


RESEARCH ARTICLE

Levels of Legibility: Roles and the Flow of State Information in French Morocco

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Abstract

How do state actors interpret and share information? Theories of the state have long recognized the role of legibility – *the modes and practices by which states render society and nature knowable through intervention and information collection* – in constructing and maintaining state power. Yet, research has only begun to explore the processes by which information is created and diffused within state administrations. Drawing upon theories of agency relations in states, this article explores how administrators’ communicative practices shape knowledge and legibility. Through examining memos, legislative studies, and draft legislation for decrees recognizing water rights in the French Protectorate in Morocco, I identify a set of common patterns in the construction of bureaucratic information as it moves from street-level administrators to central officials. In analyzing these patterns, I demonstrate how administrators’ obligations and their understandings of the state’s political projects determined not only how French officials collected information, but what they communicated to others. As information moved across administrative levels, officials iteratively changed information. Joining critiques and extensions of legibility theory that emphasize the role of non-state actors in the construction of state knowledge, I argue that we must also attend to *intra*-state dynamics. In tracing communication and information, I demonstrate that information is iteratively constructed by state agents according to their administrative position and transformed by its particular bureaucratic routes. Modeling legibility and the development of state knowledge requires attending to administrators’ agency, their relationships with each other, and their understanding of the state’s goals.

Keywords: Legibility; Colonial Rule; Environmental Policy; Morocco

Theories of the state have long recognized the role of legibility – *the modes and practices by which states render society and nature knowable through intervention and information collection* – in constructing and maintaining state power. Yet, researchers have only begun to explore the processes by which information is created and treated by administrators themselves. While cultural schemas, censuses,

and policies all shape state information, less is known about the effects of administrators' communicative practices on legibility (e.g., Emigh et al. 2015; Kertzer and Arel 2001; Loveman 2014; Mora 2014a; Rodríguez-Muñiz 2017). Drawing upon theories of the state emphasizing agency relations (Adams 2005; Morgan and Orloff 2017; Reed 2020; Shapiro 2005; Wilson 2011), this article asks: How do bureaucratic structures affect the construction of legibility? Extant research demonstrates how interactions between state and non-state actors shape state information collection and conceptual schemas, challenging conceptualizations of legibility that rest upon a top-down construction of state knowledge. I join these critiques by demonstrating the effects of *intra*-state in constructing knowledge. In focusing on bureaucratic dynamics, I argue that the actions of role-differentiated administrators and their interactions create different strata of state knowledge. As information is iteratively gathered, interpreted, and diffused by bureaucrats, it is systematically transformed by several mechanisms, further dispelling the myth of unified and harmonized state knowledge. Through analysis of legislative studies for decrees allocating water rights in the French Protectorate in Morocco, I identify a set of common patterns in the transformation of information as it moves from street-level bureaucrats to central officials. In analyzing these patterns, I find that actors construct and relay information in light of their delegated authority and administrative position. State actors' responsibilities, their access to information, and their understanding of state projects determine how they gather information and distribute it to others. While legibility remains a useful theoretical tool for understanding how states interact with populations and the environment, it must be reinterpreted with a view toward the structure of state administrations, rather than a harmonized and cohesive system. What I term the "levels of legibility" approach conceptualizes legibility *as constructed individually across layers of information gathering and dissemination by state agents according to their administrative roles and positions*. Modeling the transformation and variation in state knowledge across roles significantly deepens our understanding of legibility and the processes by which administrative decisions are made and implemented.

The French Protectorate in Morocco (1912–1956)¹ was a colonial state that operated through a system of indirect rule. The Protectorate symbolically preserved the Sultan while severely curtailing his powers and replacing his agents with a French administration operating under the French military and the French Ministry of Diplomatic and Foreign Affairs.² In an effort to introduce a colonial farming population and control rural agriculture, the Protectorate nationalized almost all water sources and tasked the Directorate of Public Works with allocating usufructs to individual farmers through vizierial orders in the Official Bulletin. These vizierial orders were created through the well-documented coordination of several state actors across bureaucratic strata and present an opportunity to examine how information changes as it is transferred between administrators. From analyzing the administrative records detailing their creation, two puzzling features emerge: (1) *information on Moroccan actors is suppressed or obscured by local officials when*

¹Hereafter, 'The Protectorate.'

²Primary source archival research was conducted by the author at the *Archives du Maroc* in Rabat, Fall 2021 and Spring 2022.

passed to central officials; and (2) less information is passed on by local officials to central officials for Moroccans in regions with greater competition for resources between Moroccans and colonists. These changes do not emerge at the boundary of state-society interactions – street-level administrators had comparable knowledge in both contexts. Only in the transmission of information do systematic changes appear.

These patterns seem to contradict extant understandings of legibility, information, and state control. Both Scott's foundational works (1998, 2009) and subsequent research tie accurate information to effective governance and capacity, whether for military control, fiscal solvency, or other elements of state rule (e.g., Bowles 2024; D'Arcy and Nistotskaya 2017; Driscoll and Naidu 2016; Lee and Zhang 2016; Müller-Crepon et al. 2021; Pruett 2024; Sánchez-Talanquer 2020; Zhang and Lee 2020). Information about contentious actors is of particular importance. Yet, French officials increased the diffusion of information on French colonists while that on Moroccans was often obscured. Furthermore, one would expect that in regions of increased competition for resources, the state would act unilaterally to settle conflicts in favor of colonists and document Moroccan usage in preparation for future expropriation or negotiation. Instead, local French administrators in Morocco often publicly increased ambiguity in conflictual situations. How should we understand these seemingly contradictory practices?

I argue that state agents' efforts to achieve conflicting responsibilities of their administrative positions create these apparent contradictions. Following principal-agent theory, state actors are tasked with fulfilling delegated responsibilities as received through chains of delegation and individually interpreted (Reed 2020:15). While research has largely focused on how the dynamics and structures of agency chains determine action, these chains also dictate how information flows through them. While authority and delegation are generally understood to flow down such chains, information often rises upward. How does the construction of delegated authority and responsibility affect the flow and construction of information? In the Moroccan case, local administrators obscured information that could be interpreted as undesirable, but only when it did not hinder their efforts. While there is no evidence for falsehoods, administrators acted in ways that minimized undesirable views while maximizing the appearance of effective administration in line with the state's goals. Drawing upon tools such as deletion, removal of contextualizing information, or choosing administrative tools that did not require public reporting, local officials molded the information they conveyed to others. As state information was conveyed across administrative strata, it became stratified and constructed according to the path it took through the administration.

