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The Dark Side of the Sun

A Critical Discourse Analysis of Ecological Modernisation in the Context of the Solar Economy in Morocco

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Abstract

This thesis is a critical investigation of the emerging solar economy in Morocco. The launch of the Moroccan Solar Plan in 2009 has attracted substantial amounts of foreign investment. Notably, several multilateral development banks support the country's large-scale solar projects. Instead of climate change mitigation however, their engagement is rather framed by an eco-modern ideology that aims at the reconciliation of economic growth and environmental sustainability. Through a critical discourse analysis this thesis studies to what extent ecological modernisation discourse is present in four texts in which key stakeholders who represent European, German, African, and Moroccan interests justify their respective engagement in Morocco's solar sector. By drawing on eco-modernisation discourse the actors present the sector as progressive and climate-friendly. The discourse is coupled with a hegemonic development discourse that equates growth and development. Both discourses are embedded in a complex web of neoliberal politics, unequal power relations and diverging group interests. The search for the topic of climate change in the texts revealed that it is dealt with in a vague manner that leaves open in what ways economic growth contributes to climate change mitigation.

Keywords: Morocco, solar energy, ecological modernisation, critical discourse analysis

Word count: 19,872

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List of Abbreviations

AfDB: African Development Bank
CDA: Critical Discourse Analysis
CSP: Concentrated Solar Power
EC: European Comission
EIB: European Investment Bank
EM: Ecological Modernisation
HDD: Hegemonic Development Discourse
IFI: International Financial Institution
IMF: International Monetary Found
KfW: Kreditanstalt für Wiederaufbau
MASEN: Moroccan Agency for Solar Energy
MDB: Multilateral Development bank
MSP: Moroccan Solar Plan

1 Introduction

Against the background of the looming climate crisis, alternative energy sources that help to mitigate climate change and avoid the most apocalyptic scenarios of global warming are desperately needed. Renewable energies are widely accepted as a sustainable alternative to fossil fuels. In 2012 however, the global share of non-renewable resources still amounted to over 80% of final energy consumption (over 90% not counting traditional biomass. REN21 2014, 13). The EU strives toward its self-imposed 2020 goals which imply 20% less greenhouse gas emissions compared to 1990, 20% energy from renewables, and 20% increase in energy efficiency by the year 2020 (European Commission 2015).

However, renewable energies are not only a central topic in industrialised European nations – much discussed is the question of how to deal with the emissions of emerging economies with accelerating growth of both population size and economy (cf. Harvey 2015). In recent years, Morocco has set a worldwide example for a rapid transition to renewable energies (Auswärtiges Amt 2014). Launched in 2009, the government's renewable energy plan aims at a renewable share of 42% by 2020. Wind, solar, and hydropower are the main pillars of this transition. The expansion of renewable energies in Morocco happens in a larger context of economic development and market liberalization. It is mostly financed by private-public partnerships and multilateral development banks (MDBs). These actors present Morocco's energy strategy as an example par excellence of sustainable development and green growth (cf. World Bank 2014, AfDB 2014). The common narrative of these concepts is the assumption that the consideration of ecological factors does not necessarily restrict the economy but actually bears a lot of potential to boost innovation, technology, and ensure economic growth. Eradicate inequality, unemployment, illiteracy, and lack of access to public services (UNICEF 2013), and at the same time help to save the climate? Certainly sounds tempting. However, this way of framing it leaves out important dimensions of unequal power relations, unsustainable patterns of production and consumption, as well as the question how much renewable technology can really contribute to the mitigation of climate change.

1.1 Purpose and development of the research

The aim of this study is to find out to what extent the Moroccan renewable energy sector is rooted in ecological modernisation discourse and what limitations that entails with regards to climate protection.

This thesis has its roots in a LUCID research project that I took part in from October 2014 to March 2015[1]. The research project set out with a central interest in Desertec[2] because it saw the need to add a political ecology perspective to the existing research on North Africa's emerging solar economy. Due to my participation in the research project, my initial interest was the Desertec concept, its history, its development over the past years, the implications for Europe and North Africa, and the reasons for its apparent demise. However, being in Morocco and talking to a variety of stakeholders who are involved in the solar economy revealed that Desertec has never played a significant role for the country's renewable energy politics. Surely, the idea of exporting energy to other countries at some point in the future seems to be commonly known – though it may not be labelled as "Desertec". But what seemed more important to me (at least at this point in time) was not the concept and case of Desertec but rather the study context and development of the Moroccan solar economy more closely.

Above all, I became very curious about the role of *climate change* as a propulsion for the solar economy. It surprised me that climate-related issues did not seem to be a major motive for any of the stakeholders involved – despite the key role that renewable energies play in prominent climate mitigation scenarios (cf. REN21; IPCC 2011; Greenpeace 2012; WWF 2011). I had expected them to draw on these issues to a much larger extent in order to explain the rapid expansion of the renewable sector and their respective engagement in it. Although it was mentioned by some interviewees, I did not get the impression that climate change or other environmental issues were a driving force in the process. Rather, the stakeholders of the Moroccan solar economy seemed to aim at pushing economic growth through strong investment in environment-friendly technology – the core principle of ecological

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[1] The research was conducted by a team of five researchers (including myself) from Lund University: Andreas Malm, Anna Kaijser, Rikard Warlenius, and Vasna Ramasar. I will sometimes use the plural form to indicate that certain activities or thoughts refer to the entire team whereas I use the first person singular to demarcate my own findings and ideas. However, at times the boundaries are not clearly demarcated and I want to emphasise that I do not want to appropriate shared knowledge and thus use the collected data only as additional material (*see* 3.3.).

[2] In a nutshell, the Desertec concept envisions the production of large amounts of solar energy in the Sahara desert, thus meeting the rising energy demand in the Middle East and North Africa (MENA) region. The surplus energy is supposed to get exported to Europe via high-voltage cables through the Mediterranean (Desertec Foundation, n.d., *see also* section 2.3.)

modernisation. This impression seemed validated when we learnt that Morocco's government builds a new collar power plant that will generate more than the double amount of energy than the largest solar complex is supposed to deliver (Jeune Afrique 2014). Could it be possible that the renewable sector was merely a strategy to attract foreign capital to a country that by all available means strives for economic growth and industrialization (cf. Beard's (2013) discussion of Morocco as a rentier state)?

Based on these thoughts, I formulated one over-arching research question:

What are the motivations driving the massive and rapid expansion of the Moroccan solar economy?

This thesis puts a strong focus on the *discursive* aspect of the phenomenon in question. I believe that the analysis of discourse (both as language and as way of constructing and framing social phenomena) can reveal aspects of reality that otherwise remain invisible. It is an important tool to deconstruct and critically study material practices. I could find answers to my research question by studying planned and ongoing solar power projects as well as interviewing politicians, engineers, and bankers. However, adding a discursive layer to this analysis enables me to not only rely on standardized statements of experts, but to put these statements into a wider social context. Drawing on Harvey's conceptualisation of social practice, I see discourse as one aspect of the social world that internalises other non-discursive aspects like power, social relations, material practices, institutions, and beliefs/values/desires (cf. Harvey 1996).

Therefore I developed three further, more concrete research questions that aim at the study of the Moroccan solar economy as a discursive landscape that is constituted by multiple discourses.

1. To what extent does the discourse of the Moroccan solar economy draw on concepts of ecological modernisation?

2. How does the issue of climate change get addressed and strategically used by different actors?

3. Does the discourse reveal insights on unequal power relations and discursive struggles?

The first and the second question are directly related to the aim of the study and the main research question. I then add the third one because questions of power are necessary for a

critical analysis from a political economy perspective (*see also* section 2.1.). I deploy notions of power and hegemony throughout my thesis as a critical lens through which both discursive and non-discursive processes and practices can be explained and critically deconstructed.

1.2 Structure of the thesis

This thesis is divided into five chapters. After the introduction, chapter two marks out the theoretical and analytical framework. I locate the study in a framework of *political economy* and *political ecology* and outline important theoretical concepts. First, I give an introduction to *ecological modernisation* and *techno-optimism*. Following this, I introduce a critical notion of *discourse* and *power* and link these to the hegemonic position that ecological modernisation holds these days. This critical view is complemented by a brief overview of texts and authors who have formulated critique of ecological modernisation.

Chapter three is the methodology chapter that mainly focuses on critical discourse analysis as well as its ontological and methodological implications, but also addresses limitations of the study. Chapter four lays out some facts about the socio-political context of Morocco's solar economy and the development of current projects. Subsequently the fifth chapter is devoted to the actual analysis. After a brief presentation of the selected text material, I analyse the texts along the lines of Fairclough's method of critical discourse analysis. I present the findings of the analysis and discuss them in a framework of neoliberal critique. The final chapter summarises the findings, outlines further thoughts on challenges regarding renewable energies, and concludes with an outlook and future research potential.

1.3 Literature review

A few scholars and books are particularly relevant for my thesis. In terms of environmental discourse, I mainly draw on Maarten Hajer and John Dryzek. Whereas Dryzek (1997) provides an excellent overview of major tendencies of environmental discourse over the past decades, Hajer focuses on ecological modernisation (EM). My summary of the history of EM is mainly based on his book *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process* (1997). The two authors add a valuable component to general EM literature from Mol, Spaargaren (2000), and Jänicke (2007), who were the first scholars to develop EM as a distinct school of sociological thought. As an example of current EM discourse I use the recent publication *An Ecomodernist Manifesto* (Asafu-Adjaye et al. 2015). Although I am aware of its quite drastic and simplifying way of talking about the world, I see it as a fascinating and interesting document due to the quite reputable

circumstances of its publication (18 scholars and researchers associated with an established research institute).

My interest in connecting EM discourse with a critical notion of power of course leads me to Foucault (1979) and Gramsci (1971) who have made essential contributions to the field of discourse, power, hegemony, and ideology. The works of Norman Fairclough (1992, 1996) and Ruth Wodak (1997) build the foundation for critical discourse analysis. Since particularly Fairclough has extensively written and published about his discourse analysis approach, I have consulted Jorgenson and Philipp's introduction to discourse analysis which presents a helpful overview of his theory and method.

The authors and scholars mentioned in this section are certainly the most important ones for the theoretical foundation of my thesis But there are others who I do not reference a lot, amongst them my teachers and professors from Lund, whose thoughts and words have contributed an even more substantial part to this thesis by shaping my own perception of the world.

2   Framework of the study

2.1   Political economy and political ecology

If every decision-maker in this world was prioritising climate change mitigation, we would not face the ecological crisis we are facing today. Taking a political economy perspective enables us to search for root causes of the current crisis instead of only trying to tackle its consequences. In contrast to neoclassical economics, political economy is derived from a Marxist perspective that regards economics not as detached from history and politics. While many economists frame economy in the isolation of mathematical models, charts and graphs, a Marxist perspective suggests that economy can only be analysed in a political way. Political economy is not about the quantitative relations between commodities, but rather social relations. As Marx puts it in the context of the discussion of the relative form of value: "some social relation lies at the bottom of it" (Capital, p. 38)

Mosco's description of political economy as the study of "the social relations, particularly the power relations, that mutually constitute the production, distribution, and consumption of resources" (2009, 23) encapsulates the important aspects of my thesis. This perspective allows me to frame Morocco's solar economy with a critical analysis of power relations that are at play. Following Hornborg's (2011) critical notion of technology, I do not perceive renewable energy or the corresponding technologies as depoliticised things but as *social processes*. This

is why this thesis looks behind the smooth façade of the rapidly expanding solar sector in Morocco and addresses questions about power, agency, and self-interests.

2.2 Ecological Modernisation

There are multiple uses and meanings of ecological modernisation (in the following abbreviated as EM). Buttel (2000) identifies four main branches: 1) EM as a school of sociological thought; 2) EM as environmental discourse, mainly associated with the work of Maarten Hajer; 3) EM as strategic environmental management and environmental improvement in the private sector; and 4) EM very broadly used to describe all sorts of environmental policies and innovations.

Throughout this paper, I refer to all of these four meanings, although I merge 3 and 4 because I do not consider the exact differentiation as important to my argumentation. I shall explicitly demarcate the difference where it is necessary. When not specified, the term does not refer to one particular interpretation but rather to EM as an over-arching *paradigm* that includes all of them.

The term "ecological modernisation" was initially coined by a group of German social scientists in the early 1980s "to provide a formula for the interplay of economy and ecology." (Jänicke 2007, 557) It was rooted in debates about demodernisation, deindustrialization, and counter-productivity, and was developed as a challenge to these theoretical trends (Mol & Spaargaren 2000, 19). EM should create a linkage between the constant modernisation drive in Western market economies and the need for a more environmental friendly development. Environmental technologies were seen as the central tool in this process (ibid.). Advocates of EM see the possibility for a positive correlation between economic growth and environmental quality. In an extreme form, this has been theorised in the concept of the Environmental Kuznets Curve which was an attempt to prove that rich economies have a less negative environmental impact than poorer ones (cf. Stern 2003).

Eco-modernists are characterised by a large degree of trust in policies and the role of the state. They view political actors as responsible for setting up a legislative and institutional framework that creates the right conditions for eco-friendly growth (Fisher & Freudenburg 2001, 702). Dryzek (1997) conceptualises this approach as *Administrative Rationalism*. Typical institutions and practices include natural resource management, pollution control, environmental impact assessment, and environmental planning. Besides governments, key agents of EM are "businesses, reform-oriented environmentalists, and scientists" (ibid. 174).

The Club of Rome report *Limits to Growth* (1972) is widely referred to as one of the first milestones towards public awareness of environmental problems that urgently needed to be addressed through a joint international effort (e.g. Dryzek 1997, Huesemann 2011, 119). In contrast to intellectual thought of the radical environmental movements whose principles implied a range of significant societal changes and power shifts, the suggestions of the Club of Rome were far more appealing for political and economic actors. According to Jänicke, this is because,

> "[…] an environmental problem proves politically less difficult to resolve if a marketable solution exists. In contrast, if a solution to an environmental problem requires an intervention in the established patterns of production, consumption, or transport, it is likely to meet resistance." (2207, 557)

EM suggests environmental-friendly technology as this "marketable solution" which does not require substantial changes of the status quo but incorporates environmental concerns into the paradigm of continued economic growth. Section 2.3. will expand on this.

Two other document that played a central role in raising global environmental awareness were the IUCN's World Conversation Strategy report as well as the WCDE's report *Our Common Future* (1987) that brought the term *sustainable development* into the focus of international development debates (Giddens 1998, 56; Mol and Sonnenfeld, 2000). The term was famously defined by the Brundtlandt commission as "development that meets the need of the present without compromising the ability of future generations to meet their own needs." (WCDE 1987) One of the main pillars for how to reach this global satisfaction of human needs is economic growth. In chapter 2 of the report, the commission outlines the way the concept of sustainable development should impact environmental and economic policies. On top of the list: "reviving economic growth" and "changing the quality of growth" (WCED 1987, 46). Growth was no longer seen as contradictory to environmental protection. Instead, the worldview represented in the report was more or less identical with neoclassical theory in proposing economic growth as a panacea for alleviating poverty, environmental degradation, and climate change (for an extended discussion see Hornborg 2003).

Since the term sustainable development (re-)appeared in 1987, it has been used inflationary (Huesemann 2011, 119). Lawn (2001, 2) points out that the concept has remained so vague that everything "deemed subjectively and arbitrarily 'good'" has been classified as an example of sustainable development. There have been at least 40 different working definitions but no real consensus about what the concept actually implies (Hajer 1997, 1, O'Conner 1994, 153; Giddens 1998, 56).

