

# Project Report



## **Visions of renewable energy futures: co-assessing lessons for Morocco**

**LINKS**

**Linking climate change mitigation, energy security and regional development in climate and energy model regions in Austria**

**Work Package 3 - Final Report**

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## Table of Content

<b>1. Introduction</b> .....	3
<b>2. Background</b> .....	5
<b>2.1. The Austrian Energy Climate Model Regions</b> .....	5
<b>2.2. Case study description Morocco</b> .....	8
<i>Energy sector at the province of Tata</i> .....	10
<b>3. Methodology</b> .....	12
<b>3.1. Theoretical approach: Socio-technological imaginaries</b> .....	12
<b>3.2. Empirical data collection process</b> .....	13
<i>Desk research – Scoping study</i> .....	13
<i>Field Mission 1 – Interviews and Background Talks</i> .....	14
<i>Field Mission 2 – Stakeholder forum and focus group discussion</i> .....	15
<b>3.3. Data analysis</b> .....	17
<b>4. Findings and Discussion: Articulating the meanings of “green modernization”</b> .....	18
<b>4.1. Meanings of solar energy and imaginations of the future</b> .....	18
<i>The global-environmentalist discourse</i> .....	19
<i>The national-developmental discourse</i> .....	20
<i>The local socio-economic transformative discourse</i> .....	21
<b>4.2. Political, economic and geographic orders</b> .....	23
<i>Orders from the perspective of the center</i> .....	24
<i>Orders from the perspective of the province</i> .....	25
<i>Orders from the perspective of the communes</i> .....	26
<i>Orders of Participation</i> .....	28
<b>5. Conclusions: energy transitions and the conditions for CEM policy transfers</b> .....	30
<b>6. References</b> .....	33
<b>7. Annexes</b> .....	38
<b>7.1. Partners for interviews and background talks</b> .....	38
<b>7.2. Participants of the Stakeholder Forum in Tata (18. October 2017)</b> .....	38
<b>7.3. Participants of the Focus Group Discussion in Tata (19.October 2017)</b> .....	39
<b>7.4. Morocco’s energy policy hierarchy</b> .....	40

## 1. Introduction

Energy transition towards further deployment of renewable energy sources (RES) is on the agenda of both, industrial and developing countries, as a necessary step to mitigate climate change, decarbonize energy generation, to achieve energy security and to increase energy independence (World Energy Council 2014). The transfer of RES technologies, which includes not only turnkey power stations but also the transfer of the governance models, needed for successful implementation of technology in the hosting society and its long-term usage with as little impacts as possible on local communities and benefits for hosting countries at the same time, is considered a key in facilitating climate change mitigation efforts around the globe (Karakosta et al. 2010; Metz et al. 2000). Particularly in developing countries there is growing interest in the transfer of RES technologies as they are often considered to be drivers for modernization and socio-economic development (Romer 1990; Gruber et al. 2017).

In 2009, Morocco initiated an ambitious energy transition program. The goal is to cover 42% of its power generating capacity with RES by 2020 and 52% by 2030 (RES Med). Morocco's bold and ambitious plans are often highlighted by various organizations in the international context as a model for deployment of RES in developing countries (Gruber, Günay et al. 2017). Morocco's energy transition program includes the construction of a number of large and medium scale solar plants until 2020. Their planning and construction is often managed by MASEN (Moroccan Agency for Sustainable Energy), a share holding company with public capital involvement. The large-scale solar energy plants are hoped to increase Morocco's energy production, decrease the country's dependence on fossil imports and even enable the export of energy to European and African neighbors.

MASEN started operating Noor O I in early 2016. Noor O II, Noor O III and Noor O IV are currently under construction. In addition, there are also Noor L PV I and Noor B PV II and Noor Tafilalt PV under construction. MASEN is preparing to start exploiting Noor O II and Noor O III in 2018. The Noor projects involve international financial participation. As for instance, the financing of Noor O II and Noor O III comes largely from Acwa Power, an international company with headquarters in Riyadh. Credits are generally secured by international development banks as well as Moroccan commercial Banks

Noor O 1 is situated in Ouarzazate in the East of the country. Currently Noor Tata is in the planning phase. MASEN, a public-private company has played a leading role. MASEN is responsible for the planning and implementation of most of the Noor plants. It also coordinates international financial participation. In case of Noor 1 MASEN carried out a two-stage competitive bidding, which aimed to first establish the technical and financial set-up of the bidders and then choose between them.

Noor Tata will be situated in the commune of Akka Ighen. The site is estimated to have a size of 4000 ha. Planning is made exclusively on the national level, local and provincial stakeholders are only involved as part of a communication strategy.

The LINKS<sup>1</sup> (Linking climate change mitigation, energy security and regional development in climate and energy model regions in Austria) project has identified structural differences among the Austrian Climate Model Regions (urban, semi-urban and rural), human factors such as the willingness to use RES and to pay for them, as well as differing public acceptance and participatory governance measures and has assessed the question of the transferability of these insights to a setting as such Morocco's Tata region.

**The project was guided by three overall objectives:**

- to examine the economic feasibility of simultaneously pursuing climate-mitigation, energy autarky and regional development with investments in renewable energy in Austria's model regions.
- to assess the social and political commitment, and the drivers of this commitment (e.g., participatory governance) to Austria's goals of climate-change mitigation, energy autarky and regional development
- to assess (with Moroccan stakeholders) the relevance and lessons from Austria's climate and energy model regions for RES development in Morocco.

Thus, the first two work packages identified structural differences among the Austrian Climate Model Regions (urban, semi-urban and rural), human factors such as the willingness to use RES and to pay for them, as well as differing public acceptance and participatory governance measures. The project team identified the two CEM regions of Güssing and Freistadt as potential models to be transferred to Tata. These two Austrian CEMs illustrate the two opposite poles of different governance rationales. While the establishment of a CEM in Güssing was mainly initiated by the former mayor in a top-down process and enjoyed strong political support on the national and regional levels, Freistadt represents a bottom-up approach which has been located at the grassroots level and is informed by more participatory and flat governance structures.

Similar with Morocco, energy transition has been also a hot topic in Austria. Decision-making and governance structures in regard to energy policies have reflected the country's federal system. The Austrian model of Climate and Energy Model Regions (CEM) has gained much international attention. It represents a decentralized policy approach to climate mitigation goals. Each climate and energy model region pursues the goal of becoming independent from fossil fuels by 2050 and thereby contributes to the overall national climate goals.

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<sup>1</sup> LINKS was funded by the Austrian Climate Research Program in the framework of ACRP 7, 2015-2018, [http://www.iiasa.ac.at/web/home/research/researchPrograms/RISK/LINKS\\_project.html](http://www.iiasa.ac.at/web/home/research/researchPrograms/RISK/LINKS_project.html)

The decentralization of climate goals, linking energy transition with regional development has reflected the country's federal administrative and political structure.

Work Package 3 (WP) has dealt with the assessment of the transferability of these insights to a setting such as Morocco's Tata region. WP3 analyzed the opportunity structures for renewable energy in Morocco, identified the relevant stakeholders on the national, regional, provincial and local levels, and assessed the decision-making structures and captured discourses and expectations of local stakeholders.

Tata was chosen as a case study, due to personal contacts with provincial and regional authorities as well as with civil society organizations. In Tata, there is a high degree of awareness among local officials, politicians and civil society organizations and their interest in learning from Austrian experiences. Despite large natural resources, socio-economic development in Tata has been rather low.

The province is situated in the country's southeastern part. Economy in Tata is characterized by small-scale agriculture on the basis of oasis systems. The region faces desertification phenomena, increasing water scarcity and losses of both vegetal and animal biodiversity, as well as climate change risks such as flooding and heat waves. Tata has been chosen as a site for a large-scale energy production facility, as well as a smaller production plant, due to its geography and solar irradiance.

This report brings the insights from research within WP3 together and presents a structured analysis of renewable energy discourses in Tata.

## **2. Background**

### **2.1. The Austrian Energy Climate Model Regions**

Austria's energy transition strategy is a decentralized one. As much as this often entails strong involvement and ownership on societal level, as much its success is dependent on a complex set of diverse political entrepreneurs on different political and administrative levels (national-federal-district and local).

In contrast to Morocco, Austria has a federalist political structure. Most of the energy relevant issues are regulated by federal law, but the federal states are highly involved in the specification and implementation of these laws. The country's energy strategy and measures for the reduction of emissions (including investments in renewables) are elaborated in collaboration between the federal government and the federal states. The measures taken are brought in line with the climate and energy package issued by the EU in 2008

which sets besides the promotion of renewables and the increase in energy efficiency the goal to reduce emissions until 2020 by 20 % (compared to 1990).

