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THE LIMITS OF CONCENTRATED POWER: BUREAUCRATIC INDEPENDENCE AND ELECTRICITY CRISES IN RWANDA

BENJAMIN CHEMOUNI  AND BARNABY DYE 

Abstract

Rwanda is a posterchild of economic success in twenty-first century Africa. Dominant explanations for the country's growth use the political settlements framework, asserting that concentrated political power enabled long-term planning. In contrast, this article uses the case of Rwanda's impressive boom in electricity generation to demonstrate that such concentrated power also distorts policy-making processes, creating a fiscal crisis that jeopardizes Rwanda's economic transformation. Therefore, this article questions a central premise of the political settlements framework. Concentrated political power in Rwanda enabled rapid and ambitious construction of power plants but resulted in an oversupply crisis, plunging the sector into significant debt and raising the cost of electricity. Rwanda's political settlement prevented experts from challenging unrealistic targets set by top politicians, which led to a headlong pursuit of electricity generation capacity. To understand this process, we assert the importance of focusing on the bureaucratic/politician relationship, which we label 'bureaucratic independence', rather than on the oft-used concept of 'bureaucratic autonomy' usually associated with the concentration of political power.

OVER THE LAST DECADE, in political economy scholarship on Africa, the political settlements framework (PSF) has gained prominence as a theory for understanding countries' development trajectories. This is welcome. The framework counters new institutional economics that underpins the

*Benjamin Chemouni (benjamin.chemouni@uclouvain.be) is an Assistant Professor in the Centre of Development Studies, Université Catholique de Louvain (UCLouvain), Belgium, and Barnaby Dye (barnaby.dye@york.ac.uk) is a Lecturer in the Politics of Development at the Department of Politics and International Relations. The authors would like to acknowledge the Effective State and Inclusive Development Research Center and the FutureDAMS programme at the University of Manchester for their financial support as well as the editors and anonymous reviewers of *African Affairs* for their comments on earlier drafts.

'good governance' policy school, which narrowly focuses on reforming formal institutions in a depoliticized manner. In contrast, the PSF asserts the importance of underlying political power in shaping a country's political economy and thereby its governing institutions, since, as Mushtaq Khan notes, 'if powerful groups are not getting an acceptable distribution of benefits from an institutional structure, they will strive to change it'.¹ The framework emphasizes the importance of pressures faced by ruling elites in maintaining power, tracing how this affects their ability to conduct institutional change and thereby direct development. The framework tends to theorize that concentrated political power, generally labelled 'dominant party settlement', is most conducive to development: rulers, feeling secure, can focus on longer-term outcomes, and discipline rent-seeking. Conversely, when power is largely contested and dispersed, rulers may use clientelist deals, and allow corruption, to cement short-term support and co-opt opposition. Overall, 'the emerging consensus is that dominant party settlements, all things being equal, may be most conducive to industrial policy'.²

We question a core premise of the PSF, namely, the causal link between highly concentrated political power and development. Rather than constituting the primary enabler of effective decision-making and transformative economic investment, we demonstrate how the concentration of ruling power can also prevent rulers from receiving necessary critiques and technical inputs, thereby hindering policy course corrections to the point of endangering structural transformation. This underlines how the concentration of political power is a double-edged sword. While it enables discipline to secure long-term goals, it can also suppress the key challenging function of the civil service. Concentrated power unlocks rapid change, but does not determine the positive or negative economic outcomes of such transformation.

We demonstrate this argument with the case study of Rwanda and its electricity sector. Emblematic of the rise of PSF within academia, Rwanda is touted for its ruling elite's commitment to development, management of rents and, thanks to a degree of authoritarianism, ability to make longer-term decisions. As a result, Rwanda is often considered as an African developmental state.³ Beyond critiquing this premature label, we use a major policy failure in the electricity sector to demonstrate the limitations

1. Mushtaq Khan, 'Political settlements and the governance of growth-enhancing institutions' (Research Paper Series on Governance for Growth, SOAS, University of London, London, 2010), p. 4.

2. Matthew Tyce, 'The politics of industrial policy in a context of competitive clientelism: The case of Kenya's garment export sector', *African Affairs* 118, 472 (2019), pp. 553–579, p. 554.

3. Graham Harrison, 'Focus: Rwanda and the difficult business of capitalist development', *Development and Change* 48, 5 (2017), pp. 873–898, p. 873.

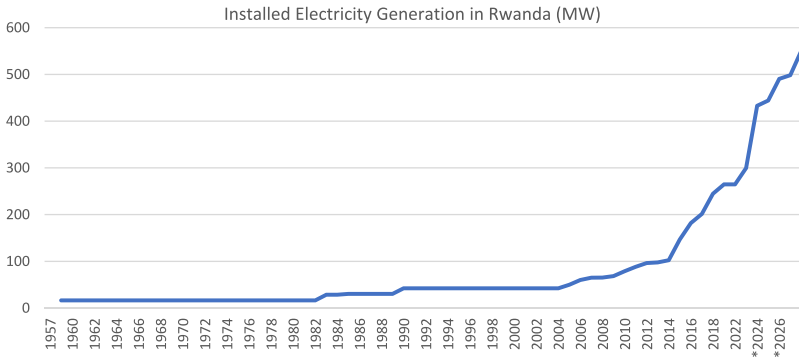


Figure 1 Installed electricity generation in Rwanda (MW).

Note: *Projections based on projects under contract. Source: Authors' statistics gathered from Ministry of Infrastructure (Mininfra) press releases and ministerial strategy reports, from the Rwanda Energy Group's published statistics and news articles between 2014 and 2023.

of the political settlements literature and call into question one of its key premises, namely, that centralized, dominant political power is a simple boon to development.

The electricity sector is an especially important case study as it presents a puzzle. It has been at the forefront of Rwandan elites' developmental ambitions for two decades, identified as a key source of economic growth, with significant international technical support, and domestic and international investment. On the surface, there is a success story: Rwanda's electricity generation capacity rose exponentially from 39.95 MW in 2003 to 218.9 MW in 2017 (Figure 1), while the percentage of the population with access to electricity grew from 6 percent in 2009⁴ to a reported 24 percent in 2017.⁵ This is remarkable for a country emerging from genocide and years of war, which caused near-total debilitation of the country's electricity system.⁶ However, a closer study of the energy boom reveals substantive mistakes which are damaging the country's long-term growth. Rwanda is producing too much power, with installed generation capacity far exceeding annual demand. Additionally, projects are poorly attuned to Rwanda's daily energy-demand profile and were often ill-conceived. Two-thirds of

4. Ministry of Infrastructure Republic of Rwanda, 'National energy policy and national energy strategy 2008–2012' (Government of Rwanda, Kigali, 2009).

5. World Bank, 'Rwanda – Energy sector development policy loan project' (World Bank Group, Washington, D.C., 2017).

6. Bonfils Safari, 'A review of energy in Rwanda', *Renewable and Sustainable Energy Reviews* 14, 1 (2010), pp. 524–529.

electricity production was contracted through 20-year private-sector agreements with a ‘take-or-pay’ clause, meaning that 90 percent of electricity provided must be paid for, even when not consumed. Consequently, increased electricity generation has locked the country into high-energy costs and spiralling debt for predicted two decades, checking efforts of poverty reduction and economic transformation.⁷ Wider economic malaise was only prevented by Rwanda’s small economic size, which allowed the World Bank to quickly step in with grants and loans. Why did such significant failures occur despite the Rwanda case exhibiting many of the PSF gold standard preconditions for development?