Although the terms "sustainability" and "sustainable development" are still widely used, it became clear that they do not provide graspable strategies and approaches for environmental governance. Instead, EM came to be seen as a new and improved synonym for sustainability that could offer this strong framework in terms of policy-making and economic guidelines (Buttel 2000, 60/63, Dryzek 1997, 172). Whereas the original concept focused mainly on national issues of waste management and air pollution, these

Figure 1: *An Ecomodernist Manifesto, cover sheet.* Source: ecomodernism.org

problems of the 1980s may seem "rather trivial" in the 21st century, "compared with global warming, overpopulation, and increased entropy" (Andersen and Massa 2000, 338). However, EM has kept pace with the changing world and broadened its focus both theoretically and geographically (Mol and Sonnenfeld, 2000). The scope of recent EM scholarship includes the "[c]hanging role of science and technology […], [the] increasing importance of market dynamics and economic agents […], [t]ransformation in the role of the nation-state […], [m]odifications in the position, role, and ideology of social movements […], [as well as] changing discursive practices and emerging new ideologies." (ibid.)

In April 2015, in the midst of this thesis writing process, a controversial document was published, called: *An Ecomodernist Manifesto* (Asafu-Adjaye et al. 2015; *fig.1*). It is co-authored by "eighteen leading lights of the sustainability movement" (Caradonna et al. 2015, 1). They describe themselves as "ecopragmatists and ecomodernists" (7) and their paper admits that there are great challenges humankind faces in the 21st century, but "that knowledge and technology, applied with wisdom, might allow for a good, or even great, Anthropocene" (6). The main strategy to protect the environment and mitigate climate change is "decoupling human development from environmental impacts" (7) which becomes possible through modern-day technology. The manifesto claims that the predictions of "Limits to Growth" are not going to come true in the foreseeable future and does not acknowledge any relevant "physical boundaries to human consumption" (10). Its authors argue that it is *not* overconsumption which leads to the destruction of the planet but "the continued dependence of humans on the natural environments" (17). Whereas classic EM discourse tends to simply

ignore any limits to economic and population growth (Dryzek 1997, 174), the manifesto goes a step further: it explicitly negates them. The manifesto epitomises one direction EM has taken over the past decades. Still being based on the irrevocable faith in technology, its focus is no longer exclusively on local environmental problems but includes the global threat of climate change.

2.3 The future is golden and green: techno-optimism and renewable energies[3]

The Ecomodernist Manifesto exemplifies the crucial role that technology plays in eco-modern future scenarios. A positive attitude towards technology is not only typical but essential to EM thought. Due to the growing consensus that the burning of fossil fuels is the main cause for global climate change, all eyes are on renewable energies nowadays (IPPC 2011, REN 21, 2014). The belief that the world needs a shift towards renewable energy in order to mitigate climate change is pervasively present in current EM discourse. In the following, I present a selection of prominent examples that shows how this discourse has sprawled into diverse areas of science and politics.

In 2012, Greenpeace International published an updated version of its Global Energy (R)Evolution scenario which contained detailed calculations on how the world could be powered by renewable energy only. The report should provide "a consistent fundamental pathway for protecting our climate through investment in renewable energy." It stated that "the scale of the challenge requires a complete transformation of the way we produce, consume and distribute energy, *while maintaining economic growth*." (Greenpeace 2012, emphasis added).

Another so-called 100% scenario was published by the World Wildlife Fund (WWF). As an introduction to the report, the general director of WWF International James P. Leape is quoted:

> "By 2050, we could get all the energy we need from renewable sources. This report shows that such a transition is not only possible but also cost-effective, providing energy that is affordable for all and producing it in ways that can be sustained by the global economy and the planet. The transition will present significant challenges, but I hope this report will inspire governments and business to come to grips with those challenges and, at the same time, to move boldly to bring the renewable economy into reality." (WWF International 2011)

The two statements highlight the economic and institutional aspect of the energy transition. In doing so, they show well how two of the most prestigious environmental NGOs worldwide engage in the reproduction of the eco-modernist discourse.

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[3] The structure of this section is based upon Rikard Warlenius' article "A renewable transition" (2015).

Figure 2: *Energy [r]evolution, Greenpeace, Cover Page.*
Source:
http://www.greenpeace.org/international/en/publications/Campa
ign-reports/Climate-Reports/Energy-Revolution-2012/
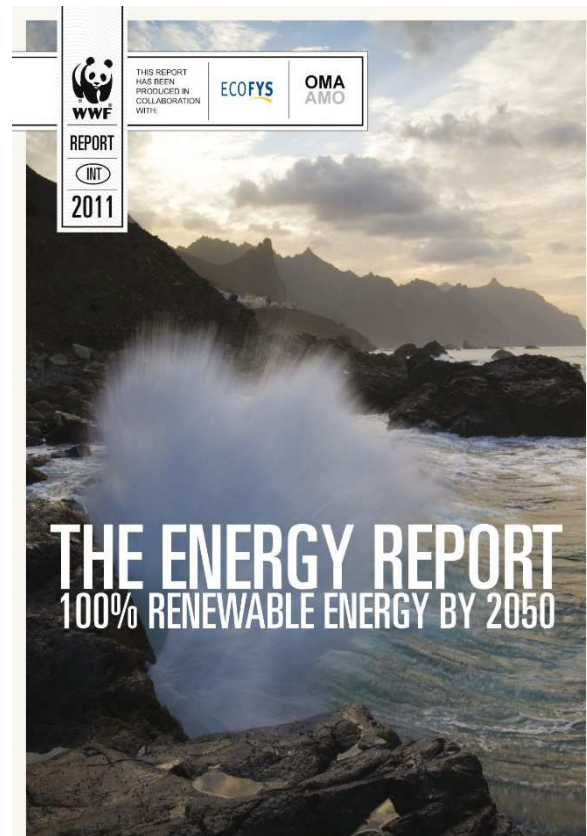
Figure 3: *The Energy Report, WWF, Cover Page.*
Source: http://www.wwf.org.uk/wwf_articles.cfm?
unewsid=4565

The statement that I chose as an introduction quote can be found in the Global Energy (R)Evolution scenario of Greenpeace. It presents the renewable transition as something feasible with the technological means we have today – the hurdle is not the technology but the lacking political, institutional, and societal transformation (or "courage" as Greenpeace puts it quite dramatically, without quite being clear of who the big "We" refers to [humankind?]). This technology-centred approach is shared by numerous scientists who point out that a world powered by renewable energies is within reach (e.g. Sovacool and Watts 2009, Jacobson and Delucchi 2010, Desertec Foundation 2009).

The concept of DESERTEC constitutes a particularly spectacular energy scenario. It caused a media hype when it was introduced to the public in 2009. Based on calculations of the physicist Gerhard Knies, the idea sounds compelling: In only six hours, the world's deserts receive more energy (in form of solar radiation) than the entire world population consumes in one year (Desertec Foundation 2009). Since energy can be transmitted over 3000km-long distances, about 90% of the world's population could be supplied with solar energy from the deserts (ibid.). "The Technologies are available and already in commercial use", states the Desertec Foundation on their homepage (Desertec Foundation, *n.d.*). The concept was

presented as a silver bullet to issues of development, global warming, energy security, water scarcity, and others (Desertec Foundation 2009, Rothe 2014). However, it came to a halt in 2014 after the majority of industrial partners had left the initiative and internal conflicts had severely damaged the image of the project (Meza 2014; Stonington 2012).

The Desertec project was heavily criticised by the German social democrat Herman Scheer who was a central figure in the German *Energiewende* debate. He opposed the centralised and large-scale approach of Desertec which he saw as a strategy of large energy corporations to retain their powerful position. Scheer advocated a small-scale and decentralised approach that would hand over control to communities and individuals and thus bring forth profound re-structuring not only of the energy sector but of the entire society (Scheer 2012).

Taken together, these examples show that despite variations in the extent to which larger societal and structural changes are demanded, renewable energy technology is widely acknowledged as the main strategy to mitigate climate change.

2.4   Discourse and power

> Is it not the supreme and most insidious exercise of power to prevent people, to whatever degree, from having grievances by shaping their perceptions, cognitions, and preferences in such a way that they accept their role in the existing order of things, either they can see or imagine no alternative to it, or because they see it as natural and unchangeable, or because they value it as divinely ordained and beneficial? (Lukes 2005, 8)

For a critical study of the Moroccan solar economy, it is not sufficient to place it in a framework of EM discourse and techno-optimism. As I explained in the introduction, I deploy *power* throughout my thesis as a lens to analyse the larger social structures in which Morocco's solar discourse is embedded.

Discourse has become a fashionable and thus increasingly vague term over the past decades, being used in a multitude of ways to describe distinct instances and practices of language use (Holzscheiter 2005, 8-9, Jørgensen and Louise Phillips 2002, 1). Jørgensen and Phillips offer a definition of discourse as a "particular way of talking about and understanding the world" (2002, 2). A similar but slightly more concrete definition is formulated by John S. Dryzek:

> A discourse is a shared way of apprehending the world. Embedded in language, it enables those who subscribe to it to interpret bits of information and put them together in coherent stories or accounts. Discourses construct meanings and relationships, helping define common sense and legitimate knowledge. (2013, 9)

He further argues that a discourse is usually filled with many different meanings and oftentimes politically contested whereas a concept is much more clearly demarcated (ibid., 149).

Whereas there is nothing wrong with these definitions and interpretations, they neglect the interconnection of discourse and power. Amongst the most prominent figures who laid out the foundation for the analysis of discourse and power, was Michel Foucault. In his thought, power is not a defined entity, a privilege that individual agents can possess; rather it is exercised through different social practices and institutions (Foucault 1979, 26-27). These complex structures of power and power relations "go right down into the depth of society" and transcend diametrical divisions like state – citizen or capitalist class – working class (ibid.). Foucault also reflected on the interplay of power and knowledge. He emphasises that "there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations." (ibid.) This thought is carried further to what Foucault calls "regimes of truth" which basically addresses the questions whose knowledge is claimed and accepted to be true (Rose 2001, 138).

Power can be exercised in two ways: On the one hand, there is the "exercise of power through coercion", power as actual physical force. On the other hand, there is the "exercise of power through consent" which is by far the more powerful tool because most people are not aware of it. The central tool to create consent is ideology (Fairclough 1989, 4; Joseph 2002, 1). Fairclough remarks that the "exercise of power, in modern society, is increasingly achieved through ideology" (1989, 2). He uses the power hierarchy between doctor and patients as an example to explain "common-sense assumptions" that usually accompany certain interactions (i.e. the doctor knows about diseases and medication, the patient does not). These assumptions are ideologies, and mostly people are not aware of them. Since ideologies depend on certain power relations in which the interactions are embedded, ideology and power are closely interlinked. Fairclough as a critical linguist sees ideology as "pervasively present in language" (ibid., 3) which is one of the premises for his notions of discourse analysis. I will come back to this in the methodology section. Wodak (2013, xvii) uses a similar vocabulary, pointing out that "dominant ideologies seem 'neutral', with assumptions that stay largely unchallenged. When people in a society think alike about certain matters, or even forget that there are alternatives to the status quo, one arrives at the Gramscian concept of hegemony".

Gramsci (1971) conceptualises hegemony as power of one dominant group over subordinate groups. In order to maintain hegemony, it is necessary to maintain the power relations that form the basis for a particular social formation (Ekers and Loftus 2007, 702). He emphasises

that ideology is an active force – it shapes people's beliefs and actions. Hereby, hegemony is established and maintained (ibid.).

Holzscheiter (2005) outlines three useful categories to analyse the interplay between power and discourse: 1) Power *in* discourse, 2) power *over* discourse, and 3) power *of* discourse. The former refers to struggles arising over contested meanings and interpretations, what Wodak calls "semiotic hegemony" (2013, 306). Analysing power over discourse answers questions like: Whose voices are heard? Who has access to public debates? And finally, Holzscheiter analyses power of discourse by looking at power struggles between different discourses.

2.5 Ecological modernisation as a hegemonic discourse

What happens now if we look again at the EM discourse but this time with these considerations in mind?

Hajer (1997) offers a complex explanation how EM attained its prominent position within environmental (but also economic and political) discourse. His analysis shows that EM succeeded in bringing together diametrically opposed actors and discourses from throughout the political spectrum. Both radical environmental movements and technocratic experts were amongst the first ones to frame the environmental problems as a global crisis threatening human existence in the late 1960s (Hajer 1997, 83ff.). The demise of the grand metanarratives during the 1970s and 1980s that indicated the transition to postmodernity (cf. Lyotard 1984) brought the two previously diametrical worldviews closer together. The new approach of the environmental movement was much more policy-oriented and instead of offering alternatives, tried to create change from within the system (Hajer 1997, 93).

The Club of Rome's report *The Limits to Growth* (1972) was the first document that brought environmental problems into the political discourse (Foster 2008, 4). Hajer points out that the report's success epitomises the strong interplay of discourse and power. Despite its status as a relatively small and unofficial group, the Club of Rome was acknowledged as a credible source of knowledge due to its "aura of respectability and knowledge ability" (1997, 82). For the first time, the message about the catastrophic impacts of modern society on the natural environment did not come from left-wing environmentalists but from a group that was constituted by policy-makers, economic experts, and scientists (ibid. 80). The following two documents that played important roles in the transformation of environmental discourse were the *World Conservation Strategy*, and the Brundlandt report *Our Common Future*. Both

reports were written and published with large support of the UN which proves how prominent the discourse already was.

Considering the potential political and economic implications of these three reports, it seems strange that the sustainability discourse was adopted by business and economic institutions. Lawn (2001) offers an interesting explanation for this by drawing on Ruttan's term *establishment appropriation*. Establishment appropriation occurs when dominant institutions strategically appropriate symbols of social and environmental struggles that they perceive as a threat to the established order. According to Lawn, this is what happened as a consequence to the *Limits to Growth* and *Our Common Future*: powerful institutions like the World Bank and the Organisation for Economic Cooperation and Development (OECD) realised that the findings of the report could be interpreted in a way that would seriously challenging the economic system on which their power is based. Thus, they started to incorporate sustainable development as their leading paradigm. Through their dominant position in the new discourse, they made sure that the principle of economic growth not only maintained its legitimacy but also was reinforced by propagating its crucial role in the struggle for sustainable development (cf. Lawn 2001, Lélé 1991).

In order to generally explain the dominance of certain discourse, Hajer (1997) introduces the concept of *discursive formations*. Based on the work of Foucault, he develops this term that describes the formation of groups of actors with potentially quite different interests who join forces in the struggle for discursive hegemony (1997, 16). Discursive formations are created "if previously independent practices are actively related to another" (ibid.) in a common project (Hajer explicitly refers to *political* projects). The actors have to come together under a common story-line which is basically a certain common discursive practice. The more credible and attractive the story-line, the more likely is the formation of a strong discursive coalition (ibid.).

I suggest that ecological modernisation and sustainability discourse are cases of discursive formation which explains their hegemonic discursive position. They have succeeded in uniting diverse actors from both ends of the political spectrum under the common story-line of sustainable growth that reconciles environmental and economic needs. However, the actual intentions of the different advocates of this story-line vary to a significant degree, and can be at times contradictory. This does *not* weaken the discourse, however, but quite the opposite – it ensures that it becomes more powerful since a multitude of different parts of a society considers the story-line as credible. This offers an illuminating explanation of why both EM

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discourse and renewable energy technology is promoted by environmental groups, corporations, governments, and scientists alike.

However, the boundaries between discourses are hardly ever clear-cut. Likewise, there can be sub-discourses and meta-discourses, and contested discourses whose meaning is permanently negotiated. I consider these reflections as essential for my analysis because the Moroccan solar sector involves diverse and powerful stakeholders who have different agendas but still cooperate closely.

Before I move on to methodological considerations and the actual analysis, the next section lays out some aspects of the manifold critique that EM and the concept of sustainable development have provoked over the past two decades. One way or the other, they all are connected to critical notions of power.