The Austrian energy strategy also targets lower administrative and political units, supporting Austrian municipalities and regions to become independent from fossil fuels and increase their share in renewable energies. Driven by the former minister for environment, the Austrian government strongly supported the establishment of the so-called “Klima- and Energiemodellregionen” (Climate Energy Model - CEM) and “Klimaaktiv Gemeinden”. The decision to form a model region is taken on the local level. The national level just provides an incentive system (cf. BMLFUW).

Stakeholders from all levels of governance are involved into this process. At the national level they are represented by the Climate and Energy Fund (in turn funded by the Austrian Federal Ministry for Transportation and Ministry of Agriculture), scientific partners and universities. At the regional level, they are represented by the public regional development agencies, such as the LEADER regions funding program of the EU, regional management associations, the chambers of agriculture as well as energy suppliers and private partners. On the local level, mainly members of the municipalities, energy groups and local initiatives are important stakeholders (Riegler et al., 2016).

This decentralized decision-making structure cannot be explained solely by the country’s historically grown administrative federal structure, but also by the Austria’s socio-technological imaginary. Referring to the rejection of nuclear power and agro-bio-technology by a majority of Austrians Ulrike Felt (2015, p. 3) defines the Austrian imaginary as an “imaginary of the absent”. According to Felt, Austrian national identity is based on “keeping a set of technologies out of the national territory and becoming a distinctive nation precisely by refusing to embrace them” (2015, p. 6-7). She further asserts that in Austria people need to perceive a technology as “local” in order to embrace it, rather than defy it, due to a conspicuous conduct towards some technologies, which might have a negative impact on collective values such as “untouched nature” and agriculture (ibid.). Thus, national politics take two points of the socio-technological imaginary of Austria into consideration. First, the local level is not “forced” to adopt and implement renewables through a law or other provisions instead incentive structures are created which enhance local decision-making. Secondly, renewable energy is part of the national imaginary, as renewables appear to be “natural” and “nature-friendly” which is important for Austrian national identity (ibid. 15-16).

Regions, which are taking part in the “Klima- and Energiemodell”-project, aim to achieve a greater share of energy independence and even energy autarchy from imported fossil fuels. In the majority of cases this goal is implemented through a combination of top-down and bottom-up approaches, which encourage civil participation and stakeholders engagement through several initiatives (Truger et al. 2016; Riegler, Neumüller et

al. 2017). CEMs are organized as associations. Each CEM has a CEM manager who plays a key role in developing plans for renewable energy, civil participation and so on (Truger et al. 2016, p. 2). The differences between these CEM's lie in their structure, their goals and the different points of departure.

The CEMs in Güssing and Freistadt are examples of different approaches to self-sufficiency. The CEM Freistadt can be defined as a "rural cluster" –with little population density, a high potential of electricity self-sufficiency (125,3%) and a high heat self-sufficiency (83,5%) (Truger et al. 2016, p. 13). The Freistadt model builds on strong financial participation and involvement of citizens and municipalities. Citizens pay in and become shareholders of the HELIOS company which in return constructs and maintains photovoltaic cells on the roofs of single households (Miesenberger and Klepatsch 2011, p. 36). There is also a clear focus on awareness raising and increasing energy efficiency. Activities include the establishment of so called climate schools, awareness raising campaigns, renovation workshops and other events.

In comparison to Freistadt, the CEM Güssing has mainly relied on subsidies (EU and national level) and external private funding, although there have been also attempts to include broader parts of the citizens. The financing of CEM Güssing includes different sources, 20 % are capital resources, 30 % are subsidies and 15 % are external funds (EZEE 2016, p. 118).

Güssing was an economically poorly developed region in the South East of Austria. In 1990, a model to achieve 100% self-maintenance regarding fossil resources was proposed by local stakeholders. In consequence, the community of Güssing has taken various measures in the field of energy efficiency. Later, the Europäische Zentrum für Erneuerbare Energien Güssing GmbH which was established in 1996, decided to expand the model over the whole district of Güssing. This was accomplished by 2004 (EZEE 2016, p. 6-7). Ever since, the "Europäische Zentrum für Erneuerbare Energie" (the European center for renewable energy) and the "Verein zur Förderung der Lebensqualität in der Region Südburgenland plus" (the association for the support of life quality in the region of Southern Burgenland plus), together with the mayor of Güssing have been major drivers for energy transition in the region. According to the ökoEnergieland website, citizen participation has been mainly realized in field of photovoltaic for single households<sup>2</sup>. Compared to Freistadt, which has a bottom-up approach, Güssing has a stronger focus on the economic development of an economically underdeveloped region.

Before we analyze how Austrian CEMs – or some of their particular elements – are transferable to Morocco's Tata province let us take a closer look at Morocco and its turn to renewable energy infrastructure policies.

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<sup>2</sup> <http://www.oekoenergieland.at/index.php/172-oekoenergielandtourismus-glasing>

## 2.2. Case study description Morocco

Morocco is one of the few states in the Maghreb region with only few fossil fuel resources and reserves. More than 90 % of the country's demands are covered by imports. In 2007 and 2008 the significant rise in the price of fossil fuels put the Morocco's economy under pressure. This was considered to be one of the major triggers for elaboration of the energy strategy in 2009 and a more balanced mix of the country's energy supplies (Steinbacher 2015, p. 11). The strategy's goal is to meet 42% of Morocco's share of renewables from the installed power capacity by 2020 (the 42% are hoped to assure 25% of the annual power generation by 2020), and to increase this share to 52% by 2030. Investments into renewable energy production are seen as an engine for the country's general development.

The Morocco's economic development plan harmonized with climate friendly energy production has been promoted as Green Growth. King Mohamed VI is considered to be one of the major drivers if not to say the patron of this national plan (Gruberet al. 2017). Despite of reforms and a constitutional reform, the Moroccan king still holds vast executive and legislative powers. His authority and strong legitimation build on the historical role of the royal Alaoui dynasty. Morocco can be defined as a "linchpin monarchy", where the personality of the king and not his family or court stands in the very center of the system. In such systems, the monarch rules directly and indirectly through the state institutions.

The king's strong commitment to energy transition has facilitated the adoption and promotion of this strategy at all levels of the state administration (including the regional and local levels) and among civil society. The COP22 Conference, held in Marrakesh in 2016 has functioned as a further driver for the Morocco's ambitious energy transition plan and helped to build the country's new image. However, particularly implementation of single projects depends on the support of single social and political entrepreneurs. Therefore, the will and inclusion of elites, decision makers on different levels as well as of civil society is essential for the success of Morocco's energy transition.

In the centralized political systems, such as Morocco, strategic decisions are almost exclusively taken at the higher levels of the state. Green Growth has been defined as a national strategy, which is implemented at the different levels of the state. The aim of the Green Growth through renewables is to decrease the country's dependency on foreign suppliers, to create direct, indirect and induced jobs, to make impulses for prosperity and to maintain stability in the country. Moreover, the focus on renewable energy bestows upon the monarchy a modern image. Morocco also aims to transform its energy transition into a soft power and function as a model for others in North Africa and Africa (Steinbacher 2015, p. 8). The king's strong support for energy transition has facilitated and streamlined the decision-making processes on energy transition.

The Morocco's development strategy in the field of renewable energy production reflects the collectively shared and institutionally performed vision of national development – or the “socio-technical imaginaries” (cf. Jasanoff 2015), a concept on which we will expand later (see Chapter 3.1.). Accordingly, among broad parts of society, including decision makers, representatives of the state administration as well as civil society, investment in renewable energy technology is expected to bring economic development (industrialization, job creation), stability and security (reduction of energy dependency and guaranteeing supplies). One can hold that Green Growth and the imaginaries connected therewith feed into a common national project oriented towards the future, stimulating optimism and balancing social, regional and other differences and interests.

As part of the Green Growth strategy, the government has adopted the Moroccan Solar Plan. The Noor solar plants are key elements of the solar plan. They include the construction of a number of large- and medium scale solar plants until 2020, at different sites, mainly in the region of Ouarzazate, and in the province of Tata. Tata has been chosen as a site for Tata three solar energy projects due to its geography and solar irradiance.

Situated in the southeast of the country, Tata is home to different natural resources. The population of Tata province is divided between 39060 inhabitants in urban areas and 82556 inhabitants in the rural areas. In 2014, 30.4% of the total population in Tata were younger than 15 years old. This demonstrates the importance of youth share among the total population in the province.

In consequence of the administrative reform of 2015, Tata was integrated into the Souss-Massa region. The province has dedicated social infrastructures for youth population such as youth houses, where they could practice sports and joined sportive clubs. However, the province lacks high education institutions such as universities. Due to poor economic development and few job opportunities, the province has witnessed a high rate of youth emigration. Many young people leave the province for larger cities such as Marrakesh, Casablanca and Rabat to pursue higher education and/or to find jobs. Outgoing migration remains one of the features of this province, notwithstanding that it is not in the same intensity as it is in the neighboring provinces Zagora and Ouarzazate.

