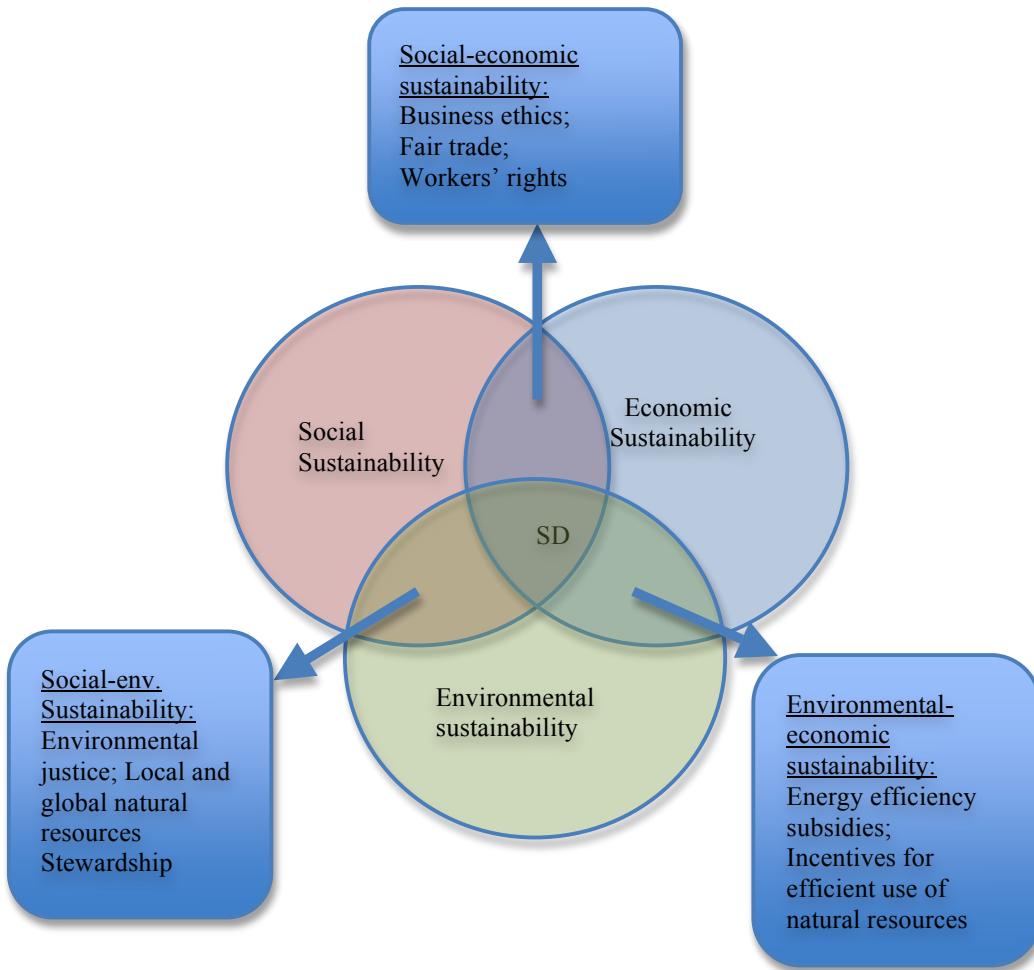
One of the most essential concepts of sustainability and sustainable development is the triple bottom line (TBL). The TBL was developed by John Elkington in 1994 and is a central notion within ‘full cost’ business reporting (*Triple Bottom Line*, 2009). The idea behind the concept is that a company has three separate concerns, or bottom lines, of equal importance (*Ibid.*). A successful company should, apart from generating economic turnover, include social and environmental responsibilities and account for possible social and environmental degradation that the economic turnover might lead to (so called negative externalities). The concept of three separate but related responsibilities has afterwards become central to most contemporary theories of sustainable development, and the TBL is sometimes called the three-pillar approach. However, the terms are often used interchangeably and in this paper, I will use the term TBL.

The TBL can be conceptualised as three intercepting circles (see figure 2.1), and in the cross section where the circles meet, sustainable development occurs. The TBL includes ecological, social and economic concerns into its sustainability model. The goal of the ecological sector is to have as small an impact on the earth’s ecosystems as possible in order to make sure that they are kept for future generations (Hedenfelt, 2001:13). Natural resources can accordingly only be used in the same pace as they can be replenished. The ecological sustainability

perspective is closely intertwined with the social sustainability perspective since human societies are dependent on the natural world and the resources they give rise to. The social sustainability perspective is human centred and concerned with *inter* and *intra* generational justice (*Ibid.*). This means that people have the right to social equality and justice, both today (*intragenerational equity*) and in the future (*intergenerational equity*). The social perspective is highly normative and argues that people have the rights to, among other things, freedom of speech, good health and fair pay for their work. Finally, the economic sustainability perspective is interwoven in the previous two aspects as it deals with economical use of finite social and environmental resources (Hedenfelt, 2011:14). According to the TBL, when economic activity harms the welfare of the natural or the social worlds, it leads to externalised costs (*Ibid.*). These externalised costs are rarely included in economic calculations, but they do cost money, and, according to the TBL, *should* therefore be accounted for, hence the epithet ‘full cost’ business reporting.

A problem with the TBL is that success, or development, can occur in one or two of the pillars but not necessarily in all three of them at once. It can consequently be beneficial to calculate the total amount of development that occurs in the three spheres individually. However, that might lead to ‘trade-offs’ between the different sustainability sectors (Pope et al., 2004:13). A trade-off can be thought off as a utilitarian notion, where, for example, a great increase in economic development is seen as favourable *if* social and environmental development do not decrease as much as economic development increases. Thereby, as long as the total amount of ‘development’ increases, it can be seen as justified and ‘sustainable’. Because of the problem of trade-offs between the sustainability sectors, the TBL model is often thought of as a weak sustainable development model (Pope et al., 2004:9).

An additional problem with sustainability models, including the TBL model, is whether or not the pillars that are included actually represent sustainability. If positive social and economic development take place simultaneously as environmental protection, does this *truly* mean that all aspects of sustainability are accounted for? For example, in recent years, voices have been raised to include cultural diversity as a fourth sustainability pillar (*Cultural Policies and Sustainable Development*, 2013). The three-pillar approach is, however, the dominating one; the Rio +20 conference in 2012 did for example not recognise culture as a fourth pillar of sustainable development (*Ibid.*). Therefore, I will use the classic three-pillar approach when I assess sustainable development in the empirical section.



*Figure 2.1: TBL sustainability model (Hedenfelt, 2011:10)*

### 2.2.2 Ecological modernisation

”Ecological modernisation has become the major discourse and strategy by which (western) industrialised countries frame and tackle their ecological problems” (Baker, 2011:297). The ecological modernisation theory argues that environmental problems will be solved with economic growth and more economic liberty. It is thus a theory that combines economic growth with environmental protection. The third aspect of sustainable development, social justice, is however largely left out from this theory (Baker, 2011:300).

According to the Brundtland report, there are ultimate limits to growth, and the Brundtland report claims that sustainable global development “requires that those who are more affluent adopt life-styles within the planet’s ecological means” (Baker, 2011:302). Ecological modernisation does not recognise that there are ultimate limits to economic growth, and according to this theory, the environmental problems that face the planet can be solved by free-market capitalism and competition, as this will lead to technological advancements that benefit the environment. The environmental concerns of ecological modernisation

are thus ‘technology centred’. Moreover, as ecological modernisation largely leaves out social justice, the theory ranks low in terms of socio-economic well-being and equality concerns (see figure 2.3).

Despite its limitations, ecological modernisation is a powerful sustainable development strategy, and it is used by for example the EU in its aspiration to implement sustainable development. “The strategy of ecological modernisation makes environmental management compatible with the *raison d'être* of the EU integration project. It is in keeping with its key tenet, namely the construction of a neo-liberal, free market economy in support of industrial competitiveness” (Baker, 2011:313).

### 2.2.3 Deep green theories of sustainable development

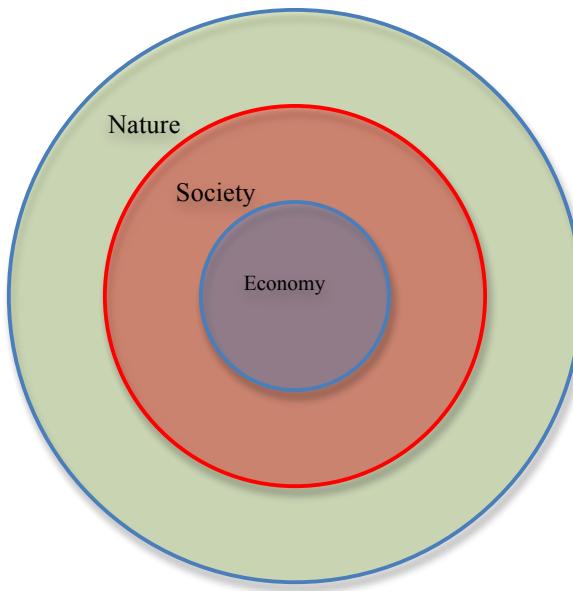
The three sustainability sectors can be arranged in different ways than that of the TBL. In the following ‘deep green’ model, (see figure 2.2) the spheres are not free from one another; instead, they are interlinked and interdependent. In this model, the outer sphere represents nature and it is a prerequisite for the middle, social sphere, which in turn is a prerequisite for the inner, economic sphere (Pope et al., 2004:5). This means that the economy depends on the society, which builds on the natural environment. In this way, the finite natural resources are the foundation for both society and economy, which is why responsible and sustainable care for the natural resources are paramount for the survival of both society and economy. If this model were to be followed, the problem of trade-offs could not occur. This is what a ‘deep green’ model means: the natural resources dictate the scope of both society and economy (*Ibid.*).

According to Brown (2011:7), the earth’s global carrying capacity is presently exceeded. At the current rate of consumption, the human population would require circa 1,5 earths in order to sustain itself (*Ibid.*). This means that as of now, we are not living within the earth’s carrying capacity, and the global economy is therefore not based on the planet’s natural resources. The deep green model questions the assumption that continuous economic growth can stem from finite resources. Kenneth Boulding, (quoted in Martenson, 2011:35) famously phrases this problem: “[a]nybody who believes exponential growth can go on forever in a finite world is either a madman or an economist.”

The deep green perspective of sustainable development is controversial and often seen as ‘extreme’. If ecological modernisation is in line with the *raison d'être* of the EU’s integration project, the focus on environmental protection as *more* important than for example economic growth make deep green theories opposed to the EU’s reason for existence.<sup>1</sup> One notable deep green theory is the Deep Ecology theory. In the “religious-like” (Trzyna, 1995:184) Deep Ecology movement, the natural world has an intrinsic value, and humans are regarded simply as one species among many others, without the rights to use the natural world for instrumental ends, other than the most necessary ones. The overarching

<sup>1</sup> If one chooses to view the EU foremost as an economic project. The EU can also foremost be seen as a peace project.

aim within Deep Ecology is to make the human impact on the natural world as small as possible. One of the ways to do this is, according to the Deep Ecology movement, to drastically reduce the number of people who live on the planet (*Eight Principles of Deep Ecology*, 2000). Sustainable development is by its nature anthropocentric; Deep Ecology however, is ecocentric, and thus not a part of the sustainable development debate (Hopwood et al., 2005:41). However, I will include this extreme perspective of the natural world in the development of ideal-types of sustainable development later in this thesis. The reason hereof is explained in the methodology section.



*Figure 2.2: Deep green sustainability model (Hedenfelt, 2011:10)*

## 2.1 Status quo, reform and transformation

Sustainable development can be further divided depending on the ‘strategy for social change’. The categories for social change are: status quo, reform and transformation. The status quo category for social change is defined by its beliefs in the present day structures and institutions as adequate to manage the challenges of the environmental problems that the earth is facing (Hopwood et al., 2005:42). Moreover, the status quo category is “the dominant view of governments and business and supporters of the status quo are most likely to work within the corridors of power talking with decision makers in government and business. Development is identified with growth and economic growth is seen as part of the solution” (*Ibid.*).

The reform category for social change is defined by its beliefs in the *foundations* of present day structures and institutions, including the market. Despite this, reformists are keener on modifying and improving these institutions than status quo advocates in order to better alleviate the environmental and social

issues that face the planet: “They [reformists] generally do not locate the root of the problem in the nature of present society, but in imbalances and a lack of knowledge and information, and they remain confident that things can and will change to address these challenges” (Hopwood et al., 2005:43). Many environmental NGOs, for example ‘Friends of the Earth’, ‘Greenpeace’ and ‘WWF’ belong to the reform category (Hopwood et al., 2005:43). The previously mentioned Brundtland report narrowly belongs to the reform category, even though it balances on the edge between the status quo and the reform groups.

The transformation category of social change is the most ‘radical’ group. Advocates of transformation do not believe that current structures and institutions are capable of dealing with the ecological crisis in an adequate way and that they therefore are in need of being fundamentally transformed (Hopwood et al., 2005:46). Transformation advocates argue that sustainable development is an anthropocentric concept and many transformationists are not interested in human, socioeconomic issues. Rather, they are mostly concerned with ecological and environmental issues. However, ”a transformation view of sustainable development has a strong commitment to social equity, with a view that access to livelihood, good health, resources and economic and political decision making are connected” (*Ibid.*). Figure 2.3 illustrates the status quo, reform and transformation groups within the sustainable development debate.