2.6 Tech**NO**-fix: Criticism of eco-modern thought

It is difficult to clearly delineate the existing critique of EM since it overlaps to a large degree with critique of capitalism and neo-liberalism in general. However, since I position myself critically towards EM and the corresponding notions of technological fixes as well as the necessity of continued economic growth, I find it important to at least outline the debate. I will come back to several points I make in this section in the discussion of my analysis and the conclusion.

Figure 4*: Techno fixing the world.* Source: http://www1.uwe.ac.uk/et/

A light criticism that addresses gaps of EM but does not question the need for economic growth per se, is formulated by Giddens. In *The Third Way* (1998), he points out that the "somewhat comfortable assumptions" of EM are "too good to be true" since they "[skirt] some of the main challenges ecological challenges pose for social democratic thought" (1998, 57-58). Giddens critique targets mainly the flaws he sees in the political dimension of EM.

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For instance, he points out that there is big gap in terms of scale: Whereas EM policy is a matter of national decision-making, environmental issues that should be addressed are primarily of global nature (1998, 58). Moreover, the increasing importance of technology for our personal lives poses a certain threat to democracy: technology and science are not subject to democratic processes but still largely in the hands of institutional authorities (61).

A strand of critique that is more familiar with a political economy approach argues that sustainability and EM are merely new forms of green(-washed) capitalism. For instance, O'Connor (1994) asks whether a "truly ecological sustainable capitalism" is possible, and answers provocatively: "Not unless and until capital changes its face that would make it unrecognizable to bankers, money makers, venture capitalists, and CEOs (…)." (1994, 158) He sees the core problem in the capitalist system that frames the problem of the environment in a way that merely asks "how to remake nature in ways that are consistent with sustainable profitability and capital accumulation" (1994, 157).

Deconstructing the concept of sustainability, Foster (2008) argues that the current notion of sustainability is a mirage. The implicit futurity of the concept impedes the urgently needed changes that society needs to make *now*. More important, the aim of decoupling economic growth and environmental degradation as envisioned in the official UK Sustainable Development Strategy is simply not viable unless it starts radically questioning patterns of production, consumption, and distribution. Foster stresses that simply relying on technological fixes is not enough.

A technology-critical position is also taken by Hornborg (2001). According to Hornborg, the main achievement of EM is the "neutralization of the formerly widespread intuition that industrial growth is at odds with global ecology" (2001, 25). Industrial technology should be seen as a socio-cultural phenomenon that originates in the disharmony between economy and ecology (12). Hornborg frames his argumentation with world-system theory concepts of core and periphery and warns that "we imagine that education and "technology transfer" might solve problems of "underdevelopment", forgetting, as it were, that new centres of industrial growth require new peripheries to exploit." (11). I support the point that world-system theory can add valuable points to a critique of EM because the concept completely ignores the fact that better environmental performances in the industrialised countries of the core are mostly due to the relocation of carbon intensive and toxic industries to the periphery.

Foster and Hornborg both deploy a negative notion of "techno-fix" as a critical deconstruction of techno-optimist ideas. This approach to technology objects to the widespread conviction that the ecological crisis can be solved with technology without any profound changes in the economic system (Clark and York 2012, 23). Huesemann and Huesemann (2011) remark that "the complex societal challenge of sustainable development was reduced to the purely technical problem of improving industrial eco-efficiency […]." (2011, 120) Technology is criticised to veil the incompatibility of a capitalist system and ecological concerns (Clark and York 2012). In an extreme form, these techno-fixes result in the promotion of geoengineering as a solution to climate change. Whereas the warnings are getting louder, geoengineering is study object of prestigious institutions like the National Academy of Sciences (Queally 2015).

The lack of radical (or any sort of) societal critique is also subject of two responses to *The Ecomodernist Manifesto*. The first one was written by Clive Hamilton and is titled *The Technofix Is In*. Hamilton considers the entire manifesto as outrageous but expands on two points in particular: 1) the authors' promotion of nuclear power as the cleanest and most effective energy source; and 2) the lack of a critical political aspect that takes into consideration the "power of corporations and lobbyists to stop environmental laws, or to the total victory of money politics in the United States […]. Exxon and organized denialism do not appear even between the lines." (Hamilton 2015). The first point might be arguable in terms of CO2 emissions and climate change, and is not typical for EM argumentation. In contrast, the second one is what generally differentiates the eco-modern way to frame environmental problems from more radical approaches – eco-modernists do not challenge the current system (be it in political, economic, or cultural terms) but actually put a high degree of trust in political institutions, the economy, and technology to solve pressing environmental and social issues.

The second response to the manifesto comes from a number of Degrowth activists and scholars. Degrowth activists and thinkers demand a departure from the current neoliberal growth paradigm. They strive for sustainability but reject the eco-modern principles of endless growth and the central role that is assigned to technology (Caradonna et al. 2015, 2). The Degrowth movement promotes

> "to reduce economic activity, to downscale consumerist lifestyles, to move beyond conventional energy sources, to give up on the fantasy of 'decoupling' economic and population growth from the environment, and to rethink the technologies that have gotten us into our current predicament." (ibid).

To prove their point, they explain that the only time the CO2 emissions have declined in modern history were times of economic recession (ibid, 3). The Degrowth approach to

sustainability advocates bottom-up development by "organic, low-impact, and community-led efforts" (4). Whereas the *Ecomodernist Manifesto* treats agriculture and farming as inferior and backward processes and wants to reduce pressure on ecosystems through more technology, Degrowth puts a focus on a reconnection with nature through practices like permaculture and agroecology. Taking a more philosophical stance, they reject the eco-modernists' idea of pushing the developing world to catch up with the standards of the developed world but instead suggest a shift of values to "cease treating the present growth model as a limitless aspiration for others to follow." (9).

2.7 Conclusion

The first part of my thesis has introduced my research interest and motivation for this study and built a theoretical framework for my analysis. Positioning my thesis in a framework of critical political economy and political ecology has helped me to highlight the importance of politicising both climate change and renewable energy technologies.

I have presented some theoretical concepts that constitute the foundation for the next chapters. Mainly, I have focused on ecological modernization as theory, practice, and discourse. Closely related to the concept of sustainable development, EM has become the dominant approach to frame environmental issues by reconciling economic growth with environmental protection. It entails a techno-optimist discourse supported by economic experts, scholars, politicians and actors of civil society. This discourse promotes renewable technologies as the most successful way to mitigate climate change and at the same time secure human well-being. It is not only this technology affinity that is sharply criticized by more critical authors but also the general greenwashing strategy of EM as well as its reproduction of capitalist, neoliberal, and Eurocentric ideas.

As some kind of critical lens I have also introduced some very basic notions of discourse and power. These are important to explain and understand the hegemonic position of certain discourses as well as the processes which have led to this position.

3 Methodology

3.1 Methodological framework

3.1.1 CRITICAL DISCOURSE ANALYSIS

Numerous scholars have reflected and written about the societal changes of the past three decades or so. This era, alternately called postmodernity (Harvey 1990), late modernity (Giddens 1991), or liquid modernity (Bauman 2000), has been a period of profound economic and social change. Above all, neoliberalism has been established as the dominant global economic order which has also deeply influenced social and political life (Fairclough and Chouliaraki 1999, 3). There is a widespread believe that there is nothing one can do to change this and the grand meta-narratives have lost their appeal to most people (ibid. 4; Lyotard 1984). But, as Fairclough and Chouliaraki point out, "these changes are at least in part the outcome of particular strategies pursued by particular people for particular interests within a particular system." (Fairclough and Chouliaraki 1999, 4) And this is where not only critical social science but also particularly critical discourse analysis comes into play. It is characteristic for the late modern era that these profound societal changes exist as discourses but *also* happen as actual processes. However, these processes are to a large extent shaped by discourse. Fairclough and Chouliaraki discuss how this is particularly important with regards to economic processes: Because discourse has such a large influence on economic reality, achieving discursive hegemony is an essential condition for maintaining economic power (ibid. 4-5).This assumption is highly important for the argumentation of this thesis because it is the hegemonic neoliberal eco-modernist discourse that I try to unveil in and behind the discourse around solar power in Morocco.

But first I will develop further how critical discourse analysis (in the following abbreviated as CDA) fits into this framework of critical social sciences in the late modern area. This requires an extended understanding of the term "discourse". In the previous chapter I introduced some very broad definitions to give an idea of the concept and its manifold meanings and interpretations. In order to understand how discourse is conceptualised within CDA, it is necessary to put a stronger focus on the *linguistic* aspect. According to Wodak (2001, 66), discourse is "a complex bundle of simultaneous and sequential linguistic acts, which manifest themselves within and across the social fields of action as thematically interrelated semiotic, oral, and written tokens.". Holzscheiter uses this quote to stress the spatio-temporal dimension of discourse which she visualises "as a flow of knowledge, culture, and ideas through time expressed through language" (2010, 71).

CDA was developed as a distinct approach at the beginning of the 1990s. It unites a great diversity of approaches under one common goal: "the critique and challenge of hegemonic discourses, texts, and genres, that (re-)produce inequalities, injustices, mystification, and oppression in contemporary societies." (Wodak 2013, xxv) An interdisciplinary approach is seen as essential "since serious social problems are naturally complex." (van Dijk 1993, 252) Thus, CDA intentionally avoids positioning itself within a particular discipline, paradigm, or school. Instead, it draws on theory and methods from diverse fields like anthropology, philosophy, cognitive science, and different strands of linguistics (Wodak 2013, xxii; van Dijk 1993, 252). Due to this diversity, the boundaries of CDA are not clearly defined; it does not constitute a fixed entity but rather a loose cluster of approaches with certain similarities as well as some differences (Jørgensen & Phillips 2002, 60).

What makes CDA a powerful tool for critique is that it locates particular linguistic acts within a broader social context of unequal power relations in order to find out how power is exerted through language. These linguistic acts are mostly written and spoken texts but in some cases images as well (Fairclough 1989, 27-28). Discourse is not only *constitutive* of the social world but also *constituted* by social practice, so the relationship is dialectical. This is particularly emphasised by Fairclough (Fairclough 1992, 1997, 1999). I will come back to this in section 3.2.1. which deals with Fairlcough's methodological approach to CDA.

The view of discourse being in a dialectical relationship with social practice explains why instead of studying a linguistic element separately, CDA is rather interested in the text as part of a social phenomenon, particularly in the role linguistic events play in the reproduction of unequal power relations (van Dijk 1993, 250). A text "is necessarily a particular snapshot of the larger discursive event" (Holzscheiter 2010, 67-69). In contrast to discourse analysis approaches that are rooted in the linguistic branch of discourse research, CDA is much closer to the sociological one – it subordinates text to context.

3.1.2 DOES DISCOURSE END WHERE REALITY STARTS? ONTOLOGICAL AND EPISTEMOLOGICAL REFLECTIONS

CDA is clearly distinguished from other strands of discourse analysis (for instance Lacleau and Mouffe's discourse theory) by the clear boundaries that the approach draws between discursive and non-discursive practices. This indicates that it is rooted in a critical realist philosophy. In this section, I will present my understanding of how CDA and critical realism interact, overlap, and differ.

Critical realism is rooted in the philosophical thought of Roy Bhaskar and has been developed as a critical answer to both positivist and social-constructivist philosophy of science (Archer 1998, 190). Put briefly, a critical realist view claims that there is an objective reality independent from our knowledge, however, this reality is open and changeable. Individuals are products of a society and reproduce or transform social reality through social action (ibid.).

Critical realism puts an emphasis on underlying *structures* and *mechanisms* that are in a causal relation to social practice. Although critical realism acknowledges that science does not provide a guaranteed access to truth and that knowledge is socially constructed, it holds that we can critically investigate these structures and mechanisms according to which our social life functions. In Jonathan Joseph's words: "The radical idea of this approach lies in critical realism's focus on structures and underlying causes, and not just on ideas, events, states of affairs." (2002, 11) This is of utter importance because "[a] hegemonic struggle is more than just a clash of world-views or group consciousnesses, it must challenge not only the dominant ideas within society, but the very social structures that produce them" (ibid.).

So what has this to do with critical discourse analysis, the Moroccan solar economy and EM? I chose CDA both as a methodological approach and an analytical tool due to its explicit mission to demystify both ideology and power as well as its overall commitment to social struggles (Wodak 2013, xxiii). I want to find out how and to what extent EM discourse is present in the discourse around solar energy in Morocco and whether this offers explanations why climate change plays such a minor role in it. This research agenda fits well into a critical realist perspective since it is interested in structures and mechanisms that underlie social practice (as well as knowledge as a form of social practice). CDA and critical realism share this critical and emancipatory agenda which also leads back to my theoretical framework of political economy and political ecology (see 2.1.).

Fairclough and Chouliaraki emphasise the importance to acknowledge discourse as a shaping force of social life but not to reduce social life to discourse (1999, 6). In the words of Fairclough: "All linguistic phenomena are social, not all social phenomena are linguistic." (1989, 23) This supports Harvey's approach to view discourse and language as one out of six moment that constitute social life, along with power, social relations, material practices, institutions/rituals, and beliefs/values/desires. All these moments are both in a dialectical relationship and internalise each other (cf. Harvey 1996). This resonates with the approach of this thesis. I study the discourse of the Moroccan solar economy in connection with material

practices (the actual power plants), power (hegemony of the eco-modernist discourse), institutions (involved stakeholders like MASEN or the IFI's), social relations (how are these stakeholders interrelated?), as well as believes and values (neoliberal techno-optimist ideas). None of these aspects can be studied separately since they correlate with one another in multiple ways.

Critical realism is also reflected in the position CDA takes towards the researcher. Critical discourse analysts "attempt to make their own positions and interests explicit while retaining their respective scientific methodologies and while remaining self-reflective of their own research process." (Wodak 2013, xxiii) In contrast to social science that claims objectivity, the CDA researcher explicitly does *not* perceive themselves as politically neutral. Instead, their research follows certain emancipatory political aims, struggling for radical societal change (Jørgensen & Phillips 2002, 64). I consider this self-positioning very important for an effective critique.

3.2 Methods and data-collection

3.2.1 *FAIRCLOUGH'S THREE-DIMENSIONAL MODEL*

Norman Fairclough is professor emeritus of linguistics at Lancaster University.[4] He is one of the central scholars in the field of CDA. Fairclough has developed his own method of doing CDA, first introduced in *Language and Power* (1st edition published in 1989). There, he conceptualises his three-dimensional approach, as visualised in fig. 5. It is beyond the scope of this thesis to dive into his extensive theoretical foundations on which he develops his methodological approach. Since he was one of the "founding fathers" of CDA, much of these theoretical reflections also correlate with general CDA theory as outlined above. Thus, this section focuses rather on the actual method in order to pave the way for my own analysis in the following chapter. I only present a short and theoretical description since the subsequent analysis hopefully exemplifies Fairclough's approach.