If legibility can be a useful analytical concept, it must be reconceptualized in terms of administrative structures and practices of information transmission. Information collection and transmission are distributed across state agents with distinct roles and tasks, each of whom receives their own set of responsibilities and standards for desirable action. Information creation and transmission must be reconceptualized as products of this structure, as created individually by actors, but actors whose actions are determined by their position within agency chains and a complex administrative structure. This article examines only one level of information transfer, from street-level bureaucrats to central officials. While it focuses on a colonial state, the dynamics identified emerge from central features of

all modern administrations. Noncolonial states also task highly autonomous local officials with implementing national policy, and these policies may involve the expropriation of resources. Yet, the colonial setting provides an analytical advantage: the French Protectorate's explicit differentiation between populations and clear interest in promoting the welfare of colonists illuminates dynamics obscured and complicated in other situations.

In sum, this article claims that legibility and legibility practices are products of agency chains in administrative structures. As such, the core elements of legibility – practices, conceptual schemas, and knowledge – cannot be fully analyzed from a single-state perspective. Rather, we must examine how legibility is shaped by administrative structures and delegated responsibility. In empirically demonstrating how legibility is stratified in the case study of water rights allocation in French Morocco, I show that the tension street-level bureaucrats faced between effectively fulfilling their responsibilities and sharing desired and desirable information creates patterns in information's diffusion that cannot be satisfactorily explained by extant theories of legibility. As such, this article aims to improve extant models of legibility and expand our knowledge of colonial states and French Morocco in particular. In doing so, it joins other theories of state knowledge and culture that have sought to disrupt models of state knowledge predicated on a single top-down perspective, while retaining focus on intra-state dynamics.

Theories of the state information and legibility

Information is vital for states to achieve their ends and for what Mann terms *infrastructural power*, “the capacity of the state to actually penetrate civil society, and to implement logistically political decisions throughout the realm” (Mann 1984:189). While infrastructural power depends on material resources, a robust administration, and coercive apparatuses, it also relies on the systematic transfer of information from the population to state actors. Whether it is engaged in military campaigns (Galula 1964), tax collection (Lee and Zhang 2016), law enforcement (Stinchcombe 1963), infrastructural development (Mukerji 2009), or economic policy implementation (Davis 2007; Mathur 2015), the collection and diffusion of accurate information within a state is necessary for a state to achieve its goals. Increasingly accurate and reliable state information has been shown to augment the state's capacities to achieve its ends.

Legibility theory and the paradox of non-state information

How the state collects and processes information has been of central concern to scholars of legibility, beginning with James Scott's articulation of the concept in *Seeing Like a State* (1998). Scott's formulation of legibility theory argues that a state's power derives in part from its ability to collect information through practices consistent with its organization and ideology. Effective information collection is achieved through both effective information-gathering practices and the state's ability to reshape society to be consistent with those practices. In creating systems of legibility, the state strives to develop a single epistemological system that excludes other types of knowledge and to shape reality according to this system. Exclusion of

incompatible material practices and forms of knowledge is essential to effective legibility. Such schemas are often articulated in terms of a state's cultural foundation.

State culture and categories

The cultural foundations of the state have long been of interest to sociologists and have been studied across contexts, including state building (Adams 2005; Gorski 2003; Steinmetz 1999), censuses (Cheong 2023; Emigh et al. 2021; Emigh et al. 2015; Mora 2014a, 2014b; Rodríguez-Muñiz 2017), infrastructural development (Mukerji 2009), and colonial ethnographic practices (Burke III 2014; Dirks 2001; Goh 2007; Segalla 2009; Steinmetz 1999, 2007, 2008, 2023). In part, state actors' ideologies and beliefs determine their methods of information collection, knowledge, and their subsequent acts (Berda 2023; Hussin 2016, 2017; Steinmetz 1999; Wyrzten 2017). Beliefs and cultural schemas are often malleable and ambiguous, but their flexibility is often key to fulfilling actors' ideological commitments (Chatterjee 1993; Loveman 2005, 2007, 2014; Quisumbing King 2022; Wyrzten 2017). Similarly, Wilson demonstrates that a state's knowledge does not "reflect" society but is "refracted" through the state actors' beliefs (2011).

State culture, schemas, and knowledge often emerge from the interaction between state and non-state actors, and researchers have long recognized the agency of non-state actors in determining the shape and success of legibility practices. This is equally true in situations of resistance (Scott 2009), as in those where actors strive to transform legibility practices to their benefit (Cheong 2023; Rodríguez-Muñiz 2017). My argument complements existing research that critiques hierarchical models of state knowledge by demonstrating that legibility varies within the state itself (Emigh et al. 2021, 2015; Mora 2014a, 2014b; Rodríguez-Muñiz 2017). Just as the interaction between state and non-state agents shapes the practices, content, and schemas of state information, the organizational structure and communicative practices of state agents create systematic variation across bureaucratic roles and strata. In doing so, this article builds upon recent works in sociology and political science that draw attention to differentiation within the state and highlight ambiguity in state knowledge (Mathur 2015; McDonnell 2020; Quisumbing King 2022).

Theorists of the state have long recognized its heterogeneity and the lack of a single top-down state perspective (Abrams 1988; Adams 2005; Bourdieu 1991; Mathur 2015; McDonnell 2020; Morgan and Orloff 2017). Yet legibility theory has not sufficiently engaged with these theoretical critiques and often assumes an integrated ideological schema defined through modernism or rationalism (Scott 1998). When theorists of legibility do recognize the presence of differentiated knowledge, it is generally interpreted through the "rule of colonial difference" (Chatterjee 1993). This approach can be seen in the case of administrative specialization, such as Hussin discusses with the inclusion of Indian juridico-religious experts in the British Raj (2016, 2017) or Wyrzten's discussion of community-specific administration practices in Morocco and Algeria (2017). Yet, how information itself changes through communication and interaction has not been sufficiently addressed.