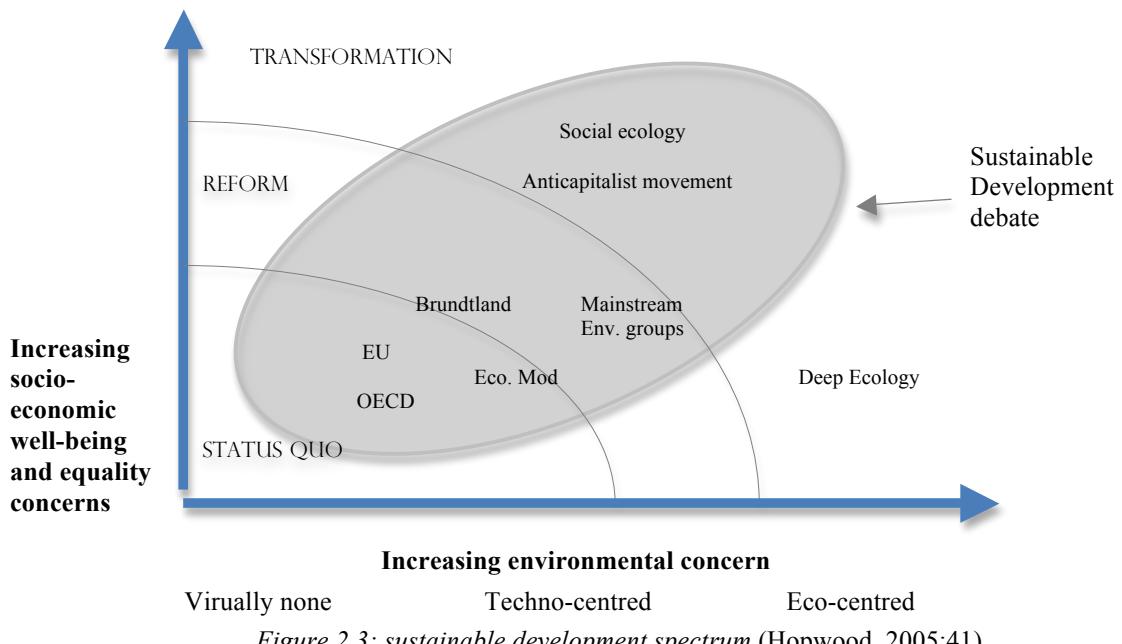


Figure 2.3: sustainable development spectrum (Hopwood, 2005:41)

## 2.2 Critique

As this overview of strong and weak sustainability perspectives has shown, sustainable development can be defined in numerous ways. It is a dynamic subject that is constantly changing and evolving. Up to this point, this essay has

introduced some of the most central aspects, themes and definitions of sustainable development. It should nonetheless be noted that sustainable development is a very big topic, which this discussion impossibly can provide a complete overview of. The theories and methods that have been presented here are nevertheless the ones that I deem to be most central to this study. The definitions and themes within sustainable development that I have chosen to include here can be criticised in various ways and from different perspectives.

According to David G Victor (2006:95), “the environmental bias [...] has hijacked the entire movement”. Victor argues that development, particularly poverty alleviation, is a prerequisite for sustainable development and that social development and environmental protection will lag behind as long as basic living standards are not raised in many parts of the developing world (*Ibid.*).

Another problem area has to do with the fact that the economic language is more or less universal (Hedenfelt, 2011:50). This can be problematic, because ‘soft values’ such as freedom of speech or a clean environment are measured in terms of money, which is hard to do. Moreover, when more or less everything is expressed in monetary terms, ecological and social aspects of development are increasingly in the risk zone of being ‘traded-off’ on behalf of economic growth. The economic lingua can in certain cases therefore be a reason for weak sustainability (Hedenfelt, 2011:51).

From a different perspective, sustainable development is seen as an overly anthropocentric concept. For example, the Brundtland report “defines needs from a human standpoint” (Hopwood et al., 2005:39). Even though the Brundtland definition recognises humans’ dependency on the natural environment, the environment is still treasured because of the instrumental value it has to humans, and not because of its intrinsic value – the value that the natural environment has on its own. The most influential sustainable development theories tend to belong to the group of weak sustainability, such as the status quo group for social change and ecological modernisation. Hopwood et al. see this as problematic because to them, these theories are not sustainable: “[e]ven in the area of economic growth, to which supporters of the status quo give priority, the trend is away from sustainable development [...], there is no sign of an increase in global equity; in fact the world is becoming more unequal” (Hopwood et al., 2005:48). Obviously, there is an on-going debate as to what constitutes sustainable development, and there are many definitions that actors can adhere to. This is a problem in itself, because the definitions do carry an aspect of power in them, which will be developed below.

### 2.2.1 The aspect of power in sustainable development

Apart from being “fuzzy” and in need of definition for local contexts, the concept of sustainable development is by its nature normative and socially constructed (Hedenfelt, 2011:10). As described above, the “fuzzyness” has to do with broad and generic terminology. Another issue is that it can sometimes be problematic to determine when a process goes from being unsustainable to sustainable. Is it

enough to decrease unsustainability to call the development sustainable, or is sustainable development only reached when sustainability is reached, and how can this best be calculated (Hedenfelt, 2011:8-9)? A hybrid car is, for example, not *more sustainable* than an SUV, it is merely *less unsustainable*; a car that emits only a relatively small amount of greenhouse gases still contributes to global warming.

Often, benchmark values and indicators are adopted that show when, or at which level, a process is sustainable. One example of an indicator for global warming is carbon dioxide ( $\text{CO}_2$ ) in the atmosphere, which is measured in parts per million (ppm). In order to stop dangerous global warming (defined as a temperature rise of more than 2 degrees Celsius compared to pre-industrial levels), the international community has agreed that the  $\text{CO}_2$  level in the atmosphere must not exceed 450 ppm, which is thus the benchmark level for this indicator (*Meeting the 2 degree target*, 2009).

Since sustainable development is normative and socially constructed, definitions carry an aspect of power. For example, many environmental agencies and some states (especially the ‘Alliance of Small Island States’, (AOSIS)) have called for more restrictive global warming reduction targets (*Countries for 350 ppm / 1.5 C*). Still, the 2-degree target remains dominant. The question is still if the 2-degree target is sustainable or merely less *unsustainable* compared to for example a 3-degree target? In this way, definitions can be created that fit the interests of powerful actors, and the ones who define what sustainable development means have a big influence over the direction of the development of a society (Hedenfelt, 2011:9). Since issues such as greenhouse-gas emissions and pollution are often global in their scopes, the influence of defining sustainable development is also global in scope (Hedenfelt, 2011:10). Moreover, powerful countries and corporations can deliberately misinterpret fuzzy definitions of sustainable development and in that way misuse the flexibility of the sustainability concept to fit their own ends.

## 2.3 Sustainability assessment

There are many ways to measure and analyse sustainability and sustainable development: an environmental impact assessment, or a similar form of a sustainability assessment, typically precedes a large-scale infrastructure project, such as a dam. The terminology that surrounds this concept differs slightly depending on literature, study and method. In literature that deals with the topic, terms such as ‘monitoring’, ‘evaluation’, ‘analysis’, ‘appraisal’, ‘measurement’ and ‘assessment’ all describe more or less the same kind of processes (Hedenfelt, 2011:35). Nevertheless, in order to avoid confusion of the terminology, this paper will consistently use the term ‘sustainability assessment’.

The purpose of a sustainability assessment is to provide an answer to the question ‘are we headed in a sustainable direction?’ Sustainability assessments can, consequently, be used as a decision basis for politicians and scientists before

a project is green-lit (Hedenfelt, 2011:39). Moreover, common for most sustainability assessments is that they are based on *indicators*, which, for the researcher, serve as links to the world that is being analysed (Hedenfelt, 2011:57). The empirical section of this paper is largely built on the ‘Environmental and Social Impact Assessment of the Bui Dam’, the official sustainability assessment that was carried out prior to the construction start of the dam. This study will use indicators to analyse the Bui Dam sustainability assessment in order to find out what the consequences of the dam were and if trade-offs occurred in the implementation of the project.

## 2.4 Summary

Sustainable development is a topic that has become gradually more important since the 1972 ‘United Nations Conference on Human Environment’ in Stockholm. Today, sustainability has reached such prominence that no contemporary debate on environment and development is complete without. Still, sustainability and sustainable development are fuzzy and all-encompassing concepts, and as a matter of fact, they have to be just that: the concepts need to be dynamic in order to suit many different actors. However, the downside of this is that companies, countries and organisations can choose the specific definition that suits them the best, and sustainable development can thus lose its purpose – which is to increase sustainability – on behalf of self-interest.

A researcher who studies sustainable development has to be aware of the fact that the concept is highly politicised and heterogeneous, and define the concept so that it suits his or her study. This theoretical discussion has provided the foundation for the subsequent development of ideal-types and indicators that will clarify sustainable development for this paper.

# 3 Method

This thesis will include a combination of two types of qualitative methods: the qualitative text analysis and the source analysis. The different methods are employed based on the type of source that is being appraised. For the part of the paper that analyses policies, a qualitative text analysis will be used in order to properly understand the different parts of the texts and the context in which they exist. For the reading of the Bui Dam sustainability assessment, the source analysis will be employed. The source analysis is critical to the sources that are examined with regards to, for example, who created the document, and who the intended reader is.

## 3.1 Qualitative text analysis

The first method that I will employ in this study is the qualitative text analysis. As opposed to a quantitative content analysis, which deals with a large number of sources that are given equal importance, the qualitative text analysis aims to bring forward “the essential content through a thorough reading of the different parts of the text, the text as a whole and the context in which it exists” (Esaïsson et al., 2009:237 [my translation]). A qualitative text analysis requires a careful reading of the material, since some parts of it can be of more importance than other; again, this is opposed the quantitative content analysis, where the investigation is based on equal and therefore comparable units of analysis (Esaïsson et al., 2009:223). In order to carry out a qualitative text analysis, the researcher is required to direct questions to the text; these questions are focussed on the arguments in the text that is being analysed: for example, “what is the main point of the text? Is the main point of the text supported by what is being said etc.” (Esaïsson et al., 2009:237 [my translation]).

This study will describe and analyse the Chinese sustainable development policies as they were formulated in FYP 11. The aim with analysing these texts will be to evaluate the level of importance that China puts on sustainability and sustainable development in their policies. The Chinese sustainable development policies will subsequently be compared to the sustainability work that surrounds the Bui Dam, and analysed to see if and how well the policies correspond to the project that is being assessed.

The types of questions that I will direct to the chosen texts are as follows: do trade-offs between the sustainability sectors occur, and if so, how do they occur? Are one or two sectors of sustainability preferred over the other(s)? Do China’s policies end up within the sustainable development debate as outlined in the

theoretical section, and if so, where in the sustainability spectrum do they end up? Answering this type of questions, which Esaïsson et al. (2009:238-239) describe as ‘rating’ or ‘grading’ type of questions, typically requires a *descriptive* analysis; a descriptive analysis in turn entails a well-functioning and well-defined analysis apparatus. The ‘stratified’ or the ‘ideal-type’ based analysis [my translation] can provide such an analysis apparatus.

The stratified method of analysis aims to categorise a phenomenon, for example democratic governance or sustainable development. An illustrative example could be ‘which of the states in Sub-Saharan Africa can be called democratic?’ In order to answer this question, what constitutes a democracy has to be clearly defined, as must the difference between a democratic and non-democratic state. In my case, it would be possible to rate China’s policies as either sustainable or unsustainable. However, this sort of grading system can fail to make out the nuances in a complex issue such as sustainable development. It is not only interesting to find out *if* the Chinese policies are sustainable or unsustainable, but also to find out *how*, *in what way*, or *to what extent*, they are sustainable or not. *In which way* do China’s policies correspond to sustainable development. Between which sustainability sectors do trade-offs occur, etc.. Just to categorise something as either sustainable or unsustainable becomes rather uninteresting and one-dimensional, and a better option to the stratified analysis is the ‘ideal-type based analysis’.

The ideal-type based analysis is, as the name suggests, based on an ‘ideal-type’ of a certain phenomenon. Max Weber made the notion of ideal-types famous in many of his works on methodology (Hans Henrik Bruun, 2007:207-208). Esaïsson et al. (2009:159) take the example of a 5-year old, which can be both a person between his or her 5<sup>th</sup> and 6<sup>th</sup> birthday, and a person who behaves in a way that is typical for a five-year old. A person who is five years old will likely behave in a way that is *more or less* typical for a five-year old, although he or she does not have to do so. Moreover, even if the five-year old behaves in an age typical way, it does not mean that he or she does not have characteristics that are more common for a four-year old or six-year old, or any other age for that matter. An ideal-type can thus never truly reflect reality, because reality will never accurately fit into the ideal-type. Weber, quoted in Bruun (2007:208) describes the ideal-type as “a *utopia* which we arrive at by mentally accentuating [...] certain elements of reality.” By “utopia”, Weber makes the case that the mental perception of the phenomenon cannot be found empirically since it exists merely as a concept (Bruun, 2007:209).

An ideal-type based analysis apparatus typically uses the ideal-type as a reference point for the phenomenon that is being measured. It is then possible to determine *to what extent* the measured phenomenon, for example sustainable development policies, correspond to the conceptual ideal-type.