Fairclough views discourse and language as an integral part of society, as one form of social practice that interacts with other, non-discursive elements (cf. Harvey's (1996) six moments of social practice). Thus, discourse refers to "the whole process of social interaction of which text is just a part" (1989, 24). Besides the actual text, this process also entails "the process of production, of which a text is a product, and the process of interpretation, for which the text is

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[4] Lancester University. (n.d.). Professor Norman Fairclough - Linguistics and English Language at Lancaster University. Retrieved May 17, 2015, from http://www.ling.lancs.ac.uk/profiles/norman-fairclough

a resource" (ibid.). These processes around the production and consumption of a text are part of the *discursive practice*. In simplified terms, they mean that people who produce a text (in oral, visual, or written form) always draw on existing knowledge, beliefs, values, and conventions which shape the way the text production is done. The same goes for the people who "consume" the text (i.e. read it, listen to it, watch it). Fairclough conceptualises these cognitive resources as *member resources* (1989, 24).
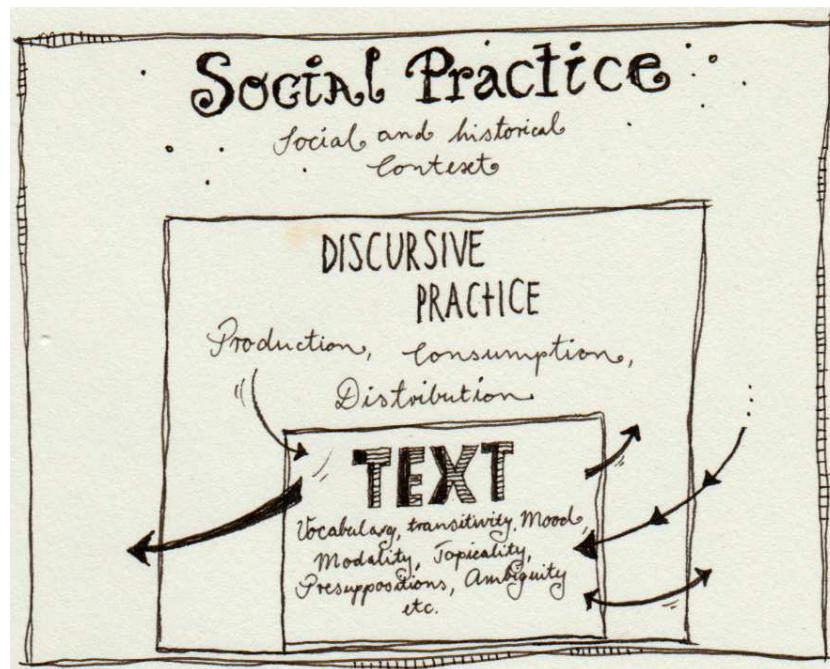
Figure 5*: Fairclough's three-dimensional approach*. Source: own visualisation

The discursive practice acts as a mediator between a text and a larger framework of social processes and structures. Whereas Fairclough emphasises the importance of the detailed linguistic analysis of specific text in order to find out how power and ideology are reflected in them, he also criticises linguistic approaches due to their exclusive focus on textual analysis (Jørgensen & Phillips 2002, 66).

Based on this, his three-dimensional approach to CDA implies three stages, each of them assigned to one dimension:

1. *Description* (analysis of the formal linguistic properties of the text): Text.
2. *Interpretation* (analysis of the relationship between text production and consumption: which existing discourses are drawn on?): Discursive practice.

3. *Explanation* (analysis of the social determination of production and consumption as well as their social effects: do they change or reproduce the current order of discourse and thus existing power relations?): Social practice.

Analysing a text according to this approach requires different *forms* of analysis. The part of the text analysis follows a quite standardised linguistic procedure, looking at grammar, vocabulary, stylistic devices, and interactional control (dominance of one speaker over the other(s)).[5] It is important to be aware of the ideological effects that result from the use of certain linguistic tools (Jørgensen & Phillips 2002, 84). In contrast to the text analysis, the analysis of discursive practice and social practice is much less determined and standardised. A useful tool for the interpretation stage is the concept of *interdiscursivity* that implies all the genres and discourses which the analysed text draws on. According to Fairclough, interdiscursivity "highlights a historical view of texts as transforming the past – existing conventions, or prior texts – into the present." (1993, 137) That way, it helps us to reach a more complex understanding of the discursive event in question.

When it comes to stage three, the explanation or analysis of social practice, another concept is introduced: the *order of discourse* (Fairclough 1989, 36; 1993, 4). The order of discourse studies the totality of discourses used in a particular social domain (Jørgensen & Phillips 2002, 72). The researcher needs to investigate to what extent a discursive event reproduces or challenges the existing order of discourse. By reproducing the current order of discourse, the producer of a text perpetuates the status quo and maintains existing power relation. However, the text producers can deliberately choose to import new discourses from other social domains and doing so, initiate discursive and social change. Thus, the order of discourse is flexible and open to change. This is an important point to keep in mind for the second part of my analysis in section 5.5.

3.2.2 *INTERVIEWS*

During our field research in Morocco, we conducted a multitude of interviews with diverse actors who were in some way affected by or involved in the country's solar economy. We talked to MASEN, to bank officials, to ADEREE, to solar engineers, environmental NGOs, farmers on the foothills of the Atlas Mountains, and social activists, amongst others.

The interviews certainly constitute an intellectual point of departure for this thesis because they made me want to find out more about the things that were *not* being said. Despite this I

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[5] For a more detailed description of what text features the analyst should look for, see appendix 1

decided not to use them as material for my analysis. This is for several reasons: Obviously difficult was the language barrier. Some interviews were conducted in English, some in French, German, Arabic, or Amazigh. Several were conducted by ourselves, for others we needed a translator. Oftentimes, the interviewees talked to us in their second or third language and the degree they appeared to feel comfortable with that varied. Therefore, I do not consider these interviews appropriate as material for a discourse analysis.

Moreover, we distributed the interviews amongst us and conducted them in teams of at least two. We did not have a standardised questionnaire but mostly prepared them individually. I do not feel comfortable using the data for my analysis because I was only personally involved in half of the interviews. I believe that this would have some influence on the analysis because things like surroundings, atmosphere, appearance, and personal feelings always shape the researcher's perception and behaviour. Much more though I do not want to take advantage of the fact that I worked together with a team scholars who all have much more academic experience than I do. I am very grateful for the fact that this research inspired me to write this thesis but I want to make sure that it is still an independent project, so that I do not find myself in a privileged position to the other students of my course.

3.3 Limitations of the research

Before I start with the analysis, I would like to address a few challenges and limitations I faced during the process of doing research and writing this thesis.

As mentioned earlier, I initially planned to write about Desertec but changed my research agenda while I was in Morocco in March 2015. Thus, I certainly missed the chance to prepare the process of data collection better so the obtained information would be more useful for my thesis project. However, I found a topic that proved a lot more intriguing to me instead. In the previous paragraph I explained why I did *not* use the interviews as the main material for my analysis and this supports me in my conviction that I made the right decision even though it entailed a much more restricted time frame.

This limited amount of time did not give me the chance to read as much as I would have liked to (if that is ever the case). Since I did not thoroughly study the works of Foucault, Gramsci, Bhaskar, and others, I am aware that my thesis may lack solid theoretical foundation in some parts. Nonetheless, I believe that I have grasped the central propositions these authors make so that I am able transfer them successfully to my own topic.

Language also turned out to be a challenging issue. My analysis of the actual texts (issues of grammar, for instance) would most likely be deeper and more complex if the text material was written in German, my first language. Two of the four texts were actually available in German but I chose to read the English versions due to reasons of consistency. And then there is the MASEN document which is only available in French, my third language that I have not seriously practiced in years. But I considered the text as too important to ignore since it sheds light on the inner-Moroccan solar discourse and thus adds an indispensable perspective to my analysis. Although I am aware of the limitations this language barrier entails, I am convinced that they are not critical for this thesis. Since Fairclough's model involves a rather simple linguistic analysis that is feasible for researchers without a background in linguistics, I believe that my language skills are sufficient to do this. I hope that becomes evident in the next chapter which contains my analysis.

4 There is power in the sun: Discourses around Morocco's solar power projects

4.1 Solar energy in Morocco

4.1.1 MOROCCO: BASIC FACTS

In order to provide a basic geo-political framework for my study, this section presents a few key data about Morocco. If not indicated otherwise, they are based on the country information on the homepage of the German Federal Foreign Office (Auswärtiges Amt 2014).

Morocco has about 33 million inhabitants and a population growth rate of 1,2% annually. The country stretches over 459,000 km² (in comparison: Sweden has 450,000 km²) and several climatic zones. Arabic and since quite recently also the Berber language Amazigh are official languages, French is widely spoken within the business and education sector. Morocco is a constitutional monarchy, King Mohammed V is the official head of state with wide-ranging power over the bicameral parliament. He is said to be a direct descendant of the Prophet which grants him a high degree of authority in a country where more than 99% of the population are Sunni Muslims. The first sector contributes about 15% to the GDB although it employs more than 45% of the population. There is a lot of small-scale subsistence farming but also a growing industrial agriculture sector which is supposed to increase profits through the "Plan Maroc Vert". The Moroccan government strives for a high degree of integration in international markets and thus has increasingly adopted neoliberal policies and laws. The economy is growing steadily (4.7% in 2013, according to the African Development Bank

2014) and is perceived to be stable. Due to economic and population growth, energy consumption is expected to quadruple by 2030 (Norton Rose Fulbright 2012).

However, the country struggles with high unemployment rates (35% amongst the urban youth), widespread poverty (6.3 million people still live under or just above the poverty line), and prevalent inequality regarding access to education and medical services (World Bank 2015, UNICEF 2013). The conflict about Western Sahara is still unresolved, and the border with its neighbour country Algeria remains closed. Moreover, there are monopoly-like structures and repeated corruption accusation of the king and his associates who rules the country behind "the barest façade of democratic governance" (Williams 2014, Black 2010).

4.1.2 MOROCCO'S RENEWABLE ENERGY LANDSCAPE

A heavy financial weight for the government is the energy sector. Morocco's indigenous oil and gas reserves are extremely limited; therefore, about 95% of the country's energy is imported. This results in a high dependency on foreign supplies and international price fluctuations (Bahgat 2013, 23). Additionally, fuel and electricity have been highly subsidised over the past years (alongside with bread) which is referred to as a successful measure to avoid uprisings during the Arab Spring in 2011 (Thakore 2014).

However, Morocco has a number of geographical and climatic conditions that prove favourable for renewable energies, particularly solar, wind, and hydro power: several rivers flow across the country and can be used to generate energy with hydro power, large parts of the country are desert or semi-desert with sunshine almost all year round which constitutes a crucial condition for solar power, and the long coastline as well as the large mountain areas provide great potential for extensive wind farms (Bahgat 2013, 23). Moreover, there is an existing power connection that between Morocco and Spain which makes it a particularly interesting country for European energy politics since it is the only African country that is connected to the European continent (ibid.).

The Moroccan government has acknowledged the problematic energy situation and launched an ambitious renewable energy plan in 2008, according to which 42% (amounting to about 6000MW) of its total energy mix is supposed to come from renewable sources by 2020 (Norton Rose Fulbright 2012; MASEN [n.d.]). As part of the renewable energy plan, the government launched the Moroccan Solar Plan (MSP) one year later. The MSP sets the target of 2GW of solar capacity by 2020 which will be produced at five solar power stations in different parts of the country. Ouarzazate, Ain Beni Mathar, Sebkhat Tah are located in

Morocco, whereas the stations of Foum al Ouad and Boujdour will be built on Western Sahara territory. In order to reach its energy goals, the government has taken substantial efforts to develop a strong regulatory and legal framework that enables and pushes forward a rapid expansion of the solar sector (Norton Rose Fulbright 2012). Part of this effort is the set-up of a complex landscape of political, administrative, and scientific institutions, as well as various energy laws. Central roles were assigned to the Ministry of Energy, Mining, Water and Environment, the *Moroccan Agency for Solar Energy* (MASEN), the *Centre de Développement des Energies Renouvelables* (CDER), the *Agence Nationale pour le Développement des Energies Renouvelables et l'Efficacité Energetique* (ADEREE), the *L'Association Marocaine des Industries Solaires et Eoliennes* (AMISOLE), and the *Office National de l'Electricité* (ONE). Within the solar sector, MASEN is the most important actor. Founded in 2010, its mission is the planning and implementation of solar projects, including supervision and coordination of project-related activities, the realization of necessary infrastructure improvements, as well as research, knowledge creation, and communication with investors (MASEN 2010). MASEN is a limited company (public-private partnership), owned to 25% each by the Government of Morocco, the Hassan II Fund for economic and social development, and the Societé d'Investissements Energétiques (SIE) (Whitley and Granoff 2014).

4.1.3 OUARZAZATE

Ouarzazate was chosen as the site for the first of the five planned solar complexes. The construction site is located about 10km outside the town of Ouarzazate in a sparsely populated area. Altogether, there will be four power plants built on an area of 3,000 hectares (KfW 2014). The area is considered highly suitable for the erection of large scale concentrated solar power plants: the sunshine rate is extremely high (10 to14 hours daily all throughout the year), paved roads and the Mansour Eddahbi dam provide the necessary infrastructure, and the seismic risk of the region is low (Bahgat 2013, 31, Nfaoui and Sayigh 2013).

Concentrated solar power (CSP) plants are highly complex and require an extended technical understanding. Thus, I only sketch out the two main types which are being built in Ouarzazate.
NOOR I and II are parabolic trough power plants which, put in a nutshell, collect sunlight through rows of parabolic mirrors which heats a fluid that runs through pipelines connected to the mirrors. This in turn drives a conventional steam-turbine (KfW 2015). Noor III will be a through tower plant. This CSP technology bundles the sunlight in a field of thousands of mirrors which project the light onto a boiler on the top of a tower that again drives a conventional steam-turbine (Nur Energy [n.d.])

The first power plant (Noor 1) is currently being built by the Saudi company AQWA Power and is supposed to start operating in late 2015. Its construction is financed through public private partnerships (PPP) and has attracted substantial financial investments by major MDBs as World Bank (Clean Technology Fund), the African Development Bank, the Kreditanstalt für Wiederaufbau (KfW), and the European Investment Bank (CSP-World 2013). Noor II-III are in the pipeline with secured $2 billion of loans from the above mentioned financiers (CSP-World 2015). AQWA Power together with its Spanish partner SENER has again won the international bidding process that entrusts the company with development, construction, operation and maintenance of the two power plants that are supposed to generate 300MW of Concentrated Solar Power (CSP) once they start operating in 2017 (CSP-World 2015; IFC 2015). Together, Noor I-III will produce about 500MW. The energy will be purchased by MASEN and ONE through a 25 year power purchase agreement (Norton Rose Fulbright 2010).

Figure 6*: Construction site of NOOR 1 in Ouarzazate.* Source: http://www.evwind.es/2014/10/20/first-concentrated-solar-power-csp-plant-in-morocco-solar-energy-project-to-open-in-2015/48190*The power of the sun: CDA of the Moroccan solar sector*

4.2   Analysis

Recalling my research questions, I sought to find out to what extent the texts are shaped by EM discourse, how they shed light on power relations, and how the issue of climate change gets addressed by the different actors. Searching for answers, this chapter is devoted to the analysis of four text documents from powerful agents within the Moroccan solar economy[6]:

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[6] For full texts see appendix 2

The Moroccan Agency for Solar Energy (MASEN), the African Development Bank (AfDB), the Kreditanstalt für Wiederaufbau (KfW), and the European Investment Bank (EIB). All four texts deal with the respective institution's engagement in the solar sector. I deliberately chose four distinct perspectives (Europe, Africa, Morocco, and Germany) since I am interested in Hajer's (1997) concept of *discursive formations*: although each actor has their very own agendas and interests which drive their engagement in the Morocco, they still come together striving for the same goal: the rapid expansion of solar power in the country.

It is neither possible nor necessary for this thesis to dive into every single aspect of text analysis that Fairclough suggests. Therefore, I limit my analysis to those aspects that I regard as most relevant. I conduct the first two stages of analysis (text and discursive practice) for each document individually and then position them together in *one* common framework of social practice. This analytic process hopefully reveals how overlapping spheres of power work in the world system, and how these interplays determine the hegemony of certain discourses.

I am aware that I refer to the four discourses as if they would constitute the entire discursive field of the Moroccan solar economy. This, of course, is not the case. However, I try to include a diverse range of actors. Since CDA is particularly interested in illuminating how power is pervasively present in language, I decided to focus on powerful actors who shape the discourse from inside and outside the country. The fact that their documents are the ones with easiest access from my position (both in terms of language and internet accessibility) speaks for itself.

