

Comparing Hydrocracies in Morocco and South Africa: Water Reform and Bureaucratic Restructuring in a neo-liberal context

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1. Introduction

In both Morocco and South Africa, since at least the mid-20th century, water has been entrusted to powerful state bureaucracies embracing a 'hydraulic mission', that some authors have dubbed 'hydrocracies' (Molle, Mollinga and Worster, 2009). In Morocco, the emergence of a powerful hydrocracy can be traced back to the French Protectorate in the 1920s, under the Resident General Steeg (Pritchard, 2012). Since the late 19th Century, South Africa has started building a strong water administration and soon developed a world recognized expertise especially in massive inter-basin transfers (Blanchon, 2009; 2012; Tempelhoff 2015). Today its civil engineers export their know-how on the African continent (and even to the rest of the world) and take an active part in the water epistemic community at the international level, especially through the ICOLD (International Commission on Large Dams).

However, both countries also went through extensive neoliberal State restructuring in the 1980s and 1990s, a process that was susceptible to challenge this bureaucratic dominance. This paper seeks to explore the ways by which these hydrocracies have reacted and/or adapted to these challenges. In particular, it questions the impact of an increased reliance on the private sector with regards the capacity of top-tier hydrocrats to coordinate the sector and fix objectives consistent with the long-standing supply-side orientation. The study also investigates competition either within a ministry or with the outside between policy networks promoting different water resources management approaches.

2. Towards dualized hydrocacies in Morocco?

In the Twentieth Century, after much hesitation and many debates (see: El Faiz, 2001) colonial policy was finally focused on bringing vast areas of Moroccan land under irrigation through the construction of dams, to foster an export-oriented cereal production (Attar, 1987). After yet some lively debates at the dawn of the 1960s (Pascon, 1978), independent Morocco followed through. It seized the opportunity of a World Bank report in 1965 that recommended a massive extension of irrigation schemes to launch an ambitious “dam policy” (Swearingen, 1987).

Morocco had inherited from the French two powerful water bureaucracies. On the one hand, the Public Work administration was in charge of building dams and large water-supply networks; on the other hand, the Agriculture administration (*administration du Génie rural*), most importantly through its nine regional offices (*offices regionaux de mise en valeur agricole –ORMVA*) managed large State-sponsored irrigated schemes (Pérennes, 1993). Interestingly, the public work elite often completed its training in France, especially at the *Ecole Nationale des Ponts et Chaussées* (Vermeren, 2003), whereas the Department of Agriculture (DoA) top bureaucracy was directly supplied by two national elite schools: the *Ecole Nationale d’Agriculture* in Meknes, created in 1945, and the *Institut Agronomique et Vétérinaire Hassan II* (IAV) created in 1966 (Arrif, 1985). However, there was less of a competition between the two than a division of labour. Cooperation was close and most bureaucrats shared a technicist, modernist and top-down worldview (Bouderbala & al., 1984). Both bureaucracies effectively looked down on small and medium-sized irrigation; both sidelined farmers and irrigators’ associations in their decision; and both largely ignored farmers practical knowledge or “metis” (Scott, 1998), in their feasibility studies as well or in their crop rotation plan (Pérennes, 1993).

By the beginning of the 1980s the accomplishments of these bureaucracies had been enormous. The total irrigated area had jumped from a mere 70.000 ha at the independence (1956) to more than 800.000 ha. Whereas between 1912 and 1967 only 17 dams had been built, 26 new ones had been completed by 1983. Between 1971 and 1980, 56% of total agricultural budget went to the creation and extension of irrigated schemes (Ihazrir, 1997). In short, and while the Moroccan State had always been reluctant to explicitly assume its interventionism in the economy, its agricultural sector had by then all the characteristics of a developmental State (Evans, 1995).