Both the stratified analysis and the ideal-type based analysis could be useful for this thesis. However, as this discussion has showed, an ideal-type based analysis will be more fruitful in distinguishing nuances in the measured phenomenon and is therefore the tool that I will use in this paper. I will thus develop a perspective of sustainable development that will serve as an ideal-type

of sustainable development against which it will be possible to measure China's sustainable development policies.

It is worth noting that the ideal-type of sustainable development that will be developed in this paper is a reflection of what I, as the author, perceive to be the ideal-type; other people would likely reach different definitions. However, the following definition represents my situatedness and my perception of the concept. Ludvig Beckman (2007:52) emphasises this point: "as has been previously pointed out, the most important and the most indispensable point of reference is always the one that the researcher identifies through his own lenses" [my translation]. For this reason, it is impossible not to be at least a bit subjective. Nevertheless, by specifying clear and well-argued criteria for why these ideal-types are developed the way they are, other researchers will be able to replicate the procedure, which reinforces objectivity.

## 3.2 Development of ideal-types

In this section, I will develop the ideal-types of sustainable development that will serve as reference points against which Chinese policies will be measured. It is important to note that the ideal-type of sustainable development will only be used for the analysis on the policy level; the analysis of sustainability assessment will instead be based on indicators. In order to properly be able to measure levels of sustainable development, the logical thing to do is to comprise three separate ideal-types, one for each sustainability sector. It will thus be possible to determine in which sectors development takes place, and between which sectors trade-offs take place.

The three sustainability sectors can be hard to pinpoint and define, especially since the concepts overlap to a certain extent; economic development is, for example, a broad and normative notion that encompasses not only economic interests, but social ones as well. It is therefore necessary to include a narrower definition and ideal-type of the economic sector of sustainability, such as economic growth. The different ideal-types that are developed here must be seen as parts of a larger whole (sustainable development) and should thus be mutually exclusive. For example, it is important that when the economic sustainability sector is measured, social development is not measured simultaneously. Therefore, this thesis will focus on economic growth as opposed to broader definitions of economic development as the ideal type for the economic sector of sustainability. In fact, the validity of this paper would be compromised if I were to measure other aspects than what I claim to do. In combination, validity and reliability are two of the most central methodological concepts. Validity can have slightly different meanings, one of which is that the researcher measures what he or she claims to measure (Esiasson et al., 2009:63). Reliability on the other hand typically means consistency; would two independent researchers who measure the same thing come to the same conclusions? If they do not, the author of at least one of the studies must have done something wrong, and the reliability is thus low. If

one researcher develops an ideal-type based on broad definitions of economic development as opposed to a narrower definition of economic growth, they would likely come to different conclusions than this study. Again, this is how the researcher's own lenses can affect the outcome of a study.

Issues also arise in the environmental sustainability sector. For example, the term 'development' can be said to mean 'good change' (Sumner and Tribe, 2008:9), but *environmental* development is often more the lack of change, or protection, than striving for a change to the better. It may therefore be more fruitful to include an ideal-type of environmental protection (as opposed to development). Moreover, the definitions and ideal-types of environmental protection that exist are largely rooted in the sustainable development debate, and are therefore anthropocentric – they tend to include social and economic concerns and not merely environmental ones. Intergenerational equity is a good example of this anthropocentric bias: “[t]here is a debate about exactly how much biodiversity needs to be conserved. Is a human-centered utilitarian perspective sufficient to protect *all* biodiversity?” (Helena Kopnina, 2012). An ideal-type of environmental protection cannot compromise with environmental protection; if it did, it would not be an ideal-type. It is therefore better to include a view of the environment that is not anthropocentric, and in environmentalism the opposite of anthropocentrism is ecocentrism. The ideal-typical environmental development will hence comprise of an ecocentric conception of environmental protection.

The final aspect of sustainable development is social development. The ideal-typical notion of social development may be the hardest to define, since it is the most normative of the three concepts, and possibly also the one that sprawls the most in various directions. For example, it includes a variety of values such as education and health, and other 'fuzzy' concepts like freedom and equality.

Ultimately, the ideal-types all depend on one's ideological point of view; a Marxist and a neo-liberalist would for example define economic development very differently, and therefore include very different ideal-types of the concept. A Marxist would likely put more emphasis on social aspects of economic development, such as equal shares of wealth, while a neo-liberalist likely would put more emphasis on economic growth and freedom. While the definitions I have chosen to include here reflect my situatedness and beliefs to a certain extent, other people and organisations have developed the concepts and definitions. I will, however, take the liberty of altering the definitions slightly if I find it necessary to better suit this thesis.

### 3.2.1 Ideal-type of economic development

As stated earlier, the ideal-types ought to be mutually exclusive in order to not compromise with the validity of the study. The ideal-type of economic development will therefore follow a narrow definition, and will thus simply be defined as economic growth. The ideal-type of economic development in this paper will simply be *policies and measures that advocate for, and help to increase economic growth in China*.

### 3.2.2 Ideal-type of social/human development

This ideal-type includes a number of values such as positive and negative freedoms, health, education and other aspects of human needs and wants. This ideal-type is based on what the UNDP lists as the main aspects of human development, which in turn to a large extent is based on Amartya Sen's works on this topic. On the UNDP website, Sen is quoted stating that human development "as an approach, is concerned with what I take to be the basic development idea: namely, advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only a part of it" (Sen in *Origins of the human development approach*, UNDP, 2010).

In order for the ideal-types to be mutually exclusive, I have left out the aspects of human development that deal with economic growth and environmental protection. Hence, the ideal-type for social or human development includes:

- "*Social progress* – greater access to knowledge, better nutrition and health services."
- "*Efficiency* – in terms of resource use and availability. Human development is pro-growth and productivity as long as such growth directly benefits the poor, women and other marginalized groups."
- "*Equity* – in terms of economic growth and other human development parameters."
- "*Participation and freedom* – particularly empowerment, democratic governance, gender equality, civil and political rights, and cultural liberty, particularly for marginalized groups defined by urban-rural, sex, age, religion, ethnicity, physical/mental parameters, etc."
- "*Human security* – security in daily life against such chronic threats as hunger and abrupt disruptions including joblessness, famine, conflict, etc." (*Origins of the human development approach*, UNDP, 2010).

The parameters that I chose to leave out from the social aspect development are: *Economics* – the importance of economic growth as a means to reduce inequality and improve levels of human development. *Sustainability* - for future generations in ecological, economic and social terms

### 3.2.3 Ideal-type of environmental development

Environmental development is not really development as change but rather as protection from negative change caused by the other two areas of development. The ideal-type of environmental development used in this paper must not be anthropocentric, but ecocentric. The ideal-type for this concept as developed for this paper will thus be based on Arne Næss's eight principles for Deep Ecology, of which the three first ones are deemed to be relevant for the definition of sustainable development. These principles are:

1. The well-being and flourishing of human and nonhuman life on Earth

have value in themselves. These values are independent of the usefulness of the nonhuman world for human purposes.

2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.

3. Humans have no right to reduce this richness and diversity except to satisfy vital human needs (*The Eight Principles of Deep Ecology*, 2000).

The remaining five points follow beneath. The reason for leaving them out of the ideal-type of environmental development is that they are either too extreme, as in point number four, or that they are based on the first three points and thus do not bring in any new concerns. Regarding point number four, it is not compatible with sustainable development to wipe out parts of the human population for the protection of the environment, and this will impossibly be reflected in Chinese sustainable development policies. Point number four is simply too extreme to include in the ideal-type of environmental development. Points five to eight are normative ways of how to best protect the environment; they are in essence specific ways of how to implement points one to three.

4. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of nonhuman life requires such a decrease.

5. Present human interference with the nonhuman world is excessive, and the situation is rapidly worsening.

6. Policies must therefore be changed. These policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present.

7. The ideological change is mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.

8. Those who subscribe to the foregoing points have an obligation directly or indirectly to try to implement the necessary changes (*Ibid.*).

### 3.3 Summary of ideal types

An ideal type accentuates certain aspects of the phenomenon that is studied, and the ideal-type of sustainable development should include the values and the principles that are stated above. Any steps away from this definition ought to be considered as a step away from sustainable development in its ideal type. In essence, the ideal type of sustainable development *increases economic activity and various aspects of human well-being at the same time as it recognises the intrinsic value of nature and all life on Earth and works for the preservation of it*.

### 3.4 Analysis apparatus

In this section, I will develop the analysis apparatus that will be used in the analysis of the FYP 11 (see figure 3.1). The analysis apparatus is a way to measure correspondence of the ideal-types to China's sustainable development policies. The policies in FYP 11 will be judged and given a score from one to four (1 – 4), where one indicates little correspondence with the ideal-type and four indicates high correspondence with the ideal-type. Since ideal-types are utopian concepts that never truly reflect reality, the scale can be thought to incorporate the hypothetical values zero and five, which indicate complete correspondence with the ideal-type or complete failure to correspond with the ideal-type. The numbers one to four, however, are the values that the policies can be given. The meanings of the scores are indicated below:

- 1=Very little correspondence to ideal-type
- 2=Relatively low degree of correspondence to ideal-type
- 3=Relatively high degree of correspondence to ideal-type
- 4=Very high correspondence to ideal-type

The finished analysis apparatus will look accordingly; the **X** indicates the score that is given:

			<b>X</b>
1)	2)	3)	4)

*Figure 3.1: Analysis apparatus*

### 3.5 Source analysis

Apart from analysing official policies, I will examine the ‘Environmental and Social Impact Assessment of the Bui Dam’ in this thesis. The reason for the two-fold analysis is that policies and guiding principles might not mirror what actually takes place in reality. Sinohydro, a Chinese state-owned company, was hired for the construction of the Bui Dam and by investigating the sustainability assessment it will be possible to assess the correspondence between the policy level and the project level. The method of choice for evaluating documents such as a sustainability assessment is the source analysis.

A source analysis mostly depends on the source itself and not so much on the analysis of the text that compromises the source: “[a] source analysis presents a number of specific problems that are not mainly connected to the particular analysis” (Holme and Solvang, 1997:124 [my translation]). Therefore, the perhaps most important aspect of a source analysis is to have a critical mind towards the sources that the researcher is investigating. For this reason, this section will both

describe the qualitative method that is the source analysis, as well as provide a more general discussion regarding source criticism.

The source that I will analyse is, as mentioned, the Bui Dam sustainability assessment. What I want to know when I read this document is what effects the Bui Dam has given rise to in terms of environmental, social and economic development in the local area in Ghana, and how the sustainability sectors were weighed against each other.

Ideally, the document that makes up the empirical material will be enough to answer this question. In this way, the answers to the research question, and the overall result of this study, largely depend on the assessments of the company that carried out the sustainability assessment. For the outcome of this paper, it is therefore extremely important to have a critical mind towards the company that stands behind the sustainability assessment. Other crucial issues to consider when conducting a source analysis are whether the source that is being analysed is personal or public, if the source in any way contradicts itself or gives away personal expressions and points of view, whether the source mainly is cognitive (descriptive) or normative and who the intended reader of the document is (Holme and Solvang, 1997:chapter 9).

Again, it is important to consider the aspects of validity and reliability. All of the abovementioned issues affect the validity and the reliability of the sources and thus the essay at large. For example, if one researcher analyses a sustainability assessment carried out by an environmental NGO and another one analyses an assessment carried out by a laissez-faire oriented think-tank, they would likely reach different conclusions without a methodological approach that is critical to the sources that were analysed.

### 3.5.1 Indicators for project assessment

Similar to the way that the ideal types were developed for the policy level text analysis, a set of indicators will be developed for the analysis of the sustainability assessments. These indicators are developed to measure the success of infrastructure projects from a sustainability perspective.

An indicator provides relevant information to the researcher about the phenomenon that he or she is studying. As was previously described, indicators serve as the researcher's link to the world, and based on the information that the indicators provide, we know how to adequately react. For example, frost in the grass is an indicator of cold weather, and the adequate response is to put on a warm jacket. This is of course a simple example; measuring sustainability and sustainable development is obviously much more complex. Nevertheless, many organisations and authorities have developed their own sets of indicators for how to do just that: the EU and the OECD are two notable examples. These two organisations measure sustainable development on a national or even continental scale, using indicators such as 'growth rate of real GDP per capita', 'healthy life years and life expectancy at birth, by sex' and 'greenhouse gas emissions' (European Commission, 2013). These indicators are all relevant when the unit of

analysis is countries, but they say little when it comes to investigating the effect of specific infrastructure projects. By using this type of macro-indicator in this study, it will be impossible to draw any conclusions about cause and effect on the project level. Therefore, other, more specific indicators must be used.

Based on previous studies, Shen et al. (2011) developed a set of 30 indicators equally divided by the three sustainability categories. These 30 indicators were then scrutinised by government officials, clients and professionals for their specific relevance, and the ones with the least relevance were dropped from the study. For example, noise pollution was part of the 10 original indicators for social sustainability but was later left out, as it was deemed to not be relevant enough to keep. Consequently, eight economic, five social and seven environmental indicators remained, compromising a total of 20 so called “Key Assessment Indicators (KAI) for Infrastructure Project Sustainability” Shen et al., 2011:448). These key assessment indicators are:

*Economic*: analysis on the market supply and demand; financial risk; life-cycle benefit/profit; project budget; internal return ratio; life-cycle cost; technical advantage; payback period.

*Social*: public safety; effects on local development; scale of serviceability; provision of ancillary amenities to local economic activities; public sanitation.

*Environmental*: effect on water quality; effect on land pollution; ecological effect; effect on air quality; environmental protection measures on project design; influence on public health; energy saving.