4.2.1 KFW

Discursive practice

The first document is a two-page long info sheet from the German state-owned development bank KfW (Kreditanstalt für Wiederaufbau), last updated in December 2014. Germany has contributed €100 million to the first Noor complex, distributed between the KfW and two other development-oriented ministries (BMZ and BMUB). In 2013, the KfW approved a further €654 million loan for the second and third phase of the Ouarzazate project (Noor II and III). The text delivers basic project information about context, background, and purpose of the bank's involvement in the Moroccan solar landscape in English.

The text is available in both English and German on the KfW website but in none of the languages spoken in Morocco (Amazigh, Arabic, and French). That causes the assumption

that it is mainly targeted at a German, Anglophone, and well-educated international audience. Actually, every reader of the text needs a high level of education. This is not only apparent in the obvious necessity of advanced English language skills but also in the highly technical and economic knowledge that clearly is presupposed. If I had not studied in English and read dozens of articles on Morocco, CSP plants, and solar energy in general, I definitely would have struggled to understand the content. It is very unlikely that anyone would stumble upon it coincidentally since the pdf file is placed at a rather hidden spot on the KfW homepage. I assume that the text was written by members of the communications team of the KfW and then reviewed by other employees of the KfW as well as the Federal Ministry for Economic Cooperation and Development before it got published. However, both producers and consumers of the text are not obvious. There is neither a reference to the authors nor does the reader get addressed in any way. I suggest that this highly neutral and professional style of writing is typical for this kind of information sheet from professional and high-ranking institutions. Moreover, the lack of an individual author emphasises the institutional authority.

In terms of interdiscursivity, the text draws on four major discourses: 1) official government discourse, whose authority is underlined by the symbol of the German government (a bar in the colours of the German flag and the "Bundesadler"). 2) A techno-optimist discourse which entails a high degree of expertise about solar technology as well as the belief that it can help to mitigate climate change and push Morocco's economic development forwards. 3) The text also draws on a particular environmental discourse that Dryzek conceptualises as *administrative rationalism*. I have shown earlier that this discourse that puts a large degree of trust and responsibility in governments, and is typical for an EM approach to addressing environmental problems. Finally, the text also draws on a corporate banking/finance discourse, interwoven with hegemonic development discourse. It is this discourse that is particularly promoted by multilateral development banks and typically depicts a problem or challenge in which one or several non-industrialised countries are involved: in this case, it is Morocco as a fast growing economy heavily dependent on imported fossil fuels. The discourse then suggests one central approach to solve it: the provision of huge financial loans to further stimulate economic growth (in this case the solar economy).

Compared to my earlier introduction to EM, it becomes obvious that this particular discursive mix covers major parts of the EM discourse: the focus on economic growth, the importance of technology, and the conviction that these two aspects are not only reconcilable with environmental concerns but vital for addressing them. The finance and development

discourse, I would suggest, is an additional discursive element in order to expand and apply the EM discourse to non-industrialised countries and emerging economies.

Text

The discursive practice is clearly reflected in the actual text. It is characterised by an almost irritating mixture of very simple grammatical structures and at the same time a high amount of expertise and technical vocabulary.[7] There is certainly a rather large degree of knowledge pre-supposed. If I had not dealt extensively with the subject of CSP technique before, it would definitely have been problematic to understand the text that includes terms like "parabolic trough power plants" or "molten salt energy storage facility". In contrast to this highly technical vocabulary, the description of Ouarzazate as a "well-placed tourist location" whose "rugged canyon and copious amounts of sunshine have served as a set for classic films such as Lawrence of Arabia" seems strangely out of place. It might be an attempt to establish a more informal relationship with the reader in order to break the otherwise distant and professional style.

The text strategically constructs the bank's role. It emphasises aspects which they consider positive about Morocco: the fast growing economy, the country's role as an African pioneer in renewable energies, the excellent geographical and climatic conditions, as well as Morocco's ambition to move beyond a fossil fuel based economy. The magnitude of the undertaking is highlighted ("one of the world's largest solar power complexes", "one of the world's largest power plants"). At the same time however, it becomes clear that the government cannot implement its plans and projects without the help from the KfW as well as other international donors ("Morocco is not in the position to manage such a large-scale project alone."). The text repeatedly emphasises Morocco's dependence on fossil fuels which is seen to be of disadvantage for both the economy and the environment. The Moroccan population and their needs are not mentioned at all – it is a clear presupposition that economic growth will certainly result in general prosperity.

The text refers to the Desertec idea to export solar energy from Morocco to Europe. However, it is presented as not having transcended the state of a "vison" for the future. The text goes on to state "Until now, however, some of the technical and political framework needed for this was not in place." It does not become clear at this point what framework is addressed here. But since the previous sentence refers to Morocco's wish to "press ahead with this vision",

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[7] For me as a German native speaker, this is much more visible in the German version of the text. (*see also: section 3.3. on "limitations of the research"*)

the reader gets the impression that the lacking technical and institutional framework was mainly a Moroccan failure – although in the case of Desertec that was definitely *not* true.

All that contributes to a somewhat patronizing image of the KfW and other MDBs as benevolent donors that help the greenhorn Morocco to leave its status as an economic underage child and grow up to become a proper capitalist market economy.

Climate Change

Although the term "climate change" is not explicitly mentioned, the environmental friendliness of the new technology is certainly presented as an important and progressive feature both of the Ouarzazate complex and the emerging solar economy in general. "This shift to renewable energy sources will contribute to global climate protection" is probably the most explicitly climate-related statement, along with the fact that "600,000 ton[s] of CO_2 emissions will be saved each year [compared with conventional electricity generation]".

The view of the natural environment clearly reflects an ecosystem-service oriented approach. The desert is presented as a powerful and almost magic space, providing "inexhaustible solar energy".

4.2.2 EUROPEAN INVESTMENT BANK

Discursive Practice

The second text was published on the homepage of both EIB and European Commission (EC). The EC is not directly involved but has delegated its mandate to the European Union's bank (EIB). The text is a press release from November 19th, 2012, titled "Major European support for first large solar project in North Africa". It was published after the EIB, the Development Agency for France (AFD), the KfW and MASEN had a signed a deal over a loan package of €300 million. The text presents some basic details about the Ouarzazate complex and cites several members of the involved institutions who express their satisfaction with both the deal and the Ouarzazate power plant per se.

However, the information is not directly communicated to a particular audience but intermediated by journalists of different types of media (supposedly mainly online and print). This has an important implication: the text will, in slightly modified versions, reach a broad audience, the content will be available to a large number of consumers. Due to the three languages in which the release is available (English, French, German), this number is further increased.

In terms of interdiscursivity, there are at least three major discourses identifiable: Most strongly represented is a certain polity discourse that emphasises political and economic cooperation as a means of strengthening international relations. The role of the EU and the EIB are clearly in the centre of attention here. The Moroccan Solar Plan (MSP) is not depicted as an autonomous undertaking but as an important part and first big step of the Mediterranean Solar Plan.[8] The success of the Ouarzazate complex is seen as a success of the Mediterranean Solar Plan – not as an achievement of the Morocco government.

The text clearly imparts an explicit EM discourse, reflected in statements like "It [*the power plant in Ouarzazate*] provides a strong and green signal for the future in terms of technology, economic and energy development, and job opportunities". The emphasis on a strong political and regulatory framework to push the "right" form of development forward merges EM discourse with the international politics discourse. The third major discourse also overlaps and intersects with the others. It is a strong techno-optimist perspective on solar technology as a means to stimulate economic growth *and* protect the environment.

The text contains three direct representations of other discourses. Two high-ranking members of European IFIs as well as a central figure of the European Commission express their contentment after the agreement was signed. Whereas I find it less important to find out *why* this discursive representation is placed here (since it is a typical feature of press releases) it is interesting to pay attention to the question of *who* gets actually quoted. Most important to note is the fact that none of the involved Moroccan actors gets a chance to speak. MASEN is reduced to being the "promoter" of the project, thus their role is apparently not considered as crucial - in contrast to the financiers who make the implementation of the project possible.

Text
The narrow focus on the European role within the Moroccan solar sector is strongly reflected in the actual text. Europe is presented as an active force, it *supports, facilitates, provides, leads, contributes* to the development of solar capacity in Morocco. Morocco itself on the contrary, does not get described as actively *doing* something (as is North Africa). This is reflected grammatically, since it holds almost exclusively the position of an object.

The leading role of the EU is also supported by the repeated emphasis on Ouarzazate as a "milestone", a "green signal for the future", a "first flagship project", as well as its status as

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[8] The Mediterranean Solar Plan was launched in 2008 and aims at the development of 20MW RE capacity in European and North African countries around the Mediterranean. It involves partners from 20 countries and is mainly funded by the EU (PWMSP [n.d.]).

"the first [project] under the Moroccan solar plan", and "one of the largest [solar complexes] in the world". It becomes clear already in the headline that the Ouarzazate project would not be possible without the financial aid of the EU which amounts to "more than 50 per cent of the total cost of the project". It fits into the picture that Ouarzazate is not praised as a Moroccan achievement or a result of the MSP: The two times the MSP is mentioned, it is directly connected to the Mediterranean Solar Plan and the EU. Except for MASEN, no Moroccan actor is directly mentioned: neither the government, nor the king, nor any other stakeholders, let alone non-governmental institutions or civil society. Except for the high degree of energy dependency, there is no information about energy-related developments or challenges in Morocco.

Fairclough puts a great focus on features of *modality* to interpret a text with regards to certainty and authority. The EIB document is very declarative and claims a high degree of authority. No such words as "maybe", "potentially", "might" are used, neither are any conjunctive verb forms used. The text exclusively uses indicative verb forms even when talking about future prospects or the potential effects of the Ouarzazate plants on the Moroccan economy. The modal auxiliary "will" is used repeatedly, indicating what Fairclough calls "futurity plus high-affinity epistemic modality" (1993, 146).

Climate Change

The topic of climate change mitigation is explicitly denoted: "The project is in line with the objectives of European Union and the strategic objectives of the FEMIP mandate in terms of environmental sustainability and climate change mitigation in relation to energy demand." However, the text remains unclear on how exactly the project relates to the EU and EIB targets, or what it is meant by the expression "in relation to energy demand". Apparently, these two aspects (climate change mitigation and environmental sustainability) do not rank high in priorities since the quoted paragraph is located in the very end of the text.

Nevertheless, there are a few other references to environmental issues at earlier points. For instance, it is indicated that the first phase of the Ouarzazate complex "will avoid the emission of 110,000 tonnes of carbon dioxide per year". Moreover, the plant is praised as a "breakthrough of low-carbon and climate-friendly technology in Morocco".

It is interesting to pay attention to the way these arguments are deployed and placed in the text. The environmental aspect never stands for itself, but instead is always presented in combination with other perceived benefits. The Ouarzazate plant will substantially contribute

to the reduction of CO2 emissions "while developing renewable energy and energy security in Morocco, as well as creating jobs and promoting an integrated local solar industry." It is not only a breakthrough of environmentally friendly technology but also enables Morocco to "reduce its dependence on energy imports". And, as mentioned in the previous section on discursive practice, Ouarzazate sends out a "green signal for the future *in terms of technology, economic and energy development, and job opportunities*." (emphasis added).

Based on these observations it becomes obvious that climate and environmental protection are presented as a certain leitmotif underlying the EU's financial commitment to the Ouarzazate project. However, they seem to lack intrinsic value and therefore get strategically connected to *economic* goals. In doing so, a typical EM discourse that tries to reconcile economic and environmental benefits is reproduced.

4.2.3 AFRICAN DEVELOPMENT BANK

Discursive Practice

This third document is an online article published about two years later (October 2014) by the AfDB. The bank has contributed €100 million to NOOR 1, and will also substantially co-finance NOOR II-IV. The text is titled "AfDB is financing a real sector in Morocco: Ouarzazate solar power plant takes shape" and deals with the crucial role the bank plays both in the development of the Morocco's solar sector and the general development of the country.

Again there is no author mentioned which creates a notion of authority and integrity – the entire bank seems to back the article. It is important to note that this only works for institutions which possess a certain degree of authority and power. If this is not the case, the publication of a text without any identifiable author can easily evoke an unprofessional or suspicious image. This aura of respectability and professionalism is reinforced through the high amount of technical terminology both in terms of solar technology and financial processes. It appears that it intentionally was made only accessible to a very limited number of people.

In contrast to the texts of the KfW and EC, the most striking feature of this article is its obvious focus on African matters. Whereas the two European banks clearly attempt to tie Morocco closer to Europe in terms of economy and energy, the AfDB pursues a different strategy: the creation of an integrated Pan-African renewable energy network. This African development discourse puts a special focus on energy as the main issue for achieving inclusive and green growth – the two main objectives of the AfDB. It is linked to a particular

neoliberal development discourse typical for MDBs. This discourse promotes huge financial loans as the basis for development, economic growth, and consequently as an alleviation of poverty and inequality. It is framed by the AfDB's green and inclusive growth strategy that is present throughout the text. Similarly to the EC, the bank praises its own role in Morocco's solar sector and constructs Ouarzazate project as part of their enormous development strategy for the country.

Text

The caption titled "AfDB is financing a real sector in Morocco: Ouarzazate solar power plant takes shape" reveals the central propositions of the text. The primary position of the bank's name indicates who the main protagonist of the article is: the African Development Bank itself. The formulation conveys the impression that the AfDB finances not only the Ouarzazate power plant but the entire Moroccan solar sector.

Accordingly, most other distinctive linguistic features of the text are directly related to this particular (self-)construction of the AfDB. As outlined in the previous section, the bank sees its role not only as a financier of certain projects but as an agent of growth and development. This is explicitly addressed in statements like "The Bank plays a very prominent role in advancing Morocco's development agenda" or "The Bank will continue to engage in charting the way forward in Morocco" (note the capital B). Its authority is further emphasised by the usage of highly technical jargon. Expressions like *real sector*, *public-private partnership*, *beneficiaries*, or *concessional loan* (to name just a few) make the text only accessible for reader with a certain degree of knowledge in banking and finance. Moreover, the text repeatedly refers to employees of the bank as "experts" and "specialists".

Throughout the text, the bank refers to itself 16 times (four times as AfDB, three times as African Development Bank, and nine times as "the Bank"). In the majority of cases, it holds the clausal position of the subject which further emphasises their powerful agency. The word "Morocco" appears six times throughout the text but only in one instance is it presented as an acting entity. But even in this case, the country does not act independently but is merely "achieving these goals [extension of infrastructure and access to energy] *as outlined by the African Development Bank*" (emphasis added). Although King Mohammed V and MASEN are mentioned, the development of the solar sector seems completely unpolitical. The entire administrative and institutional adjustments the government has undertaken (as described in section 4.2.) are disregarded.

The text strategically constructs a certain image of energy in the African context. Growth of the (renewable) energy sector is *the* essential condition for economic growth which in turn is used almost as a synonym for "development". To underline this point, Aly Abou-Sabaa, a high-ranking member of the bank is quoted as saying: "Energy is vital to efficiently drive African economies. […] Businesses and industries permanently need power to run smoothly. And any African nation to grow to maturity and become a force to reckon with in upcoming years should develop it." This latter statement contains a metaphor that mirrors the bank's growth paradigm. It equates "grow to maturity" with economic development, implying that most African countries have so far failed to do so. Only if a country grows mature, i.e. develops economically it can "become a force to reckon with" – a clear instance of capitalist ideology. However, there is a clear lack of context. Questions like: why does Africa lack growth and access to electricity? What is the situation in Morocco like in terms of political, economic, social, geographical, and energy-related conditions and developments? Also, the bank deliberately excludes the other MDB's who have contributed largely to the implementation of NOOR 1.

Another issue that is left out is climate change. The only instance where there is a faint hint at environmental issues of any sort is the one time when the word "green" appears in the text, referring to the AfDB's strategy of green and inclusive growth. Otherwise, the topic is completely absent.