This article argues that the PSF misses the crucial role of the politician–bureaucratic interface, which reflects the broader absence of the state in the original PSF work. Typically, political settlement-type analysis, regarding the bureaucracy, highlights how a ‘dominant party settlement’ can give technicians autonomy from societal pressures. Following Max Weber’s archetype of the ‘legal-rational’ state,⁸ it can also drive a degree of merit-based recruitment and the adoption of formal, impersonal, performance-focused processes across the state or at least in some key ‘pockets of effectiveness’ seen as crucial for economic transformation.⁹ We advance this discussion by introducing the concept of ‘bureaucratic independence’, which highlights the importance of the distribution of power between politicians and bureaucrats and the way this enables or disables the latter’s ability to offer crucial critique and technical inputs.

Overall, the article makes three key contributions. First, our empirical analysis deepens the understanding of Rwanda’s political economy, its electricity sector and elite-level decision making. Second, we contribute to theorizing the under-conceptualized relationship between the civil service and top politicians. The Rwandan case evidences why the popular concept of ‘bureaucratic autonomy’ should be unpacked to better conceptualize the ideal balance of power between officials and the state that best supports developmental outcomes. Third, theoretically we question the PSF’s premise that concentrated power in a ruling group generates conditions directly conducive to development.

This article draws on qualitative research conducted between 2013 and 2018 during repeated fieldwork by the two authors. It involved 90 semi-structured interviews with a variety of actors selected purposively due to

7. Barnaby Joseph Dye, ‘Ideology matters: Political machinations, modernism, and myopia in Rwanda’s electricity boom’, *Energy Research & Social Science* 61, 101358, (2020), pp. 1–11; World Bank, ‘Rwanda – energy sector development policy loan project’.

8. Max Weber, ‘Bureaucracy’, in Hans Heinrich Gerth and Charles Wright Mills (eds), *From Max Weber: Essays in sociology* (Routledge, London, 1991), pp. 196–244.

9. Sam Hickey, *Pockets of effectiveness and the politics of state-building and development in Africa* (Oxford University Press, Oxford, 2023); Lindsay Whitfield et al., *The politics of African industrial policy: A comparative perspective* (Cambridge University Press, Cambridge, 2015).

their knowledge of policies, decision-making processes, and infrastructure projects. They included Rwandan current and former officials, especially former ministers, civil servants, advisors in the Ministry of Infrastructure (Mininfra) and in the Energy Utility, employees from private companies, as well as aid donor organisations and consultancies involved in the electricity sector. This rich data underpinned process tracing, the tracing of the ‘decision process by which various initial conditions are translated into outcomes’.¹⁰ Following Fairfield, we tried to improve the transparency of process tracing by including quotes of people directly involved in the decisions being analysed as well as considering alternative explanations in a dedicated section.¹¹ A key challenge in this research is the sensitivity of the topic. It required understanding of top decision-making about a crucial sector, but in a closed regime devoting significant resources to protect its reputation. This potentially creates self-censorship from informants, especially towards foreign researchers. While aware of these limits, we followed others working in authoritarian contexts,¹² considering that analytical rigour stems from the authors’ deep and long-lasting empirical engagement with the country, which allows time to build trusted contacts, alongside triangulation that pieces together different types of sources (internal/external of government) and evidence (interviews, documents). Because of the need to protect sources, quotes are anonymized.

The blind spots of the political settlements framework and bureaucratic autonomy

Mushtaq Khan’s PSF¹³ has become increasingly popular since the 2010s. The framework’s core premise is that ‘the distribution of power across organizations [is] usually the most important determinant of the path of institutional change, and the effectiveness of particular institutions’.¹⁴ Political settlements theory assumes that concentrated political power in a ruling coalition creates the most conducive conditions for development.¹⁵ These conditions, given insulation from societal, or democratic, pressures allows rulers a longer-term time horizon as they feel more secure and are

10. Alexander George and Timothy McKeown, ‘Case studies and theories of organizational decision making’, in Robert Coulam and Richard Smith (eds), *Advances in information processing in organizations* (JAI Press, Santa Barbara, CA, 1985), p. 35.

11. Tasha Fairfield, ‘Reflections on analytic transparency in process tracing research’, *Qualitative and Multi-Method Research* 13, 1 (2015), pp. 47–51.

12. David Art, ‘Archivists and adventurers: Research strategies for authoritarian regimes of the past and present’, *Social Science Quarterly* 97, 4 (2016), pp. 974–90.

13. Khan, ‘Political settlements and the governance of growth-enhancing institutions’.

14. Mushtaq Khan, ‘Political settlements and the analysis of institutions’, *African Affairs* 117, 469 (2018), pp. 636–655, p. 638.

15. Pritish Behuria, Lars Buur and Hazel Gray, ‘Studying political settlements in Africa’, *African Affairs* 116, 464 (2017), pp. 508–525; Khan, ‘Political settlements and the governance of growth-enhancing institutions’.

thus more likely to implement unhindered effective policies.¹⁶ Such ruling coalitions, generally labelled ‘dominant party settlements’, can shield their bureaucracies from societal pressures, allowing supposedly technically optimum decisions. Conversely, when power is fragmented, with groups vying for supremacy and the population multiplying demands on the centre, long-term developmental policies are less likely given the incentives to use the state to pursue short-term political gains.¹⁷

These insights are not wholly new. The PSF owes much to the older ‘developmental state’ literature that explained the economic transformation of a range of East and South-East Asian states. It echoes this literature’s identification of the state’s centrality to development, the crucial role of politics–business relations and the importance of concentrated power in directing rents in generating industrialization.¹⁸ However, the developmental state literature does not provide a systematic model to explain how developmental states emerge, in contrast to the PSF’s identification of the configurations of power conducive to economic transformation. In this respect, the framework has most in common with Kohli’s comparative analyses of a series of countries and the importance of a cohesive state and low political fragmentation in explaining industrialization.¹⁹ The original framework has since developed into variety of directions. Originally, PSF was used by Khan to understand economic growth but was later adapted to understand state-building and public policy outcomes.²⁰ Some works have pointed out the limit of a purely material approach to interests in PSF, highlighting the importance of ideas in shaping the mobilization and cohesion of coalitions, as well as in explaining specific policy choices.²¹ The most hotly debated changes with the original framework, including in the pages of this journal,²² pertain to whether a settlement should be understood

16. For example, Abdul-Gafaru Abdulai and Sam Hickey, ‘The politics of development under competitive clientelism: Insights from Ghana’s education sector’, *African Affairs* 115, 458 (2016), pp. 44–72, p. 51.

17. *Ibid.*

18. For example, Peter B. Evans, *Embedded autonomy: States and industrial transformation* (Princeton University Press, Princeton, NJ, 1995); Adrian Leftwich, ‘Bringing politics back in: Towards a model of the developmental state’, *The Journal of Development Studies* 31, 3 (1995), pp. 400–427.

19. Atul Kohli, *State-directed development: Political power and industrialization in the global periphery* (Cambridge University Press, Cambridge, 2004).

20. For example, Tim Kelsall et al., *Political settlements and development: theory, Evidence, implications* (Oxford University Press, Oxford, 2022); Jonathan Di John and James Putzel, ‘Political settlements: Issues paper’ (GSDRC Issues Paper, University of Birmingham, Birmingham, 2009); Hickey, ‘Pockets of effectiveness’.

21. Tom Lavers, ‘Taking ideas seriously within political settlements analysis’ (ESID Working Paper 95, University of Manchester, Manchester, 2018).