To develop a set of indicators on my own would require a lot of time and could potentially be a master thesis on its own. Fortunately, Shen et al. have already gone through that process. Furthermore, these indicators were developed especially for assessing infrastructure projects and they are based on numerous studies for how to best assess sustainability on the project level. Nevertheless, many of these indicators are similar and some of them are not accessible in the empirical material. Moreover, assessing 20 indicators is a big task that requires plenty of time and space. For these reasons, I have cut the indicators down to the following:

*Economic*: analysis on the market supply and demand; life-cycle benefit/profit and project budget.

*Social*: effects on local development.

*Environmental*: effects on water quality; effects on land pollution; ecological effect; effect on air quality and public health.

Evidently, there are three economic indicators, five environmental indicators and only one social indicator. Nevertheless, ‘effects on local development’ is a

very comprehensive indicator. Moreover, ‘public health’, which by Shen et al. is judged to be an environmental indicator, could just as well be judged to be an indicator of social development.

## 4 Empirical section

The empirical section includes the analytical findings and the ultimate aim of this segment, and this master's thesis at large, is to answer the main research question, which is repeated here:

- ‘How are the sustainability sectors weighed against each other and to what extent do trade-offs occur between them, both in terms of Chinese sustainable development policies and in the Bui Dam project in Ghana? Do sustainable development on the policy level and on the project level correspond?’

In order to make this long main research question clearer, and to fit the two-fold analysis of the empirical material, it was divided into the following sub questions:

1. ‘How are China’s sustainable development policies outlined in the 11<sup>th</sup> Five-Year Plan?’
2. ‘What were the economic, social and environmental consequences of the China-built Bui Dam project in Ghana?’

By answering these questions, the level of correspondence between China’s policies and the Bui Dam can be analysed. The results can thereafter be contextualised by the following final research question:

- ‘Are the sustainability implications from the Bui Dam representative for Chinese infrastructure projects in Africa?’

In order to be able to answer these questions, it is important to know more about the context of the study. For this reason, the first part of the empirical section will present a summary of Chinese foreign policies, where special attention is paid to its African policy.

### 4.1 Chinese foreign policy

*“A bosom friend afar brings a distant land near. China is ready to be a good friend and good partner to all countries in the world. China's diplomacy will hold high the banner of peace, development,*

*cooperation and mutual benefit.”* (Yi Wang, *Message from the minister*)

Since China is a relatively closed country, it is not all that easy to understand in detail how the formulation and implementation of how Chinese foreign policy works. However, research has been conducted to understand this issue better; besides, for the purpose of this thesis, it is more important to understand the actual policies than how those policies were made. Regardless, a brief introduction into some of the most central Chinese foreign policy actors will be outlined here.

The nine-member politburo standing committee (PSC) of the Communist Party of China is the highest, most important and most influential decision making body in China. In spite of this, “no one member [of the PSC] has an exclusive foreign policy portfolio” (SIPRI, 2010:5). This means that the decision-making regarding foreign policy is largely left to other actors. The most central of these actors is the ‘Foreign Affairs Leading Small Group of the Communist Party of China’: “all but the most critical foreign policy decisions are made in the Foreign Affairs LSG” (SIPRI, 2010:5). Other central actors are, obviously, the ministry of foreign affairs, the people’s liberation army (the armed forces) and various interest groups (SIPRI, 2010).

A foreign policy is a policy that guides international relations. It is hence a very wide and big issue, and countless books have been written on the topic. The following discussion can therefore not compose a comprehensive account of Chinese foreign policies; it is merely a brief introduction to the subject, which highlights some of the key policies that will be important for the subsequent analysis.

To properly understand Chinese foreign policy today, one has to glance at the history of the world’s most populous country. The Chinese civil war was fought between forces loyal to the government of China and forces loyal to the Chinese Communist Party. When the fighting ended in 1949, it had resulted in the forming of two ‘China’s’: the Republic of China (Taiwan) and the People’s Republic of China (mainland China) (*Taiwan Profile*, BBC, 2012). In the aftermath of the civil war, ”Mao Zedong adopted aggressive foreign policies against the capitalist world [...] and tried to export the “Chinese model of socialism” (Zhao, 2004:8). These strongly ideological policies were not successful, and after Mao’s death, the emphasis in Chinese foreign policy shifted from worldwide communist revolution towards liberalising and modernising the national economy (*ibid.*). Beginning with the so-called ‘Open-Door policy’ in 1978, which is accredited to the former Chinese politician Deng Xiaoping, Chinese policies became less ideological and more pragmatic, where the focus was on economic growth and modernisation (Zhao, 2004:258).

Even though ideology is less important than pragmatism that serves the national interest, ideological principles are still important for the shaping of China’s goals in international politics. Furthermore, these principles often serve and justify China’s actions on the global arena, combining principles and pragmatic behaviour. The principles can be broken down to the following points:

1. “Five principles for peaceful coexistence.
2. Setting up a fair and equal political and economic world order.
3. No use of force or threat of the use of force in international relations.
4. All nations, big or small, strong or weak, rich or poor, are equal in international affairs.
5. China should always side with developing countries. It should never seek hegemony or superpower status” (Zhao, 2004:61).

These principles reflect China’s interests; however, principles and pragmatism sometimes *do* collide, and when that happens, China typically bases its actions on what benefits the national interest the most. For example, in 1990, the UN discussed whether or not to authorise the use of force upon Iraq following its invasion of Kuwait. An invasion of Iraq goes against China’s policies of no use of force or threat of force and peaceful coexistence. Nevertheless, China did not veto the decision as it decided to withhold from voting in the UN Security Council (Zhao, 2004:62). Even though China principally opposed the decision to use force in a conflict, the pragmatically right thing was to not oppose a US led invasion in Iraq, since that would hurt the relationship between China and the US (*Ibid.*).

So far, the pragmatic nature of China’s foreign policies, including the five principles of peaceful coexistence, have been touched upon. Other important aspects of Chinese policies are the One-China policy and the Going Out policy. The One-China policy refers to the perception that there is only one nation-state called ‘China’, even though both Mainland China and Taiwan claim to be the one truthful ‘China’. The result of this policy is, among other things, that any country that seeks diplomatic relations with either Mainland China or Taiwan must disregard such relations with the other part. A country cannot have diplomatic relations with both The People’s Republic of China and the Republic of China simultaneously, and a country that seeks relations with either part has to acknowledge this part as the only lawful representative of the country of China (*Taiwan Profile*, BBC, 2012).

The Going Out policy is less politically sensitive than the One-China policy. The Going Out policy commenced in 1999 and it refers to the strategy of the People’s Republic of China to promote state enterprises to invest in other countries. The Going Out policy has had a large impact on China’s increased engagements in Africa, and since the promotion of it in 1999, “Chinese activity in Africa is increasing at an exponential rate” (Taylor, 2007:10).

#### 4.1.1 China’s Africa Policy

China’s African policy was outlined in January 2006, and it states that “[s]incerity, equality and mutual benefit, solidarity and common development-these are the principles guiding China-Africa exchange and cooperation and the driving force to lasting China-Africa relations” (*China’s African Policy*, 2006).

The policy paper focuses on economic development, mutual benefit and non-interference in each other's internal affairs. It also states that China "will work together with Africa in the exploration of the road of sustainable development". Furthermore, it stresses the importance of the One-China principle (*Ibid.*). Additionally, China's Africa policy states that the Chinese government "encourages and supports Chinese enterprises' investment and business in Africa" (*Ibid.*). Finally, the policy paper argues for the importance of Chinese involvement in the building of infrastructure in African countries, the exploitation of resources based on the principle of mutual benefit, and environmental cooperation (*Ibid.*).

It is obvious that China's Africa policy mirrors its general foreign policy. Non-interference and the five principles of peaceful coexistence are mentioned while the overall focus is on exploring and developing business relations, which in theory will lead to increased economic development for both regions. The Going Out policy is mirrored in the Chinese government's support of Chinese enterprises' investments in African countries, and the One-China policy is more or less described as a precondition for a relationship between China and African countries. In fact, at present, only four of the smallest African countries – The Gambia, Burkina Faso, Sáo Tome and Principe and Swaziland – keep up diplomatic relations with Taiwan (*Africa – the People's Republic's exclusive playground*, 2012). However, this pattern is the same in other parts of the world, and merely 23 countries presently maintain diplomatic relations with Taiwan (*Ibid.*). Nevertheless, China uses its influence in various ways to make sure that African countries that want business relations with China do not have relations with Taiwan (Asche & Schüller, 2008:14). It can be seen as contradictory to China's non-interference policy to keep other sovereign nation-states from maintaining diplomatic relations with Taiwan, but this is once again a case where pragmatism gets the better of principle in China's foreign policy.

Following this general outline of China's foreign policies, and especially its African policy, it is time to deepen the discussion on Chinese sustainable development policies.

## 4.2 Chinese sustainable development policies

*"To get rich is glorious"* (Deng Xiaoping, quoted in Economy, 2010:59)

While the abovementioned quote is certainly applicable to the Chinese growth miracle, China has in recent years taken many official steps on the road to sustainable development. In 1994, it issued 'China's Agenda 21: White Paper on China's Population, Environment, and Development in the 21<sup>st</sup> Century'. In 2007, China also became the first developing country to issue a national plan to address climate change (Guo, et al., 2013:436). Furthermore, China has implemented numerous laws and signed various agreements to meet its sustainable

development goals: for example, China has, among other things, announced to decrease its carbon dioxide emissions by 40-45% per unit of GDP from 2005 to 2020 (Guo et al., 2013:433). This is one major step of the transformation to a low-carbon economy that both the UN and China itself deem as crucial for the continued prosperity of the country (Guo et al., 2013:438).

This paper can, for reasons of limited time and space, not analyse all of the official Chinese documents that relate to sustainable development. Many of the documents that will not be analysed are surely both interesting and informative; the aforementioned national plan to address climate change is but one example. However, sustainable development is more than climate change, and therefore the document that will be analysed here must deal with sustainable development as an inclusive concept. The document that will be analysed is the perhaps most important policy document on development in China, namely the Communist Party of China's Five-Year Plan. Since this paper will subsequently analyse the Bui Dam in Ghana, a project where construction started in 2009, the Five-Year Plan that covers that period will be analysed as well in order to see how the policies and the project correspond. Therefore, the 11<sup>th</sup> Five-Year Plan (FYP 11), which covers the 2006 to 2010 period will be analysed. FYP 11 is not available in its entirety in English, but there are many official documents that help explain the major points of FYP 11, for example 'The New 11<sup>th</sup> Five-Year Plan Guidelines'; 'Ten Features of China's 11<sup>th</sup> Five-Year Plan'; 'Key Points in the 11<sup>th</sup> Five-Year Plan'; 'The 11<sup>th</sup> Five-Year Plan: Targets, Paths and Policy Orientation'; and 'Abstract of the 11<sup>th</sup> Five-Year Plan'. Furthermore, there is a longer and more comprehensive document that deals specifically with China's environmental challenges during FYP 11, called 'The National Eleventh Five-Year Plan for Environmental Protection (2006-2010)'. All of these documents comprise the empirical material for the exploration of China's sustainable development policies for the specific period.

### 4.3 Sustainable development in FYP 11

In FYP 11, China started a major reorientation of its development path and policies. Previously, China has targeted economic growth as the path to development. While economic growth is still important also in FYP 11, China admits that it is not the solution to all its problems, and that its growth oriented development path has in fact contributed to its current social and environmental problems (*The New 11<sup>th</sup> Five-Year Guidelines*, 2005). During the time that lead up to the drafting of FYP 11, China had seen increasing criticism "for pursuing growth based on resource consumption at a time when resource prices were rising" (Hagiwara, 2006:2). One of the challenges for China during this time was to become less dependent on resource intensive, export-oriented consumer goods with relatively low added value and thus, at the same time, become more energy efficient. For example, China consumes relatively little energy per capita compared to developed countries. Nonetheless, in terms of energy used per unit of

real GDP, China consumed 4 times more energy than the United States, 8 times more energy than Germany and 11 times more energy than Japan in 2004 (Hagiwara, 2006:3). In FYP 11, China wanted to steer clear of this unsustainable path and towards a more sustainable future. How well the policies compare to the ideal-types of sustainable development will be examined below.

#### 4.3.1 Economic growth in FYP 11

The ideal-type of economic development is, as mentioned earlier, increased economic growth. Any policies that aim to increase economic growth will be deemed to correspond to the ideal-type of economic development. In FYP 11, China has two goals for continued economic growth in the 2006 to 2010 period. These are: “GDP up 7.5 percent annually from 18.2 trillion yuan in 2005 to 26.1 trillion yuan in 2010” and “[p]er capita GDP up 6.6 percent annually from 13,985 yuan in 2005 to 19,270 yuan in 2010” (*The 11<sup>th</sup> Five-Year Plan: Targets, Path and Policy Orientation*, 2006).

This rather one-dimensional aspect of sustainable development is completely in line with the ideal-typical economic development. This comes as no real surprise; what will be interesting is instead to find out to what extent increased economic growth is compatible with China’s goals for social development and environmental protection, and to see if and how trade-offs between the sectors occur. As for economic development, it *corresponds to the ideal-type* as it has been defined in this thesis.