4.2.4 MASEN

Discursive Practice

The 6-pages long document is available at the MASEN homepage under the section "communiqués de presse". It does not have a title but is listed as "Signature de deux conventions à Ouarzazate le 26 octobre 2010". It gives an overview of the Moroccan renewable energy sector in general, and then goes on to present more details on the solar sector, the mission and objectives of MASEN, and the Ouarzazate power plant. The text is written in French and published as a visually appealing pdf document, thus it seems to be some kind of general information document rather than a press release. It is difficult to draw conclusions about text production, distribution, and consumption since the MASEN homepage is not particularly well organised. Some parts are made available in English, some only in French or Arabic, there are many broken links and in general only basic information and very few documents provided. Thus, I will limit my analysis to some observations and focus more on the actual text.

The document is only accessible for French speakers. Thus, it has not only a more limited but also a *different* target group of potential consumers than the other texts I have analysed. In Morocco, French is mainly spoken by the well-educated and embedded in a complex web of post-colonial structures and norms (cf. van den Hout 2013). During our research, I noticed that our translator Fatima oftentimes introduced herself, the team, and our research in French and then switched to Arabic. When she talked about academic or official matters during the conversation though, she would switch back to French. Consequently, I believe that publishing a text in only French has particular implications in Morocco. However, since I am not very familiar with the cultural context, I leave it at this observation.

In terms of interdiscursivity, I have identified three distinct main discourses: 1) a techno-optimist development discourse, 2) an environmental discourse, and 3) a discourse that I call the "MASEN-discourse". The techno-optimist development discourse presents renewable energies and solar energy in particular as a unique option to stimulate economic development in the country, meet the rising energy demands, and reduce dependency from fossil fuel imports. The environmental discourse emphasises the potential of the transformation of the energy sector to help protect the environment, reduce CO_2 emissions, and mitigate climate change. And then there is the MASEN discourse, which frames the institution as being so crucial for the development of the country's solar economy that it almost seems to *equate* the two. It is a very strong institutional discourse that promotes MASEN as the main body responsible for governing the development of solar power in Morocco and implementing the Moroccan Solar Plan. MASEN's legitimacy is supported by a quote from the King (p. 2), the highest authority of the country.

Again, this pattern of interdiscursivity indicates that the text entails a clear EM discourse. It presents solar technology as an opportunity for environmentally friendly economic growth, implemented within a strong institutional setting that creates the necessary framework conditions. Since this institutional setting is more or less directly connected to the king, it claims an extremely high degree of authority.

Text

The document is the first out of the four texts that has been published so it is very likely that the donors have read it before the decisions about their financial support were made. Instead of highlighting the need for cooperation, there is a general overtone of competitiveness: The country aims not only at drawing level with the international standards of the solar energy sector (p.4) but at taking on a pioneer role in the field (p.2 and 4). There is the explicit goal to

be the first African country to develop large-scale solar projects (p.2). The substantial amount of total costs for the implementation of the solar plan is mentioned (9 billion dollar, p.2) but whereas the MDB's are very explicit about their crucial role as financiers, the MASEN document remains silent on the sources of funding.

The text strategically constructs an integrating notion of Moroccan identity. Instead of naming particular actors, "Morocco" is oftentimes used as the acting subject of the clause. To give an example: "Le Maroc a défini une nouvelle stratégie énergétique" (p.1) raises the question *Who is 'le Maroc'?* Looking at the distribution of political power in the country raises the suspicion that the answer is: Sa Majesté le Roi Mohamed VI himself. Expressions like "notre grand projet" ("our great project") indicate a dominant top-down "L'état c'est moi" strategy. The king deploys this kind of integrating rhetoric in his speech that is quoted in the text, substituting "the government and I" with the personal plural pronoun "Nous". In the end, these formulations serve the same purpose: the creation of a homogenised Moroccan "We" blurs the lines between the categories that determine social status (like ethnicity, class, gender) and obscures unequal power relations as well as exclusion and oppression of social groups.

The text deploys further strategies of transitivity: it uses passive verb forms like "MASEN is considered as a key actor" (p.4, *my translation*) or "Based on the Moroccan law 57-09, the implementation of the solar plan has been entrusted to MASEN" (p.3, *my translation*). Information about the agent gets omitted but it is quite clear that it refers to some high-ranking institutional power like the government or the king. Obviously, it would not make any sense to explicitly name these since it was them who established MASEN.

In terms of vocabulary, the institution's agency as well as the active progress in implementing the solar plan get highlighted by the repeated use of the terms "mise en place", "mise en oeuvre", and "mise en service" (they can be translated as *implement*, *realise,* or *put into action*). Taken together, these terms appear 12 times throughout the text. Generally they invoke a notion of activity, presence, and responsibility – a self-image that MASEN certainly attempts to convey to the public.

Even more overwording occurs related to the term "développement". It is used in manifold combinations in 17 instances of the text. To name just a few: "développement économique et social" (p.1), "Développement des ressources énergétiques nationales" (p.1), "développement de l'expertise" (p.3), "développement de l'intégration industrielle" (p.4). The extreme

emphasis on this word hints at an ideological struggle hidden behind it (cf. Todolí 2006, 12). Interpreted from a critical point of view, it might be an attempt to justify the fact that a small corrupt elite governs Morocco and hugely profits from the country's industrialization whereas poverty and inequality remain pervasive issues (Black 2010, Williams 2014). Framing the MSP as a development strategy may be seen as an attempt to disprove or veil this. This of course is an overtly critical view. Looking at it from a more moderate angle, the emphasis on development can be interpreted as the attempt to establish a certain discourse of the solar energy sector as being beneficial for the entire Moroccan society. Moreover, this kind of development rhetoric serves well to attract international donors with an explicit development mandate – a mission that obviously worked out well, considering the large financial support that the MSP has attracted.

Climate Change

Issues of climate change and environmental sustainability are addressed several times throughout the text. They are listed among the main reasons for the expansion of the solar sector. Large scale energy supply from renewable sources is promoted due to its ability to protect the environment and offer a substitution to fossil fuels (p.1 and 2). Solar energy is said to combat global warming by reducing CO_2 emissions by 3.5 million tons per year (p.2).

The text names another crucial goal of the country's new energy strategy: rationalizing consumption (p.1). However, this does by no means imply an actual decline of energy consumption but an optimization of energy production and an energy sector that is better integrated into the national and international energy market (p.1).

Noticeably, environment-related aspects only get mentioned on the first two pages where an overview of the energy strategy and the solar plan is presented. Over the next four pages where MASEN's mandate and strategy are introduced more detailed, this argumentation does not reappear.

4.3   Social Practice: A common framework

The previous section aimed at developing an in-depth understanding of the four texts in question. Each text was briefly introduced and then analysed for the conditions of its production and consumption, interdiscursivity, and linguistic features. The analysis revealed that the texts showed both significant similarities and important differences.

This section will expand on my findings. In a last step, I want to analyse the broader social practice as outlined in Fairclough's three-dimensional approach. As laid out in section 3.2.1.,

the analysis of the social practice dimension serves as an *explanation* for the findings of the previously studied discursive practice by embedding them into a broader social context. For that purpose, I will study the *order of discourse* (the entirety of discourses present in a social field or an institution which in my case is the Moroccan solar economy) and draw conclusions from this.

Figure 8 visualizes the different discourses that the documents I have analysed draw on. The figure shows that two of these discourses hold a very prominent position which is due to the central role they play in the texts. I will go into details about them in the next three sections, followed by some thoughts on the importance of looking at the discursive *differences* to an equal extent. The chapter will conclude with reflections on the role of climate change.
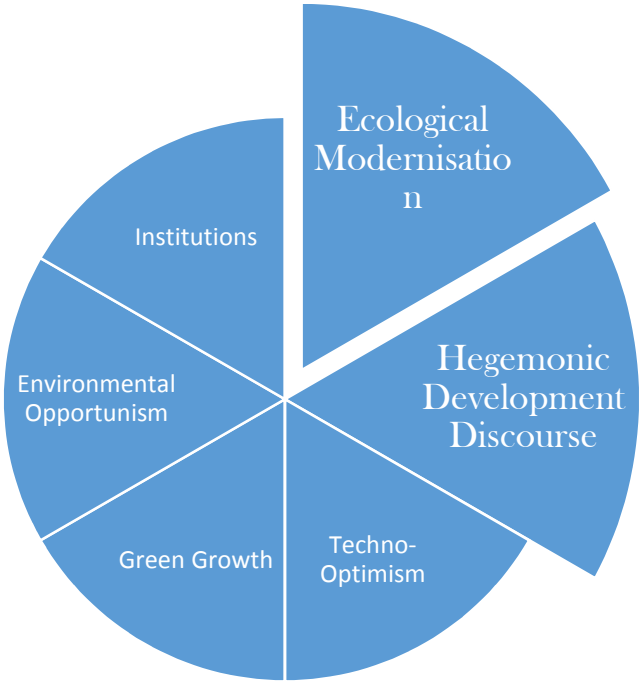

Figure 7: The order of discourse of Morocco's solar sector, *source: author*

4.3.1 ECOLOGICAL MODERNISATION

I suggest that the majority of discourses that I have identified can be brought together under the meta-discourse of EM. I will briefly go over them in order to justify this proposition. This also helps to recall the concepts introduced in chapter 2.

The *techno-optimist discourse* is clearly visible in each text. Technology (and solar technology in particular) is believed to contribute to the solution of various challenges: energy dependence, lack of economic growth, unemployment, climate change, political and

economic isolation, and underdevelopment. The *green growth discourse* is special for the African Development Bank. In my understanding, it is very similar to EM discourse but, as the name indicates, with a stronger focus on the aspect of growth. The bank describes it as a path

> (…) that is not only rapid but which also leads to equality of treatment and opportunity, deep reductions in poverty and large increases in jobs. Green growth ensures that inclusive growth is sustainable, by managing responsibly the assets on which it is based, spurring job creation, innovation and development, and providing efficiency and welfare gains. (African Development Bank 2014, 3)

Except for labelling it "green" and "sustainable", it remains unclear how the concept takes environmental issues into account. This may explain why the text remains silent on any climate related matters. For this reason, I locate it next to a discourse I call *environmental opportunism* (based on Klein's term *crisis opportunism*). This discourse addresses various environmental problems like climate change or CO_2 emissions. However, every environmental argument is always backed up by another socio-economic benefit of solar energy. Environmental concerns are almost presented as (business) opportunities which evokes unpleasant associations with the World Bank's crisis opportunism strategy, or the Ecomodernist Manifesto's proclamation of a "great Anthropocene". Finally, an *institutional discourse* that holds a dominant position in the MASEN text emphasises the institution's central role in the administration, coordination, and implementation of the restructuring process of the energy sector. However, the role of any governmental body is a markedly *lacking* in the other texts. The banks seem to entrust their money and the market to kick off the economic development in Morocco.

EM as sociological thought originally was developed in Western Europe, notably Germany, the Netherlands, and the UK (Mol and Sonnenfeld 2000). It was addressed at the improvement of the environmental performance in *industrialised* states (Sonnenfeld 2000, 1). It was not before the mid-1990s that the focus was broadened and started to include non-European and non-OECD countries (Mol and Sonnenfeld 2000). The previously highlighted need for a strong nation-state has changed – nowadays, one of the major roles of governments is the stimulation of "lead markets for environmental innovations" (Jänicke and Jacobs 2006, 31). Although specific EM theory is mainly drawn on in Western Europe, the term is increasingly used to refer to a very broad discourse that positively acknowledges the fusion of economic and ecological concerns, and believes in mechanisms of the market, regulated by state policies. What it lacks, however, is a component that extends it to non-European and non-industrialised (or less-industrialised) contexts. I suggest that this is the reason why a

second discourse holds a very central position in the discourse around Morocco's solar economy.

4.3.2 THE HEGEMONIC DEVELOPMENT DISCOURSE

One discourse that I have not considered before is present throughout all four texts: I called it the *hegemonic development discourse* (HD discourse). The HD discourse reproduces one specific development paradigm: development through growth. It is the leitmotif of the MDB agendas and promoted by the UN.[9] In order to understand its predominant position, we need to take a brief excursion into the history of the World Bank as well as the International Monetary Fund (IMF).

Both World Bank and IMF were established after World War II as parts of the Bretton Woods system. Their mission was to prevent the sort of economic collapse that had paved the way for the rise of the Third Reich (Klein 2007, 162). Whereas in the early stages, Keynes himself praised the institutions as effective control mechanisms for the markets (ibid.), their role changed with the "neoliberal counterrevolution" of the 1980s and 1990s that "swept away both Keynesianism and the dream of a new world order" (Hornborg 2001, 26). Leading positions in both World Bank and IMF were increasingly filled by alumni of the Chicago School whose most prominent personality was Milton Friedman himself. By the end of the 1980s, the agendas of the two institutions were more or less congruent with neoliberal market economics, advocating privatization, deregulation, and large cuts of government spending (Klein 2007, 163; 2014, 19). They engaged increasingly in what Klein calls *crisis opportunism*: developing countries that desperately turned to them for help had to implement so-called structural adjustment programs in order to receive loans and grants, so that more and more countries were forced onto the path of neoliberalism. It was almost impossible to turn their offer down: "When privatization and free-trade policies are packaged together with a financial bailout, countries have little choice but to accept the whole package" (2007, 164).

Morocco was one of the countries facing a debt crisis in the early 1980s. As a response, the government started pushing economic development forwards with the help of the World Bank, the International Monetary Fund (IMF), and the Paris Club of creditors (Edo 2002, 224). Through the imposed structural adjustment programs, King Mohamed VI and his

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[9] Out of seven strategies that were formulated as a financial agenda for reaching the millennium goals in 2002, six were exclusively aimed at financial and economic strategies, retrieved May 18, 2015, from: https://www.bmz.de/en/what_we_do/principles/german-contribution-to-international-development-policy-goals/index.html

government directed the country onto a neoliberal path of economic modernisation. Various programs of structural reforms aim at stimulating economic growth, diversify the economy, increase competitiveness, and creating jobs. Market reforms and deregulation are the main tools to achieve this. The country is part of more than 50 neoliberal trade agreements (AMDI, [n.d.]). For international business, Morocco is an attractive new market with favourable conditions like political stability and ongoing extensive infrastructure programs (Auswärtiges Amt 2014, Hamour 1998, 138). Henry Azzam, Deutsche Bank's chief executive officer for MENA calls Casablanca "the business centre of the Mahgreb" (Copetas 2007).

Most of the mentioned programs and structural reforms are continuously supported by MDBs through technical and analytical consulting and significant financial aid. Still, Morocco's foreign debt has been growing and it is the IMF who obligates the government to take measures to cut down the national deficit (Thakore 2014). Nowadays, the World Bank and the IMF acknowledge the urgency to combat climate change: "If we do not confront climate change, we will not end poverty" (World Bank 2015b). HD discourse now embraces global environmental concerns and the MDBs as its most powerful advocate grand their support to climate-friendly projects. This means that Morocco finds itself in the grip of powerful IFIs which is held up by the enormous amounts of foreign loans that the solar economy is attracting. The government has adopted the HD discourse which is clearly displayed in the texts. The same goes for the other actors: every text reproduces an almost identical notion of the growth-equals-development ideology.

4.3.3 *A PERFECT MATCH: EM AND THE HEGEMONIC DEVELOPMENT DISCOURSE*

The previous two sections have shown that the four analysed texts are infused by two meta-discourses: a hegemonic development discourse and an ecological modernisation discourse.

The two discourses overlap in large parts so that the boundaries between them are oftentimes blurred. This proves not only their close relatedness but also demonstrates the complex, flexible, and contingent nature of discourses. Although both EM and the HD discourse have their own distinct academic as well as spatio-temporal background, both discourses are largely influenced by the general neoliberal shift of the 1980s that was significantly pushed through by the Bretton Woods institutions. At the same time, they are also shaped by the global environmental concerns that came up at around the same time. Both promote the same eco-modern paradigm: economic growth and environmental degradation do not have to go hand in hand. However, I indicated earlier in this section that EM discourse lacks the development component that is needed to extend it to non-industrialised contexts. This gap is

filled by the hegemonic development discourse. This insight is presented through my analysis that exposed a pattern of interdiscursivity which weaved together different discourses to one common story-line. The story-line equates the development of the solar sector with the development of the entire country and thus connects technology and economic growth to development, human well-being, and environmental protection.