Agency and state structure

To analyze the flow of information between state actors, one must understand how administrators in different organizational roles perceive and respond to information. In complementary ways, Adams and Reed draw upon agency theory (Shapiro 2005) to describe how agency chains and the delegation of authority structure state administrations and individual action (Adams 2005; Reed 2013, 2020). These theories complement existing literature on the inherent discretion of street-level bureaucrats, including the persistence of corruption (Gupta 1995; Lipsky 1980; Lotta et al. 2024; Maynard-Moody and Portillo 2010; Wilson and Maryl 2024) and “sugarcoating” in organizational behavior (Fang, Kim, and Milliken 2014; Maggi and Rodríguez-Clare 1995). Importantly, Adams and Reed recognize that complex chains of authority create opportunities for autonomous action, coordination, and competition (Adams 2005: 18–19; Reed 2020: 33–34, 40). With distance from central nodes of power, state agents face challenges in interpreting delegated responsibilities and must work creatively to achieve their goals. Administrators may have different interpretations of these goals and how best to achieve them. Theories of legibility must consider agents’ autonomy and interpretive challenges in the construction of state information.

Agency theory allows us to separate two processes entangled within the legibility literature: the process by which information is collected and interpreted by an agent with an aim to fulfill their responsibilities and the process by which that agent passes information to others. State agents often face situations in which the desirable outcomes of their delegated tasks require disseminating information they believe will be undesirable to their superiors. The information and practices of agents on the ground, while collected and enacted per their delegated responsibility, may not be seen as most desirable in terms of more general state goals. While I find no evidence of lying in the Moroccan case, I demonstrate that actors often deliberately changed their actions and the information they relayed to diminish tension between what would be effective locally and what would be perceived as desirable by others. State agents creatively molded the information sent to superiors to better reflect what they understood to be generally desirable results.

Levels of legibility: A new approach to state information

What I term the “levels of legibility” approach explores how the autonomous interpretive and communicative practices of state agents in distinct roles and administrative configurations affect the construction of state knowledge and legibility. This approach must attend equally to the agentic relationships of individual actors as well as administrative structures. There are numerous pathways by which actors in complex administrations receive and diffuse information. Street-level bureaucrats have on-the-ground experience of local conditions, often holding more information than their superiors, but are limited in the sources of their knowledge (Lipsky 1980). Conversely, central officials have access to more sources of information but must rely on their agents. Roles themselves are essential to understanding the construction of state knowledge. Routinized actions, tasks, and communication shape how individual agents collect, interpret, and relay

information. Only by examining how actors understand their administrative role and their position within the broader administration can we model how they create and transform information.³

While the extant research on legibility and state information has generally focused on defined schemas, such as those used in censuses, much of a state's knowledge is encapsulated in less formal records – reports, circulars, memos, draft legislation, and daily meetings all serve to transmit information. Information often travels through widely available channels that bypass steps in the proverbial game of telephone. Circulars, journals, reports, and legal codes provide information to large groups of state actors. Yet, the capacity to effectively interpret knowledge varies within states. Information requires context to be made meaningful, and many internal government sources of information require significant background knowledge to be understood. To those lacking contextual knowledge, publicly available information might be illegible.

The *levels of legibility* approach considers how roles, administrative structures, and communicative practices affect the construction of state knowledge. It posits that the modes of information interpretation and diffusion may vary within states and create different strata of state information and legibility. To understand how actors develop policy and make decisions based on the information they receive, one cannot only speak of a disembodied and unified set of legibility practices, but the mechanisms by which information is gathered and shared within an organization.

The following section of this article examines legislative studies from the French Protectorate in Morocco from the mid-1920s through the 1940s to examine legibility practices and information within the French bureaucracy. Legislative studies were used to draft vizierial orders⁴ to register and ratify the water rights of individuals, firms, and collectives. In a 1925 *dahir* (royal decree), the French Protectorate brought all water into the public domain of the state and declared it subject to direct state allocation of usufructs (Grand Vizir 1925; Sultan Moulay Youssef 1925). The complex process of allocating rights involved multiple layers of bureaucracy, from local street-level bureaucrats to central legislative officials. By following these projects from their origin in localities to their publication, transformations in their content emerge; in many cases, the information held by street-level bureaucrats is significantly different than that viewed by central officials and officially legislated. Due to the specificities of this process and documentary limitations, this study focuses on a two-level change of information, from the local to the central, but in different cases, one could likely identify these dynamics over multiple administrative levels. While the particular dynamics of these cases may apply in other contexts, they are not universal; different administrative structures and contexts should shape legibility in distinct ways.

³This agency-based description of decision-making is similar to pragmatist views (Gross 2018; Gross, Reed, and Winship 2022; Jansen 2011). However, this approach deemphasizes patterned habits in problem-solving and prioritizes the significance of roles in explaining patterns of agents' decisions.

⁴*Arrêtés Viziriels*

Legibility in practice: Case studies in French Morocco

The French Protectorate in Morocco⁵ was a colonial state enacted through indirect rule, where the monarchy was preserved along with judges (*qadis*) and local councils (*jamaas*) that operated under a French bureaucracy (Bidwell 1973; Burke III 2014; Treiber 2019; Wyrzten 2015). Despite its stated commitments to Moroccan development (Abu-Lughod 2014; Hoffman 2010), the French state endeavored to install a permanent and robust colonial population, particularly after 1917 (Ayache 1956; Berque 1955; Bouderbala 1996, 1999; Comité d'Action Marocaine 1934; Davis 2007; Knight 1931; Le Coz 1964; Pascon and Ennaji 1986; Swearingen 1987; Zartman 1963). Through both state-administered colonization programs and private efforts, large swathes of land and natural resources were transferred to French ownership.

Legal systems and the *Bulletin Officiel*

The French state took great pains to legally legitimize its actions. With the preservation of the Moroccan monarchy, the French commitment to formal legality required that many bureaucratic decisions be enacted through a royal decree (*dahir*) or vizierial order. These decrees and orders were written and approved by French administrators and were collected for final drafting and approval by the *Service des Études Législatives* (Service of Legislative Studies) under the authority of the Secretary-General. Except in rare circumstances, the Sultan or his viziers were only involved in orders' final signing. In shaping the Protectorate's legal framework, French administrators emulated the French *Journal Officiel* (Official Journal). The *Bulletin Officiel de l'Empire Chérifien* (Official Bulletin of the Cherifian Empire, hereafter "the Bulletin"), as with its French counterpart, officially promulgated legislation, published government decisions and regulations, and provided both state actors and the public with information on a variety of state programs. A substantial portion of government decisions across its directorates, ranging from national legislation to local minutiae, were published in the Bulletin, collating a significant body of diverse information.