			<b>X</b>
1)	2)	3)	4)

#### 4.3.2 Environmental protection in FYP 11

China, in FYP 11, treats development as a holistic concept where growth alone does not equal development; “[w]ith long-term unremitting efforts, we will improve eco environment, dramatically raise resource efficiency, strengthen our capacity in sustainable development and develop an environment-friendly society where man live in harmony with nature” (*The National Eleventh Five-Year Plan for Environmental Protection*, 2008:4). China admits that growth oriented policies alone can have adverse effects on social development and environmental protection and FYP 11 marks a clear shift in Chinese policies towards a more sustainable development.

The ideal-type of environmental protection developed for this thesis is based on the principles of the Deep Ecology movement. These principles refer to the natural world as having an intrinsic rather than an instrumental value; this means that the natural world has a value in itself, regardless of what it is worth to us humans. Biodiversity is the expression of the intrinsic value of the natural world and human beings have no right to alter with biodiversity, even if doing so would

give rise to economic or social gain. The Deep Ecology movement does thus not allow trade-offs between sustainability sectors, making it a deep green movement. The reason for China's increased focus on sustainable development and environmental protection is, however, to a large extent based on the instrumental value of nature rather than nature's intrinsic value. For example, sustainable development is sought in order "to build a harmonious society" (*The New 11<sup>th</sup> Five-Year Guidelines*, 2005). Furthermore, in 'The National Eleventh Five-year Plan for Environmental Protection', China admits that there "are such problems as environmental protection lagging behind economic growth" (2008:2).

China's environmental protection goals from 2006 to 2010 were mainly going to be reached through technological advancements. The society that China seeks to build is reached through advancements in science and technology, whereas sustainable development is also paramount for the development of a 'harmonious society'. Advanced science and technology is therefore vital for sustainable development: "[w]ith deepening reform of environmental science & technology institution, China will unite all social forces, optimize and integrate the resources of environmental science & technology, foster talents in the field of environmental science & technology, develop environmental science & technology supporting system and raise the capacity in environmental science & technology innovations" (*The National Eleventh Five-Year Plan for Environmental Protection*, 2008:23). Furthermore, with the scientific concept of development, over-reliance on natural resources will not be needed to the same extent; "[f]irst, we will promote development by relying on the expansion of domestic demand [...] as a major driving force, and transform economic growth from being driven by export to being driven by consumption, investment, domestic and foreign demand combined in a balanced manner" (*The 11<sup>th</sup> Five-Year Plan: Targets, Paths and Policy Orientation*, 2006). The scientific concept of development will therefore lead to a more energy-efficient society (11<sup>th</sup> new five year guidelines). During the 2006-2010 period, China's aim was to reduce energy consumption by 20% per unit of real GDP, reduce the use of major pollutants by 10% and increase forest cover from 18.2% to 20%.

When reading about these environmental protection aims, the question that arises is 'is it enough'? If the energy consumption rate is lowered by 20% per unit of real GDP in a five-year period, at the same time as the economy is predicted to annually increase by 7.5%, the net amount of energy used is still going to increase. Even if the Chinese economy will become 20% more energy efficient, it is nowhere near the energy efficiency rate of many developed countries. Still, China is a developing nation with a large manufacturing sector for which it has earned the nickname 'the factory of the world'. Hence, it is not surprising that the energy efficiency per unit of produced GDP is higher than in many other countries. Nevertheless, the question remains if the increased energy efficiency in combination with a more rapidly increasing economic growth can be called sustainable. In a previous section, I questioned whether a hybrid car increases sustainability or merely decreases unsustainability (if compared to for example an SUV). The same logic applies here. From a perspective of global carrying capacity, neither the US, Germany or Japan are sustainable. Increasing economic

activity to the level of these countries whilst at the same time increasing energy efficiency to their level will surely build a prosperous society, but not necessarily a sustainable one. The famous ‘Jevons Paradox’ suggests that technological progresses that increase resource efficiency often leads to an increased usage of the resource in question (Strassel, 2001). The paradox seems to be applicable in this situation, since the increased resource efficiency is coupled with increased net resource usage.

As for the use of major pollutants, even if they are decreased by 10%, this still means that 90% of them are going to be used by the end of the five-year period. Similarly, even if the Chinese forest cover increases to 20% of the country’s surface area, forests do not cover the vast majority of the country. Nonetheless, forest cover is important for biodiversity, so an increased forest cover is in line with the ideal-type of environmental protection.

Apart from these measures, China emphasises the importance of clean water in FYP 11 in terms of drinking water: “we will take the prevention and control of pollution as the top priority and ensuring safe drinking water for urban and rural people as the key task” (*The National Eleventh Five-Year Plan for Environmental Protection*, 2008:5). The country also stresses the importance of environmental protection of the marine ecological environment: “China will strengthen environmental remedy and protection of marine ecological environment. [...] It will carry out general investigations on biodiversity of key sea areas, identify the invasion of alien species and carry out strict management on the introduced alien marine biological species” (*The National Eleventh Five-Year Plan for Environmental Protection*, 2008:12).

As evidenced by, among other things, China’s focus on increased forest coverage and environmental protection of marine ecology, the environment is important in FYP 11, and biodiversity is, to a certain extent, a prioritised issue. The increased importance of environmental protection is seen in three basic principles for environmental protection that are mapped out in ‘The National Eleventh Five-year Plan for Environmental Protection’ (2008:3-4). These principles are:

- “the transformation from focusing on economic growth ignoring environmental protection into putting equal emphasis on the both.”
- “the transformation from environmental protection lagging behind economic growth into the synchronization of environmental protection and economic development.”
- “the transformation from mainly employing administrative methods to protect the environment into comprehensive application of legal, economic, technical and necessary administrative methods to address environmental problems. The authority will voluntarily follow economic law and natural law in order to raise the level of environmental protection work.”

By and large, environmental protection is an important issue in China’s 11<sup>th</sup> five-year plan. Nevertheless, in some areas, the concept of sustainable development in FYP 11 differs from the ideal-type of environmental protection as

developed in this paper. The Deep Ecology movement is a deep green movement that does not tolerate compromises between sustainability sectors; in fact, the Deep Ecology movement is considered not to be a part of the sustainable development spectrum since it is solely interested in protecting the natural world. In Deep Ecology, the natural world exists for the sake of the natural world, but to China (as to virtually every other human society) the natural world is the foundation for prosperity. China wants to use natural resources more efficiently, but the efficiency is simultaneously eaten up by the increased economic activity in the country. Moreover, it is hard to speculate whether or not a more energy efficient society is sought for the benefit of the natural world, or for the benefit of the economic and social world, or all three of them. The question that remains after having read the policy documents is if enough measures have been taken in order to protect the environment. In 2010, when FYP 11 expired, China's economy was still going to be energy-intensive and China would still use a lot of major pollutants.

As far as biodiversity issues goes, 'The National Eleventh Five-year Plan for Environmental Protection' is oftentimes rather vague: the word biodiversity is only mentioned three times in a document that contains more than 14000 words. Loss of biodiversity is addressed as a problem, but specific measures for how to improve the situation are largely left out. The issue is mentioned in relation to investigations of certain key sea areas, and one can assume that positive developments will follow other measures, such as that increased forest cover will be positive also for increased biodiversity. There is unfortunately no way to be sure about this since it is not specified which type of forest will account for the increase. If, for example, eucalyptus plantations make up the increased forest coverage, biodiversity would likely be negatively affected.

All in all, China has taken many positive steps in terms of environmental protection as a result of the introduction of FYP 11. Although the problems that have been pointed out hinder the top score for environmental protection, it does correspond to the ideal-type to a *relatively high degree*.

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1)	2)	3)	4)

#### 4.3.3 Social development in FYP 11

In this paper, economic development and environmental protection are rather one-dimensional; economic development is usually a wide concept that includes equal distribution of wealth and other social concerns. Likewise, in this paper, environmental protection takes a Deep Ecology perspective where the natural world is the only area of concern. From a validity perspective, I consider it important that these areas are one-dimensional and that they strictly measure only one thing. However, this means that the third sustainability sector, social development, will have to cover a wide array of issues ranging from education, health services, equity concerns, empowerment and democracy as well as security

concerns. For this reason, this analysis of social development will be the largest of the three sectors of sustainable development in China's FYP 11.

The first aspect of social/human development that will be looked into is 'social progress', and the parameters of this are: 'greater access to knowledge and improved education', 'better nutrition and drinking water' and 'improved health services'.

When it comes to education, the authors behind FYP 11 state that the goal is to increase the "term of education per capita from 8.5 years in 2005 to nine years in 2010" (*Facts and Figures: China's Main Targets for 2006-2010*, 2006). Increased education will improve the overall development in China, and help the country to reach its goal of "rejuvenating our nation through science and education and take science and technology advancement and innovation as a major driving force of economic and social development" (*Abstract of the Eleventh Five-Year Plan outline*, 2006). Education should thus be seen as a means of increasing both human development, and, in the long run, economic development.

Safer food is mentioned as a means to improve people's life quality in 'Ten features in China's 11<sup>th</sup> five-year plan' although any specifications as to how this goal ought to be reached are not included; neither is there any information about what constitutes unsafe food in the first place. The needs seem to be direr when it comes to the quality of the drinking water in China. During the term of FYP 11, an additional 100 million people were supposed to get access to safe drinking water. China is foremost going to reach this goal by decreasing its chemical oxygen demand (COD) by 10%: the COD is a test that measures how much oxygen is needed to deplete organic compounds, and the higher the value the higher is the total amounts of organic pollutants in the water (*The National Eleventh Five-Year Plan for Environmental Protection*, 2008:5). In order to reach this target "[i]t is expected that by 2010, all cities in China must have sewage treatment facilities with at least 70% of urban sewage being treated" (*The National Eleventh Five-Year Plan for Environmental Protection*, 2008:5).

Access to safe food and drinking water is of course paramount for the health situation in the country. Healthcare is also a prioritised area of concern in FYP 11, and the aim of the government was to increase the coverage "of the new rural cooperative medical care system up from 23.5 percent in 2005 to over 80 percent in 2010" (*Ten Features in China's 11<sup>th</sup> Five-Year Plan*, 2006).

All in all, education is prioritised and seen as a way to increase the overall social and economic development of the country. When it comes to food and water safety, especially the quality of drinking water is prioritised, and in FYP 11, the Chinese government implements countermeasures to pollution problems of the past when high economic growth was considered to be more important than environmental and social concerns. China sets up ambitious goals for a better water quality, but in 2010, only 70% of urban sewage ought to be treated, and the decrease in COD emissions is a mere 10%. Finally, healthcare and medical services are set to improve during the 2006 to 2010 period, and ambitious quantifiable numbers are set up for the rural health insurances. Otherwise, the specifics of *what should be done* and *how* are largely left out, but in sum, education, water quality as well as healthcare are all priority areas for the Chinese

government.

The second aspect of social/human development is *efficiency “in terms of resource use and availability”* and the closely related concerns of “*equity in terms of economic growth and other human development parameters*.”

Ever since its ‘opening up policies’ and the economic growth that followed, China has developed economically at different rates. The eastern regions, with its big economic hotspots like Shanghai and Hong Kong have developed much faster than the largely rural western and northern regions. China seeks to address this problem in FYP 11: “[t]he widening gaps of public services, per capita income and the living standard between urban and rural areas and between different regions will be curbed according to the principle of balancing urban and rural development and equalizing public services” (*The 11<sup>th</sup> Five-Year Plan: Targets, Paths and Policy Orientation*, 2006).

One of the fundamental changes from the 10<sup>th</sup> five-year plan to the 11<sup>th</sup> five-year plan is that in FYP 11, growth is seen merely as the tool for the development of the Chinese society and no longer as an end in itself. Growth will serve as the foundation of social development and “China’s average urban per capita disposable income in 2010 would increase from last year’s 10,493 yuan to 13,390 yuan, while rural per capita net income will rise from 3,255 yuan to 4,110 yuan” (*Ten Features in China’s 11<sup>th</sup> Five-Year Plan*, 2006). In this case, it is hard to argue that the increasing income inequalities in the country will be curbed considering the fact that rural wages will increase by 855 yuan, while urban wages will increase by 2897 yuan. The total amount of increase in wages is more than three times faster in urban areas than it is in rural areas. Moreover, it is not only in absolute terms that the increase is faster in urban areas; when the numbers are broken down, one can see that the increase in rural wages are set out to increase by approximately 26% while urban wages would increase by circa 27.5% in the same period. Therefore, both in absolute and in relative terms, urban wages are increasing compared to rural wages. It is possible that the rate at which the differences between population groups are increasing might be slowed down during FYP 11, but this alone is not enough to live up to the goal of curbing income inequalities. The Chinese government also focuses on creating an environment of equal opportunities but it is not specified how this will be carried out. Other aspects of increasing equality between urban and rural population groups include the aforementioned rural health insurance that will cover 80% of the rural population in 2010. All in all, China implements some measures for increased equality, but what it undertakes in FYP 11 are not enough to bridge the existing inequality gaps in the country.

The third part of social development is *participation and freedom*. Parameters will include “empowerment, democratic governance, gender equality, civil and political rights, and cultural liberty, particularly for marginalized groups defined by urban-rural, sex, age, religion, ethnicity, [and] physical/mental parameters”.