22. Mushtaq H. Khan, ‘Power, pacts and political settlements: A reply to Tim Kelsall’, *African Affairs*, 117, 469 (2018) pp. 670–694; Tim Kelsall, ‘Towards a universal political settlement concept: A response to Mushtaq Khan’, *African Affairs* 117, 469 (2018) pp. 656–694.

as a structural feature of a polity or an agency-based agreement, the need to consider groups' social identity and vulnerability in the model,²³ or the PSF's intellectual purpose itself, pitting academics advocating for an open-ended, descriptive use of the framework²⁴ against others operationalizing PSF for predictive purposes, even pioneering the inclusion of quantitative data.²⁵

These debates are important, but none address two major weaknesses. First, the concentration of power is systematically analysed as an enabling (yet not always sufficient) condition for development. Second, these approaches have little to say on the role of the civil service. Exceptions are the works of Hickey et al. and Whitfield et al., who find that concentrated power is likely to create so-called pockets of effectiveness in the bureaucracy. These give technicians degrees of policy-making autonomy and support a Weberian culture, but are underpinned by concentrated power which give rulers the enforcement capabilities for the difficult process of developing state capacities.²⁶ In contrast to these favourable analyses, we demonstrate how highly concentrated political power can also unbalance relations between politicians, technical advisors and civil servants, to significant negative effect.

As Dasandi and Esteve observe, 'there has been very little attention given to the relationship between politicians and top bureaucrats in developing countries, and how this relationship might shape the development process'.²⁷ This is surprising, as it contrasts with the volume of literature on the politics–bureaucracy interface in industrialized and democratic countries.²⁸ The wider political-economy analysis on bureaucratic effectiveness that does exist is heavily influenced by selective East-Asian developmental states. It typically stresses the benefits of autonomy from societal pressure in parallel with capacity to access information from society and business circles (its 'embedded autonomy'), as well as its Weberian characteristics.²⁹ Overall, the focus is on the conditions creating separation from society,

23. Kelsall et al., *Political settlements and development*. Whitfield et al., *The politics of African industrial policy*; Benjamin Chemouni, 'The politics of core public sector reform in Rwanda' (ESID Working Paper 88, University of Manchester, Manchester, 2017).

24. Behuria, Buur, and Gray, 'Studying political settlements in Africa'.

25. Kelsall et al., *Political settlements and development*.

26. Hickey, *Pockets of effectiveness*; Whitfield et al., *The politics of African industrial policy*.

27. Niheer Dasandi and Marc Esteve, 'The politics–bureaucracy interface in developing countries', *Public Administration and Development* 37, 4 (2017), pp. 231–245, p. 231.

28. Ion Georgiou, 'Seeing the forest for the trees: An atlas of the politics–administration dichotomy', *Public Administration Review* 74, 2 (2014), pp. 156–175; James H. Svara, 'The myth of the dichotomy: Complementarity of politics and administration in the past and future of public administration', *Public Administration Review* 61, 2 (2001), pp. 176–183; James H. Svara, 'Introduction: Politicians and administrators in the political process—A review of themes and issues in the literature', *International Journal of Public Administration* 29, 12 (2006), pp. 953–976.

29. Evans, *Embedded autonomy*.

viewed as the best antidote to clientelist pressure, corruption, or state capture.³⁰ Fukuyama revived this argument, stating the vital importance of bureaucratic autonomy in the quality of states. Autonomy is conceived as a shield ‘from certain influences of social actors’ which would otherwise prevent civil servants from having ‘room for discretion or independent judgment’ and being ‘completely bound by detailed rules set by the political’ principal. At worst, a lack of autonomy would mean ‘los[ing] control over internal recruitment and promotion to the political authorities [resulting in the bureaucracy being] ... staffed entirely by political appointees’.³¹

Such a conception of autonomy is, however, problematic as it mixes autonomy from societal forces and autonomy from political masters, leaving an inadequate description of the nuances and distribution of policy-making power within the state. Evans similarly conflates autonomy from society and from political power when he writes in the introduction of his famous book that ‘predatory states [i.e. those missing autonomy] lack the ability to prevent individual incumbents from pursuing their own goals’ and that in this context, the state’s ‘ties to society are ties to individual incumbents, not connections between constituencies and the state as an organization.’³² This understanding of autonomy cannot account for Rwanda’s situation: the Rwandan bureaucracy then appears to be both autonomous, given its ability to resist clientelism, corruption, and interest groups’ pressure,³³ and simultaneously, as demonstrated in this article, not autonomous, given its subordination to political leadership, and often to the president’s wishes, with little room ‘for discretion or independent judgment’.

The empirical evidence presented in key works on the developmental state is at odds with this literature’s apparent lack of theorizing about the relationship between bureaucracy and politicians, and its tendency to conflate autonomy from society with autonomy from politicians. A number of texts highlight the centrality of the bureaucracy’s protection from political power. Chalmers Johnson in his groundbreaking book on Japanese industrialization, argues that the post-war Japanese state’s effectiveness partly lies in the power of bureaucrats in ‘a political system in which the bureaucracy is given sufficient scope to take initiative and operate effectively’.³⁴ This was famously encapsulated in his phrase that in Japan ‘politicians reign and

30. *Ibid.*; Samuel Huntington, *Political order in changing societies*, (Yale University Press, New Haven, CT, 1968).

31. Francis Fukuyama, ‘What is governance?: Commentary,’ *Governance* 26, 3 (2013), pp. 347–68, pp. 357–358.

32. Evans, *Embedded autonomy*, p. 12.

33. Chemouni, ‘The politics of core public sector reform in Rwanda’.

34. Chalmers Johnson, *MITI and the Japanese miracle: The growth of industrial policy, 1925–1975* (Stanford University Press, Stanford, CA, 1982), p. 315.

the bureaucrats rule'.³⁵ Johnson specified a key condition for this that is absent, as we have demonstrated, in the Rwandan case: the ability of politicians to 'create space for bureaucratic initiative unconstrained by political power'.³⁶ Similarly, in the case of South Korea and Taiwan, Cheng et al. argued that public agencies and ministries involved in economic transformation tended to be insulated from political and societal pressures but were also made relatively independent from the presidency.³⁷

The term 'bureaucratic independence', coined by Svava, enables disaggregation of the politician/bureaucracy relationship, unpacking concepts like the 'autonomous state' while conceptualizing an alternative ideal politics–bureaucracy interface.³⁸ Svava, observing empirical evidence that autonomy of civil servants in policy-making and implementation rarely occurs, asserts an alternative framework premised on the 'interdependence and reciprocal influence between elected officials and administrators'.³⁹ Our concept of bureaucratic independence develops this insight. Low independence involves political dominance of policymaking and the confinement of the civil service to narrowly defined implementation. Conversely, high independence incorporates 'professional perspectives in policy formation and adhering to professional standards in implementation'⁴⁰ with rulers respecting administrative competence and commitment. Bureaucratic independence does not imply the absence of political control over bureaucrats or an insistence on the merits of bureaucratic isolation. Rather, independence conceptualizes the distribution of decision-making power that allows bureaucrats to undertake their technical roles and freely express their professional insights, and critiques, in what is a *de facto* shared policy-making process.

While studies on the political economy of development have hardly focused on the politics–bureaucracy interface, recent works on 'pockets of effectiveness' in both 'dominant party' and 'competitive clientelist' settlements provide an empirically grounded case for the importance of such research.⁴¹ Besides the usual benefits attached to 'bureaucratic autonomy', this recent literature highlights the importance of 'technopols', actors who combine both political resources and technical skills, in driving effective institutional change. They 'embody' bureaucratic independence since they can use their political acumen to deploy their technocratic expertise and shield policy decision-making from undue political interferences. For

35. *Ibid.*, p. 316.

36. *Ibid.*

37. Tun-Jen Cheng, Stephan Haggard and David Kang, 'Institutions and growth in Korea and Taiwan: The bureaucracy', *Journal of Development Studies* 34, 6 (1998), pp. 87–111.

38. Svava, 'The myth of the dichotomy'.

39. *Ibid.*, p. 179.