The colonial administration in Morocco was distinctly hierarchical, but few levels separated central officials from street-level bureaucrats. With limited intermediaries between the highest ranks of the Protectorate and the local bureaucrats who interfaced directly with the civilian populations, information flowed easily. Under the authority of the Resident-General, the Protectorate was organized into several directorates, each of which managed its own local agents. While acting under the nominal authority of the Sultan, these administrative bodies were entirely controlled and staffed by French bureaucrats.

The Protectorate was legally divided into two zones, a military zone where Moroccans were administered by the Directorate of Native Affairs (*Direction des Affaires Indigènes*) and a civil zone where both Moroccans and European settlers

⁵Protectorate-era Morocco was divided between the larger French and smaller Spanish zones. This article discusses solely the French Protectorate in Morocco. References to 'the Protectorate' only refer to the French Protectorate.

were managed by the *Contrôle Civil*.⁶ In the years following the 1925 *dahir*, the most significant agricultural zones were under civil control and were increasingly settled by European farmers. *Contrôle Civil* offices were located in all civil circumscriptions, forming the core of local administration. In many localities, these were the only physical administrative offices, and the agents of other directorates worked from within them. Whereas regional (provincial) offices often had separate directorate offices, local offices grouped agents from across the administration. As such, local administrators were more connected to each other than their superiors.

The bureaucratic organization and culture of the French Protectorate was unique, even among colonial states. Whereas administrations are often marked by competition, the Protectorate's administration was relatively harmonious, in large part due to the efforts of Maréchal Hubert Lyautey, the first Resident-General, who is widely credited as the Protectorate's principal architect (Hoisington Jr. 1984; Rivet 1996). Lyautey was a veteran soldier and colonial administrator who aimed to avoid the problems he witnessed in French Algeria, a colony infamous for its over-bureaucratization, disarray, and brutality.

To avoid administrative issues in Morocco, Lyautey undertook two distinct projects: the institution of indirect rule through the preservation of the Sultan and local Moroccan elites, and the creation of an idealistic, committed, and loyal administration. Lyautey cultivated the devotion of his followers, particularly in the *Contrôle Civil*, and strove to create a corps of educated, proactive, and driven agents willing to interface directly with Moroccans. In addition to serving French interests, Lyautey intended them to be paragons of French virtue and modernity to demonstrate the benefits that France could bring to Morocco. *Contrôle Civil* officials were tasked with collaborating with local elites both to exert control and facilitate their efforts to remake Moroccan society. Instead of relying solely on force, French officials cemented their rule through local communities. Lyautey was exceedingly charismatic, and his network of followers remained in the Moroccan administration long after his departure in 1925. Whereas interpersonal conflict surely existed, there is no evidence of systematic conflict among administrators or between different offices. In contrast to many other colonial administrations, French bureaucrats in Morocco were, for the most part, ideologically committed and actively cooperated in their efforts.

The cooperation and commitment generally displayed among French administrators in Morocco and the colonial nature of the state are useful for an examination of information's movement and transformation within states. While miscommunication and distorted information can often be attributed to conflict and an individual's desire to mislead another, there is no evidence to suggest that such dynamics systematically occurred within the Protectorate administration. While ill-intended and intentional distortions of information could similarly create stratified layers of state knowledge, the case of French Morocco suggests that systematic knowledge transformation can occur even in cases of exceptional cooperation. Disambiguating informational transformation from cooperation as opposed to that emerging from conflict in cases with significant conflict and

⁶Whereas *Contrôle Civil* is literally translated as 'Civil Control,' it has a greater connotation of management and administration than it connotes in English.

disarray, such as neighboring French Algeria. As a colonial state, the Protectorate legally differentiated between Europeans and Moroccans, and its goal to shift resources into the hands of European settlers is well-documented. While such legally discriminatory tactics are common, they facilitate identifying differences in the treatment of information that may be obfuscated in the absence of explicitly stated legal categories. The Moroccan case, while well-suited for clarity of analysis, is not unique, and the dynamics found within would likely appear in other cases.

Water rights and allocation

In 1925, the Protectorate issued a decree that brought all water in Morocco, except for small sources such as wells, into the public domain (Sultan Moulay Youssef 1925). All water rights became usufructs, that is, a retractable right allocated at the state's discretion. As such, usufructs could only be leveraged in disputes between private actors, but not against the state itself. The dahir was instituted at the beginning of a substantial, yet gradual shift in agricultural and colonization policy. Early official colonization efforts focused on dry-farming of cereals had saddled colonists with debt, and although these efforts would only reach their peak in 1927 and continue into the early 1930s, the Protectorate was aware that securing hydraulic resources for colonial agriculture, particularly cash crops, was necessary for long-term development (Swearingen 1987). The Moroccan littoral regions have an ideal climate and soil for agricultural production, but exceptionally variable rainfall. The cash crops for which the Moroccan climate is suited, such as citrus and market vegetables, required stable water supplies. The Protectorate began investing in hydraulic infrastructure, but effective implementation took until the mid-1930s.

Given the scale of water use and limited capacity of the Protectorate, a systematic effort to formalize usufructs was impossible; instead, ad hoc committees were formed at the request of local stakeholders. In the context of financial stress and competition for water, committees were often formed to settle conflicts but were also used by elites – both Moroccan and European – to acquire greater water access. Once a request was submitted, local administrators formed committees headed by a local administrator from the Directorate of Public Works. These committees included several others, often the local *Contrôle Civil* officer; an administrator from the Directorate of Agriculture, Commerce, and Colonization; a representative of the regional agricultural chamber;⁷ and the *caïd* of the local tribe if the case included Moroccans. Within these committees, the distinction between directorates was muted. Small bureaucracies, joint projects, and shared offices limited division. The linked interests and projects of local officials all but ensured continual cooperation.