While emigration mainly concerns young males, women often stay in the province. Most economic opportunities for women exist in the tapestry industry, and to a lesser degree in the agricultural activities within the oases systems.

There is a network of primary and secondary schools in Tata. However, the province is lacking a faculty or a university as well as sufficient centers for vocational training. In preparation for the solar projects to be con-

structured in Tata, the provincial council, and the commune of Tata are working in cooperation with an international cooperation program and the national “Office de la Formation Professionnelle et de la Promotion du Travail” to set up a vocational training center on the thematic of electricity, renewable energy and energy efficiency.

The main sources of employment in Tata remain agriculture, public administration, ministry of education, mining and commerce. There is little private investment in the region and compared to other regions in Morocco tourism has hardly developed. There are only few touristic facilities in Tata.

Arable land in the province of Tata reaches 64.150 hectares, and represents only 2.47% of the total province territory. Almost one third of this arable land is irrigated, using traditional irrigation systems. Irrigated agriculture is practiced at the level of oases systems. In these areas mainly fruit trees and vegetables are cultivated. The province of Tata is well known for few agricultural productions such as Henna, palm dates etc. However, the size of farms is usually small, ranging from a few acres to maximum 2 ha.

Animal husbandry, mainly goat, is also extensively practiced in the province. Pastoral activities remain also an important source of income for the rural population.

Notwithstanding the scarcity of water in the province and the degradation of natural environment due to climate change, agriculture is however, still considered a vital sector in terms of employment and income generation.

Artisanal industry is also an established subsector in the province. It is considered as one of the main economic activities at the province of Tata. There are almost 1500 persons working in this field, of whom 700 are women. Pottery, basketry, jewelry and tapestry are the main artisanal products produced.

The mining sector remains the most important industry in the province. The province is rich in valuable minerals such as CU, AU, LEAD, and BARYTINE. By the end of 2015, the province of Tata accounted 32 permissions for mines exploitation and 381 permissions for mines exploration. The AKKA gold mine for instance is exploited by a private company. It employs 1200m persons. The site has an annual capacity of 22,500 oz in Gold, and 9.5 million TTV in Copper. Additionally, there is also a copper mine in Agoujgal.

### ***Energy sector at the province of Tata***

There are currently no power plants in operation in Tata. The provincial power distribution network is connected to ONEE 60 KV grid. At the level of Tata’s province, there are 1012 km of medium voltage grids, 667 km of low voltage grids.

While Noor Tata, planned in the commune of Akka Ighen will mainly produce for the national network, the smaller plant Noor Tata PV, planned in Taghmoute, will contribute strengthen the energy supply of the Souss-Massa region. In addition to these two state-led initiatives, there is also the PV Foug Lahcen solar energy project in the commune of Foug Lahcen. Different from the other two plants, this is a project, based on the private initiative of the former mayor of the commune.

### **Noor Tata**

The Noor Tata Solar complex is under development by the Moroccan Agency for Sustainable Energy with a projected capacity of 800 MW. Noor Tata will be developed with hybrid technology plants, combining CSP and PV. The solar energy plant will be situated in the commune of Akka Ighan, about 60 km from Tata-center. The power plant will cover a total area of approximately 4000 hectares.

The construction of the solar power plant is to be launched after 2020. So far, the Moroccan Agency for Sustainable Energy is conducting studies related to this project such as geo-technical studies, environmental and social impacts studies, hydrological studies, solar resources assessment and analysis.

Noor Tata will be developed following a competitive tendering process to select developer(s) for public private partnership project under an Independent Power Producer (IPP) scheme. The electricity produced, will be sold to the national utility within the Power Purchase Agreement (PPA) framework for 25 years.

### **Noor Tata PV**

Noor Tata PV is being developed by the National Utility ONEE as part of the Noor Atlas program. The plant is planned in the commune of Taghmoute. This program entails the construction of eight photovoltaic plants in the country's southern provinces, all of them ranging from 10 MW to 30 MW, reaching a total capacity 200 MW. The decision of the eight sites was made in order to reinforce the power quality at the ends of the Moroccan Power Networks.

ONEE has already acquired the rights on land in the eight sites and has started with technical feasibility studies as well as the environmental and social impact studies. ONEE will select Energy Procurement Construction (EPC) contractors to build and commission Noor Tata solar PV. ONEE will also subcontract operation and maintenance operators. However, ONEE will develop and own the projects securing financing from its investment budget and from development/commercial banks.

The Noor Atlas Solar PV project is expected to be operational from 2018 on. The total investment for this project is estimated as 300 million Euros. ONEE representatives emphasize that the plant in Taghmoute will guarantee energy autonomy in the region.

## **PV Foug Lahcen**

The solar energy project Foug Lahcen is promoted by the commune with the same name. Initially, it was planned with a capacity of 3.5 MW expandable to 20 MW. The project was announced in 2006 by the commune, which decided to promote this project as a source of income for the commune. Technical feasibility studies as well as environmental and social impact assessment studies have been conducted.

The commune purchased the land where the solar energy plant is planned to be constructed. It comprises a total area of 200 ha and has a global radiation of 2050 kWh/m<sup>2</sup>/year). The land is not used for agriculture.

The commune is still working with the different national and regional key stakeholders (Masen, ONEE, the region, and development agencies) to set the adequate institutional arrangement for the construction and operation of the this project.

## **3. Methodology**

### **3.1. Theoretical approach: Socio-technological imaginaries**

In order to better understand and contextualize Morocco's energy policies and their social embeddedness, we build our analysis on theoretical insights gained from Science and Technology Studies. The main tenet is to explore and analyze the close relationship between science and technological policies and broader attempts of socio-political order. The analysis particularly builds on the concept of "socio-technical imaginaries". Socio-technical imaginaries can be defined as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures attainable through science and technology" (Jasanoff 2015: 15). As such, sociotechnical imaginaries shape mind-sets and reference frames, which do not only guide policies and strategies, but also provide insights into the expectations connected with technological developments.

Socio-technical imaginaries, thus present institutionally stabilized visions of socio-technical development that may be articulated by a key authoritative agency – such as the monarch in the case of Morocco – yet, in order to gather momentum, need to be performed and enacted by diverse actors and institutions in multiple sites and on various levels. As an analytical concept, socio-technical imaginaries hence attune our empirical investigation to the multitude of attempts to articulate and realize these broadly shared visions of a desirable future – in our case, condensed in the vision of "green modernization". Thereby it is vital to examine divergent meanings and competing notions of this imaginary future, as well as contending ideas of how to realize it in practice.

### 3.2. Empirical data collection process

Empirical research was based on desk research and field work. The methodology of empirical data collection included several steps, such as the review of background literature, interviews with key stakeholders in Tata as well as a so-called stakeholders forum and a focus group discussion, both held in Tata.

#### *Desk research – Scoping study*

Desk research and literature review on energy policy strategies of the Moroccan state commenced at the end of January 2017. Research was conducted by the oiip-project-team members and coordinated with MENARES and IIASA. A first draft of the background report on renewable energy policies in Morocco, covering the decision making structures and the political settlements affecting renewable energy policies in this country was finalized by the end of March 2017 and shared with partners before the interviews in the Tata region.

The first phase of the literature review process included the search and study of documents, articles, reports and other publications dealing with Morocco's history, state formation, governance structure, and energy policy. Journals were selected according to four categories and searched through different data base search engines. The scanning of relevant literature was facilitated through access to the data base Scopus, provided by IIASA. Other data search engines visited were Sage Journals, Taylor and Francis online and Elsevier.

We applied the process proposed by Hart (1998, p. 1) who defines the literature review process as: "the use of ideas in the literature to justify the particular approach to the topic, the selection of methods, and the demonstration that this research contributes something new". First, we set out to find out what is already known, while secondly, we set out to suggest what research is needed (Levy and Ellis 2006, p. 183).

The first draft was provided to project partners from IIASA and MENARES for their comments and inputs. Further on, the literature review was expanded by a set of relevant peer-reviewed journals. Journals were selected according to four categories and searched through different data base search engines.