40. *Ibid.*

41. Hickey, *Pockets of effectiveness*.

example, even in a more competitive clientelist settlement, such as Ghana, the independence of the bureaucracy thanks to ‘technopols’ was key to explaining pockets of effectiveness in an otherwise dysfunctional state.⁴²

Building on these insights, our argument has direct relevance to broader academic and practitioner debates in development studies. Since the 1990s, going beyond the analysis that ‘institutions matter’ for development, works have explored how political incentives emerge to build development-oriented institutions. Many analyses now converge in identifying the importance of threats to the ruling elite in incentivizing the construction of robust states and economies.⁴³ Although the role of external threats in generating commitment is central, we show that commitment alone is insufficient. This argument is in line with recent works, such as Stefan Dercon’s 2022 book *Gambling on Development*, which finds that state capacity in conjunction with political will does not always create economic transformation by itself. Rather, other factors, chiefly the ability to take advice and learn from experience, are required alongside such commitment.⁴⁴ This echoes practitioner-oriented literature that emphasizes the need for trial, iteration, and adaptation in implementing development.⁴⁵ We now turn to our empirical case study for illustration.

A developmental state in Rwanda? Creating a strong bureaucracy

The current Rwandan political settlement is characterized by an extraordinary concentration of power in the ruling Rwandan Patriotic Front (RPF), possibly unparalleled in Africa. The RPF not only has complete control of the state and the military, but also has strong influence over much of the private sector.⁴⁶ Political opposition lies largely in exile. The RPF therefore

42. Abdul-Gafaru Abdula, ‘Political settlement dynamics and the emergence and decline of bureaucratic pockets of effectiveness in Ghana’ (ESID Working Paper 173, The University of Manchester Manchester, 2021), p. 26.

43. For example, Richard F. Doner, Bryan K. Ritchie and Dan Slater, ‘Systemic vulnerability and the origins of developmental states: Northeast and Southeast Asia in comparative perspective’, *International Organization* 59, 2 (2005), pp. 327–361; Dan Slater, *Ordering power: Contentious politics and authoritarian leviathans in Southeast Asia* (Cambridge University Press, Cambridge, 2010); Kelsall et al., ‘Political settlements and development’. On the case of Rwanda, see Benjamin Chemouni, ‘Explaining the design of the Rwandan decentralization: Elite vulnerability and the territorial repartition of power’, *Journal of Eastern African Studies* 8, 2 (2014), pp. 246–262; Laura Mann and Marie Berry, ‘Understanding the political motivations that shape Rwanda’s emergent developmental state’, *New Political Economy* 21, 1 (2016), pp. 119–144.

44. Stefan Dercon, *Gambling on development: Why some countries win and others lose* (Hurst, London, 2022).

45. For example, Matt Andrews, *The limits of institutional reform in development: Changing rules for realistic solutions* (Cambridge University Press, Cambridge, 2013); Matt Andrews, Lant Pritchett and Michael Woolcock, *Building state capability: Evidence, analysis, action* (Oxford University Press, Oxford, 2017).

46. Filip Reyntjens, *Political governance in post-genocide Rwanda* (Cambridge University Press, Cambridge, 2013).

has near-total control over public, and some private, financial resources and over the formulation and implementation of long-term plans. This concentration of power does not end with the ruling RPF but extends to President Paul Kagame. Ascending to the presidency in 2000, though *de facto* ruler since 1994, Kagame has reinforced his power by side-lining several senior RPF members since the 2000s. Furthermore, a generational shift in the party over its two decades in power has benefited the president, entailing the loss of all senior ‘historical’ RPF members in the executive branch by 2013. The new guard of RPF members, politicians, and top civil servants, often composed of well-educated diasporic returnees, are fiercely loyal to Kagame, not least because most owe him their careers. On paper, this combination of highly concentrated power and a dominant ruling group can be conducive to development by reducing pressures to redistribute or pay-off particular interest groups, enabling the centralization of rents and unchallenged implementation of long-term investment in productive economic activities.⁴⁷ Without opposition, complex policy reforms and project implementation can be rapidly implemented, regardless of social impacts.⁴⁸ New power plants that displace large numbers therefore face little to no resistance. Rwanda’s biggest hydropower plant, Nyabarongo Dam, for example, removed over 4,000 households, including a number who did not receive compensation, and yet the project faced no widespread protest.⁴⁹

The PSF has been repeatedly mobilized to explain Rwanda’s strong performance in different sectors such as social protection,⁵⁰ education,⁵¹ and economic upgrading.⁵² The bureaucracy’s capability is often praised, with its ability to implement continuous and far-reaching public sector reforms under the RPF.⁵³ Even authors critical of the government recognize that ‘the regime’s achievements in this field are undisputable’.⁵⁴ This is not to say that the Rwandan bureaucracy is perfect. Its heavily

47. David Booth and Fred Golooba-Mutebi, ‘Developmental patrimonialism? The case of Rwanda’, *African Affairs* 111, 444 (2012), pp. 379–403.

48. An Ansoms, ‘Re-engineering rural society: The visions and ambitions of the Rwandan elite’, *African Affairs* 108, 431 (2009), pp. 289–309.

49. Barnaby Dye, ‘The return of “high modernism”? Exploring the changing development paradigm through a Rwandan case study of dam construction’, *Journal of Eastern African Studies* 10, 2 (2016), pp. 303–24.

50. Tom Lavers, ‘Understanding elite commitment to social protection: Rwanda’s Vision 2020 Umurenge programme’ (ESID Working Paper, University of Manchester, Manchester, 2016).

51. Timothy P. Williams, ‘The political economy of primary education: Lessons from Rwanda’, *World Development* 96 (2017), pp. 550–561.

52. Prithvi Behuria, ‘The domestic political economy of upgrading in global value chains: How politics shapes pathways for upgrading in Rwanda’s coffee sector’, *Review of International Political Economy* 27, 2 (2020), pp. 348–376.

53. Chemouni, ‘The politics of core public sector reform in Rwanda’; Jean-Paul Kimonyo, *Transforming Rwanda: Challenges on the road to reconstruction* (Lynne Rienner Publishers, Boulder, CO, 2019).

54. Reyntjens, *Political governance in post-genocide Rwanda*, p. xv.

top-down governance produces a form of ‘coercion rather than choice’.⁵⁵ Its capacity, although good given the level of development of the country, is still limited, leading to coordination issues and policy failures.⁵⁶ Nonetheless, the centralization of political power has underpinned systematic efforts to limit corruption in the civil service and expand merit-based recruitment.⁵⁷ In 2018, Rwanda was ranked 48 (out of 180 countries) for control of corruption in Transparency International’s Corruption Perception Index, which places it fourth in Africa.⁵⁸ Rwanda scores highly more than the comparative countries with similar incomes on indices of bureaucratic quality: according to the World Bank’s data, Rwanda has the most effective bureaucracy out of low-income countries.⁵⁹ The country’s bureaucracy is generally considered isolated from society. Popular pressure and particular socio-economic interests are largely unable to influence decision-making.⁶⁰ Autonomy from the citizenry, professionalization, and a focus on implementation are bolstered by performance contracts, called *imihigo*. Created in 2006 and inspired by Rwandan pre-colonial traditions of pledging war objectives to the king, *imihigo* take the form of a set of performance targets to be achieved by civil servants and institutions. They are pervasive throughout the central and local-level bureaucracy⁶¹ and played a key role in driving Rwanda’s electricity–infrastructure construction.