Committees first posted fliers in the community where the evaluations would take place. These fliers requested that stakeholders send them relevant information or claims and set a date for the committee's meeting, either at the *Contrôle Civil* offices or the water sources in question. At these meetings, committee members heard arguments, collected information from claimants, and subsequently wrote a

⁷The agricultural chambers were official agricultural organizations composed of farmers, agricultural suppliers, and Protectorate agricultural officers. They held considerable influence in Moroccan agricultural policy and generally functioned as settler advocacy groups.

report of the committee's minutes, detailing the context, claims heard, and the committee's recommendations. Separately, they drafted a tentative vizierial order to be modified and enacted by the Service of Legislative Studies. Committees' recommendations were almost always accepted, but they held no power to deliver legal rights.⁸

In principle, decisions to recognize rights were determined by balancing the following types of claims:

- (1) Demonstration of pre-1925 rights to water sources through documentation.
- (2) Demonstration of traditional and continual use of water sources.
- (3) Proportional water usage for families calculated by:
 - a. Irrigable agricultural area.
 - b. The herd size of claimants.
 - c. Equity of water per family.
- (4) State interests in the water source.

Claimants often appealed to different, equally legitimate standards, and committees held significant discretion in crafting their decisions. Having reached a decision, committees drafted legislation, often corresponding with central officials from the Directorate of Public Works and the office of the Resident General. Finalized drafts were sent to the Service of Legislative Studies for a vizier's signature and publication in the *Bulletin Officiel*.

Committee reports varied widely; some committee decisions took minimal effort, with the corresponding committee minutes under a page. Others stretch to nearly a hundred pages, extensively detailing the stakeholders, context, and the decision-making process. At a minimum, committee reports stated the region, the names of rights-holders, and their share of water sources. In contrast, other orders include full narratives, detailing the names of farms, the property title numbers, geographic coordinates, lists of cultivated crops, farm acreage, and the acreage of irrigated and non-irrigated land. Between the committee's minutes and documentation on the one hand, and its official reports and proposed legislation on the other, information changed significantly. By examining the conditions in each case, the information held by local committee members, and what information they sought to pass on, it is possible to identify the causes for information's transformation within the administration. The context of this study has the advantage of controlling for situations in which Moroccans would aim to avoid the Protectorate's agents and their intervention (Scott 2009). While Moroccans certainly had a vested interest in avoiding water rights committees due to the risk of expropriation, their efforts to circumvent them would have occurred before the process began. By privately settling disputes, Moroccans could have sought to avoid state intervention, but once the Directorate of Public Works received a petition to recognize rights, Moroccan interests were best achieved through cooperation. Without declaring their interests to the committee, their water rights would be stripped by default.

While in some respects, water is more difficult to track, measure, and distribute than other resources (Hundley Jr. 2009), water was easily measured within localities.

⁸For a more complete and detailed description of the process see Grand Vizir (1925).

Morocco has a long history of water management in an arid climate, and dividing water from springs and canals was technologically effective and a well-established social practice (Ftaïta 2006; Janty 2013; Popp 1984). Water access was often managed communally by rotating access to common canals and infrastructure. As such, water rights could be well-surveilled both by bureaucrats and other stakeholders. Only in relaying information were informational transformations and ambiguities created.

Informational tactics in the French protectorate

Local administrators had many incentives when it came to relaying information. They needed to complete their delegated tasks but were also keenly aware of the Protectorate's broader goal, challenges, and what would be considered desirable to others. Individual incentives often aligned with broader state efforts, but at other times, individual agents navigated tension between their core responsibilities and anticipated interpretations of their actions. To alleviate this tension, agents could elevate or obscure information to present their work as consistent with broader goals. Additionally, if comparable actions were available, agents would choose those that presented their efforts in a better light. While personal interest certainly contributed to individuals' efforts to appear effective, officials appear not to have acted against state interests. Furthermore, the rotation of officials across regions and the composition of ad hoc committees by representatives of different divisions made rent-seeking behavior difficult. The following case studies demonstrate not only the existence of informational transformation in cases of cooperation but also the specific tactics administrators used to modify the information they conveyed to others.

Indigenous erasure in 'Permitted-use'

Local officials were often tasked with adjudicating the competing claims of Moroccans and colonists. In many cases, French administrators needed to permit Moroccan access to water sources, even in situations in which doing so conflicted with the state's general goals. When water was scarce or fought over, granting water to colonists was the desirable outcome. To mitigate this tension, state agents often use an unnamed strategy I term "permitted use": local agents gave informal permission to Moroccans to draw from water sources but refused to grant usufructs.

While permitted use at first appears to be a simple case of the Protectorate dispossessing Moroccans in favor of colonists, the legal status of usufructs complicates the picture. As water rights were not enforceable against the state, the distinction between *usufruct* and *permitted use* narrows considerably. Usufructs and permitted use could both be retracted by state agents at will. In large part, a rights-holder's only benefit over a permitted user was that the rights-holder could ostensibly enforce their claim against private individuals. Yet disputes were generally adjudicated by the same local officials tasked with allocating rights. Attempting to enforce a claim could expose that claim to retrocession. As such, an attempt to enforce one's rights through the state entailed substantial risk. So, what is

to be gained by permitting Moroccans' water use at a local level, but not allocating a usufruct?

While local administrators could change permitted use with less bureaucratic overhead than usufructs, the most significant difference between the two is publicity. The system of permitted use allowed local administrators to retain the same degree of control over resources while obscuring non-French resource use. These dynamics are seen in the following case of a project to recognize water rights at two springs outside Fes.

On June 12, 1936, a committee met at the Fès-Banlieu *Contrôle Civil* to examine the water rights for two springs, the Aïn Sikh and the Aïn Mouali.⁹ The meeting was convened to examine the Cherifian Petrol Company's request for the right to draw water from the Aïn Sikh. The assistant to the Chief Civil Controller of the Fès-Banlieu district, Mr. Forichon, presided over the meeting and was joined by representatives of the Directorate General of Agriculture, Commerce, and Colonization, the Service of Public Land and Land Registration, and the City of Fes Public Works Administration. The Cherifian Petrol Company lost its bid for water rights due to two contesting claims. The first was from the Agricultural Company of Tratt, a French firm. The second was by an unnamed Moroccan group, likely a fraction of the Homyan-Lemta¹⁰ represented at the committee meeting by Si Mohamed Ben Brahim El Ouezzani and Si Abdelkader Ben El Mekki El Ouezzani.