However, both bureaucracies were put under strong adaptive pressures from the 1980s onwards. These pressures came from three main sources. The first one was the observed social and environmental costs of the policy pursued so far. Inequalities in the countryside were higher than ever, driving rural exodus and the uncontrolled sprawling of urban shantytowns. At the same time recurring droughts, especially the ones of 1981-1984, called the sustainability of this policy into question: dams remained largely empty, prompting many farmers to shift to groundwater (Belghiti, 2003). These perverse effects, along with new developments in the water international community, led the World Bank to redirect its funds to « integrated » rural development projects and, by the 1990s, to integrated water resource management programs (IWRM). Demand-side management was now due to be privileged over supply-side solutions.

The second source of pressure was financial distress, with the explosion of foreign debt. It led to a full decade of structural adjustment that started in 1983 with the agriculture sector. It also prompted a broader shift away from State huge infrastructure projects and towards spending cuts. This process culminated in a 2004 plan that downsized public administration (*Intilaka*) and led to the departure of more than 35.000 public servants.

The third source of pressure was a broader criticism of State-management, including donors' growing frustration with the escalating costs of dam construction, and above all the poor showing in maintaining and rehabilitating both dams and irrigation schemes. Here hydraulic bureaucracies and their developmentalist ethos faced a legitimacy crisis.

How did Moroccan hydrocracies therefore react to this threefold challenge? Two periods can be broadly distinguished: the first one, going up to the mid-2000s, was marked by a contradictory movement: the Public work bureaucracy was able to maintain a focus on supply-side solutions, while the agricultural hydrocracy bore the brunt of State restructuring. The effects were therefore largely uneven. The second moment, since the mid-2000s, has been characterized by the comeback of the DoA and its top bureaucrats as well. Meanwhile, however, the dualization of these bureaucracies has become more and more visible.

From 1990 to the mid-2000s: hydrocracies fractured?

By the beginning of the 1990s, many actors felt that a new water law had become necessary. There had been a new round of droughts at the beginning of the 1990s. Water legislation was still highly scattered, dating back to the first years of the Protectorate when pressures on quantity and quality were limited. Importantly, also, Morocco was then very dependent on international aid and was anxious to secure international legitimacy. The Cold war had ended, and with it the geopolitical "rent" Morocco had long enjoyed. To gain international approbation, the public discourse was full of talks of "good governance", political "transition", "opening" (*ouverture*) and catching-up (*mise à niveau*). Technocrats with strong international connections were called upon by the Palace, now coexisting with the mere politically faithfuls. They enjoyed much leeway to exert change, as long as it did not call into question the grip of the monarchy on the country.

One such technocrat was Abdelaziz Meziane Belfkih. Belfkih was a model of a top-tier public work technocrat. He was an engineer from the *Ponts et Chaussées* and the *Institut National des Sciences Appliquées* (INSA) from Lyon. After spending most of his career within the Public Work administration, he had been minister for Agriculture between 1992 and 1994, before being appointed as minister for Public Works. With the strong backing of Hassan II, Belfkih was the one who took the initiative of drafting the new water law, which was promulgated in 1995.

While drafted by a team of high-level technocrats from the public work administration, the law certainly marked a low point for the agricultural administration. Mr. Abouyoub, then minister for Agriculture, had a business and energy profile with little connection to its own administration. His political capital was far outmatched by Belfkih's, who was very close to the king.

This explains why the law could, seemingly at least, mark a break from past policies. It was conspicuously inspired by the new global norm of IWRM. It organized a new institutional system based on basin-level management and autonomous water basin agencies (ABH). Demand-side management was promoted, as well as a participatory approach with users, especially for planning at the regional level.

However, and contrary to donors' expectations, IWRM underwent a thorough process of "conversion" in the process (Streek et Thelen, 2005). More specifically, the Public Work

administration claimed all along that the need to preserve aquifers and to ensure long-term water accessibility made it necessary to... build more dams and reservoirs. 19 new dams were thus built between 1990 and 2005. The logic was put plainly in a 2005 workshop that insisted the policy priority was to build “sustainable dams” and manage them sustainably (Molle & Ghiotti, 2008). More generally, and due to the many conflicting pressures, the 1995 law was in fact carefully ambiguously worded. Subsequent regulations, drafted in closer cooperation with the Agricultural administration, laid less and less emphasis on demand management, and more and more on renewed supply-side solutions.