The mistakes in Rwanda’s electricity generation boom

At first sight, the Rwandan electricity sector appears to be a straightforward success. After the 1994 genocide, the national grid was in disarray and the two main hydropower stations were dysfunctional. Electricity generation was identified as a major economic-growth issue, and, given the country’s development ambitions, increased energy generation became a justifiable priority.⁶² As one consultant explained, there was a ‘focus on energy [because it was] clear that without it [there] could not be industrialization’.⁶³ The cancelling of US\$1.9 billion of Rwanda’s debt in 2005–06 gave the government greater leeway to prioritize investment expenditure.

55. Malin Hasselskog, ‘Rwandan Developmental “social engineering”: What does it imply and how is it displayed?’, *Progress in Development Studies* 15, 2 (2015), pp. 154–169, p. 157.

56. Pritish Behuria, ‘Examining effectiveness and learning in Rwandan policymaking: The varied outcomes of learning from failure in productive sector policies: Effectiveness and learning in Rwanda’, *Journal of International Development* 30 (2018) pp. 1023–1043.

57. Chemouni, ‘The politics of core public sector reform in Rwanda’, Kimonyo, *Transforming Rwanda*.

58. Transparency International, ‘Corruption perceptions index’ (Transparency International, Berlin, 2018).

59. Chemouni, ‘The politics of core public sector reform in Rwanda,’ p. 4.

60. *Ibid.*

61. Chemouni, ‘Explaining the design of the Rwandan decentralization’.

62. Safari, ‘A Review of energy in Rwanda.’

63. Interview, consultants, Kigali, Rwanda, 2016.

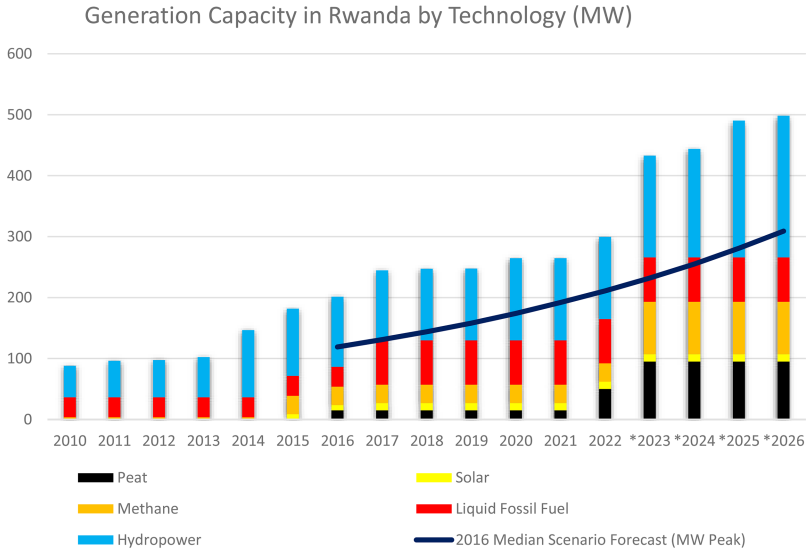


Figure 2 Installed generation capacity by technology against the 2016 demand forecast (MW).

Note: *Projections based on projects under contract. Source: Authors' statistics gathered from Mininfra press releases and ministerial strategy reports, from the Rwanda Energy Group's published statistics and news articles between 2014 and 2021. The demand curve is taken from statistics published in Ministry of Infrastructure Republic of Rwanda. "Energy Sector Strategic Plan: 2018/19-2023/24." (The Government of Rwanda, Kigali, 2018).

As explained by an official from the Ministry of Finance and Economic Planning, after the debt cancellation, there was an understanding that the 'budget for electricity production should be ring-fenced from year to year'.⁶⁴ Power plants then became a major focus, and the result has been a rise in installed generation, from 39.95 MW in 2003 to 218.9 MW in 2017, due to be 433 MW in 2023 (Figure 2).⁶⁵

The electricity boom, featuring 30 Rwandan and international companies, is undoubtedly impressive. It contrasts with others, like neighbouring Tanzania, who have been unsuccessful in making such projects

64. Interview, Ministry of Finance and Economic Planning official, Kigali, Rwanda, June 2018.

65. Author's statistics collated from official reporting.

'bankable'.⁶⁶ However, the boom in power has also created glaring financial issues. First, the increase in electricity production has not addressed the equally important and similarly long-standing problem of the price of electricity. Even before the boom in power plants had fully taken effect, in 2018, Rwanda was ranked 41 out of 190 countries for the ease of doing business, but only ranked 119 in access to reliable and affordable electricity.⁶⁷ In the 39 Sub-Saharan African countries surveyed by Kojima and Trimble in 2016,⁶⁸ Rwanda was the second least affordable for households' subsistence-level electricity. Consumption remains expensive despite the government's heavy subsidy. For example, the state spent \$57 million in 2016 on reducing tariffs by more than 37 percent of 'real' electricity costs yet this still left them far higher than in the majority of East Africa and the 12th highest on the continent.⁶⁹ Contrary to expectations, prices also increased during the government's electricity-construction drive. Non-low-income residential electricity tariffs in 2004 were \$0.10 (in 2018 prices), and \$0.21 from 2018, while being higher still for businesses.⁷⁰ High tariffs are a major bottleneck for the private sector, especially industrial users, and, according to a senior government official, represent a major 'cost to attract investors'.⁷¹ In a 2018 business survey, investors most frequently cited access to affordable electricity as the factor limiting their activities.⁷²

Despite longstanding recognition among some parts of the civil service, Western aid donor agencies and consultants,⁷³ the building of so much additional generation (see Figures 1, 2 and 3) worsened the power system in three interrelated ways: first, too many plants have been constructed causing power over-supply. Second, oversupply is particularly deleterious given the predominance of expensive and inflexible private-sector contracts which are also ill-suited to the country's daily energy-demand profile. Third, costs are compounded by poor implementation practices.

66. Dye, 'Ideology matters: Political machinations, modernism, and myopia in Rwanda's electricity boom'. Rwanda is more comparable to Uganda, which has successfully brought in private-sector finance for a major electricity expansion, although Kampala's efforts are primarily focused on hydropower rather than Rwanda's diversification (Christopher D. Gore, *Electricity in Africa: The politics of transformation in Uganda* (James Currey, Oxford, 2017)).

67. World Bank, *Doing business 2018: Reforming to create jobs* (World Bank, Washington, D.C., 2018), p. 188.

68. World Bank, *Making power affordable for Africa and viable for its utilities* (World Bank, Washington D.C., 2016), p. 21.

69. World Bank, 'Rwanda - energy sector development policy loan project,' p.19.

70. Author's calculation in 2018 US dollars, based on adjusted exchange rates of the residential tariffs (42RwF/kWh in 2004) and for the 15–50 kWh tariff in 2018 (182 RwF/kWh).

71. Interview, senior government official, Kigali, Rwanda, 2015.

72. World Bank and Rwanda Development Board, 'Rwanda investor perceptions survey 2018' (World Bank, Kigali, 2018), p. 46.

73. Interviews with Western donors and consultants, 2013–18, and with a former senior official 2014, Kigali, Rwanda.

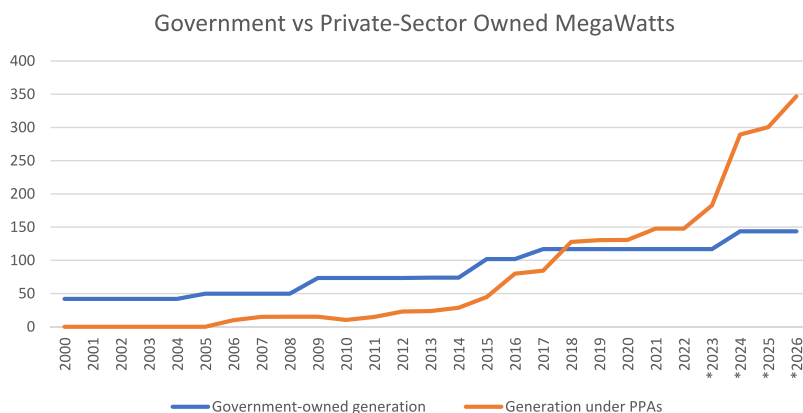


Figure 3 Increased private sector ownership of electricity production. Note: *Projections based on projects under contract. Source: Authors' statistics gathered from Mininfra press releases and ministerial strategy reports, from the Rwanda Energy Group's published statistics and news articles between 2014 and 2023.