The Agricultural Company of Tratt claimed a right to the spring as it owned neighboring land that it acquired through the official colonization program before 1925.¹¹ Its purchase contract specified that "only the rights of the native limit the company's rights to the two springs, Sikh and Mouali." As such, it contested the Cherifian Petrol Company's petition. The Moroccan representatives also contested the Cherifian Petrol Company's petition on the grounds that the local population had traditionally used the springs and that they were located on its land. Furthermore, the flow of water to which the Moroccan collective had been allotted, one-third of the Aïn Sikh's flow, was already insufficient for its current needs. While the committee decided quickly not to approve the Cherifian Petrol Company's request, it was still faced with balancing the two remaining claims, one resting upon a state contract and the other upon the argument of traditional use and sufficient access. Through exceedingly convoluted logic, the committee determined that because the Moroccans' water use would only increase over time, extending their water rights unfairly burdened the Agricultural Company of Tratt. The committee decided that the Agricultural Company of Tratt's claim took precedence and that the Moroccans' water allocation would be reduced from one-third to one-sixth of the Aïn Sikh's flow.

⁹V.O. [Vizieriel Order] Recognizing Water Rights on the Aïn Sikh and Aïn Mouali, A.V. *Portant Reconnaissance des droits d'eau sur l'Aïn Sikh et l'Aïn Mouali*. AdM, D146.

¹⁰The group is presumably the tribe or a fraction of the Homyan-Lemta due to the committee's consultation with the Cheikh des Homyan.

¹¹The Protectorate facilitated colonization by creating official colonization allotments that sold domanial, and later expropriated collective, lands (Le Coz 1964; Swearingen 1987).

Yet, the final vizierial order published in the Bulletin did not include Moroccan rights. Instead, the entire flow of the Aïn Mouali and five-sixths of the Aïn Sikh were allocated to the Moroccan Company of Aïn Sikh, a French firm that acquired the Agricultural Company of Tratt's holdings between the committee's meeting and ratification of the order. The remaining one-sixth of the Aïn Sikh's flow remained in the public domain. Why did the committee's decision to allocate that share for Moroccans not appear in either the draft or final legislation?

If the only goal of French administrators was to limit Moroccan water access, there were simpler solutions: they could have denied Moroccan access to the spring and allocated all its water to the Agricultural Company of Tratt/Moroccan Company of Aïn Sikh. If they wished to preserve some access for the Moroccan community, they could have allocated rights to one-sixth of the flow. Either solution, where the state's actions and information aligned, would be consistent with legibility theory and modernist theories of the state. Furthermore, as the state only allocated usufructs, the state could always retract Moroccan water rights in the future. So why was this case resolved in such a peculiar manner?

This resolution can only be explained by the symbolism of rights. Administrators in rural communities could not deny all Moroccan water access without creating significant issues. To employ such extreme measures would betray administrators' nominal role as professional, well-intentioned agents working toward Moroccan development. They could not completely devastate a community by denying water access. Yet, these officials worked in a highly colonized region and were aware of the efforts to support colonists – siding with Moroccans against a colonial firm's petition for water access would be undesirable in an area of significant water competition, particularly with the refusal of a second colonial firm's petition.

Permitted use allowed administrators to defuse this tension. By only recognizing the colonial firm's right to water, the committee members signaled a desirable outcome, the successful allocation of water to settlers in a region of water competition. Additionally, by keeping a fraction of the water in the public domain, the committee signaled an excess of water. From a situation of scarcity and competition, the committee projected an image of bountiful water and success in the campaign to expand colonial water access. By privately allowing Moroccans to use water, they could fulfill their responsibility of effectively managing the local region without repercussions. Yet in doing so, they misrepresented the local conditions to their superiors and all readers of the Bulletin – permitted and continual Moroccan water use was not reported. Only local officials knew the actual conditions.

Precision as obscuratation

Committees could not always utilize such heavy-handed tactics. In situations with numerous stakeholders, permitted use was impractical. Unlike the Aïn Mouali and the Aïn Sikh, many water sources supplied water to numerous farmers through complex irrigation systems that required careful coordination. Committees could not rely on unstated permission as it would lead to confusion, conflict, and untenable demands on state agents. Administrators could not avoid unambiguous details registered as a usufruct. Yet, administrators still wished to avoid appearing to favor Moroccans over colonists. This tension was faced by a committee organized in

January 1944 to recognize water rights at several springs serving twelve Moroccan farmers outside Rabat.¹²

The committee's efforts were routine and uncontentious. The committee's minutes were simple, and the corresponding vizierial order followed suit. The only information published was the farmers' names and their share of the water. The small quantity of water, lack of European claimants, and the region's mediocre agricultural land attenuated administrators' desire to restrict Moroccan water use. As such, usufructs were allocated to the Moroccan farmers. This case is unique in that the springs in question were located just to the southeast of Rabat, the Protectorate's capital. They lay near the confluence of the Oued Mechra and the Bou Regreg rivers, on the doorstep of the European center and the administrative core of the Protectorate.¹³ This was unmentioned in any of the documentation sent by the committee members to the regional officials of the Directorate of Public Works, and hence anyone in the central offices of the Directorate in the Service of Legislative Affairs. Only local officials could easily know where these springs lay. In the place of narrative descriptions, the committee members *did* include the geographic coordinates of the springs. While this replacement might at first glance demonstrate increased legibility and the adoption of modernist practices to identify locations, it represents the opposite: the coordinates were meaningless to any casual reader of the Bulletin, within or without the administration. To locate the springs, one would have needed to seek out an unusually high-quality map.

Legibility cannot simply be a code word for technological practices and modernist ideology. Instead, legibility must be understood in terms of interpretative capacity. The springs' names were useless to anyone without uncommon local knowledge, and the statement that the springs lay in the *banlieue* – suburbs – of Rabat, referred to a vast and imprecise region. Relying on coordinates allowed the local administrators to demonstrate precision without having to navigate the symbolic danger of publicly granting water rights just outside the capital city. Technical precision did not lead to legibility but gave the appearance of it. Most administrative orders identified locations with easily accessible information, such as references to large towns, kilometer markings on major roads, or well-known sites. The committee members in this case could have described the locations of the springs in this manner; they lay at the confluence of two major rivers a few kilometers from the Protectorate's central offices. Instead, administrators effectively used technical precision to obscure potentially undesirable information.