The wide-ranging acknowledgement of this equation is not surprising. Considering that both EM and HD discourse are very potent discourses for themselves, they are even more powerful when brought together. Due to the predominant ideological position of the HD discourse, it is a common-sense assumption that it is *true*. MDBs are widely accepted as sources of knowledge and expertise, therefore, the majority of people does not question their claims. Moreover, the large ideological intersections of EM and HD discourse further facilitate a successful alliance.

4.3.4 DISCURSIVE STRUGGLES

However, these considerations should not neglect the fact that each actor has individual reasons for their engagement in the solar sector. Section 2.5. introduced Hajer's concept of *discursive formations* which describes the alliance of several actors with (potentially) diverging interests. These actors form a discursive coalition in order to pursue a common political project. To this end, they need a credible story-line that justifies both their respective engagement and the common goal.

I suggest that this is exactly what we see in the four texts: the common political project is the rapid expansion of the Moroccan solar sector. The actors are united by the believe that a strong domestic solar economy will result in overall development of the country, which forms their common story-line. Nonetheless, each of the actors pursues their own agenda. This agenda is partly revealed by the use of particular discourses that do not belong to the meta-discourses of development and EM as developed earlier in this section. For instance, the AfDB intensively deploys an integrated African development discourse which is completely neglected by the others. Their interest in a strong Moroccan solar economy is its importance for an integrated pan-African energy network which in turn is crucial for economic growth and international competitiveness of the continent as a whole. In contrast, the EC's attempt to establish a Mediterranean energy union obviously aims at tying Morocco (plus the entire MENA region) to the European continent. Thus, the text in question strongly draws on a discourse of political cooperation and integration with focus on the EU, constructing the Moroccan solar sector as an integral part of the Mediterranean Solar Plan. Any Moroccan

agency is completely neglected. This is an extreme contrast to MASEN's perspective: The institution underlines the country's competitive relationship to other states and highlights its ambition to establish a position as solar pioneers both in Africa and internationally. The construction of a common Moroccan identity obfuscates power relations within the country and indicates powerful group interests on the highest political level. The KfW document provided the least hints about a particular agenda of the bank or the German government. The one thing standing out is the reference to potential energy exports from Morocco to Europe in the future. This may not come as a surprise, considering the broad political support for the DESERTEC concept in Germany. Also, Germany ought to have specific economic interests in the Moroccan CSP projects – during our field visit to Ouarzazate we learnt that the majority of the mirror technology is imported from Germany.

Due to a strong common story-line, these discursive differences amongst the different actors have not proved obstructive to the development of the solar sector so far. However, this does not mean that there is no potential for conflict. Taking a look behind the scenes of the joint reproduction of discourses unveils that there are many conflicting interests at stake. Morocco's emerging solar economy appears to be an arena for hegemonic struggles, hidden behind a façade of common interests and goals. In my view, Hajer's concept lacks this long-term perspective since it does not address any potential struggles.

4.3.5 *So what about Climate Change?*

This thesis was inspired by my own astonishment given the fact that none of the main stakeholders we interviewed in Morocco addressed climate change in detail. There was a lot of very general talking about the need to push renewable energy forwards in order to contribute to climate protection. But none of the interviewees seemed motivated by a genuine concern about environmental issues. This impression was supported by the four texts I analysed.

Within the discourses, the issue of climate change is addressed rather isolated. Rothe (2014) notes in his analysis of the Desertec discourse that "climate change is taken out of its socio-economic context […] and presented discursively as an external threat to humanity" (15). Although the texts I analysed are not that drastic, it is certainly right that climate change is constructed as something *external* to society, rather than being a product of it. The only culprit who gets mentioned is the combustion of fossil fuels, though this process is presented completely detached from capitalist production and consumption processes. The MASEN document contains the most explicit references to climate change. With this strategy they

follow the rules of the game: in order to successfully request loans from MDBs, it is necessary to tick the sustainability box. Overall, the texts remain very unclear about the exact way in which the solar economy contributes to climate protection.

EM admits that there *can* be conflicts between economy and environment which is how its own importance as a bridge between the two realms is justified. Problems like air pollution or sewage problems are time and space contingent, cause and consequence are easily identifiable due to their local dimension. Even the more global issue of the depleting ozone layer could be successfully addressed by a mixture of policies and green innovation. Climate change, on the contrary, plays in a different league. Thus I would argue that EM is potentially capable of solving problems on a small scale but that it is simply not designed for dealing with the universal challenge of climate protection.

However, due to its hegemonic status, there is no real need for the texts to justify the claim that economic growth and environmental degradation can be decoupled. It is simply a common-sense assumption which the majority of people do not question. In CDA terms, this is called "presupposition" and can be used to draw conclusions about the ideological position of the author and text (Todolí 2006, 14). The texts I have analysed present it as a given that the expansion of renewable energy capacity will help to mitigate climate change. In some cases, the fact is added that this is achieved through the reduction of CO2 emissions. Apart from that, there is no further explanation on how exactly Morocco's solar economy and renewable technology generally are connected to climate change.

Ignoring this gap proves beneficial for all of the actors. EM is rooted in a capitalist paradigm that sees economic growth as an inevitable necessity. But the successful combat of climate change requires a shift of this very foundation that our entire society is built upon. If they delved deeper into climate issues, the stakeholders would, for instance, be forced to justify why the Moroccan government builds coal power plants and solar power plants at the same time, and why they nonetheless present the country's energy sector as progressive and sustainable. However, due to the scientific consensus about human-caused climate change, it is more or less obligatory for political and economic decision-makers to at least mention the topic. Isolating climate change from society is therefore a necessary discursive tactic to bind the unlikely alliance between different actors, banks, politicians and corporations and ultimately between economy and sustainability. Simultaneously, this means that casting light on this *dark side of the sun* also has the potential to reveal the inherent conflicts and contradictions, unveiling the destructive forces of ecological modernisation.

5 Conclusion

The point of departure for this thesis was the question why none of the stakeholders of Morocco's solar economy mentioned climate change as a major motivation for their involvement. In order to search for answers, I decided to look at text material in which different actors justified their engagement. My over-arching research question was: *What are the motivations driving the massive and rapid expansion of the Moroccan solar economy?*

Furthermore, I developed three guiding questions for the analysis. These questions aimed at studying the presence of ecological modernisation discourse in the texts, the strategic construction and framing of climate change, and the power struggles and unequal power relations underlying the discourses. Through the application of Fairclough's three-dimensional discourse analysis method to four different texts I found out that EM plays a lead role in the solar economy discourse. However, it is complemented by the hegemonic development discourse promoted mostly by multilateral development banks. This discourse adds a development component to EM which traditionally applies to an EU context. Concerns about climate change do certainly *not* belong to the main drivers for the expansion of the solar sector. I have argued that none of the powerful actors of the Moroccan solar economy has a serious interest in climate change mitigation. Rather, it turns out as advantageous to neglect the issue because it would raise serious questions about purpose and goal of the respective actor's engagement. Moreover, EM is theoretically not equipped to address complex and global issues like climate change due to its focus on national and regional environmental matters. The texts in question presuppose a correlation between increasing capacity of renewable energy and successful climate protection. Due to EM's status as a predominant ideology (consolidated by the adoption of the hegemonic development discourse), there is no need to further explain this. It is simply accepted as "common-sense" knowledge. Although the stakeholders of the solar economy come together in a discursive formation based on eco-modernist ideas, there are different interests at play. The analysis revealed that each of them pursues an individual mission which may sooner or later lead to a conflict of economic and political interests. Some of these missions are more compatible than others so it is hard to predict at what point the alliance might fall apart.

I believe that the case of Morocco's solar sector illustrates central issues of renewable energies today. They are equally promoted by governments, corporations, environmentalists as *the* solution to mitigate climate change. Mostly however, this solution is framed by ecological modernisation thought that sees economic growth as a necessity for human well-

being. Thus, the problem-solving approach focuses on technical solutions rather than addressing underlying structures of power, inequality, and injustice. As the rising level of CO_2 concentration in the atmosphere shows, past and present attempts to fight climate change were not successful. As long as renewable energies are simply incorporated into the current system, they will only reproduce and maintain unequal power relations instead of providing a way to mitigate climate change and facilitate social change.

Morocco's solar economy has a large potential for future research. It would be a very interesting expansion of this thesis to conduct a detailed study of how the solar economy perpetuates unequal power relations *within* the country. This could be further continued by investigating the potential of small-scale approaches to shift these power relations and thus lead to empowerment and democratisation. Surely the case opens up numerous opportunities to politicise climate change and thus to fight the roots of the crisis instead of merely trying to mitigate its consequences.

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Appendix

1) Instructions for Fairclough's text analysis (Todolí 2006)

especially by Jürgen Habermas. And Kress & van Leeuwen, on the other hand, have been involved in developing a social semiotics exploring ways of analysing visual images and paying attention to the multi-semiotic character of most texts in contemporary society.

2.1. *Fairclough's Socio-Cultural Method*

Like the functional analysis of Halliday (1978, 1994), Fairclough's system of discourse analysis has three dimensions, since discourse is seen simultaneously as: a) a text (spoken or written, including visual images); b) a discourse practice production, consumption and distribution of the text, and c) a sociocultural practice. Hence, the analysis of texts "should not be artificially isolated from analysis of institutional and discoursal practices within texts are embedded" (Fairclough, 1995a: 9).

2.1.1. Text and the analysis of texture

According to Fairclough, text analysis should mean analysis of the texture of texts, their form and organization, and not just commentaries on the content of texts. Fairclough (1989, 1992 and 1995a) and Huckin (1997) raise several questions to guide text analysis on:

a) *Vocabulary*. How are words used to show ideology? In what ways are things classified? What aspects of reality are overworded? According to Fairclough, overwording is a sign of intense preoccupation, which may indicate that it is a focus of ideological struggle. Thus, the question is how are overwording, synonymy, antonymy and hyponymy used to construct ideology? How are words chosen to develop a relationship with the reader in terms of formality of vocabulary? Are there euphemisms or metaphors? What connotations do they convey? For instance, the use of the word *protestor* instead of *demonstrator* is trying to convey a negative image of those who are against the government and corporate establishment[3].

b) *Transitivity*. What patterns of transitivity are found? The agency pattern of a text can remain at the subconscious level unless made visible by the critical reader. Thus, it is important to show who is depicted as Agent, and therefore empowered and over whom (the Affected). A transitivity feature is also the degree of nominalization. The conversion of processes into nominals has the effect of

[3] See Fairclough (1992: 185-199) for further information about wording and word meaning. See also Holmgreen (this volume) for more information on metaphor and (neo-liberal) ideology.

backgrounding the process itself by omitting information about agents of power. This effect can also be achieved by the use of passive verbs. Thus, if both nominalization and passive are used to delete agency, what is the ideological function?[4].

c) *Mood* and *modality*. How is mood enacted? Declarative, imperative or interrogative? Which values express choices of modality or, what Hodge & Kress (1988: 123) call the degree of affinity with the proposition? The modality of a text is set both with the use of specific words (verbs or prepositional phrases such as *may, might, could, will, can, must, it seems to me, without doubt* or inclusive and exclusive pronouns) and intonation patterns (speaking hesitantly, for instance) to convey the degree of certainty and authority.

d) *Interactional control features*. Which are the interactional control features of the text? These include turn-taking (the way in which talking turns are distributed), exchange system (organization of, for instance, interviews in terms of question-answer sequences), control of topics, topic change, opening and closing of interactions, formulation (ways in which earlier parts of a text or interaction are paraphrased) and so forth[5].

e) *Topicality*. Which topics are chosen to fill theme position in the clause (initial position) or which are foregrounded? For example, in a media reporting about protestors, if 11 sentences refer to protestors and three to officials, the text is clearly about the protestor's actions. And in choosing what to put in the topic position, the writer creates a perspective that influences the reader's perception.

f) *Politeness*. Which kinds of human "face wants" are enacted? Positive face (people want to be liked, understood, admired) or negative face (people do not want to be impeded by others). Brown & Levingson (1987) see politeness in terms of strategies on the part of participants to mitigate speech acts which are potentially threatening to their own face. In other words, particular politeness conventions embody particular social and power relations (Kress & Hodge, 1979)[6].

g) *Presuppositions*. Are there presuppositions or assumptions made by a speaker or writer which are not explicitly stated and which the author appears to be taken for granted? In a peace/conflict example, a

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[4] See Halliday (1985: chap. 5) and Fairclough (1992: 177-185) for further information about transitivity and nominalization.

[5] See Fairclough (1992: 152-158) for further information on this topic. See also Tanaka (this volume).

[6] See Delbene (this volume) for further information on politeness.

demonstrator sign such as *give peace a chance* presupposes that the government is presently not doing so. The distinction of what is explicit and implicit in a text is of considerable importance in socio-cultural analysis as it can provide valuable information about what is taken as given, as common sense, and gives a way into ideological analysis of texts, since ideologies are mostly implicit assumptions (Fairclough, 1995a: 6). Fairclough (1995b: 106-107) establishes a scale of presence in a text, running from absent to foregrounded: absent / presupposed / backgrounded / foregrounded. Thus, if something is explicitly present in a text, it may be informationaly foregrounded or backgrounded.

h) *Ambiguity*. Are there insinuations or suggestive statements carrying double meanings, so that when the statement is challenged, the author can deny any culpability? This ability gives the originator a lot of power. Ambiguity or ambivalence can also be a useful device in the hand of less powerful participants for dealing with those with power, but those with power may respond by enforcing explicitness by asking questions such as *Is that a threat?* (Fairclough, 1989: 136)

2.1.2. Discourse practice and orders of discourse

Discursive practice refers to the set of spoken and unspoken rules, norms and mental models of socially accepted behaviours that govern individuals' thought, act and speak in all the social positions they occupy in life. They involve ways of being in the world that signify specific and recognizable social identities: students, mothers, members of an ethnic, gender or sexual group, etc.

The set of discursive practices associated with a particular social domain or institution, such as a lecture, a counselling or an informal conversation in an academic institution, and the boundaries and relationships between them are called, following Gramsci, *orders of discourse*. According to Fairclough (1995a and 1995b), texts circulate within orders of discourse and are transformed within the process of distribution. For instance, in mass media there are chains connecting public orders of discourse (politics, law, science, etc.), media orders of discourse (documentaries, news, etc.) and orders of private discourse (the domain of reception). An example of transformation is what Fairclough (1995a: 19) calls the *conversationalization* of public or institutional discourse, what he sees as a colonization of public orders of discourse by the discursive practices of the private sphere. In many media, instance, in documentaries dealing with scientific or technologic subjects, the public language presents properties of the conversational or colloquial

2. Material for CDA

2.1. KfW: Project information Ouarzazate

KfW Development Bank

»» Project Information

Implemented by: **KFW**

Solar Energy - Morocco

Power from the desert

In 2013, Morocco achieved economic growth in excess of 4 % — a country on the move. Demand for energy is being driven by investments in infrastructure and the establishment of industrial companies. To date the country has largely been dependent on importing fossil fuels at high prices.

Context

The Moroccan government is pursuing an ambitious energy strategy. The aim is to develop solar, wind and hydropower generation capacities to 2,000 megawatts each by 2020. The portion of installed energy generation capacity based on renewable energies will therefore be 42 %. Beyond the region as well, Morocco is thus a pioneer in renewable energy. This shift to renewable energy sources will contribute to global climate protection and the security of the country's electricity supply.