Categories were derived from the thematic focus of the background report and defined as:

- Morocco -governance structure,
- Morocco – renewable energy,
- Theory and concepts,
- Austrian climate regions – Güssing and Freistadt

We used the most important keywords such as Morocco, governance, energy governance, energy policy,

Green Growth, PV, CSP, renewable, small-scale, large-scale, inclusion, civil society, centralized and decentralized. Results were crosschecked through google scholar search. This broadened the findings by including peer-reviewed open access journals as Politics and Governance. Through Elsevier we screened journals as “Energy Policy”, “Energy Research & Social Science” and “Renewable and Sustainable Energy Review” giving an overview of quantitative studies with a usually more technical focus. Sage online helped to gain an overview of the conceptual side and of security and energy policies through Journals such as “Security Dialogue”. The most important one for our focus turned out to be Taylor and Francis online and particularly Journals with a focus on the Middle East and specifically the Maghreb region. Those journals usually have a focus on qualitative and ethnographic case studies. These literatures combined provided solid insights into Morocco’s political system and governance structure. This certainly helped to understand and to analyze the political settlement in place and to provide fertile ground for empirical fieldwork indispensable to generate valid insights into actual practices of Moroccan energy policy.

The scoping study titled “*Green Modernization: Background report on the political, social and societal setting of Morocco’s solar energy policies*” elaborates the structural, political, social and societal setting in which Morocco’s energy policy is embedded (Gruber et al., 2017). The study defines major actors and analyses the decision-making structures, thereby conceptualizing Morocco’s renewable energy programs as a point where Morocco’s nation-specific socio-technical imaginary of “green modernization” is articulated and configured.

The report concludes that Morocco’s energy transition program including the construction of a number of large and medium scale solar plants until 2020 reflects the country’s centralized political and administrative system. Moreover, the clear preference for large-scale solar plants reflects the sociotechnical imaginary that investment in solar technology will boost economic development and eventually lead to social peace and welfare. Developments in Morocco are contrasted with energy transition plans in Austria, which are reflecting the country’s federal decision-making and governance structures. In contrast to Morocco, Austria’s energy transition strategy is a decentralized one. As much as this often entails strong involvement and ownership on societal level, as much its success is dependent on a complex set of diverse political entrepreneurs on different political and administrative levels (national-federal-district and local).

### ***Field Mission 1 – Interviews and Background Talks***

Interviews included expert conversations and informal open ended, semi-structured interviews and numerous informal background talks. Interviews were conducted in the context of a first field trip to Morocco in the period from March 30 to April 6, 2017 in Agadir and Tata. Interviews were conducted jointly by the oiip, IIASA and MENARES team. The interviews provided valuable information for background understanding of the Moroccan energy policies as well as for analysis of socio-technological imaginaries for determination of

political settlements which shape energy policy in Morocco. The interviews also laid an important ground for preparation of the stakeholders' forum and the focus group discussion as well as contributed to the development of the scoping study. Another important aspect of this field mission included visits to the planned power stations and communities around them.

During the first field trip stakeholders at different, national, regional, provincial and local levels were consulted. Interviews with officials and representatives of civil society organizations were semi-structured. They followed an earlier developed questionnaire. In semi-structured in-depth interviews, the questionnaire provides a tentative guideline for the conversation, leaving enough space and flexibility to explore issues that emerge in the interview situation which have not been anticipated before. The tentative interview thread was developed individually for each interview, reflecting the expertise and experiences of the respective interview partners. The sample of interview partner was selected in a way to cover different kinds of experiences and expert views, ranging from decision-making processes, technical questions, legal provisions, expectations of the population, and environment.

Altogether a series of interviews was conducted with representatives of ten different organizations (for the detailed list of stakeholders, see Annex).

The first field trip to Morocco (Agadir and Tata) allowed the project partners to get in contact with officials on the regional, provincial and local (communal) level as well as with representatives of civil society associations operating on the regional as well as the local level. Moreover, contact with representatives of the German Development Agency (GIZ) on the regional as well as the local level in Tata broadened the picture.

### ***Field Mission 2 – Stakeholder forum and focus group discussion***

The background report and the first field mission were important steps in preparation of the stakeholder forum and the focus group discussion held on October 18<sup>th</sup> and October 19<sup>th</sup> in Tata. The overarching aim of both events was to engage and bring together decision makers, experts and civil society to (1) discuss and jointly develop the issues at stake in the planning and governance process of renewable energy infrastructure projects in Morocco, and (2) how and to which extent experiences with different RES models in Austria might be transferable to Morocco. Both events present different “settings” of interaction and dialogue, it is necessary to describe their respective make up and point to significant differences inscribed into the particular forms of public engagement. The opinions, insights and local knowledge gathered in these two events add to and complement the qualitative database for analysis. For a list of participants in the two events see Annex. Both events took place in Tata and were organized in close cooperation with the Moroccan project partners.

The stakeholder forum was hosted by the governor in the building of the governorate. The focus group discussion took place in a local hotel. Both events provided important data for the assessment of the discourses and preferences of Moroccan stakeholders on the regional, provincial and local levels. Interviews, with different stakeholders (non-elected state representatives, elected local representatives and different representatives of civil society organizations) further provided important insights into the prevailing discourses and counter-discourses, diverging interests and expectations, as well as best practices.

### **Stakeholder forum**

The concept of a forum enables stakeholders (representatives of administration, public and private enterprises, municipality, civil society organizations and consumers) to engage with and participate in debates on the renewable energy solutions for their region and beyond. Our format provides a room for the exchange of ideas, expectations and criticism at eye level. Different from a panel discussion, a workshop or a focus group, a stakeholder forum is not an expert platform, but by regarding anyone affected as a stakeholder, it rather aims to capture the diversity of societal views and enable their exchange.

For an exchange at eye level, public forum participants should be seated in a circle. Two moderators guide the discussion and make sure that critical, controversial and opposite views have their room. In order to ensure a lively debate and broad participation, the forum is thematically structured into 5-6 thematic fields. Each new thematic field is initiated by short input statements of about 5 minutes. Moderators are present at the same time, but they intervene consecutively. Thus, each moderator moderates one of the thematic fields. Some of the participants are asked in advance to prepare short inputs on one of the thematic fields. Input statements should be real statements (opinions) and not announcements, presentations or speeches and hence be limited to 5 minutes. The idea is that a statement then provokes a discussion among participants. The discussion is then guided by the moderators. The scheduled time for each thematic field is about 45 minutes.

*Implementation:* The forum took place in the building of the governorate in a rather formal setting. The conference room where the stakeholder forum took place has been equipped with the official regalia of the Moroccan state, such as the national flag, the pictures of the king and his late father and other references to the monarchy and the ruling dynasty. The opening speech was given by the governor, later other representatives of the central state authority and elected representatives of the provincial council made their opening remarks. Contrary to the concept of a forum as described above, participants were not seated in a circle, but in the format of a conference, in a square of solid tables. The setting of the forum reproduced and reconfirmed the hierarchies between the governors and the governed: While officials and the project leaders were seated on a formal panel, representatives of communes and civil society were seated as the “audience”.

Participants were invited through the governorate and the provincial council and two participants were invited through GIZ. Particularly, representatives of communes had to obtain the signature of the vice-governor, who presided most of the sessions. The vice-governor actively interfered into the debate. The forum was bilingual. Participants switched back and forth between French and Arabic. Given these rather formal circumstances, the two moderators tried to loosen the discussion as good as possible.

*Data collection and documentation:* The documentation of the forum is essential for its evaluation and the drawing of conclusions. Team members from WP 3 as well as partners were instructed to take systematic notes during all sessions of the forum. Reporting was structured along the thematic fields. Different notes were integrated after the events and condensed into a rich protocol. Throughout, all individual statements from participants are anonymized and will only be referred to in the research outlets in terms to broad categories (e.g. “civil society representative”, “local administrator”, “development agency employee”, etc.)

### **Focus Group Discussion**

The focus group discussion took place the day after the stakeholder Forum. The purpose of the Focus Group Discussion was (1) to follow up thematically on the stakeholder forum, and (2) to specifically bring together civil society actors in a friendly and non-hierarchical setting.

*Implementation:* The FG was conducted in a friendly and non-formal atmosphere at the meeting place of Hotel Oasis Dar Ouanou in Tata. Eight participants from diverse CSOs/NGOs and communes gathered to discuss and follow up on themes explored the day before in the Forum. Researchers from LINKS were moderating the Focus Group discussion and were taking substantive notes. The focus group thread was organized to enable discussion on the specificities and needs for successful and sustainable energy transition in Tata, reflecting the perspectives of local civil society actors in this matter. Beyond that, there question of possibility of policy transfer from Austrian CEM regions to Tata was also addressed. The focus group discussion was moderated by three project team members.

### **3.3. Data analysis**

Data from both participatory events were gathered and transcribed into a common document. The collected data were notes of team members of the LINKS consortium as well as fieldwork memos. The transcripts of the two events were first separately analyzed. This was necessary to be able to appropriately reflect the particular knowledge generating setting of the two different events and be able to cautiously generate codes and meta-codes. Subsequently, the two documents and their particular code structure were integrated in order to produce analytical categories.