Oversupply has occurred for around 5 years, with the latest forecasts suggesting that, by 2024, peak demand will be 228 MW, in contrast to a projected installed capacity of 444 MW brought by an additional 144.4 MW under construction. If Rwanda was able to export this power to neighbours, such oversupply would be less of a problem. Indeed, interviewed officials and government documents referred to such plans, while international transmission infrastructure is under construction.⁷⁴ However, such exports face insurmountable barriers. Rwanda has the region's highest tariffs and all East African states' have an aversion to external dependency and are pursuing similar plans to export, not import, power.⁷⁵

The types of contracts signed with the private sector worsen the financial cost of over-supply. As [Figure 3](#) shows, the private sector now provides the majority of Rwanda's electricity and contracts follow standardized Power Purchasing Agreements (PPAs), where the price of electricity is

74. Ministry of Infrastructure Republic of Rwanda, 'National energy policy and national energy strategy 2013–2014', (The Government of Rwanda, Kigali, 2013); Ministry of Infrastructure Republic of Rwanda, 'National energy policy and strategy' (The Government of Rwanda, Kigali, 2011).

75. On Uganda, see Gore, *Electricity in Africa*, on Kenya, see Britta Klagge et al., 'Cross-scale linkages of centralized electricity generation: Geothermal development and investor-community relations in Kenya', *Politics and Governance* 8, 3 (2020), pp. 211–22; on Tanzania, see Barnaby Joseph Dye, 'Unpacking authoritarian governance in electricity policy: Understanding progress, inconsistency and stagnation in Tanzania', *Energy Research & Social Science* 80, 102209 (2021), p. 1–12.

fixed for 25 years. Additionally, the contracts stipulate that the state-owned energy utility company, the Rwanda Energy Group (REG), must pay for 90 percent of the power made available, even if this electricity is not used. Additionally, Power Purchase Agreements with the private sector for electricity generation are agreed in dollars, whose value has risen relative to the Rwandan franc. Compounding these issues is the contracts' poor fit with Rwanda's demand profile, which is dominated by domestic consumers on the national grid, a characteristic of economies with little industrialization. They cause a daily peak in the evenings between 5 and 10 pm, with demand typically increasing by 25 percent.⁷⁶ This profile could be met by specific peaking power plants or batteries. In contrast, Rwanda only pursued baseload (meaning constant power output) plants, or worse, for only daytime energy generation (e.g. the Rwamagana solar plant). Collectively, these issues inflame the fiscal consequences of oversupply, jeopardizing Rwanda's debt sustainability and macro-economy.

Moreover, Rwanda has pursued expensive generation technologies. It developed the world's first lake-methane extraction plant, an impressive but inevitably costly operation, and pursued peat fuel, a technology whose rarity adds cost (it is only used extensively in a small number of countries including Türkiye and Finland). Furthermore, Rwanda's energy-generation drive has not followed the state's official adherence to least-cost rationales.⁷⁷ Rather, it appears that the main rationale was to maximize all possible generation sources, regardless of cost. One study commissioned by the government found that the new methane and peat plants' operating costs would be more than \$500 million between 2015–16 and 2030 compared to a scenario where diesel and hydro constituted the main electricity generation technologies.⁷⁸

Consequently, Rwanda's electricity sector faces major financial pressures. As summarized by one Western donor official, such conditions amount to the government 'digging a fiscal hole'.⁷⁹ In 2017, the World Bank stated that by 2020, 4 percent of GDP would be required to sustain these payments.⁸⁰ Heavy penalties limit possibilities of cancelling or changing these contracts. Furthermore, analysis above evidences major hurdles to the oft-proposed solution of selling power to neighbouring countries.⁸¹ Therefore, while achieving a remarkable increase in electricity generation,

76. Republic of Rwanda, 'National energy policy'.

77. Republic of Rwanda, 'National energy policy and strategy', p. 6.

78. Amnon Katz et al., 'Assessment of the state of the electricity generation system in Rwanda: Least cost planning until 2030 interim report' (Israel Electric, Haifa, 2017).

79. Interview with Western donor, Kigali, Rwanda, June 2018.

80. World Bank, 'Rwanda - energy sector development policy loan project.'

81. An argument made by several Western donor and consultant interviewees, Kigali, Rwanda, 2015–16.

Table 1 The ambition of electricity production targets.

<i>Planning document</i>	<i>Year</i>	<i>Electricity production target</i>	<i>Installed megawatts</i>
<i>Poverty Reduction Strategy Paper (PRSP)</i>	2004	<i>Additional 42.3 MW between 2004 and 2006</i>	50.05
<i>Economic Development and Poverty Reduction Strategy (EDPRS) 1</i>	2004	<i>From 45 MW to 130 MW by 2012</i>	65.15
<i>Energy strategy</i>	2008	<i>Additional 150 MW by 2012</i>	68.45
<i>Energy strategy</i>	2011	<i>1,000 MW by 2017</i>	96.26
<i>Energy strategy and EDPRS II</i>	2013	<i>563 MW by 2017</i>	102.49

Rwanda's scramble for megawatts carries a major fiscal cost and endangers the country's investment attractiveness, given electricity's expense.

How was such a flawed system planned? As discussed earlier, the political economy literature on Rwanda suggests that the country has, on paper, the conditions for long-term economic development generally, and for adequate long-term planning in the electricity sector specifically. Furthermore, actors in and outside the state knew about the electricity system's key problems and discussed them in interviews dating back to 2013. We argue that, far from being antithetical, the political economy underpinning Rwanda's dramatic boom in infrastructure construction also explains the planning process' short-sightedness: centralized political power stymied bureaucratic independence. As a result, top-down decision making, until 2018, prioritized speed and the maximization of installed megawatts over other concerns.

Planning poorly: RPF interference and target setting

The most evident way in which Rwanda's concentrated distribution of political power upset bureaucratic independence regards target setting. [Table 1](#) depicts the increase in ambition in the electricity sector over the 2000s and early 2010s. Informed by the RPF's 2010 presidential election manifesto, the 2011 energy strategy adopted the colossal target of generating 1,000 MW by 2017. This figure was not based on any demand forecast: it contrasted with an analysis funded by the Japanese Aid Agency (JICA) and the World Bank, which predicted that Rwanda would need around 200 MW by 2017–20.⁸² Interviewed officials confirmed that the target was not based on electricity demand assessments. One consultant

82. Interviews, JICA staff and consultants, Kigali, Rwanda, 2016.

involved in the policy-making process stated that the government's number was plucked from an investigation on 'how much do citizens in middle-income countries consume',⁸³ while other interviewees suggested that it came from a study of China's electricity expansion during its record-setting economic growth period in the 2000s.⁸⁴ This confusion, and the contrast between the 1,000 MW figures against externally commissioned demand forecasts, suggests that the government was primarily influenced by fulfilling a vision of development, centred on the goal of reaching middle-income status by 2020.⁸⁵ High modernist ideology can also help explain these ambitions. The ideology rationalized a leap-frog theory of development that would change a supposedly backward irrational country through engineered top-down, technological interventions that symbolically perform scientific modernity as well as delivering material progress.⁸⁶ From a high modernist lens, rapid increases in Megawatt targets enact modernity and will necessarily deliver promised material development. Faith in the ability of technology therefore helped side-line evidence-based forecasts of lesser electricity demand increases. An advisor to the government suspected that a four-digit round figure was chosen as a statement of the RPF's development ambition.⁸⁷