China is typically not considered to be a democratic society. For example, ‘Freedom House’ rates China as ‘not free’, the lowest grade a country can get from the organisation (Freedom House, 2013). Nonetheless, in the 11<sup>th</sup> five-year plan, the country claims to want to “stick to the overall development of political

[...] progress, promote democracy [and] improve the legal system” (*Abstract of the Eleventh Five-Year Plan*, 2006). Moreover, the goal of a ‘harmonious society’ “should be reached through the principle of democratic rule of law” among other things (*Ibid.*). The concept of ‘socialist democracy’ is also introduced as something that should be expanded. There is however a lack of a clear definition of what this concept means, as there is a lack of the definition of democracy, which China claims to want to build on. It is somewhat contradictory that Freedom House rates China as undemocratic at the same time as China wants to build a harmonious society based on the democratic principle. In ‘the national eleventh five-year plan for environmental protection’, participation is upheld as an important and well-specified goal, but this only covers the sector of environmental protection.

The last aspect of social/human development is human security in terms of “*security in daily life against such chronic threats as hunger and abrupt disruptions including joblessness, famine [and] conflict*”.

The ambition in FYP 11 was “to increase employment, [...] improve the social security system [and] reinforce poverty reduction” (*The 11<sup>th</sup> Five-Year Plan: Targets, Paths and Policy Orientation*, 2006). Moreover, the national defence is also undergoing modernisation with the aim of making the country safer for its population. A further improvement in FYP 11 is the creation of 45 million jobs for urban residents and an increase in the old age pension “from 174 million people in 2005 to 223 million people in 2010” (*Ibid.*).

All in all, social development in FYP 11 covers many areas, but a general problem is the lack of *specific* measures for how to deal with the identified problems. Many positive examples can be mentioned, for example the objective to increase the term of education from 8.5 years to 9 years, and the increased coverage of the rural health insurance. In other areas, the results are not equally positive, the differences in income levels are for example still increasing between urban and rural areas, and an issue such as gender equality is not mentioned anywhere in FYP 11. Moreover, one can question whether or not an upgraded military increases or decreases security, and the old-age pension coverage is still rather weak considering China’s enormous population.

The result is consequently that the correspondence level between the ideal-type of social/human development and China’s social/human development policies in FYP 11 are *relatively high*.

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1)	2)	3)	4)

## 4.4 Summary of sustainable development policies in FYP 11

As this section has showed, sustainable development has become an important aspect of the Chinese development model. Previously, China's development policies were one-sided, as they promoted growth on behalf of environmental protection and social/human development. China even admits that previous development has been one-sided, and that social development and environmental protection have suffered because of it. FYP 11 marks a clear shift towards sustainable development policies. Economic growth is still an important aim, and China set the growth target to 7.5% annually between 2005 and 2010, but the overall aim is to seek development that combines economic, social and environmental development. However, even though the outspoken aim is admirable, the development path that China sets itself upon does contradict itself on a number of occasions, and trade-offs between the sustainability sectors do occur. The perhaps clearest example of a trade-off is the fact that the annual growth-rate is predicted to be 7.5% while the energy efficiency per unit of real GDP is set to decrease by 20% in a five-year period. This resembles Jevons paradox as it means that the net amount of energy used in the Chinese economy is set to increase between 2006 and 2010, despite increased efficiency.

China takes some ambitious steps towards environmental protection in FYP 11, even though the Deep Ecology perspective of the ideal-type is not fully reached: forest cover and the protection of the marine ecology are two examples that likely benefits biodiversity. However, the question is oftentimes if the measures that are taken are enough, and if the sectors are adequately weighed against each other. For example, does a 10% decrease of the use of "major pollutants" make the Chinese society more sustainable, or less unsustainable? Hedenfelt refers to sustainability as a state, and sustainable development as a process (2012:8), and the question is if the measures that China have taken are enough to reach the state of sustainability? The answer to that question is perhaps that it takes more than five years to reach the state of sustainability, and that FYP 11 is at least a starting point.

The results are similar when it comes to social development. In some areas, the goals are very positive while in others they are not. The goals for education and increased rural health insurance are certainly positive, but too little is done to reduce the inequality levels between rural and urban population groups.

In general, China's focus on technology as a way to reach its environmental goals makes the Chinese environmental protection 'technology centred' instead of 'ecocentric', which is the ideal-type of environmental protection in this thesis. In FYP 11, the sustainability sectors are free from each other and not inter-linked, as in a deep green model of sustainable development. China's sustainable development hence resembles the TBL model, and the trade-off dilemma of the TBL model can be seen in China's policies.

## 4.5 Sustainability assessment of a Chinese infrastructure project in Africa: The Bui Dam in Ghana

The second part of the analysis in this thesis is based on the Bui Dam project in Ghana, which the Chinese state-owned company Sinohydro carried out. At the Forum on China-Africa Cooperation that was held in November 2006, the Bui Dam agreement was signed. The project was launched in 2009 and the first turbine of the dam was generating power in 2012. The project is expected to be completely finished in 2013.

There are many reasons for choosing to analyse a dam project: a dam is capable of delivering big changes in the environmental, social and economic sectors, and is therefore ideal for analysing how the sustainability sectors are weighed against one another. Another crucial reason for choosing the Bui Dam is that the data accessibility regarding the project is good. Most importantly, however, there have been plans to initiate a dam construction project in the area for some 50 years, but changed sustainability discourses in western countries have led those to opt out of financing the project. The fact that Sinohydro, in spite of the changed western discourses, still carried out the project, allows for a good opportunity to determine if Chinese involvement in the project is socially and environmentally detrimental (Hensengerth, 2012:286).

The analysis will be based on the ‘Environmental and Social Impact Assessment of the Bui Hydropower Project’, which is the official sustainability assessment that was carried out prior to the launch of the project. In the methodology section, I argue for the importance of having a critical mind towards the sustainability assessment depending on, for example, the intended reader, and most importantly, the creator of the assessment. In this case, the client, and therefore intended reader, were the Ministry of energy in Ghana, the Bui development committee and, ultimately, the government of Ghana – this strengthens the trustworthiness of the assessment. It is sometimes the case that the company that carries out the construction is forced to pay for the sustainability assessment, and the incentive of the company can be to keep this cost to a minimum (Hensengerth, 2012:296). The producer of the document is the US-based company ‘Environmental Resources Management’ (ERM), a company that describes themselves as “the world’s leading sustainability consultancy” ([www.erm.com/en](http://www.erm.com/en)). ERM is a large private company, and the income of the business is dependent on delivering high-quality services. Furthermore, as a western company, ERM bases its assessment on western social and environmental norms (Hensengerth, 2012:291). There is thus no obvious reason to distrust the report.

In order to contextualise the Bui Dam project, it is important to note that Africa is generally to a large extent underdeveloped, not least when it comes to electrical power generation. For example, “African countries are tapping only about 7 per cent of their technical hydropower potential (compared with 33 per

cent in South America, 69 per cent in North America and 75 per cent in Europe)” (Hensengerth, 2011:foreword). Moreover, it is estimated that Africa requires 7,000 Megawatts of new electricity per year to be able to overcome its electricity deficit and achieve socioeconomic development (*Ibid.*). Investments in electric power generation are thus needed, and hydroelectric power has the added advantage of being a renewable energy source. The question that remains is what consequences such investments have for sustainable development.

## 4.6 Regulations and institutional interaction

The Chinese state-owned company Sinohydro carried out the Bui Dam hydroelectric power project in Ghana. This requires a specific mixture of regulations and interaction between the involved institutions. It is important to understand this specific combination of actors in order to understand why the involved parties have acted the way that they have. This section will provide a short summary of environmental and social regulations and describe the institutional interactions involved in the project.

The involved actors are the Chinese EXIM-bank, which provided the funding for the project, Sinohydro, the company that carried out the construction of the project, and Ghana’s authorities, for example the Ministry of Energy and the Ministry of Environmental Protection.

First of all, China is not a member of the Organisation for Economic Cooperation and Development (OECD). It is therefore not bound by the OECD’s ‘common approaches’ to environmental and social norms in overseas investments (Hensengerth, 2011:foreword). Instead, Chinese companies can, depending on the project, adhere to different sustainability norms. “Chinese CSR [Corporate Social Responsibility] strategies - particularly in environmental protection - vary widely due to [...] specific local political and social structures” (Urban, 2012:259).

In the case of the Bui Dam, Sinohydro was in fact bound by international social and environmental standards. The reason hereof was that a western company, ERM, commissioned the sustainability assessment and that Ghana’s environmental laws to a large extent mirror western environmental laws. These laws are also rather well implemented (Hensengerth, 2012:291). During the launch of construction of the Bui Dam in 2009, the Chinese EXIM-bank had also implemented guidelines for ‘environmental and social impact assessments’ in relation to overseas investments that the Chinese companies had to follow (*Guidelines for Environmental and Social Impact Assessments of the China Export and Import Bank’s Loan Projects*, 2013). The regulation surrounding the project was therefore relatively well upheld, at least on paper. The following section will take a deeper look at ERM’s environmental and social impact assessment in order to gain a deeper understanding of the project and its economic, social and environmental implications.

## 4.7 The Bui Dam sustainability assessment

### 4.7.1 Economic aspects of the Bui Dam

The first indicator that will be assessed is the *analysis on the market supply and demand*. During the construction of the Bui Dam, relatively wealthy, well-educated construction workers will immigrate to the area and live there for the construction period. Their relative wealth will provide farmers, fishermen and other craftsmen a much larger market to sell their products to. However, the difference in income-levels between the local population and the migrant workers is also likely to lead to inflation in the price-levels of these basic goods. Moreover, the worksite will lead local people to leave their professions of fishing and farming in order to seek employment at the construction site. Other people may turn to trading or supplying the dam with materials. According to the ‘environmental and social impact assessment’, the effect of this “is judged to be major, and positive if it is managed and monitored” (Eamonn, 2007:138).

When the migrant workers leave the construction site after having completed their work, this may lead the local economy into a depression, and possibly even to an out-migration of local people who want to search better futures somewhere else. Once the project is finished and the dam is at full capacity, the water reservoir upstream from the dam will greatly have increased the area available for fishing. This can turn the fishing business into a year-round industry, instead of a seasonal industry, which it was before the dam was constructed (Eamonn, 2007:59). All in all, the effect on the market supply and demand will have both positive and negative outcomes.

The next aspect of the project that is going to be analysed is the *cost/benefit analysis* of the dam and the *project budget*. The project budget amounted to US\$ 700 million (McDonald et al., 2008:295). However, there is unfortunately no available data for the dam’s cost/benefit analysis.

### 4.7.2 Social aspects of the Bui Dam

When it comes to social/human development, the indicator that will be used is: *effects on local development*. The perhaps biggest and most serious consequence that stems from building the Bui Dam is the fact that as many as 127 households with 1,360 people are forced to leave their homes (Eamonn, 2007:77). In addition, 7,500 people will lose access to forests and farmland. However, a resettlement plan exists for the people who were forced to leave their home.

Apart from issues regarding resettlement and loss of land that stem from the dam’s water reservoir, the area will likely face increased crime and prostitution rates due to the influx of migrant workers. Increased crime rate and prostitution rates are thought to be major (Eamonn, 2007:124). Finally, there will likely also be major but temporary hardships between the migrant workers and the local population during the construction of the dam (*Ibid.*).

### 4.7.3 Environmental aspects of the Bui Dam

A large-scale hydroelectric dam *will* affect the natural environment to a smaller or larger extent. The first indicator for the environmental effects of the Bui Dam is *effect on water quality* and *effect on land pollution*. The *effect on air quality* is also an indicator for infrastructure projects, but apart from slightly contributing to climate change, the effects on air quality from the Bui Dam are negligible.

As for the *effects on water quality*, the Bui Dam will for example “create a reservoir occupying 440 km<sup>2</sup> of the Bui Gorge at full supply [...]. This will reduce to 288 km<sup>2</sup> at minimum operating level (Eamonn, 2007:169). The lake environment the dam gives rise to will differ greatly from the original river environment. There is a risk that the new lake environment will give rise to augmented water temperatures, which, in combination with decomposing algae and weed following the inundation, will lead to lower levels of dissolved oxygen in the water (Eamonn, 2007:170). As for the *effect on land pollution*, rising water levels could lead to increased salinisation in the surrounding soils (Eamonn, 2007:171). Moreover, the resettlement programme of displaced communities requires land to be taken into account for this purpose (Eamonn, 2007:76).

The next environmental indicator is the *influence on public health*: the new environment will have considerable consequences on local disease prevalence. For example, numerous communicable diseases such as intestinal worms, bilharzia and onchocerciasis are likely to increase (Eamonn, 2007:127). The increased breeding sites for mosquitos will increase the prevalence for malaria as well. The environmental and social impact assessment judges the health consequences from the Bui Dam to be major. The migrant workers and the increased prostitution that likely follows could also lead to enhanced prevalence of STDs, including HIV/AIDS, as well (*Ibid.*).

The final indicator for environmental consequences from the Bui Dam is the *ecological effect*. The project area lies partly within the Bui National Park, which is, among other things, home to “the largest of only two hippopotamus populations in Ghana” (Eamonn, 2007:iii). The shift from riverine to lacustrine characteristics affects certain wildlife species such as mayflies and certain species of fish that prefer moving water. Some types of animals will benefit from the changes in the natural environment while others will lose from them. “The reservoir will reduce habitats for wildlife species that require flowing water [...] but increase foraging habitat for wildlife that prefer still or slow-moving waters such as waterbirds” (Eamonn, 2007:106). The new environment will displace the hippos, and during this period, they will be especially vulnerable to hunting. In the longer term, however, hippos are likely to benefit from the increased area of watery environment from the reservoir (Eamonn, 2007:108).