In this process, the project partners have developed a grid to systematically illustrate the major findings of the data collection and analysis process. Specifically, the material was organized along two major categories; meanings and orders. While we assume meanings and orders as interdependent categories, which are co-produced in practice, it is nevertheless useful to disentangle them analytically.

Meanings refer to the particular discursive constructions that articulate diverse elements into (at least gradually and temporally) stable ensembles. It is important to compare and contrast different meanings produced in the general discourses on energy policy in Tata, because meanings articulate ideas and practices, help to attribute agency and authority to particular actors, institutions and events, and endow upon certain interests legitimacy and credibility while delegitimizing others.

In contrast, the focus on orders, helps provide an understanding of the essential material and institutional structures, which shape agency and make it possible. Orders, in this context, primarily refer to the political system, the socio-economic circumstances (including property rights, class relations and economic geography), as well as to the socio-technical orders co-produced with political and economic orders (e.g. the large-scale socio-technical infrastructure of the NOOR power plant). However, we understand orders not as structures that are completely independent from forms of agency and meaning-making. As highlighted in the analysis below, the political, economic and socio-technical “structures”, as we shall see, are problematized and (re-) articulated in the various discourses by different stakeholders in the participatory events.

## **4. Findings and Discussion: Articulating the meanings of “green modernization”**

### **4.1. Meanings of solar energy and imaginations of the future**

Stakeholders in Tata agree that the sun is the major, if not to say, the only natural resource in the region. The governor held during the stakeholder forum: *“Tata is endowed with abundant solar resources that constitute a true wealth”*. An elected representative of a commune: *“Renewable energy is the future”*. Representative of a local NGO: *“The province should exploit the abundant solar resources and achieve sustainable development”*.

Among different stakeholders, there is general consent about the potential of solar energy. Similarly, expectations about the positive effects largely overlap. Solar energy production, as the only larger investment in the province, is considered to be a driver for economic development. Most of the stakeholders’ expectations

connected with investments in solar energy production are: jobs, trainings, education and energy efficiency. The meanings attributed to and the expectations connected with solar energy production do also highlight the economic and social needs in the province.

The slogan of “*Sustainable development*” functions as an umbrella for different expectations and hopes. This points to the fact that the assumptions and imaginations of the future of different stakeholders in Tata correspond with the idea of “*Green Growth*”, Morocco’s development strategy. Green Growth suggests that climate change should be transformed into an opportunity and that a focus on environmentally friendly energies will also induce economic growth and welfare. Hence, one can say that this is a part of the socio-technical imaginaries associated with renewable energy production. Accordingly, among broad parts of society, including decision makers, representatives of the state administration as well as civil society, investment in renewable energy technology is expected to bring about economic development (industrialization, job creation), stability and security (reduction of energy dependency and guaranteeing supplies). One can hold that Green Growth and the imaginaries connected therewith feed into a common national project oriented towards the future, stimulating optimism and balancing social, regional and other differences and interests.

While all stakeholders in Tata agree on the potentials of solar energy production for the region, we have detected three layers of this discourse, differing on the question how this should be done, and who or what should be in the focus. We identify these as a) global-environmentalist b) national-developmental, and c) local- socio-economic transformative discourses.

### ***The global-environmentalist discourse***

The global environmentalist discourse was mainly promoted by representatives of international co-operation organizations. The representatives were foreigners based in Tata and were working there in the field of technical aid. The contributions made during the stakeholder forum mainly focused on: energy efficiency, awareness regarding consumption, environmental friendly production, and constructions, which should be adapted to climatic requirements.

This discourse links the achievement of climate change mitigation on a global level with practices at the local level such as consumer behavior and awareness. This is an individualistic approach, which sees change as the sum of individual practices. In this discourse, the individual is responsible for his/her actions and its consequences in the big picture. Hence, this assumption also builds on the idea of civil engagement and empowerment.

Confronted with different practices, the representative of the foreign aid institution in Tata complains that; *“there is a culture of waiting for outside support. People are passive and do not come with suggestions”*.

Representing the German development agency, which closely cooperates with the Moroccan state and its institutions, the participant at the stakeholder forum has a rather positive stance towards the state’s plans to build large-scale solar energy plants in the province of Tata. Regarding the medium-scale solar production site in Taghmoute, he held: *“It will be an exercise for the big projects. We will be able to learn from these experiences”*.

On the one hand, this corresponds with the Moroccan state’s “Green Growth” strategy, which is strongly based on large-scale solar production plants. At the same time, his statement: *“We should think what is imported and what could be produced locally,”* points to the fact that he sees a potential for the development of climate friendly practices in course of the construction of these sites. Here again, this seems to point to a moral obligation and responsibility of individual citizens at the local level. It includes the idea that practices on the local level can have an impact and induce the state to adapt the implementation of projects to local climatic requirements. The global-environmentalist discourse suggests activism and agency, however in limited areas such as everyday practices. The discourse does not question the primacy and overall authority of the central state planning.

### ***The national-developmental discourse***

The national-developmental discourse primarily focuses on national development. The main goal is the advancement of the Moroccan nation. Hence, the major addressees are the state and its institutions. The local population and its representatives are important partners. Their consent is important for a smooth implementation of large-scale projects, but it is not necessarily a condition. Accordingly, different from the globalist-environmentalist approach, individual practices and behaviors are less important for the achievement of energy independence. Thus, the focus is less on the individuals and their practices, but locals are rather perceived as a community. Instead of an individualistic perception, this discourse builds on a communitarian one. The local community is a smaller unit of the larger national community. The state represents the Moroccan nation in an international competition. Hence, in the national- developmental approach, the state has an overview and knows what is best for the nation.

From the perspective of representative of the central state bureaucracy, centralized large-scale energy production seems to be more effective and faster, while decentralized small-scale projects, based on local initiatives are difficult to implement and to control.

The national-developmental approach is strongly driven by modernization theory and its assumption of a universal linear line of development. Thus, according to this view, developing countries as Morocco, situated at the periphery, can develop in the same manner as more developed countries did. In most of the cases, the state and its representatives assume a central role in this transformational process. Migdal (1988, p. 5) highlights that developing states might have been successful in penetrating society with structures and institutions, but they have been less successful in establishing the abilities to regulate social relations and the use resources in determined ways.

National advancement is to be achieved through central (national) planning and its implementation. The focus lies on the future of the whole nation and less on Tata. The governor, the highest representative of the central state bureaucracy held in his opening speech; *“We cannot only look at Tata, we need to have a national perspective.”*

Most representatives of the central state are graduates of the “Ecole nationale d’administration”. This reflects the idea of a de-territorialized central bureaucracy, which is detached from local societal and economic influences. Hence, the representatives of the state in the provinces are part of the national bureaucratic elite. They are educated and trained at the center and sent to different provinces in rotation. Whereas Tata seems to be quite at the periphery not only geographically, but also politically from the centers of the country, Tata has nevertheless much to offer: the province is one of the richest provinces in terms of natural resources, land availability, culture and tradition. The road quality in Tata is much better compared to provinces located 50 KM or less from Rabat.

### ***The local socio-economic transformative discourse***

The proponents of the local socio-economic transformative discourse are mainly representatives of local NGOs, environmentalist student activists from Tata, but also elected representatives at the provincial level and the level of communes. The latter have a strong focus on the needs and expectations of the community. Similar to the global-environmentalist discourse the proponents of the local socio-economic transformative discourse give action and behavior a high priority. However, different from that approach their focus lies less on the question of how awareness and conscious practices could contribute on a broader level to climate change mitigation, but rather how this could be transformed into the socio-economic benefit of the local community. In this context, it is important to emphasize that most of the NGOs evolved from ethnic (tribal) community structures, which explains a more communitarian and less individualistic understanding.

Most of the representatives of this approach stated the lack of education, awareness and technical skills on the ground as the major problems of Tata. Not surprisingly, they have stated their support for local, de-

centralized solutions. One NGO representative held that local solutions would also support efficient water consumption. NGO representatives are particularly aware of the effects of climate change on their communities. *“For the time being there is no energy transition in Tata”*. They blame the lack of education and training for an increase in energy consumption or practices such as cutting woods in winter for heating. *“Deforestation supports desertification. More involvement of the local population is needed. More involvement will lead to more incentives”*.

Solar energy is not only considered to be a solution to problems, but it also might cause problems. Particularly, large-scale production sites need huge amounts of water for cleaning. A local NGO representative holds: *“We do not benefit from large-scale projects, we benefit only from small-scale projects”*. This led him to the conclusion that *“Tata needs decentralization”*.