As Public Work top bureaucrats sailed smoothly through both environmental and neoliberal concerns, the agricultural hydrocracy was put under much greater strain. Large scale, State-led irrigation was definitely out of favour, and it struggled to maintain its position. The nine offices’ staff was heavily curtailed. Control over farmers’ crop rotation was removed, as they were everywhere in the world. Departments of technical assistance were downsized or outsourced. The overall budget was reduced, as well as international aid to the sector. In fact, virtually all extension of irrigated areas in this period was due to private irrigation, mostly through (tube-)wells, and very little to the “grande hydraulique”. Coincidentally the prestige of national schools of agronomy was somewhat reduced, as more and more students flocked to business schools. More generally, the 2004 plan of downsizing public administration has had tremendous effects on the agricultural bureaucracy. Many senior bureaucrats seized the opportunity to leave and set up their own private consultancy. They are now mostly working for the State but with healthier incomes.

Therefore, by being able to pre-emptively seize the IWRM language while converting it to suit its own goals, the Public Work administration fared better than the agricultural one throughout the 1990s.

Since the mid-2000s: towards dualized hydrocracies?

During the 2000s the pace of new dams proceeded unabated. Their total number surged from 110 in 2004 to 139 in 2015. The national strategy for water now intends to push this number to 170 by 2030. At the same time, and worried by the difficulties of filling some jobs, the palace significantly increased pay and working conditions for top public engineers (Vermeren, 2003).

In the meantime, the DoA staged a spectacular comeback. This turn of event was well expressed by the appointment of Aziz Akhannouch as minister of agriculture in 2007. Akhannouch, originating from an export-led agricultural region (the Souss region) is known to be very close to the king. Soon after his appointment he was given the means to launch a very ambitious plan for modernizing agriculture, the Green Morocco Plan (GMP). In total, the GMP is comprised of 1,500 projects requiring, until 2020, more than \$10 billion to implement. Integral to this plan is a National Program for the Conservation of Irrigation Water (PNEE). This program officially aims at conserving irrigation water by switching from surface to drip irrigation over an area of approximately 550,000 hectares by 2020, at a cost of \$4.5 billion. In order to improve water conservation, the government is also subsidizing the cost of farm equipment needed for drip irrigation and providing crop seeds and seedlings adapted for such use.

However, and in a very revealing way, the GMP and PNEE management is also highly

centralized. All the money is concentrated in an Agricultural Development Fund (ADF) managed in Rabat by the Agricultural Development Agency (ADA), a body specifically created in 2009 to coordinate the implementation of the GMP. The ADF existed before the GMP, but the GMP considerably increased the amount of subsidies, for instance in drip irrigation. In 2011, the Agricultural Development Fund paid out subsidies amounting to 2.350 million Moroccan dirhams (approximately 210 million euros) (Akesbi 2013).

While this bureaucratic reassertion took place, however, middle-tier public water engineers underwent much less favourable changes. Within the Public Works administration, a growing number of studies is now carried out by private consultancy firms. More importantly, the management of irrigation schemes has been transferred to newly formed users' associations (*associations des usagers de l'eau agricole*, AUEA), or, in one much-commented case, to a private operator (Houdret, 2008). For the average agronomist engineer, therefore, there is a growing disparity between what he can do and earn in the private and the public sector, at the expense of the latter, and even though there can still be some close cooperation between the two (Gobe, 2006). There has also been some weakening of the "esprit de corps" as careers have become more and more individualized.

The local Public Work bureaucracy has also lost in status and material conditions. Compared to their predecessors, the basin agencies were supposed to be autonomous and with more budget. However in practice the State still tightly controls their operation (Del Vecchio, 2013). They are also largely unable, in practice, to levy taxes to fund themselves. Furthermore, their prerogatives keep eroding. For example, farmers were obliged at a certain stage to register their tube-wells in order to obtain access to subsidies for drip irrigation or fruit trees, as the access to an authorized water source was mandatory (Fofack et Billaud, 2015). Recently, this document is no longer necessary for the subsidy procedure, which will certainly lead to a declining interest by the farmers to register.