Lack of precision as efficiency

Not all cases were considered important by state administrators, and in such less important circumstances, administrators often recorded the minimum required information. In many cases, administrators simply reported the rights allotted to

¹²Vizierial Order of January 12, 1944 Ratifying the Commission of Inquiry's Operations Pertaining to the Recognition of Water Rights at the Springs of Aïn En Nsa, Aïn Taquioult, Aïn Sidi Mokhfi, and Aïn El Himara (Rabat-Banlieu), *Arrêté Viziriel du 12 janvier 1944 (15 moharrem 1363) homologuant les opérations de la commission d'enquête relative à la reconnaissance des droits d'eau sur les sources Aïn En Nsa, Aïn Taquioult, Aïn Sidi Mokhfi, et Aïn El Himara (Rabat-banlieu)*. AdM, D365.

¹³These lands are now submerged in a reservoir for agricultural and municipal water.

each farmer and their general location, specifying only the closest town or *Contrôle Civil* office. Decreased specificity appears to have been more common for politically irrelevant complex situations, such as in the project to recognize water rights for the spring at *Ras el Aïn de Sidi Abdelkrim*.¹⁴ In its report and legislation, committee members made no effort to provide contextualizing information. Water shares were not recorded in an easily interpretable way. The spring was divided into 556 shares, of which each farmer was awarded a certain number. No explanation was recorded for the committee's decisions. With such little contextualizing information, practical interpretation and oversight from higher officials would have been all but impossible.

A map included in internal reports was similarly opaque. The map is hand-drawn and includes no reference points, markers, or coordinates, consisting only of a line representing the spring's main canal, a local track, crudely drawn property lines, and farmers' names. Despite the appearance of information, no one without preexisting and precise local information could glean any information. Even the most basic reference points would allow the regional, if not central, administrators to interpret some information from the map and reports, but no such contextualizing information was included.

The decision not to provide contextualizing information was not a poor decision on the part of local administrators. Water access was not contested, and no French colonists claimed water rights at these springs. In the eyes of the local administrators, information on small-scale Moroccan farmers in this locality would not be useful to the central administration, and as such, information was not passed on. Such detail was only required for the work of the local officials. Yet, if such information is systematically obscured, the knowledge of central administrators becomes significantly distorted and imprecise. While they may know that somewhere, some Moroccans have access to water, they learn nothing about the locality, the issues at play in the region, the types of water sources used, their agricultural purpose, or other adjoining information. Such information is reported for regions with conflict, and in those regions, disproportionality for European farmers.

Common information and legibility

Just as street-level administrators obscured information they believed to be useless or undesirable to others, they also increased detail to render other information more legible. Such efforts often appeared when administrators sought to draw attention to their successes, particularly regarding their support of colonists in the official colonization programs. The official colonization programs facilitated settlement by organizing allotments available for purchase by French farmers, often coming with state-backed loans and material support. These projects were well-known and

¹⁴V.O. [Vizierial Order] of December 9, 1935 Ratifying the Commission of Inquiry's Operations Pertaining to the Recognition of Water Rights at the Springs of *Ras el Aïn de Sidi Abdelkrim*.', A.V. *homologuant les opérations de la commission d'enquête relatives à la reconnaissance des droits d'eau sur les eaux des sources de Ras el Aïn de Sidi Abdelkrim*. AdM, D135.

publicized through several channels: the Bulletin, fliers for property auctions, newspaper advertisements, and other media.

Vizierial orders granting water rights to owners of official colonization allotments used a maximalist approach to identification – all that was required to identify land in a vizierial order was the owner's or farm's name, yet these vizierial orders almost universally included the allotment project's name, allotment number, reference points to major cities, farm name, owner's name, and other easily understood identifiers. Any informed reader of the Bulletin would know the location of the allotment and, if desired, access detailed information about the farm from readily available informational booklets, advertisements, and newspaper coverage. This maximalist and non-technical approach to identification began at the lowest bureaucratic level, where this information was arguably of the least use due to administrators' local knowledge.

Including commonly known information in vizierial orders linked local administrators' work within the broader colonial project. Their allocation of water rights to easily identifiable colonists demonstrated their success in bringing water to European hands and bolstering the agricultural economy. Whereas only a fraction of European-owned farms were settled under the official colonization program, they were the symbolic centerpiece of French policy. Privately settled French farms were not as easily identifiable as their official counterparts because they were not part of well-publicized allotment projects, but vizierial order still endeavored to identify them through other legible features.

The legibility of progress

Just as local administrators added context and information to highlight their support of French farmers and colonization efforts in vizierial orders recognizing water rights, they also often added legally irrelevant information on land transfers from Moroccans to French owners. Land transfers went hand in hand with the broader state goals to support colonial agriculture, but had no legal significance for water rights recognition. This inclusion can be seen in a 1927 vizierial order recognizing water rights on the oueds Ben Kezza, Amellal, et N'Ja, to the west of Fes.¹⁵ The process itself was routine, and the farms in question were in a locality of mostly European-held land comprising four official colonization projects – Aïn Taoujat, Bethma Guellafa, Douiet I, and Douiet II – and numerous privately settled lands.

Administrators identified all officially colonized land through their allotment titles, making their reports and orders highly legible, but took a further step when discussing private lands. Private lands were labeled with the owners' names and specifically marked as “acquired from natives,”¹⁶ clearly demarcating the transfer of land from *unnamed* Moroccans to *named* French landholders. All Moroccan right

¹⁵Vizieriel Order of February 7, 1927 (1st Sha'ban 1345) Ratifying the Operations of the Committee's Inquiry Pertaining to the Recognition of Water Rights on the Oueds Ben Kezza, Amellal, and N'Ja, *Arrêté Vizieriel du 7 février 1927 (1^{er} chaabane 1345) homologuant les opérations de la commission d'enquête relatives à la reconnaissance des droits d'eau des oueds Ben Kezza, Amellal, et N'Ja*. AdM, D342.

¹⁶“Parcelle acquise aux indigènes”

holders in the region are unnamed and referred to only as “natives[,] purchasers of a parcel of the Pagnon property,” “natives, right shore of the Oued Ben Kezza,” and in other similar ways.¹⁷ The committee’s deliberate communication of this information demonstrates a commitment to settlement efforts, even within an unrelated administrative duty. The difference in legibility between Moroccans and French farmers gave no practical benefit to higher administrators but demonstrated street-level bureaucrats’ understanding of what would be desirable to regional and central administrators. Water rights legislation served as a vehicle by which to signal progress in other arenas of rural development.