## 4.8 Summary of the Bui Dam

It was concluded in the ‘environmental and social impact assessment’ that:

*the Bui project is a necessary element of the power sources required to support Ghana’s contemned economic development, based on job creation, security if supply, and lower carbon dioxide emissions. No alternative locations elsewhere in Ghana have been identified, and none of the alternative dam designs or layouts, for a site within or near the Bui gorge, will have a significant effect on the overall environmental or social impact, largely because the overall reservoir size would be the same and the construction-related impacts at least as great. (Eamonn, 2007:xiii).*

The local market will see positive as well as negative outcomes of the Dam whereas the social/human development will be affected in a more unanimously negative way. This is not least true for the 1,360 people who have to be relocated and the approximately 7,500 people who will lose access to farmland. The environmental effects are as well positive in some regards and negative in others. The water quality may be affected negatively, and farmland will face increased salinisation. In terms of wildlife, the reservoir will make sure that Ghana’s largest hippo population gets an increased habitat. For other species of wildlife that prefer riverine conditions, the changes in the natural environment are negative. Last, the dam will also lead a more disease-prone environment for the people who live there. All in all, based on ‘Environmental Resources Management’s judgement, the changes are deemed to be acceptable and necessary for Ghana’s socioeconomic development.

In the summary of China’s sustainable development policies, I mentioned that the prevalence of certain trade-offs resemble a weak form of sustainability, especially the TBL model. This is valid also for the social and environmental consequences of the Bui Dam. Trade-offs do occur, but ERM judged the negative outcomes to be a fair price to pay for the socioeconomic development that the dam would give rise to. In this regard, China’s policies and the Bui Dam do correspond, even if sustainable development is not ideal in either of the two cases.

## 5 Concluding analysis

The main research question of this thesis has been: *How are the sustainability sectors weighed against each other and to what extent do trade-offs occur between them, both in terms of Chinese sustainable development policies and in the Bui Dam project in Ghana? Do sustainable development on the policy level and on the project level correspond?* In order to answer this question, this thesis has, so far, presented China's sustainable development policies as they were outlined in the 11<sup>th</sup> Five-Year Plan. Moreover, it has presented the environmental and social impact assessment that was carried out prior to the launch of the construction of the Bui Dam in Ghana. In this section, I will present my conclusions and analyse the findings in more detail.

First of all, sustainable development is an increasingly important topic in China. In FYP 11, sustainable development is for the first time an important political goal in a five-year plan. This development has continued in the 12<sup>th</sup> five-year plan, which covers the 2011-2015 period. According to the ideal-types of sustainable development, most areas are taken into account in FYP 11, even if the scope of the measures sometimes can be questioned. Moreover, specific measures for how to tackle certain problems are repeatedly lacking, and in some cases, it is evident that economic growth is still more important than for example environmental protection. This is clearly the case when it comes to the increased resource efficiency in the Chinese economy. The goal was that the Chinese economy would improve its energy efficiency by 20% per unit of produced GDP in the 2006-2010 period, but at the same time, the goal of 7.5% annual increase in total GDP would increase used net energy. Trade-offs such as this one resemble the weak form of sustainability and the TBL sustainable development model.

Trade-offs were also seen in the Bui Dam project on several occasions. For example, apart from the socioeconomic development that the dam would lead to in terms of increased electricity output, the social development from the dam will be almost exclusively negative. Social tensions between migrant workers and local population, resettlement of as many as 1,360 people, increased crime and prostitution rates and increased health problems were calculated to stem from the project. ERM nonetheless judged that the overall consequences of the project would be positive, and that there were no viable alternatives for Ghana to overcome its energy deficiency. Also in terms of environmental protection, trade-offs would occur on several occasions. For example, the water quality in the project area was projected to be negatively affected and land quality was also predicted to be affected by increased salinization. Furthermore, the dam would affect the area's wildlife; for some species the changes in natural environment are positive, this is for example the case for the hippopotamus. Nevertheless, for other species the changes are negative. The fact that the project can have positive as

well as negative outcomes on wildlife may make it seem as if the balance is somehow upheld; some species lose from the changing environment but as long as others profit it is more or less alright. According to the ideal-type of environmental protection developed in this paper, however, human interference in the natural world is not legitimate since nature has an intrinsic value. Clearly, this definition of environmental protection is to some extent controversial, and this concept is not applied by ERM. To a certain extent, trade-offs between the sustainability sectors are unavoidable when a hydroelectric power dam is built. What this effectively shows is that the Deep Ecology movement's worldview is hard to combine with socioeconomic development and the dominating status quo oriented image of sustainable development. To contrast this, it is likewise evident that sustainable development that reflects weak sustainability and the status quo group for social change often run into problems with trade-offs. In such cases, the question is often if the development is in fact sustainable at all? This question is for example raised in relation to China's goal of reducing the use of major pollutants with 10%. Does a 10% reduction lead to what Hedenfelt describes as the state of sustainability, or to reduced unsustainability? The different sustainability discourses and the flexibility of the concept can make the debate feel a bit hollow. When it comes to China's policies, they do correspond to the ideal-types to a certain extent. For the one-dimensional economic development, the goal and the ideal-types are very similar, but for social and environmental development, the differences are bigger. Finally, the correspondence between China's policies in FYP 11 and the Bui Dam is high as they both view sustainable development from a TBL perspective. However, the following contextualisation will look into why the correspondence is high in this case.

## 5.1 Contextualisation

The Bui Dam is but one of many infrastructure projects that has been financed and/or carried out with Chinese involvement in Africa after the launch of the Chinese 'Going Out strategy'. The very last part of this study aims at putting this project into a broader perspective of Chinese investments in Africa. This part will contextualise the study and answer the final research question – *Are the sustainability implications from the Bui Dam representative for Chinese infrastructure projects in Africa?*

In the introduction of this thesis, I stated that China's own environmental track record is dubious at best, and a reason for undertaking this study was to see what this translates into when Chinese companies are expanding into Africa. First of all, China is not bound by the OECD's common approaches for overseas investments, and there have been, and still are, real concerns for what this means for sustainable development in, for example, Africa. As competition from Chinese firms, supported by the EXIM bank, has become more fierce, the response from western banks could be to ignore social and environmental concerns as well; "[w]ill the outcome of China's new involvement in overseas infrastructure

financing be an environmental and social “race to the bottom” (McDonald et al., 2008:302)? The response to this concern from China has been to refer to the principle of non-interference in other nations’ internal affairs. The Ministry of Foreign Affairs argued that if China does not interfere in other nations’ internal affairs, other, western nations should likewise leave China’s business to China (*Ibid.*). The Chinese government further justifies the lack of social and environmental benchmarks by referring to its own development path; in China, economic growth preceded environmental protection and human development norms, and China does not want to impose moral incentives that could potentially hinder economic growth in other developing countries (*Ibid.*).

In the case of the Bui Dam, the social and environmental implications are far from ideal, but they were nonetheless deemed acceptable by ERM. This could be because of the fact that Sinohydro was not involved in the planning process, as the company is renowned for its engineering skills, but questioned for its environmental sensibility (Hensengerth, 2011:43). In other projects, different norms have led to different results. One example where the social and environmental consequences were much more severe is the Merowe Dam in Sudan. Construction on the Merowe Dam began in 2004, and the project was completed in 2009. Similar to the Bui Dam, the Chinese EXIM bank was a financier of the project. However, the environmental impact assessment did not meet international standards (Teodoru et al., 2006:8), and as a result, the social and environmental impacts were dire. The question that arises is why there are such big differences between projects, and what these differences might lead to? The answer to the first of these questions could be found in the previously discussed Chinese non-interference policy and the pragmatic nature of China’s foreign policy. The non-interference policy is evident; by not asking awkward questions, not holding high moral benchmarks and claiming that there are no rogue states, China can invest basically anywhere with little moral considerations. Moreover, “China’s investment in Africa’s crumbling infrastructure is needed and welcomed by most” (Taylor, 2007:19). Another factor is the pragmatic Chinese foreign policy. As was mentioned before, Ghana’s environmental laws are relatively tough and well implemented. This is not the case in Sudan. Consequently, the actions of Chinese companies are guided by the context in which they operate. Taylor argues that whilst China “emphasises the notion of state sovereignty, this is most enthusiastically applied to countries where the empirical properties of a state are lacking (2007:22). Hensengerth (2012:286) similarly argues that “while some [Chinese companies] may profit from authoritarian governments, others profit from transparent environments” and that this mirrors their pragmatic nature. The problem of social and environmental norms in relation to Chinese overseas investments is thus a combination of lacking Chinese regulations and lacking regulations in the host country in which the Chinese company happens to operate. “[P]arts of the environmental performance of Chinese actors can be influenced by the political institutions of the host countries; hence, legislative and institutional frameworks for environmental protection are needed, both on the Chinese side and on the side of host countries in Africa” (Urban et al., 2012:262).

The future may however still hold a positive outlook. The reason hereof can in fact also be traced back to China's shifting policies towards increased pragmatism. In FYP 11, and also in FYP 12, sustainable development has become increasingly important issues for China. Economic growth is no longer seen as a 'magic bullet' towards development. Furthermore, the importance of sustainability increases not only in China, but in the rest of the world as well, and this includes Africa and the rest of the developing world where China does business. Because of this, Cheng Siwei, the Vice Chairman of the Standing Committee of the People's Congress, issued a warning that Chinese companies had lost out on business opportunities abroad due to irresponsible practices. His analysis was that companies that do not properly take social and environmental practices into account, also in developing countries, would lose their places on the market (McDonald et al., 2008:302). Losing out on business opportunities clearly goes against China's pragmatism and their Going Out strategy, which encourages Chinese companies to invest overseas. Hence, as sustainability becomes more important, the feared 'race to the bottom' between Chinese and western financers and companies, may turn into a 'race to the top' instead.

## 6 References

- Baker, Susan, 2007. "Sustainable Development as Symbolic Commitment: Declaratory Politics and the Seductive Appeal of Ecological Modernisation in the European Union". *Environmental Politics* Vol. 16, No. 2, pp. 297-317.
- Bawtree, Victoria & Rahnema Majid, 1997. *The Post-Development Reader*. London: Zed Books Ltd.
- Beckman, Ludvig, 2007. *Grundbok i idéanalys – Det kritiska studiet av politiska texter och idéer*. Stockholm: Santérus förlag.
- Brown, Lester R., 2011. *World on the Edge*, Earth Policy Institute, London: Norton.
- Bruun, Hans Henrik, 2007. *Science, values and politics in Max Weber's methodology*. Aldershot: Ashgate Publishing Ltd.
- Desai, Vandana & Potter, Robert B., 2008. *The Companion to Development Studies*, 2<sup>nd</sup> ed.. London: Hodder Education.
- Economy, Elizabeth C., 2010. *The river runs black: The environmental challenges to China's future*, 2<sup>nd</sup> ed.. London: Cornell University Press.
- Esaiasson, Peter et al., 2009. *Metodpraktikan: Konsten att studera samhälle, individ och marknad*, Tredje upplagan. Stockholm: Norstedts Juridik AB.
- Hedenfelt, Eva, 2012. *Hållbarhetsanalys av städer och stadsutveckling: Ett integrerat perspektiv på staden som ett socioekologiskt komplext system*. Malmö: Malmö Högskola.
- Holme, Idar Magne & Krohn Solvang, Bernt, 2006. *Forskningsmetodik: Om kvalitativa och kvantitativa metoder*. Lund: Studentlitteratur.
- Martenson, Chris, 2011, *The Crash Course: The Unsustainable Future of Our Economy, Energy, and Environment*. Hoboken: John Wiley and Sons Inc.
- McDonald, Kristen et al., 2008. "Exporting dams: China's hydropower industry goes global". *Journal of Environmental Management* No. 90, pp. 294-302.
- Rotberg, Robert I., 2008. *China Into Africa: Trade Aid and Investment*. Washington D.C.: Brookings Institution Press.
- Shapiro, Judith, 2012. *China's Environmental Challenges*. Cambridge: Polity Press.
- Sumner, Andy & Tribe, Michael, 2008. *International Development Studies: Theories and Methods in Research and Practice*. London: Sage Publications Ltd.
- Taylor, Ian, 2007. "Unpacking China's Resource Diplomacy in Africa, Current African Issues" in Melber, Henning (ed). No. 35, Uppsala, Nordiska Afrikainstitutet.
- Trzyna, Thaddeus C., 1995. *A Sustainable World: Defining and measuring sustainable development*. London: Earthscan Publications Ltd.

- Victor, David G., 2006. "Recovering Sustainable Development". *Foreign Affairs*, No. 1 Vol. 85.
- Zhao, Suisheng, 2004. *Chinese Foreign Policy: Pragmatism and Strategic Behaviour*. New York: East Gate Book.