Whether in Public Work or in Agriculture, the Moroccan hydrocracy has therefore been dualized, the top fraction succeeding in reasserting most of its authority, while the more numerous fraction below has lost in social status and has become increasingly forced to negotiate with a new number of powerful non-public actors. As the Developmental State has become more entrepreneurial, the top-tier of hydraulic bureaucracies has tended to live a life increasingly of its own.

3. State reconfiguration and the weakening of South African hydrocracy?

In South Africa, new political elites from the ANC (African National Congress) have held a key role in reforming the water sector in the mid-1990s. They drafted a new Water Act (NWA, 1998) whose objective was to bring about more equity and ensure proper access to water for the Black population especially. While busy revising their water policy, policymakers were also very much influenced by international concept such as IWRM and its emphasis on water demand management amongst other principles¹. These new objectives for water resources management provoked some changes within the Ministry which had to experience some kind of organisational "restructuring" to accompany new policy objectives

¹ On the implementation of IWRM in South Africa, see van Koppen, Movik, Mehta, Denby, special issue *Water Alternatives*, forthcoming

and approaches (see the creation of a new directorate for institutional oversight for instances, to ensure adequate coordination with newly created catchment management agencies in the 19 river basins of the country). The democratic transition in 1994 also triggered a new policy of “transformation”, i.e. a transformation of the State apparatus in a bid to reflect more the South African society’s racial composition since under the Apartheid only whites could hold senior executive positions. Former white officials from the State Ministry of Water affairs (called the Department of Water Affairs-DWA), perceived to be too close to the former Apartheid regime, massively left the Department for the private engineering sector. The ones who stayed joined them a few years later as they realized they would no longer be considered for promotion in the ministry under the new regime. The institutional identity of DWA changed with the new recruits, who, most of the time, are politically aligned with the ANC party network and who, unlike most of the former white management elite, seldom had civil engineering educational background. A lot of engineering positions have remained vacant while the number of admin and support positions is increasing rapidly. For some, it created a deficit in the administration capacity in terms of technical and scientific skills that pushed the DWA to resort to the private sector to allow the Department to run smoothly. Chipkin (2008) on the contrary argues that this lack of state capacity comes from the implementation of New Public Management reform in public administrations in South Africa. As a result of this State capacity deficit in the water sector especially, following the resignation of more and more experienced civil engineers who moved to private engineering consulting firms, DWA is experiencing now an unprecedented dependence over the private engineering consultant sector. In sharp contrast with the reputation that DWA civil engineers built in the 20th century, nowadays DWA civil servants have to outsource almost any project to the private sector, be it engineering projects, technical ones or others.

Yet, a historical detour reveals that such a mode of functioning is not that radically new for DWA civil engineers:

An increasing dependency over the engineering consultant sector over time (1960-1994):

Under political pressure, DWA started outsourcing a few big construction projects back in the 1960s despite having a design and construction unit in-house. It triggered a vicious circle effect that DWA never managed to keep under control as the Department was regularly losing the engineers it had just finished training to the private sector where they continued to work on DWA projects. In the early 1990s, DWA had little capacity left within the Department and after having outsourced most of its technical projects, was now trying to “in-source” its supervision capacity. Indeed, at some point there was not even enough staff left to monitor progress on the projects outsourced to consultants, DWA was thus trying to recruit trusted engineers consultants part-time to supervise its different projects. To a large extent, DWA had lost its capacity to remain an “*informed client*”. Considering this dynamic, we understand that special bonds existed between a handful of private consultants, ex-colleagues from DWA, that the Department was trying to favour (most of the time avoiding a tender process). They all belonged to 4-5 originally South African consulting companies that have now merged with bigger players to become multinational companies tendering all around Africa and the world: AECOM (exBKS), Aurecon (ex-Ninham Shand/ex-Africon/ ex vanWyk & Louw), A.Gibb Consulting, ex-Chunnett, Fourie & Partners/ex-HydroConsult. Moreover, if DWA used to be the training ground of all the engineers working for these private companies, it is now these consulting firms that train the new black engineer graduates whom DWA just recruited but who still need to gain experience. They spend 6 months working on DWA projects at the companies’ offices. These long-lasting and close interactions explain that DWA National Water Resources Planning Division especially describes these engineer consultants as a “big family”. They are part of DWA policy network. This network is the only chance for this National Water Resources Planning Division’s