As part of the Financial Cooperation with Morocco, KfW Development Bank is working on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ) and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), which, along other international donors, are financing one of the world's largest solar power complexes in Ouarzazate.

Project approach

Ouarzazate is a strategically well-placed tourist location in South Morocco — the surrounding area with its rugged canyons and copious amounts of sunshine has served as the set for classic films such as Lawrence of Arabia. Here on the edge of the Sahara the radiation intensity of the sun reaches 2,500 kilowatt-hours per m²

and year, making it a favourable location for the first large-scale solar complex in North Africa. It will be one of the world's largest power plants with an output of up to 560 megawatts generated through four individual power plants covering an area measuring 3,000 hectare. Different solar technologies will be used in the complex. Two parabolic trough power plants, a tower power plant and a photovoltaic power plant are to be constructed. Thanks to their storage capacity, the three solar thermal power plants will also be able to supply electricity during the evening hours.

The building works for the first power plant "Noor I" (Arabic for "light") began in June 2013. The technology

Project name	Noor I - III
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)) Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Country/Region	Morocco
Lead executing agency	MASEN (Moroccan Agency for Solar Energy)

As at: 02/2015

2.2. AfDB is financing a real sector in Morocco: Ouarzazate solar power plant takes shape

With a team of African Development Bank experts, at the margin of the various Bank events in Morocco, the Vice-President in charge of Governance, Agriculture and Human Development, Aly Abou-Sabaa, on Thursday, October 16, 2014 visited a Bank cherished solar power plant project (NOORo1) in Ouarzazate, which energy specialists are calling "the world's largest using concentrated solar power technology."

The Vice-President, accompanied by the Bank's Resident Representative in Morocco, Yacine Fal, the project task manager, Adama Moussa, and a Bank Communication expert, held a technical meeting with the project implementing unit, the Morocco Agency for Solar Energy (MASEN). NOORo1 consists of the construction of the one thermo solar plan with a gross capacity of 160 megawatts, using solar energy collected in a field of mirrors (parabolic collectors) as the primary energy source. It is the first phase of the 500 MW Ouarzazate solar complex project, which is being built on an area of 3,000 hectares.

NOORo1 is structured on approximately 700 hectares, as a public-private partnership (PPP) and includes a system of thermal energy storage using molten salts, which allows the power generation even when there is no solar radiation, to effectively function at full capacity for three hours.

In engaging in this project, the Bank Group has contributed in providing an appropriate and long-term response to factors that undermine inclusive growth in the continent: lack of infrastructure and limited access to energy. With the effective implementation of the Ouarzazate solar plan, Morocco will be on track to achieving these goals as outlined by the African Development Bank.

"Energy is vital to efficiently drive African economies and its impact is recognized. This plant is an important step in Morocco's green and inclusive growth strategy, and should be replicated all over the continent," Abou-Sabaa said, adding: "Businesses and industries permanently need power to run smoothly. And any African nation to grow to maturity and become a force to reckon with in upcoming years should develop it."

Moussa also affirmed that "this huge solar project will positively impact beneficiaries in the project zone, as well as the entire country, in terms of productivity for SMEs and SMIs [small and medium industries], and job opportunities for the youth. It will help diversify the Kingdom's energy production sources a well." During the visit, the Bank team noticed the presence of more than 1,700 workers actively performing on the project site, of which 90% are Moroccans. More than 30% of all the workers are natives of Ouarzazate region.

The project is structured as a public-private partnership (PPP) between MASEN and a consortium led by the Saudi International Company for Water and Power (ACWA Power).

It is the third of its kind that the AfDB is financing in the country's renewable energy sector after the Ain Beni Mathar Solar Power Plant and the Integrated Wind, Water and Rural Electrification Project.

The official launch of the first phase of the Ouarzazate solar power plant took place on May 10, 2013 in the Moroccan rural municipality of Ghessate (Ouarzazate Province), was attended by King Mohammed VI and representatives of the Moroccan Agency for Solar Energy (MASEN) and the African Development Bank (AfDB) Group.

The AfDB has financed the first phase of the works, with EUR 100 million, from its own resources, in addition to a concessional loan of USD 100 million granted through the Clean Technology Fund (CTF).

The Bank plays a very prominent role in advancing Morocco's development agenda, with a cumulative commitment in the country's energy sector is estimated at EUR 1.35 billion (15 billion dirhams) out of a total commitment of EUR 10 billion to all economic sectors.

The opening of the Bank's office in the country (MAFO) in 2006 reinforces the institution's presence on the ground, and strategically positions it to step up its policy dialogue, technical assistance and capacity-building operations in the country. "The Bank will continue to engage in charting the way forward in Morocco," Yacine Fal said.

2.3. First solar project in North Africa receives strong European support of €345m*, representing more than 50 per cent of the total cost of the project (EIB)

A financial commitment of €300m was signed today in Marrakech by the European Investment Bank (EIB), the Development Agency for France (AFD), KfW Entwicklungsbank (KfW) and MASEN, promoter of the Ouarzazate solar complex in Morocco. This loan package was facilitated by a €30m grant contribution from the European Union in December 2011.

This European financing is supporting the first phase of the Ouarzazate solar complex, which involves the construction of a parabolic-trough concentrated solar power (CSP) plant with a gross installed capacity of between 125 and 160 MW and a minimum energy storage capacity of 3 hours. The project will be the first under the Moroccan Solar Plan and the largest project so far under the Mediterranean Solar Plan, whose aim is to deploy 20 GW of additional renewable energy capacity by 2020.

The Ouarzazate solar complex aims to reach a potential capacity of 500 MW, which is equivalent to powering a city of 250,000 inhabitants. Once fully developed, this solar complex will be one of the largest in the world. In its first phase alone, it will avoid the emission of 110,000 tonnes of carbon dioxide per year while developing renewable energy and energy security in Morocco, as well as creating jobs and promoting an integrated local solar industry.

EIB Vice-President Philippe de Fontaine Vive commented: *"As the lead European financial institution on this project, the EIB is proud to contribute both its financing and its technical expertise acquired across Europe for all sources of renewable energy. The first phase of Ouarzazate is a milestone for the success of the Mediterranean Solar Plan in the region. It provides a strong and green signal for the future in terms of technology, economic and energy development, and job opportunities."*

The Ambassador Head of the EU Delegation to Morocco Eneko Landaburu said: *"The EU and Morocco share similar opportunities and constraints when it comes to energy, which makes it important to support the progressive integration of our respective energy markets, as well as the joint development of renewable energy. Today, through the grant provided by its Neighbourhood Investment Facility and the loan provided by the European Investment Bank, the European Union is strongly supporting the first flagship project under the Moroccan Solar Plan."*

"The implementation of this power plant will enable the breakthrough of low-carbon and climate-friendly technology in Morocco. At the same time, the country can reduce its dependence on energy imports. With this power plant we are coming a big step closer to realising the ambitious energy plan of supplying many of the Northern African countries with renewable energies," said Dr Norbert Kloppenburg, Member of the Executive Board of KfW.

The project is in line with the objectives of European Union and the strategic objectives of the FEMIP mandate in terms of environmental sustainability and climate change mitigation in relation to energy demand.

The first phase of the Ouarzazate solar complex will be operational in 2015.

*European support:

- *EIB: €100m of a total of €300m (EIB Board approval on 13 December 2011)*
- *EU: €30m (grant)*
- *AFD: €100m*
- *KfW/Ministry for Economic Cooperation and Development (BMZ): €100m*
- *KfW Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU): €15m*

2.4. Masen (Les énergies renouvelables, un secteur d'avnenir)

MASEN I

masen
Moroccan Agency for Solar Energy

Le programme intégré d'Energie Solaire, une priorité nationale d'une envergure internationale

« …il faudrait susciter une forte adhésion en faveur de la mise en oeuvre de la stratégie d'efficacité énergétique, notamment à travers le développement des énergies renouvelables et propres. Pour ce faire, il importe de poursuivre l'exploitation optimale de l'énergie éolienne et de généraliser l'implantation des stations y afférentes dans toutes les régions appropriées, sur le Royaume.

De même qu'il est nécessaire de donner une forte impulsion au décollage de notre grand projet de production d'énergie solaire, pour lequel nous avons institué une agence spécialisée et affecté des investissements colossaux. Nous appelons donc à l'intensification des efforts pour promouvoir des partenariats fructueux, en vue de la réalisation de ce projet pionnier, d'une envergure internationale… »

*Extraits du Discours de SM le Roi à la nation à l'occasion de la fête du Trône- Tétouan (30/07/2010)

Le Maroc bénéficie d'un gisement solaire considérable d'une capacité de 20 000 MW, avec plus de 3 000 h/an d'ensoleillement.

Capitalisant sur cet atout, le Maroc a lancé, en novembre 2009, un programme intégré et volontariste de production d'électricité à partir de l'énergie solaire. Ce programme a pour objectifs :
- d'optimiser le mix énergétique tout en réduisant la dépendance aux importations d'énergie primaire ;
- de satisfaire une demande domestique croissante ;
- d'encourager le déploiement d'une industrie locale sur le secteur des énergies renouvelables ;
- d'assurer la promotion de la recherche et développement et de la formation liées à ces activités ;
- d'établir le Maroc en tant que premier développeur nord-africain de production solaire à grande échelle ;
- et de minimiser les émissions de carbone

Le programme intégré d'Energie Solaire, d'un coût global estimé à 9 milliards de dollars, vise l'installation d'une capacité totale de 2 000 MW, en puissance solaire connectée au réseau (centrales solaires), répartie sur 5 sites d'ici 2020. La mise en place de ces centrales permettra d'économiser un million de tonnes équivalent pétrole et d'éviter l'émission de plus de 3,5 millions de tonnes de dioxyde de carbone par an.
Le programme intégré d'Energie Solaire est ainsi en phase avec la tendance internationale, qui face à une demande énergétique croissante et au défi du réchauffement climatique, place les énergies renouvelables et particulièrement l'énergie solaire au rang de ses priorités.
Le Maroc entend devenir ainsi un acteur de référence dans le solaire.

www.masen.ma

MASEN II

Présentation de MASEN
-Moroccan Agency for Solar Energy-

La mise en œuvre du Plan Solaire a été confiée, en vertu de la loi marocaine n°57-09, à la Moroccan Agency for Solar Energy (MASEN), une société à capitaux publics créée en mars 2010.

Organisation

MASEN est une société anonyme à directoire et conseil de surveillance, doté d'un capital social initial de 500 millions de dirhams, souscrit à parts égales par l'Etat marocain, le Fonds Hassan II pour le développement économique et social, l'Office National de l'Electricité (ONE) et la Société d'Investissements Energétiques (SIE).

Objectifs

MASEN a pour objectif la réalisation du programme intégré d'Energie Solaire soit, 2000 MW à l'horizon 2020 et ce, à travers la mise en place du programme de projets intégrés de production d'électricité à partir de l'énergie solaire comprenant :
* Des centrales de production électrique solaire ;
* Des réalisations et activités connexes contribuant au développement des zones d'implantation et du pays.

Missions

La mission de **MASEN** s'articule autour de quatre axes fondamentaux :

* Etude et conception des projets de développement solaire intégrés ;
* Promotion, placement, financement et réalisation des différents projets ;
* Contribution au développement de l'expertise, de la recherche et de l'industrie solaire ; et
* Pilotage et suivi du Programme de projets intégrés de production d'énergie solaire.

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MASEN III

Chantiers complémentaires portés par MASEN : Intégration industrielle, Recherche & Développement et Formation

De par ses missions, Masen doit également contribuer à l'émergence d'une industrie liée aux énergies solaires et accompagner le développement d'expertises techniques et humaines dans le domaine. Dans ce contexte, Masen est considéré comme un acteur clé dans le développement de l'intégration industrielle, de la Recherche & Développement et de la formation liés à ce secteur.

Intégration industrielle

Afin d'encourager la création de filières productives et compétitives dans le domaine des énergies renouvelables, Masen œuvre pour la définition et la mise en œuvre d'une offre d'intégration industrielle formalisant les mesures incitatives proposées par le Gouvernement.

Compte tenu des débouchées offerts par ce projet intégré, Masen s'engage également à encourager la mise en place d'industries à travers des incitations/exigences à considérer lors de la réalisation des différents projets de centrales solaires.

Recherche & Développement

La Recherche et Développement revêt une importance capitale, à la fois pour la mise en œuvre des centrales et de l'intégration industrielle. Cet intérêt est principalement motivé par les évolutions que connaît le secteur de l'énergie solaire au niveau international et par l'ambition du Maroc de devenir un acteur de référence dans ce domaine.

De par ses missions, Masen contribuera au développement de la recherche appliquée et à la promotion des innovations technologiques liées à l'énergie solaire, à travers :

* La définition et la priorisation des thématiques, des projets de R&D relatifs à l'énergie solaire ;
* La contribution à la recherche de partenariats pour les projets de R&D solaires ;
* La contribution au financement des projets de R&D solaires ;
* La conception et contribution au développement, le cas échéant, de plateformes de recherche sur un ou plusieurs sites

Formation

Le facteur humain constitue un facteur clé de succès du Projet Solaire. La mise en place de la capacité prévue nécessite des ressources suffisantes et hautement qualifiées dans le domaine

Pour ce faire, Masen participe activement à la création des filières de formation spécialisées en énergie solaire et ce à travers :

* la définition des besoins en formation et des compétences requises ;
* la mise en place de partenariats avec les universités, les écoles d'ingénieurs et les centres de formation professionnelle pour mettre en place des modules de formation adaptés ;
* la promotion des filières de formation relatives à l'énergie solaire auprès des étudiants et des entreprises.

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MASEN IV

Les 5 sites du projet intégré d'Energie Solaire

La première phase du programme intégré d'Energie Solaire est le développement d'un complexe d'énergie solaire de 500 MW à côté de Ouarzazate.

Le site retenu pour le complexe d'énergie solaire de Ouarzazate s'étale sur une surface d'environ 2 500 ha. Le site se situe à près de 10 kilomètres à l'Est-Nord-Est de Ouarzazate et à environ 4 kilomètres au Nord du Barrage Mansour Ad-Dhabi.

Le Programme de Ouarzazate sera développé en plusieurs phases. La première phase se déploiera selon le modèle de production concessionnelle (« IPP ») établi avec succès au Maroc et comporterait une ou plusieurs centrales d'une capacité minimale de cent vingt cinq mégawatts (125MW).

La première phase du Programme de Ouarzazate sera constituée d'une ou plusieurs Centrales Thermo-Solaires, avec des capacités de stockage thermique. La mise en service de cette première phase est prévue pour le début de l'année 2014.

Les prochaines phases, dont au moins une sera dédiée aux technologies photovoltaïques, seront lancées avant la fin de l'année 2012 de sorte que la capacité globale projetée de 500 MW soit disponible au début de l'année 2015.

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MASEN V

Conventions parachevant le cadre institutionnel de mise en œuvre du projet intégré de production électrique d'origine solaire

Comme stipulé par la loi 57-09 portant création de MASEN, la première convention à signer entre l'Etat, représenté par le Premier Ministre, et MASEN, représentée par le Président de son Directoire, définit les modalités, les exigences techniques et les mécanismes d'équilibre financier pour la réalisation du plan solaire et des projets de production d'électricité d'une capacité minimale de 2000 mégawatts à l'horizon 2020 sur 5 sites de production.

La seconde convention fixe les règles et conditions pour la fourniture, le transport et la commercialisation de l'énergie électrique produite dans le cadre de ce plan. Elle sera signée par Monsieur le Ministre de l'Economie et des Finances et Madame la Ministre de l'Energie, des Mines, de l'Eau et de l'Environnement, conjointement pour le compte de l'Etat, par le Directeur Général de l'Office National de l'Electricité et par le Président du Directoire de MASEN.

« C'est à Ouarzazate, premier site du projet intégré de production électrique d'origine solaire que sont signées les deux conventions. »

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MASEN VI