Masking conflict

If administrators’ success could be marked, conflict and scarcity could be hidden. The main text of the Vizierial Order of March 31, 1940,¹⁸ reads as follows: “The totality of the water from the springs of Moulay-Yacoub-Seghir is recognized as belonging to the State (public domain).”¹⁹

This incredibly simple order masks a complex case filled with conflict. The springs provided many different Moroccan farmers and landholders with water for drinking, irrigation, and watering their herds. Moreover, some of the springs are hot springs that made Moulay Yacoub – a small, mountainous town northwest of Fes – a popular destination. These hot-spring baths were owned by *habous*, inalienable religious institutions, which managed these baths for locals, tourists, and those seeking their therapeutic properties. The committee faced opposition from each of these stakeholders but granted none of their requests.

When challenging the committee on behalf of local Moroccans seeking water for their herds and drinking, the Caïd Ben Aïssa was informed that “The Commission appreciates this well-founded opposition and believes that he [the Caïd] will be given satisfaction by the enrollment of the totality of the flow of the spring in the public domain.” A similar response was given to the Beni Hassen; although the committee recognized that the Beni Hassen had enjoyed a traditional right to the sulfurous hot springs, it stated that their needs would also be met if the waters were placed in the public domain. Claims by three Moroccan farmers seeking to formalize their water rights for irrigation were responded to as follows:

After studying this opposition, the Commission believes that the tolerance that has been accorded to these natives for the irrigation of their small parcels seeded with corn cannot constitute a right that will counter the general interest by reason of the relevant springs’ low flows.²⁰

¹⁷“Indigènes acheteurs d’une parcelle de la propriété Pagnon” ; “Indigènes, rive droite de l’oued Ben Kezza.”

¹⁸Arrêté Viziriel du 31 Mars 1940 (21 safar 1359) homologuant les opérations de la commission d’enquête relatives à la reconnaissance des droits d’eau sur les sources de Moulay-Yacoub-Seghir (contrôle civil de Meknès-banlieue). AdM, D360.

¹⁹“La totalité des eaux des sources de Moulay-Yacoub-Seghir est reconnue comme appartenant à l’Etat (domaine public).” AdM, D360.

²⁰AdM, D360.

The committee used two opposing arguments for keeping water rights in the public domain. The first argued that as the springs' flows were plentiful, the allocation of rights was unnecessary, and those with a legitimate cause could access water in the public domain. The second argued that the sources were so limited that rights to water use could not be reasonably allocated. These two arguments are completely contradictory.

While the committee's reasoning is contrived to deny Moroccan water use, it faced no scrutiny as its reports were generated and disseminated in private. Except for what little information was stated to their representatives, stakeholders would only be informed that their petitions were denied. This solution can be seen to benefit local administrators in two ways; first, in a region with high competition but relatively few stakeholders, administrators were able to preserve discretionary control over water use. Second, instead of publicly ceding water rights to Moroccans in a locality with high competition over water, they could avoid making public claims. Even with no French claimants, the optics of allocating water rights to Moroccans in a region known for its water scarcity would not be seen as desirable. By simply allocating all water to the public domain, local administrators could claim complete control over resources, mask conflict, and project an image of surplus. They turned an image of scarcity and conflict into one of harmony, simplicity, and surplus.

Conclusions

Information reported in the administrative circulars and the Bulletin Officiel shaped the Protectorate's policy decisions. Bureaucrats and the public readers alike gleaned information from the Bulletin's reports and orders about the state itself and the country as a whole. Journalists, business leaders, and the entire politically engaged populace relied heavily on the Bulletin. While central officials had access to unpublished reports, memos, and communications, they were just as dependent on the information they received. Due to the short hierarchy of the Protectorate, central officials often fielded requests from local committees for guidance in solving complex issues, and these routine communications provided them with valuable windows into the Protectorate's operations and challenges. For example, records show that the two highest-ranking officials under the Resident General, the Minister Plenipotentiary and the Secretary-General, regularly corresponded with local officials. These officials included Urbain Blanc, Minister Plenipotentiary under both Lyautey and his successor Theodore Steeg, and Eirik Labonne, Secretary General and later Resident-General in both Tunisia and Morocco.²¹ Yet without being on the ground to personally evaluate different circumstances, the Protectorate's leaders largely depended upon the information they received. How that information was transformed and framed not only could change the outcome of central officials' decisions, but also shape their understanding of Morocco and Moroccans, the actions and efficacy of the Protectorate administration, and the direction of future policy.

²¹See AdM, D343.

While fulfilling their obligations, street-level and mid-level administrators took cues from central officials and publicized state efforts. While often highly knowledgeable about local conditions and effective management strategies, these administrators were also aware of what their superiors found desirable and that what they reported would reflect upon them. As such, it is no surprise that in situations where Moroccan water use was necessary but undesirable, administrators used tactics such as permitted use to avoid otherwise obligatory reporting. In situations of conflict, they could simplify reports to avoid mentioning local contention. When detail was necessary, they could use technical precision to limit ease of interpretation or withhold contextualizing information to downplay an order's significance. If an opportunity to convey local administrators' success at managing water or supporting settlers emerged, administrators could easily add information. All these tactics distorted the information on which central officials relied. Certain groups, regions, and issues became more legible, while others receded from view. Yet in all these cases, street-level bureaucrats' knowledge was relatively constant. Contention or negotiation between state and non-state actors cannot explain these dynamics. Bureaucrats themselves transformed information.

James Scott's theory of legibility is a powerful analytical tool to understand how states gather information and make society and nature intelligible (1998). Yet in many situations, assuming a single, homogenous set of legibility practices and harmonized state knowledge is inaccurate, even in relatively effective administrations. The iterative reconstruction of knowledge by state actors creates *levels* of legibility, levels that can only be traced by understanding the particular administrative paths in which information follows. Legibility can vary within a state, and the information created by legibility practices may be operationalized differently by state agents according to their roles and responsibilities. Legibility is still a valuable framework for understanding the informational practices of states, and can only be made more valuable by attending to the agency and heterogeneity of state actors. By modeling how state actors create and transform knowledge, we can better understand the dynamics underlying state decision-making, state policy, and their broader consequences.

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