The setting of unrealistic targets was the result of the RPF's role in ministerial planning. The ruling party has an internal structure to mirror the government, matching the cabinet's ministerial clusters around social affairs, good governance, and the economy with thematic commissions. Although often lacking technical knowledge, these commissions have become influential in the policy-making process, limiting bureaucratic independence. They shape policies through pre-cabinet meetings that convene politicians, civil servants, RPF commissioners, and top regime cadres. This structure provides the ruling party with a tool to direct government policy and apply pressure on the Ministry of Infrastructure.⁸⁸ The RPF commissioners were a significant source of the state's narrow energy-sector focus, as they wanted to please the president and feared admitting failure. As summarized by a former civil servant involved in planning in the infrastructure Ministry:

83. Interview, consultant, Kigali, Rwanda, 2018.

84. Interviews, consultants to the Ministry of Infrastructure, OECD donor officials working on the energy sector, Kigali, Rwanda, 2015–16.

85. Republic of Rwanda, *Rwanda Vision 2020* (Ministry of Finance and Economic Planning, Kigali, 2000).

86. Dye, 'Ideology matters: Political machinations, modernism, and myopia in Rwanda's electricity boom'.

87. Interview, government advisor, Kigali, Rwanda, June 2018.

88. Interviews, former civil servants, Kigali, Rwanda, June 2018.

‘these people [senior RPF officials] are well-meaning, very ambitious. They push for a lot and want to please the President. This creates a problem when it cannot be delivered. So, then, it is about hiding the embarrassment. The problem is that they are not technicians. They are old people with their ideas but their capacity to understand constrains [is limited]. So, they promise a lot and it is a mess’.⁸⁹

This ascendancy of the party over the civil service demonstrates an unequal power dynamic within the Rwandan state that undermined the ability of bureaucratic expertise to influence policymaking. It suggests that party officials helped set, and then enforce, overly optimistic objectives while suppressing debate about the energy system. The Presidency’s dominance over decision-making further constrained space to challenge target-setting and think strategically. Interviewees reported that critiques about the electricity generation plans carried considerable personal risk. One advisor reportedly ‘nearly got fired’ for criticizing electricity-generation targets.⁹⁰ As a consequence, many interviewees from government admitted to self-censoring in policy discussions because they feared speaking out. Meanwhile, external consultants and Western donors mentioned the deafness of top officials when they raised concerns over projects’ financial risks.

The 1,000 MW target was eventually revised to 563 MW in 2013 at a National Leadership Retreat, the annual meeting of governmental top officials. An internal demand forecast conducted the year before predicted that demand would reach about 200 MW by 2020, but the figure was subsequently massaged upwards to 563 MW.⁹¹ Although lower than 1,000 MW, this new target did not reflect demand predictions either, something later recognized by a 2017 government-commissioned report forecasting that peak demand would only reach this level in 2032.⁹² The new 563 MW ‘political number’ (as an interviewed consultant put it⁹³) was likely chosen because it was still more than half of the initial target and had a certain technocratic cachet given that it was not a round number. One informant described how the energy minister, after eventually accepting this new figure, tried to get it approved but received an ‘absolute bollocking’ from the prime minister, who insisted on following the presidentially decreed 1,000 MW target. A senior official involved then described how ‘on a retreat in 2013 ... the President asked, “where did you get the 1,000MWs and why? ... [we did] some simple research in the ministry” ... [it forecast] 563

89. *Ibid.*

90. Interview, government advisor, Kigali, Rwanda, June 2018.

91. *Ibid.*

92. Katz et al., ‘Assessment of the state of the electricity generation system in Rwanda,’ p. 18.

93. Interview, consultant, Kigali, Rwanda, 2018.

[and so this was decided on]'.⁹⁴ Although a separate ministry is officially responsible for policy making, the 1,000 MW target could only be changed with the president's involvement.

This episode is instructive of the structure of power within the state. The president appears as an absolute monarch, able to override normal processes of planning. Civil servants and most ministers are primarily restricted to implementation roles; they are not treated as providers of expertise or strategy. This underlines the lack of bureaucratic independence, as even highly technical tasks like electricity demand forecasts, could only be revised after presidential questioning. The short-sightedness and overreach of the ambitious targets were eventually realized. For the first time, in 2018, the electricity generation capacity target was based on a demand-led forecast, with a 15 percent buffer margin⁹⁵: the 'moving target' estimated demand to reach between 282 MW and 376 MW by 2024.⁹⁶ Yet, this arguably came too late given that under-construction plants will push installed generation above 500 MW.

Implementing poorly: 'Because of the pressure people are stupid'

Theoretically, such unrealistic target setting can be mitigated during implementation: relying on technocratic expertise, bureaucrats could engage in ex-post negotiations with politicians, watering-down implementation, or quietly shelving targets. Conversely, in Rwanda the nature of the political-bureaucratic interface reinforces, rather than cushions, the negative effects of poor planning. Targets, systematically integrated in the *imihigo* performance contracts, resulted in formidable pressure on bureaucrats. The frustration of the presidency in slow progress translated into the frequent replacement of senior officials. The presidency replaced the minister of infrastructure four times, while cycling through three energy ministers and three heads of the Energy Utility between 2009 and 2014, chiefly for failing to increase installed capacity quickly enough. Pressure was also conspicuous at annual national leadership retreats; they often served as a venue for Kagame to berate officials for their delivery failures. In 2012, the President complained that the budget for the electricity sector had not been increased enough before asking 'do you need to attend thousands of seminars about the lack of electricity in Rwanda? I always read, in newspapers, officials saying "we are going to have so much electricity in 30 years"'; no, I want

94. A narrative confirmed by author observations in 2013.

95. Ministry of Infrastructure, Republic of Rwanda, 'Energy sector strategic plan: 2018/19-2023/24' (The Government of Rwanda, Kigali, 2018), p. 10.

96. *Ibid.*, p.10.

it now'.⁹⁷ The revised target of 563 MW in 2013 did not lessen the pressure. As summarized by a civil servant, 'the RPF said [to ministers] that they accepted the lower commitment of 563 MW, but "don't come back, no more excuses", that was the message'.⁹⁸ As a result, the planning process, until at least 2016, appears to have been driven by the narrow goal of building plants to meet generation-capacity targets, with financial efficacy or the energy system's reliability taking a backseat.

This pressure affected project screening. A former adviser described how the government 'would jump on any possibility [of investment] to get more megawatts'.⁹⁹ The pressure meant that 'you can't say no [to investors, even] if you don't need their project'.¹⁰⁰ Given the pursuit of all potential power-plants, proposals were not compared with alternatives and, except for the new Symbion methane plant, PPA contracts with investors followed bilateral negotiations, not competitive tendering.¹⁰¹ The eagerness to attract investors also created coordination issues. Interviewees expressed frustration that potential investors would be welcomed by top officials, including the president, who might promise a range of subsidies without consulting the relevant authorities handling energy policy and investor negotiations: the Energy Utility, infrastructure ministry, or Rwandan Development Board (RDB). As explained by an RDB official, during the negotiation process, 'the Presidency was undermining us on things like the price of PPAs'. This stemmed from rulers' insistence that 'they just wanted the megawatts'.¹⁰²

Recalling negotiations for the Gigawatt Solar power plant (8.5 MW), one of Rwanda's first major energy sector PPPs, an official stated that 'we got the price of the electricity too high partly because we wanted to go quickly and accept the conditions offered too rapidly'.¹⁰³ The project was completed in just five months, being dubbed in *The Guardian* as 'Africa's fastest solar power project'.¹⁰⁴ Nevertheless, as [Figure 4](#) demonstrates, it was also the most expensive in Africa. While PPA tariffs need to respond to context-specific criteria such as site conditions, ease of grid connection and country risk, many of which are likely to be high in Rwanda, informants emphasized that the unflattering comparison shown in [Figure 4](#) was primarily produced by the government's poor negotiation and its desire

97. 'Retreat targets growth', *The New Times* (Kigali), 5 March 2012.