officials to continue their business-as-usual: managing the country water resources with the supply-side approach they believe in. In that respect, up until then, all the water strategy reconciliation studies have been undertaken by consultants who are part of this historic network.

Post-Apartheid government turn-around strategy? Big infrastructures' solutions are back on the table (2010-onwards)

Hence, since the 2010s, priorities have been shifting and old “big infrastructures” solutions are back on the table. This is all happening against the backdrop of a perceived looming water crisis. This “water crisis” has been lately framed especially by representatives of SAICE (South African Institution of civil engineering) to echo the current very concerning electricity crisis (power cuts) in South Africa. Indeed, reconciliation studies have exposed a foreseen mismatch between water supply and water demand in a very near future (by 2020). Furthermore, since 1998, DWA has failed to achieve the demand-management targets contained in the new water Act: full cost recovery; “polluter pays principle”; water saving practices; alien species removal etc. This has pushed the DWA higher echelon to reconsider its strategy: new water infrastructures projects are under way. The Presidential State of the Nation Address in February 2015² reiterated it. New measures announced target the expansion of three existing dams; the creation of the Mzimvubu Dam (Eastern Cape province)³ and most importantly, the 2nd phase of the Lesotho Highland Water Project (LHWP2) has been approved with the building of the Polihali Dam in Lesotho which will deliver water into economic hub of South Africa, Gauteng (Pretoria and Johannesburg areas). After considerable coming and going -DWA top-level having refused for a long time to sign off the LHWP2 project that civil engineers from the Directorate for National Water Resources Strategic Planning wanted to proceed with-, Polihali dam was eventually commissioned in 2010.⁴

A new public-private experts' network promoting alternative solutions (2011- onwards)

Nevertheless, it is important to note the emergence of a new water experts' network that DWA higher political echelon has been involved in at the turn of 2010s. This network is part of the 2030 Water Resources Group (WRG) that came together in 2008. It proposes to share business knowledge and insights on water efficiency and water supply⁵. Its mission is to “*help countries achieve water security by 2030, by facilitating collective action on water between government, private sector and the civil society*”. The Group is co-led by the International Finance Corporation (World Bank) and McKinsey & Company, and comprises a business consortium made up of Barilla, The Coca-Cola Company, Nestlé, New Holland Agriculture, SABMiller plc, Syngenta AG, and Standard Chartered Bank. This network supported by a

² See the National Infrastructure Development programme

³ The building of a new dam on the Mzimvubu River in the Eastern Cape is set to be a catalyst for much needed socio-economic development in the region. It is also meant to ensure substantial investment in irrigation infrastructure in Makatini Flats and the Mzimvubu River basin.

⁴ building should start in late 2018; and be completed in 2024

⁵ 2030 WRG, Strategic Plan for FY15-17 (July 2014 - June 2017), p.3

group of private sector companies and institutions declares being “concerned about water scarcity and growing competition for scarce water resources [that constitutes] an increasing business risk [that can not be ignored]”.

In response to a request by Mrs B E E Molewa, MP (South Africa's Minister of Water Affairs) at the World Economic Forum Annual Meeting 2011 in Davos, Switzerland, the DWA and the WRG launched a DWA-WRG partnership at the World Economic Forum's 2011 Africa Summit in Cape Town (4 to 6 May). The “Strategic Water Partners Network” in South Africa (SWPN-SA) is a multi-stakeholder platform, brokered by the 2030 WRG, chaired by the Department of Water and Sanitation (DWS), and co-chaired by South African Breweries (SAB) on behalf of the private sector. The NEPAD Business Foundation acts as secretariat. It is described as “a new model for collaboration that bring public, private, civil society and experts together to develop proposals”⁶ to “close the water [supply demand] gap by 2030”⁷.