As representatives of NGOs and of communes stated during the focus group discussion: *“Decentralization means also the decentralization of decision making”*. Accordingly, decentralization is considered to offer more responses to local needs. Interestingly, political decentralization has been linked to decentralized energy production solutions. This aspect highlights the high importance attributed to solar energy among locals, but also the expectations from technology.

Particularly, two elected representatives of a commune highlighted the importance of the decentralization of the Morocco’s decision-making structures. *“Large-scale projects are part of the state’s image promotion”*. An elected representative of a commune held: *“For large projects, there are no constraints or opposition, communities adhere”*.

Small-scale projects are mainly based on grassroots initiatives or on the initiatives of foreign NGOs. They do hardly get any support from the state. Many of these small-scale projects fail because they are often not coordinated single, one-time projects and because there are no skilled people to install and maintain them. There is an absence of a market for the maintenance services.

The representatives of the communes and of civil society, both hope that the investments into large-scale solar energy plants will contribute to economic development. The vice-mayor of Akka Ighen, the commune where Noor Solar Complex is planned, holds that there is hope that the power station will also help develop tourism and agriculture. Particularly, men in Taghmoute hope that the Noor photovoltaic station will boost development. There is little infrastructure. They hope to open a restaurant, hotels and so on. There is also the plan to build an auberge in Taghmoute, financed by the Agence du Sud. However, investments will be only able as a “side-effect” of the construction of the energy production site, there are hardly long-term

revenues which can be expected on side of the local communities. In comparison to local elected representatives, NGO representatives more often highlighted that they would hope for improvements in the area of trainings and education.

Although, the large number of local associations is perceived as an important element for the maintenance of social coherence and order, local associations are hardly included into decision-making processes. Rather than as politically relevant stakeholders, they are perceived by the authorities as important links to society as such. Associations are usually included into social projects, which accompany larger investments such as the Noor project. Authorities visit them when they do not have solutions as one representative of civil society stated (Interview with authors in April 2017).

All three discourses cling in to (at least particular variants of) modernization theory. They all assume that there is a linear line of development to be pursued. Even the local-socio-economic transformative discourse assumes that education (in Western practices) of the local population will bring about change. In contrast, the globalist-environmentalist discourse builds on the assumption that local, traditional knowledge and practices simply need to be re-activated. It suggests that people should skip some of the benefits of a consumption society and go back to authentic lifestyles and practices. However, in a strict sense, all three discourses omit local knowhow and practices and project expectations upon society. Despite of differences in the approaches, all three assume that the state and its institutions have the capability to transform and shape society on its way into modernity.

However, one can certainly observe a rapprochement between local civil society, elected representatives on the local and provincial level and the central authorities. This is enabled by the shared belief that solar energy bears a huge potential. All stakeholders, elected locals, NGO representatives and the representatives of the central bureaucracy believe that investment in solar energy production in the province of Tata will entail new opportunities as investments in infrastructure, education, jobs, and tourism.

#### **4.2. Political, economic and geographic orders**

The political, territorial and economic orders of a state shape mind-sets, the way of doing things, perceptions, expectations, capabilities, and define opportunity structures. Depending on the perspective, views of Tata and the opportunity structures vary.

The key codes appearing several times within this discourse are that Tata is at the margins of the state; that Tata is underdeveloped; that the state is the only agent of change; that the state “brings” modernity; and that the state supports initiatives at the local level.

In the following we have categorized three diverging perspectives on the political, territorial, economic and societal orders, which have been shaping approaches, attitudes, expectations and solutions.

### ***Orders from the perspective of the center***

Representatives of the central bureaucratic elite in Tata (this does not only include higher appointed officials working for the governorate, but also representatives of state agencies) have often emphasized the remoteness of Tata.

In terms of infrastructure, economy, but also its integration into the national energy grid, Tata is considered to be at the “*margins of the state*”. The statement of the representative of ONEE: “*Tata est au bout de ligne*” (*Tata is at the end of the power network*) seems to epitomize this perception.

From the perspective of the economic center, there is nothing but the sun to exploit in Tata. The region is economically underdeveloped. Accordingly, the central state is the only agent of modernity and development in the region. A code which could be singled out is: “*the state brings*”. The term “bringing” used by the representative of ONEE, instead of “*providing*” or “*delivering*” points to a rather patrimonial understanding of the state (the father state), which does not confront empowered citizens, who claim investments and better connection to the energy grid, but rather weak unorganized communities which feel dependent on the central state.

Representatives of the central authority highlighted the investments made, such as Noor in Taghmoute<sup>3</sup>, from a rather technical perspective. The ONEE representative emphasized that Noor PV in Taghmoute will improve the frequency and quality in the province and broader region, but he did not refer to any kind of financial or other benefits for local communities or individuals living in Tata. This “engineering perspective” has been further emphasized by the governor’s statement: “*We cannot only look at Tata, we need to have a national perspective*”.

The solar energy plant to be built by ONEE in Taghmoute is an example for decentralization (from the perspective of a state representative). A representative of ONEE highlights that the power station in Taghmoute: “*will guarantee energy autonomy for the province*”.

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<sup>3</sup> The Taghmout project is being developed to address the power quality at the end of power networks (which is a real issue for Tata; businesses, households, etc.). There are almost 10 to 12 similar projects being developed in provinces that are situated at the end of power networks to solve frequencies drops etc., these projects are for the benefits solely for those provinces.

Within the national-developmental discourse decentralized energy solutions signify smaller projects, which address regional / provincial needs. This mid-size power station aim to raise the quality of electricity supply in the region. This program consists of developing a 400 MW (Noor Atlas, Noor Argana, and Noor Tafillat combined) solar power complex.

### ***Orders from the perspective of the province***

From the perspective of political, hierarchic and geographic ordering, elected representatives on the provincial level function as intermediates between the powerful central authority around the governor, representing the interests of the central state and the king on the one hand, and the locals on the other hand. As intermediates, they seem to see themselves as “*interpreters*” of local needs, demands and expectations. Accordingly, they seek proximity to the governor and his entourage. Hence, elected representatives on the provincial level, such as the president of the provincial council have become very important for local NGOs and the representatives of the communes. One can hold that, the representatives of the provincial council function on the one hand as the voice of locals and on the other hand as the gatekeepers for the higher authority, represented by the governor. The local elected representatives are prone to build a “*pouvoir peripherique*”. Such peripheral power would entail two dimensions; an internal one based on the relationship with the representative of local NGOs and an external one, based on their links to the central bureaucracy and its peripheral ramifications (see; Mèdard 1981: 126)

This highlights the structure of power. While recent reforms have certainly improved the level of participation at the regional, provincial and local levels, real power (security and finances) still lies in the hands of the governor. “*If you do not have the support of the governor, nothing works*” highlighted an elected representative of a commune, adding; “*there is a confusion, we do not know, is the governor the representative of the government or of the king*”.

From a national development strategy perspective, centralized large-scale solar energy production is considered to be more effective than small-scale productions. Confirming their positioning as intermediates elected members of the provincial council highlighted during the stakeholder forum that: “*small scale projects are complementary to large scale ones, there is no either-or*”. In line with the discourses of the central authority, they do not see decentralized small-scale solar energy production as an alternative to the centralized large-scale projects as Noor. Chiming in with the national development strategy, they seem to favor big solutions, while small-scale solutions do rather have a symbolic impact on the level of communities.

*“There are some individual small-scale decentralized projects, two slaughterhouses, based on photovoltaic. 186 roof top solar panels in Tata (individual), dispersed. In the beginning, there was skepticism, but now there is high acceptance of solar energy”.*

### ***Orders from the perspective of the communes***

Mayors of communes are often people with a high social or economic reputation. In most of the cases they are renowned persons from the commune who do however live and work in larger cities. In the case of Akka Ighen, the mayor is a renowned lawyer originating from the commune, who lives and works in Rabat. He is considered to be the representative, so to say the ambassador of the interests of Akka Ighen in the capital, while the vice-mayor is engaged with operational activities and contact with the electorate and the authorities at the provincial level. The fact that a person is elected mayor who is not physically present in the constituency, but is deemed to lobby for the community in the capital, points at the high degree of administrative centralization and to where important decisions are really taken.

Communes in Morocco are rather weakly established entities. They represent the lowest administrative and political unit within the Moroccan system. Their financial means and opportunities are limited. Regions and the communes have their own budgets, but their financial capacities vary according to the tax revenues. As Tata is an economically rather poor province, local communes have very little financial means. Hence, there is rather limited room for initiatives on the regional or local level. The communes cannot afford investments. They have little budgets. Moreover, Tata is also a rather small market for investments. Only few companies or private businesspersons are invested in the province. As the vice-mayor of Taghmoute explained, few examples of private initiatives have been a disappointment for locals. A couple of years ago, a private company planned to invest into the agricultural sector in Taghmoute, but: *“we had bad experiences with this businessman. He did not keep his word. Locals are critical. People resist. They do not want to give away their land. It is the only resource they have, they are afraid of losing it”* held the vice mayor of Taghmoute, adding that: *“ONEE is different. It is not a private company. It is a public company which is official and is guided by the law”* (Interview with authors in April 2017). This statement highlights the level of trust and respect in state agencies.