### **Internet Sources**

- 350.org 2013. "Countries for 350 ppm / 1.5 C", <http://350.org/en/media/350countries> accessed 11 May 2013.
- "Abstract of the Eleventh Five-Year Plan outline" 2006. Chinese Government's Official Web Portal, [http://english.gov.cn/2006-03/08/content\\_246973.htm](http://english.gov.cn/2006-03/08/content_246973.htm) accessed 2 April 2013.
- Agenda 21 for Culture 2013. "Cultural Policies and Sustainable Development", [http://www.agenda21culture.net/index.php?option=com\\_content&view=article&id=131%3Acultural-policies-and-sustainable-development](http://www.agenda21culture.net/index.php?option=com_content&view=article&id=131%3Acultural-policies-and-sustainable-development) accessed 6 May 2013.
- Asche, Helmut & Schüller Margot, 2008. "China's Engagement in Africa – Opportunities and Risks for Development". Africa Department, Deutsche Gesellschaft für Technische Zusammenarbeit, [http://www.giga-hamburg.de/dl/download.php?d=/english/content/ias/pdf/studie\\_chinas\\_engagement\\_in\\_afrika\\_en.pdf](http://www.giga-hamburg.de/dl/download.php?d=/english/content/ias/pdf/studie_chinas_engagement_in_afrika_en.pdf) accessed 15 April 2013.
- Bacchi, Umberto, 2013. "China's Xi Jinping to visit Congo and Tanzania: Charm and Business Set New African Course". *International Business Times*, <http://www.ibtimes.co.uk/articles/449569/20130323/xi-jinping-congo-tanzania-china-africa-trade.htm> accessed 24 March 2013.
- Barret, Eamonn, 2007. "Environmental and Social Impact Assessment Study of the Bui Hydroelectric Power Project". *Environmental Resources Management*, <http://library.mampam.com/Final%20ESIA%20-%20Bui%20HEP.pdf> accessed 2 May 2013.
- Centre for Chinese Studies, 2012. "Africa – the People's Republic's exclusive playground", <http://www.ccs.org.za/wp-content/uploads/2012/04/YK-Taiwan-Africa.pdf> accessed 10 May 2013.
- "China's African Policy" 2006. Ministry of Foreign Affairs of the People's Republic of China, <http://www.fmprc.gov.cn/eng/zxxx/t230615.htm> accessed 4 April 2013.
- Environmental Resources Management, <http://www.erm.com/en/> accessed 5 May 2013.
- European Commission 2013. "Sustainable Development Indicators". <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators> accessed 2 May 2013.
- "Facts and Figures: China's Main Targets for 2006-2010" 2006. Chinese Government's Official Web Portal, [http://english.gov.cn/2006-03/06/content\\_219504.htm](http://english.gov.cn/2006-03/06/content_219504.htm) accessed 23 March 2013.
- Frauke, Urban et al., 2012. "China as a new shaper of international development: the environmental implications".

- <http://link.springer.com/content/pdf/10.1007%2Fs10668-012-9411-3.pdf>  
accessed 14 March 2013.
- Freedom House 2013. “China”, <http://www.freedomhouse.org/country/china>  
accessed 11 May 2013.
- Guo, Xiumei et al., 2013. “China’s Shifting Policies towards Sustainability: a low-carbon economy and environmental protection”. *Journal of Contemporary China* Vol. 22, No. 81, pp. 428-445,  
<http://www.tandfonline.com/doi/abs/10.1080/10670564.2012.748962#preview>  
accessed 8 April 2013.
- Hagiwara, Yoko, 2006. “11<sup>th</sup> Five-Year Plan Plots Future Course for the Chinese Economy”. The Bank of Tokyo-Mitsubishi UFC,  
[http://www.bk.mufg.jp/report/ecorev2006e/review\\_e20060403.pdf](http://www.bk.mufg.jp/report/ecorev2006e/review_e20060403.pdf) accessed  
27 April 2013.
- Hensengerth, Oliver, 2012. “Chinese hydropower companies and environmental norms in countries of the global south: The involvement of Sinohydro in Ghana’s Bui Dam” Springer Science, *Environ Dev Sustain*, No. 15, pp. 285-300,  
<http://link.springer.com.ludwig.lub.lu.se/content/pdf/10.1007%2Fs10668-012-9410-4.pdf> accessed 28 April 2013.
- Hensengerth, Oliver, 2011. “Interactions of Chinese Institutions with Host Governments in Dam Construction: The Bui Dam”. German Development Institute, Bonn, [http://www.die-gdi.de/CMS-Homepage/openwebcms3\\_e.nsf/\(ynDK\\_contentByKey\)/ANES-8E5DH6/\\$FILE/DP%203.2001.pdf](http://www.die-gdi.de/CMS-Homepage/openwebcms3_e.nsf/(ynDK_contentByKey)/ANES-8E5DH6/$FILE/DP%203.2001.pdf) accessed 29 April 2013.
- Hopwood, Bill et al., 2005. “Sustainable Development: mapping different approaches”. *Sustainable Development*, Vol. 13, No. 1, pp. 38-52.  
[http://onlinelibrary.wiley.com/store/10.1002/sd.244/asset/244\\_ftp.pdf?v=1&t=hgawk1za&s=c558e456d7e8d3a57030568e74cfe6332cc40de0&systemMessage=Wiley+Online+Library+will+be+disrupted+on+11+May+from+10%3A00-12%3A00+BST+%2805%3A00-07%3A00+EDT%29+for+essential+maintenance](http://onlinelibrary.wiley.com/store/10.1002/sd.244/asset/244_ftp.pdf?v=1&t=hgawk1za&s=c558e456d7e8d3a57030568e74cfe6332cc40de0&systemMessage=Wiley+Online+Library+will+be+disrupted+on+11+May+from+10%3A00-12%3A00+BST+%2805%3A00-07%3A00+EDT%29+for+essential+maintenance) accessed 26 February 2013.
- International Rivers ”Guidelines for Environmental and Social Impact Assessments of the China Export and Import Bank’s Loan Projects”,  
<http://www.internationalrivers.org/resources/guidelines-for-environmental-and-social-impact-assessments-of-the-china-export-and-import> accessed 3 May 2013
- IUCN, UNEP, WWF 1991. “Caring for the Earth: A Strategy for Sustainable Living”, <http://coombs.anu.edu.au/~vern/caring/caring.html> accessed 16 February 2013.
- Jakobson, Linda & Knox, Dean, 2010. “New Foreign Policy Actors in China”. SIPRI, <http://www.scribd.com/doc/53029737/SIPRIPP26> accessed 2 April 2013.
- Kawa, Lucas, 2012. “The 20 Fastest-Growing Economies in the World”. Business Insider, <http://www.businessinsider.com/worlds-fastest-economies-2012-10?op=1> accessed 30 January 2013.

- “Key points in the 11th Five-Year Plan” 2006. Chinese Government’s Official Web Portal, [http://english.gov.cn/2006-03/07/content\\_246929.htm](http://english.gov.cn/2006-03/07/content_246929.htm) accessed 2 April 2013.
- Kopnina, Helen, 2012. “The Lorax complex: Deep Ecology, ecocentrism and exclusion”. *Journal of Integrative Environmental Sciences*, Vol. 9, No. 4, pp. 235-254, <http://www.tandfonline.com/doi/abs/10.1080/1943815X.2012.742914?journalCode=nens20#preview> accessed 13 March 2013.
- “Meeting the 2 degree target” 2009. Netherlands Environmental Assessment Agency, <http://www.pbl.nl/en/news/pressreleases/2009/meeting-the-2-degree-target> accessed 8 May 2013.
- Pope, Jenny et al., 2004. “Conceptualising sustainability assessment”. *Environmental Impact Assessment Review*, Vol. 24, No. 6, pp. 595-616. [http://researchrepository.murdoch.edu.au/1713/1/Conceptualising\\_sustainability.pdf](http://researchrepository.murdoch.edu.au/1713/1/Conceptualising_sustainability.pdf) accessed 10 February 2013.
- Rampa, Francesco & Bilal Sanoussi, 2011. “Emerging Economies in Africa and the Development Effectiveness Debate”. *European Centre for Development Policy Management*, No. 107, [http://www.ecdpm.org/Web\\_ECDPM/Web/Content/Download.nsf/0/1806201EBEF1B3E9C125785C00316E14/\\$FILE/11-107%20final.pdf](http://www.ecdpm.org/Web_ECDPM/Web/Content/Download.nsf/0/1806201EBEF1B3E9C125785C00316E14/$FILE/11-107%20final.pdf) accessed 25 February 2013.
- Schwayder, Maya, 2013. “Poorest of the poor: UN releases report on world’s least developed countries”. International Business Times, <http://www.ibtimes.com/poorest-poor-un-releases-report-worlds-least-developed-countries-1137623#> accessed 28 April 2013.
- Sen, Amartya, UNDP, 2010. “Origins of the Human Development Approach”. <http://hdr.undp.org/en/humandev/origins/> accessed 21 March 2013.
- Shen, Liyin et al., 2011. “Key Assessment Indicators for the Sustainability of Infrastructure Projects”. *Journal of Construction Engineering and Management* Vol. 137, No. 6, pp. 441-451. <https://sustainability.water.ca.gov/documents/18/3334113/Sustainability+of+Infrastructure+Projects.pdf> accessed 25 March 2013.
- Simensen, Jarle, 2008. “Africa: the causes of under-development and the challenges of globalisation”. Ministry of Foreign Affairs, Norway, [http://www.regjeringen.no/nb/dep/ud/kampanjer/refleks/inngspill/afrika/simens\\_en.html?id=533474](http://www.regjeringen.no/nb/dep/ud/kampanjer/refleks/inngspill/afrika/simens_en.html?id=533474) accessed 17 February 2013.
- Smith, David, 2012. “China’s booming trade with Africa helps tone its diplomatic muscle”. The Guardian, <http://www.guardian.co.uk/world/2012/mar/22/chinas-booming-trade-africa-diplomatic> accessed 12 March 2013.
- Strassel, Kimberly A., 2001. “Conservation Wastes Energy”. The Wall Street Journal, <http://web.archive.org/web/20051113194327/http://www.opinionjournal.com/columnists/kstrassel/?id=95000484> accessed 12 May 2013.
- “Taiwan Profile”, 2012. BBC News Asia, <http://www.bbc.co.uk/news/world-asia-16164639> accessed 13 April 2013.

- “Ten features in China’s 11th five-year plan” 2006. Chinese Government’s Official Web Portal, [http://english.gov.cn/2006-03/08/content\\_246945.htm](http://english.gov.cn/2006-03/08/content_246945.htm) accessed 2 April 2013.
- “Ten World’s Most Polluted Places” 2013, Time Magazine, <http://www.time.com/time/specials/packages/completelist/0,29569,1661031,0.html> accessed 19 February 2013.
- Teodoru et al., 2006. “Independent Review of the Environmental Impact Assessment for the Merowe Dam Project (Nile River, Sudan)”. Eawag Aquatic Research, <http://www.eawag.ch/medien/bulletin/archiv/2006/20060323/Independent-Review-20060323-Short.pdf> accessed 18 March 2013.
- “The 11th Five-Year Plan: Targets, Paths and Policy Orientation” 2006. Chinese Government’s Official Web Portal, [http://english.gov.cn/2006-03/23/content\\_234832.htm](http://english.gov.cn/2006-03/23/content_234832.htm) accessed 2 April 2013.
- “The Eight Principles of Deep Ecology” 2000. All-creatures, <http://www.all-creatures.org/articles/env-theeight.html> accessed 21 April 2013.
- “The National Eleventh Five-year Plan for Environmental Protection” 2008. Ministry of Environmental Protection People’s Republic of China, [http://english.mep.gov.cn/Plans\\_Reports/11th\\_five\\_year\\_plan/200803/t20080305\\_119001.htm](http://english.mep.gov.cn/Plans_Reports/11th_five_year_plan/200803/t20080305_119001.htm) accessed 2 April 2013.
- “The new 11th Five-Year Guidelines” 2005. Chinese Government’s Official Web Portal, [http://english.gov.cn/2005-11/09/content\\_247198.htm](http://english.gov.cn/2005-11/09/content_247198.htm) accessed 2 April 2013.
- “Triple Bottom Line: it consists of three Ps: Profit, people and planet” 2009. The Economist, <http://www.economist.com/node/14301663> viewed 3 April 2013.
- Uchehara, Kieran E., 2009. “China-Africa Relations in the 21<sup>st</sup> Century: Engagement, Compromise and Controversy”. *Uluslararası İİskiler*, Vol. 6, No. 23, pp. 95-111, <http://www.uidergisi.com/wp-content/uploads/2013/02/China-Africa-Relations.pdf> accessed 6 May 2013.
- UN Documents 1987. “Report of the World Commission on and Development: Our Common Future”, <http://www.un-documents.net/our-common-future.pdf> accessed 14 February 2013.
- UNDP, 2010. “Origins of the Human Development Approach”. <http://hdr.undp.org/en/humandev/origins/> accessed 21 March 2013.
- United Nations 2010. “South-South Cooperation: Africa and the New Forms of Development Partnership”. United Nations Conference on Trade and Development, *Economic development in Africa report 2010*, New York and Geneva, [http://unctad.org/en/Docs/aldcafrica2010\\_en.pdf](http://unctad.org/en/Docs/aldcafrica2010_en.pdf) accessed on 5 May 2013.
- Wade, Abdoulaye, 2008. “Time for the west to practice what it preaches”. Financial Times, <http://www.ft.com/intl/cms/s/0/5d347f88-c897-11dc-94a6-0000779fd2ac.html#axzz2SVG8gNJD> accessed 27 February 2013.
- Yi, Wang, “Message from the Minister”. Ministry of Foreign Affairs of the People’s Republic of China, <http://www.fmprc.gov.cn/eng/wjb/> accessed 22 March 2013.

Yunguo, Shu, 2010. "China-Africa relations based on equality, mutual benefit and common development". People's Daily,  
<http://english.peopledaily.com.cn/90001/90780/6903736.html> accessed 6 May 2013.