Consequently, the focus of SWPN- SA seems to have shifted again away from the solutions supported by the historic water resources policy network. Former DWA minister, the one who agreed on Polihali dam, nonetheless claimed that:

*“Solutions that maximise the supply of water and minimise demand are therefore most essential. However, it is not envisaged that large scale projects of building dams can solve current problems because while they increase overall water supply, it is unlikely to curb the underlying sources of the water supply/demand gaps. Due to the scale of the gap, it is also unlikely that such capital intensive projects can be financed and developed with enough quick wins to manage the gap.”*⁸

It appears that finances were also an issue. Hence the objective of DWA to work closely with business in a bid to find the financial means to its projects. This new network of water experts focuses on alternative solutions to the water gap. Indeed, they are pushing green technologies (irrigation infrastructures, re-use return flow technologies etc). This new network underlines that a business-as-usual supply build-out “would address only 20 percent of the supply-demand gap, leaving a large deficit to be filled.”⁹

Its project focus areas are threefold: water conservation (Leakage reduction from distribution networks), water demand management (Increasing water use efficiency in agriculture, industry and households) and diversification of the water supply mix (Reuse of effluent; Desalination of sea water and acid mine drainage; Use of groundwater)¹⁰ as the Minister Molewa declared in 2011¹¹ and as the new DWS Minister Nomvula Mokonyane reiterated again in her Budget Vote speech, in May 2015.

⁶ For the complete list of the network's 50 members, see *Creating shared value through innovative partnerships*, SWPN-SA, WRG, 2013,

⁷ *Strategic water partners network South Africa- closing the gap by 2030*, Nepad Business Foundation, Nov.2011, p.3

⁸ *Strategic water partners network South Africa- closing the gap by 2030*, Nepad Business Foundation, Nov.2011, p.6

⁹ *Charting our water future. Economic frameworks to inform decision-making*, 2030 WRG, 2009, p.46

¹⁰ *Strategic water partners network South Africa- closing the gap by 2030*, Nepad Business Foundation, Nov.2011, p10

¹¹ *Strategic water partners network South Africa- closing the gap by 2030*, Nepad Business Foundation, Nov.2011, p.3

Competing policy networks: towards the renewal of water resources management's public policy in South Africa?

Today, two policy networks advocating different solutions and using different framing (“*water crisis*” for the historical engineer network; “*water security*” and “*water scarcity*” for the new global water network) are competing for DWA political echelon’s attention. According to the new DWA Minister, the work of the SWPN-SA was pivotal in developing the second draft of government’s national water resources strategy, published in July 2012¹². This new competition between these two policy networks seems to be reflected in the late hesitation of Minister regarding the emblematic project of Polihali dam construction: no consortium agreement has been signed yet... High profile actors such as the former DWA Director-General, Mike Muller, himself a civil engineer by training, recently went public and claimed that such delay would create irreversible consequences for the country’s water crisis. In the meantime, as the last representatives of the white “old guard” within DWA are retiring, the private consulting sector is becoming more and more worried that it is losing precious relays within the ministry, and that most of their tender-approved projects are inexplicably stuck in DWA. Lately also, DWA initiative which asked the Cuban government to send civil engineers to South Africa, provoked a strong reaction from SAICE which emphasized that South Africa did not need help and that engineer skills already sufficiently existed in the country. This episode is a testimony of the long-lasting mistrust between the new black elite in DWA and civil engineers network in South Africa. In that respect, we can hypothesize that getting involved in SPWN-SA is a way for DWA to diversify its expert networks and not rely exclusively on the white “old guard” any more. Indeed, without an adequate technical background, new DWA political elite was until then depending on the historical engineer policy network for all the technical decisions that had to be taken. But this network always looked suspicious to them because perceived to be too white to be trusted.

¹² Public declaration 10 May 2013

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