Energy is a policy field, which is not decentralized but controlled by the ministry in Rabat. The communes function as important links to the local communities. The elected representatives personally know the representatives of local civil society and strongly cooperate with them. In many cases, the elected representatives of the communes themselves have been part of the local civil society. The many associations existing at the local level are reflecting traditional social structures and are often hardly institutionalized. There are approximately 60 associations in the commune of Akka Ighen and as many in Taghmout. Each oasis has its own

association, but not all of them are active. Their fields of activities mainly range between social and cultural activities. The commitment for environmental issues and for women is relatively new. As political parties are weakly established and do hardly play a crucial role on the local level, civil society organizations are considered as an access to the grassroots of local society. While the elected representatives at the level of the province control access to the central authorities, the elected representatives of the communes control access to the grassroots. In that sense, both elected bodies function as relays between the distant authoritarian state and the grassroots.

The fact that Tata has been chosen for the construction of large-scale solar energy production sites, has increased the importance of these two elected levels. As a local elected representative held during the focus group discussion: *“the state needs civil society”*. It mainly needs civil society to avoid any social unrest. Although, the grassroots and local authorities have become more aware and more self-confident, they have little impact on the decision-making process, the definition of the construction sites of large-scale energy production plants or the technology applied. A CSO representative: *“For large projects, there is no constraint or opposition, communities adhere”*.

Instead, local authorities are rather involved in informing the community, and promoting and defending the decisions made in the capital. As a representative of the commune of Akka Ighen held: *“large-scale projects are only participative on the national level, locals are left out”*. He thereby referred to the integration of different national and international stakeholders (mainly companies) into the decision-making process, while the population of the commune where the project is planned, is simply informed. This statement also highlights how the economic order is perceived by locals. They feel economically impotent, and dependent on other actors. They seem to favor state agencies over national and international private companies.

Until October 2017, there have been only two meetings between MASEN, which is developing Noor in Akka Ighen and the representatives of the commune. The commune is not informed about the time schedule. Representatives of the commune of Akka Ighen, expressed that expectations in the community regarding the benefits from the project are very high. *“People are very happy and proud that their commune has been chosen as a site for the construction of Noor”* (Interview with authors in April 2017). People hope that it will have a positive impact on the economic and social development of the commune and create jobs. Local representatives hold that one of the major problems in the commune is the lack of infrastructure for the many workers who will be employed in the construction of Noor. It is estimated that around 3000 job-years will be there for the time of 5 years. Workers are expected to be hired from the commune. Local authorities hope that the project will also entail investment in local youth (just as in Ouarzazate), such as education, infrastructure, hotels, ecological tourism and so on. People have already expressed their hopes and expectations.

One of the common statements of elected representatives of communes was that: *“centralization is particularly a problem at the margins of the state”*. Situated at the periphery, they feel to have little access to the ministries in Rabat.

The elected representatives of the communes and civil society are strongly committed to bring about change through education, trainings and initiatives such as small-scale or individual solar energy production, but their political and financial opportunities are very limited. *“The needs of the region are often defined top-down”* held a representative of civil society. This is also why some of them have stated that: *“Morocco needs a federal system”*.

Decentralization means also the decentralization of decision-making. *“Decentralization guarantees more inclusiveness and participation”* interest in decentralized small-scale solar energy production is high, because it symbolizes a local approach, which takes the needs and expectations of the grassroots into account, such as: *“We do not benefit from large-scale projects”* and *“Large-scale projects are part of the state’s image promotion”*.

However, the risks local communities will carry are high and compensation might not be sufficient. The vice-mayor of Akka Ighen: *“The land where the solar energy production site will be build is collectively owned land. Payments will not be made to individuals, but to a fund. The commune together with the ethnic community will present projects on how they will use the money for the land. The price the state has imposed is; 1 dirham per 1 square meter, in the commune the current price is rather 20 dirham per 1 square meter”*. With all larger infrastructure projects in Morocco, the same procedure is applied. A commission defines the price for land. The landowners do possibly have the right to challenge the commission’s proposal at the commerce tribunal; or enter in direct negotiation with the buyer. However, this seems rather seldom to be the case.

An interview in Ouarzazate revealed that there is already a water problem in the region. Interviewee: *“In Zagora they have cut water supply. Water has been only provided for one –two hours per day”*. There is justified fear that large-scale solar energy production sites will exacerbate water scarcity in the province of Tata. As a representative of civil society highlighted: *“In regard to water usage, local solutions increase efficiency in consumption”*.

### **Orders of Participation**

In contemporary political discourse, and particularly in debates on an emerging “innovation society”, participation has been seen as crucial. Similarly, in the stakeholder discussions in Tata: *“One of the recurrent demands and expectations from decision makers and civil society representatives was to increase the level of*

*participation at various steps and stages in renewable energy production policy*". Yet, there was divergence in ideas over what exactly should be done, and what participation actually means (or should mean) for different stakeholders.

Disagreement has occurred concerning the perception of whether and to which extent Morocco has a participatory culture. A representative from a foreign aid organization has lamented that in Morocco one can observe a pervasive "*culture of waiting for outside support*" – be it international aid or assistance from the central national authorities. This culture would result in the fact that "*people are passive and do not come with suggestions*".

This evaluation of the Moroccan participatory culture (or rather lack thereof) has not gone unchallenged. A high representative of the Province uttered immediate disagreement. In his counterview, many things have changed in recent years; especially a "change in the mindset" has taken shape. This gradual cultural transformation materializes also in legal and institutional practices. For instance, in projects developed and carried out in remote parts of Morocco, the financial participation of NGOs has become mandatory. Local NGOs have to raise at least 30% of the costs of a project; in turn the rest of the project costs are covered by state authorities. Through this mechanism, local civil society assumes a more active role and shares responsibility for the projects management and overall success. Many farmers have opted for this solution.

While discussed controversially, we can discern two rather different meanings of participation here: Whereas the statements of the foreign aid representative seem to reflect a particular meaning of participation, namely, a Western liberal notion self-determined agency, working proactively to find solutions from the bottom-up. By contrast, the representative of the state seems to be animated by a more structural notion of participation, where participation, first and foremost, means legal possibility to partake (also financially) in joined projects. Participation, here, is not so much focused on individual agency, but on the relationships between state authorities and civil society organizations. These two divergent meanings of participations have, somewhat unresolved, pervaded the overall discussion on participation.

Another central topic in this regard was the tension between different (micro, meso, macro) levels of policy and possibilities for participation respectively. There is broad consensus within the group of local and provincial representatives, as well as the students' union, on the fact that "*large scale projects can only work with involvement of the local population*" – that is to say, civil society organizations. So far, as one member of the rural community lamented, there is "*no sufficient involvement*", which further leads to the complication that emerging problems and obstacles are "*identified only at a too late stage*" in the process.

Here, again, the issue of local development of education and training was regarded significant for participation – on a technical-practical level (regarding e.g. maintenance of technical infrastructure), but also to create

mid- and long-term possibilities for participatory governance of energy transition and regional development. But beyond these practical dimensions, university education assumes a high symbolic role in society: many young people it is essentially important to migrate to the northern and coastal cities of Morocco to receive university education – even if they often immediately return to their remote and essentially rural regions of origin, such as Tata. Stressing the need for trainings to participate in the overall success of large infrastructure projects provides a possibility of demanding from the central authorities the foundation of a university.

On a more political level of decision-making, participation of local population and CSOs appears rather limited. A significant difference between large-scale projects and small-scale projects was articulated. Large-scale projects are only participative on the national level, at the expense of inclusion of local communities. As one discussant stressed, *“for large projects, there is no constraint or opposition; communities adhere”*. The lack of an overall approach is not to be due to political orders, for the *“legal framework is no obstacle, [and would] enable a participatory approach”*, as a CSO representative observed. Yet, in reality, there is little involvement.

Whereas state authorities tend to support a notion of participation through formally elected representatives, the local representatives and CSOs seem to understand participation as a rather direct involvement of civil society. Whereas Moroccan authorities have evoked the impression to favor the more centralized solutions such as Güssing over decentralized small-scale solar energy production models, representatives of local communities seemed to be in favor of small-scale solutions such as Freistadt.

## **5. Conclusions: energy transitions and the conditions for CEM policy transfers**

The aim of WP3 was to assess the relevance of the lessons learned from Austria’s climate and energy model regions for RES development in Morocco in general, and specifically for the Tata region. Research conducted in the framework of WP3 focused on defining the necessary preconditions for any transfer of technology and the therewith connected governance models.

Aside from economic and political structures and capacities, the solutions to pressing societal challenges – such as climate change – highly depend on the meanings attributed to the phenomena at stake. Hence, any transfer of technology and governance models needs to consider the broader sociotechnical and political environments from which they emerged and where they travel. Furthermore, it is important to keep in mind that the notion of transfer includes a broad spectrum of transfers, ranging from ideational transfer (an idea

is taken up in another policy context) to the full adoption of policy/technology (Rose 1993, 2005, Dolowitz/Marsh 2000). Hence, sociotechnical systems cannot be simply detached from one context in which they seem to “function”, and transferred to another.

### **General findings**

- Transferability depends on a variety of different factors such as financial means, expectations, political, social, and economic orders, the stakeholders involved, and the context from which the model to be transferred emerged.
- Therefore, any assessment of transferability requires profound research on the political and economic structures and social developments.
- The early inclusion of embedded social science research is key to any assessment of a policy travel and thus enhances the overall success of such a project. Qualitative research methods such as those deployed in WP3 (semi-structured interviews, stakeholder forum, focus group discussion) are particularly useful to explore diverging expectations and contending discourses. Such insights cannot be appropriately captured by merely quantitative indicators and surveys that predominately inform innovation policy assessments. This highlights the importance of field research and cooperation with local partners.

Generally, it is important to highlight that there is no “one size fits all” approach to the question of transferability of technical solutions and the governance models involved. The question of transferability strongly depends on different variables and factors, which might change from case to case.

### **Insights from the Moroccan case study**

- For people in Tata, climate change is not an abstract notion, but rather an immediate and embodied experience. Heat waves and sudden floods, desertification and water scarcity shape meanings of climate change and renewable energy policy.
- As a consequence, climate mitigation policies are not merely the aspirations of policy entrepreneurs, but have rather become a broad-based mission that involve many different stakeholders. Renewable energy is not an abstract policy goal, but rather understood as a vital necessity. This mission is successfully communicated by the state and its institutions as a future-oriented development model. This strongly corresponds with the hopes and expectations of the people on the ground.

- Morocco's goal to reduce energy dependency has been a driver, which has opened many rooms on different political, economic and societal levels.
- Yet, critical voices can hardly make themselves heard and be visible on a larger-scale. This means that critical approaches cannot be addressed or included into any political strategy. Hence, there is no room for adaptation. Inclusion is only possible at a higher national level. At lower levels such as the regions, provinces or communes participation is welcome on a discursive level, but real participatory democratic practices and inclusion into decision-making processes are not possible.
- In the context of a centralized political setting as Morocco, there is little room for bottom-up projects which go beyond small communities. There are neither the financial or political capacities, nor does the state tolerate bottom-up initiatives on a larger-scale (such as provincial or regional level), as they would threaten to undermine the mission and the authority of those in charge.
- In contrast to evidence from Austria, in Morocco educated youth representatives on the local level are highly committed to and engaged with environmental issues.

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## 7. Annexes

### 7.1. Partners for interviews and background talks

Stakeholder organization
GIZ Maroc
Région Souss Massa
Région Souss Massa
Sustainable energy committee: Province, Provincial Council, ONEE, GIZ Program, Cooperative des jeunes électriciens
Province
Provincial council
Commune Ikka
Association des jeunes électriciens
Association de la Jeunesse de Tamdout pour la Culture et le Développement»"
Commune Inta

### 7.2. Participants of the Stakeholder Forum in Tata (18. October 2017)

Stakeholder organizations
Governor of Tata
DPA Tata
DPA Tata
DPA Tata
ORMVAO
TAMANART
TAMANART
Rihantolabi
Rihantolabi
Amis des edus
Amis des edus
As. Talhzou, l'eau de l'environnement
Ass AFRA pour D.D.
Techno solaire cooperative
Riham Talabi Association
Riham Talabi Association

<b>Technolsolaire cooperative</b>
<b>Federation du....</b>
<b>Association... Electriciens</b>
<b>Students' Association</b>
<b>Association of farmers</b>
<b>afpp HENCG</b>
<b>EDM</b>
<b>Association..</b>
<b>Association a Douar</b>
<b>Commune de Tata</b>
<b>Commune de Tagmoute</b>
<b>KAD Consulting</b>
<b>Commune de Tata</b>
<b>Commune de Tata</b>
<b>Commune de Tata</b>
<b>Province de Tata</b>
<b>Province de Tata, Del.</b>

### 7.3. Participants of the Focus Group Discussion in Tata (19.October 2017)

Stakeholder name
<b>Water and Environmental Association of Tata</b>
<b>Agha de lena – association de development durable</b>
<b>Association des étudiants a Tata</b>
<b>African Center for Space Sciences in Rabat, Tata Young Students Association</b>
<b>Association des étudiants a Tata</b>
<b>African Center for Space Sciences in Rabat, Tata Young Students Association</b>
<b>Association des étudiants a Tata</b>
<b>Association with its headquarters in Casablanca, responsible for the association's branch in Tata</b>

## 7.4. Morocco's energy policy hierarchy

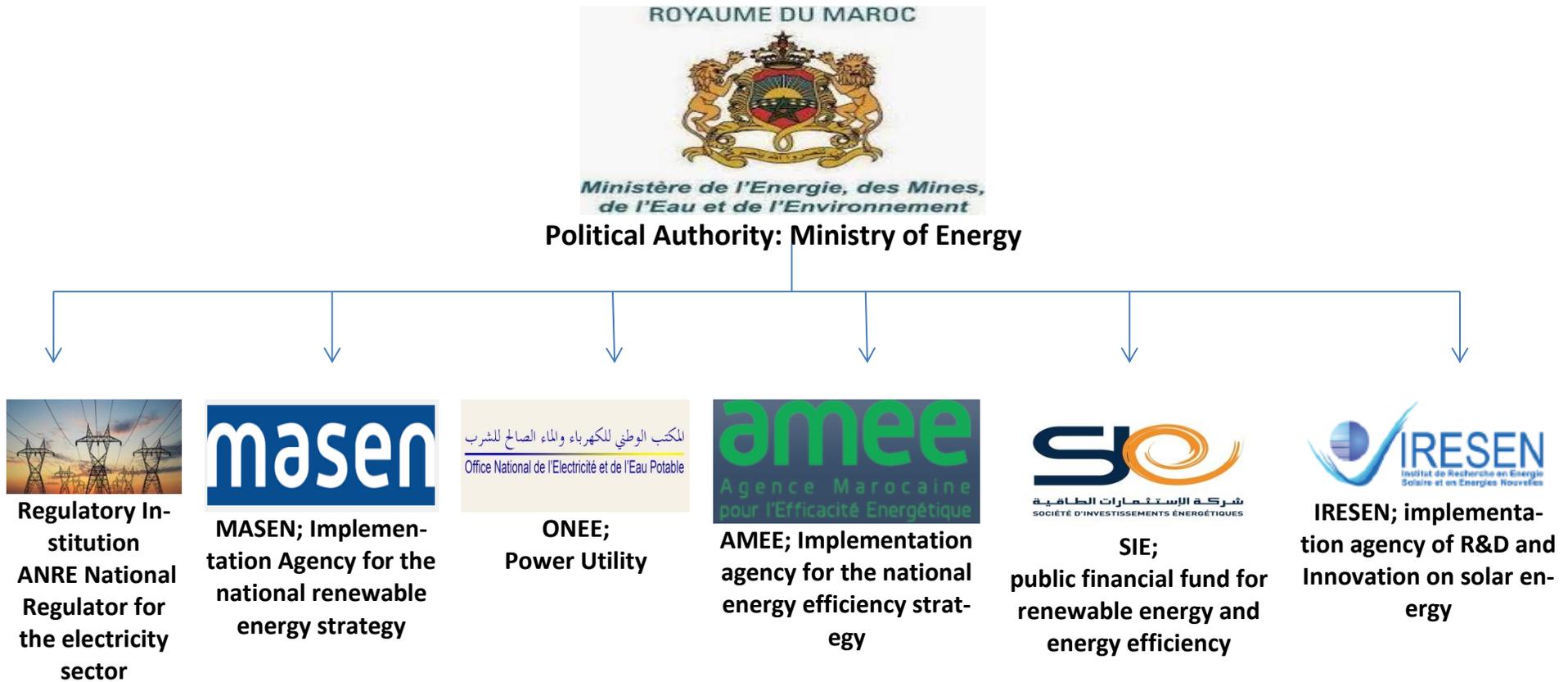


Figure 2: New institutional set-up for renewable energy and energy efficiency in Morocco (organigram produced by the authors).