98. Interview, civil servant, Kigali, Rwanda, June 2018.

99. Interview, consultant, Kigali, Rwanda, June 2018.

100. *Ibid.*

101. Following the 2016 law change. Interviews in the Ministry of Infrastructure, Rwanda Energy Authority & RDB, 2014, 2015, 2016, energy consultant, Kigali, Rwanda, 2018; Reviews of government energy strategies and policy papers.

102. Interview, RDB official, Kigali, Rwanda, 2018.

103. *Ibid.*

104. *The Guardian*, 'How Africa's fastest solar power project is lighting up Rwanda', 23 November 2015.

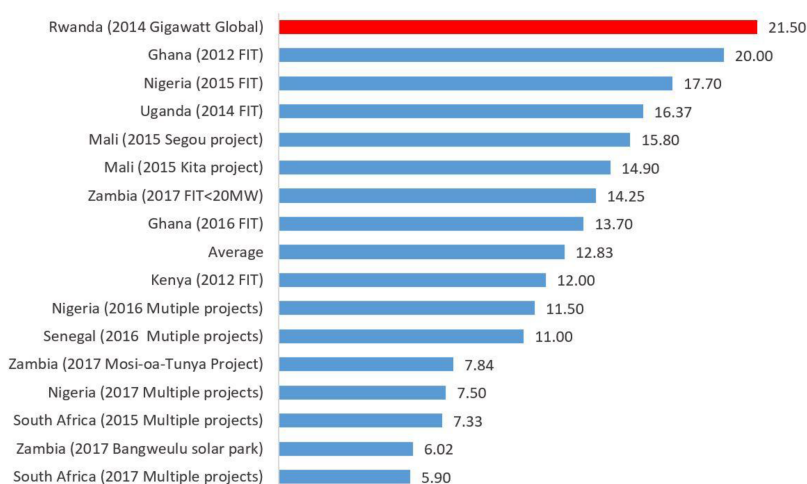


Figure 4 PPAs and FITs prices (in USD¢/kWh) of recent solar power plants in Sub-Saharan Africa. Source: compiled from public data.

We thank Alvaro Lara and Sidney Wakaba for sharing this data. Note: FIT refers to ‘feed-in tariff’—long-term contracts to buy electricity offered to energy producers.

‘to demonstrate quickly that they could do PPP’.¹⁰⁵ Unplanned decisions taken by President Kagame on international trips also affected technical assessments. One such trip to Türkiye, arranged to bring investment to Rwanda, initiated a deal for peat-based electricity generation before technical teams had a chance to assess project viability.¹⁰⁶ These issues were eventually recognized. The electricity act, adopted in 2016, stipulated that the state should initiate all electricity generation projects, as opposed to the previous practice of accepting private investors’ unsolicited bids.

The rush to increase electricity production also resulted in poorly planned plants. The most telling example here is the \$45 million Gishoma peat power plant. Construction started in 2013, completing after a three-year delay. Once operational, the plant functioned at half capacity (5 MW) before stopping four months later. Although technical problems contributed, the shutdown was principally caused by insufficient quantities of peat.¹⁰⁷ Initial rapid studies by the investor made over-optimistic peat calculations and, to hasten the process, no further counter-studies were

105. Interview, RDB official, Kigali, Rwanda, 2018.

106. Interview, consultant, Kigali, Rwanda, 2016.

107. Office of the Auditor General (OAG), ‘Report of the Auditor General of State Finances for the year ended 20 June 2017’, (OAG, Kigali, Rwanda, 2018).

completed. By the time construction started, ‘it was known from day one that there was not enough peat’,¹⁰⁸ with technicians and consultants stating in interviews that they had routinely raised these issues before construction started.¹⁰⁹ Furthermore, to save time, there was no study of the peat’s power-generation quality, which later proved to be poor. The case of Gishoma is representative of wider shortcuts. For example, the Nyabarongo Dam project did not involve detailed topography or sedimentation studies, contributing to the reservoir being several kilometres longer than planned and unexpectedly filling up quickly with sediment.¹¹⁰ Furthermore, the implementation of targets involved insufficient anticipation of transmission needs. Given the location of Lake Kivu’s methane, the geography of peat fields and the western mountains’ hydropower potential, Rwanda’s major new electricity plants are in the country’s West. However, this area was only served by one high-capacity transmission line. This insufficient transmission capacity caused plants to function below their potential.¹¹¹ Several consultants mentioned the refusal of officials to listen to their reservations. One explained that, by raising questions, he was accused of going ‘against the vision of Rwanda’.¹¹² Megawatt targets were essentially the only metric dictating ministers and civil servants’ policymaking.

Competing explanations

Competing hypotheses do not sufficiently explain Rwanda’s electricity-sector problems. First, it could be argued that the sector’s fiscal issues stem primarily from poor technical and financial bureaucratic capacity, not from a lack of bureaucratic independence. Planning electricity systems, managing private-sector negotiations and executing large projects is undoubtedly difficult, especially for poorer states like Rwanda. However, there is substantive evidence of bureaucratic strengths. To begin with, Western aid donors provided significant general-budget support, commissioned numerous studies, and funded an army of seconded advisors and consultants. For example, the EU’s 2015–2020 ‘Sector Reform Contract’ gave €177 million for the electricity sector, with 88 percent dedicated to direct budget support and the remainder paying for technical assistance.¹¹³ Additionally, the World Bank, pledged \$95 million for a 2015–21 ‘Electricity Sector

108. Interview with former civil servant, Kigali, Rwanda, June 2018.

109. Multiple interviews with consultants and civil servants, Kigali, Rwanda, June–July 2018.

110. Interviews, senior officials, Rwanda Environmental Organisation, Kigali, Rwanda, 2016.

111. Republic of Rwanda, ‘Energy sector strategic plan: 2018/19–2023/24’ p. 24.

112. Interview, consultant, Kigali, Rwanda, June 2018.

113. EU, ‘Annex 1 of the Commission decision on the Annual Action Programme 2015 in favour of Rwanda to be financed from the 11th European Development Fund: Action document for “Sector Reform Contract (SRC) to increase performance of Rwanda’s energy

Strengthening Project'.¹¹⁴ Furthermore, as evidenced in our interviews, civil servants and national and international consultants had the capacity to identify issues and, behind closed doors, voiced critiques and advocated for alternative, demand-based forecasts. Capacity was therefore present, but the political space to utilize this capacity was not. Process-tracing shows that policy inputs flowed entirely in one direction, in a top-down manner from a small circle within the ruling party around the President.

Moreover, the concentration of power almost eliminated critique from the press and civil society. The latter never took up the issue while the former served as an echo chamber for presidential frustration over lack of progress in electricity generation.¹¹⁵ The press hardly criticized high electricity prices, low electricity access or projects' quality, or did so only after the government. For example, negative news stories on the Gishoma peat power plant only appeared after issues were raised by the president and the Office of the Auditor General.¹¹⁶ Similarly, bureaucratic performance contracts (*imihigo*) created strong incentives for civil servants to narrowly focus on building electricity generation capacity and thus reinforced implementation capabilities and autonomy from societal concerns. Paradoxically, in this context of a lack of bureaucratic independence, state capacity indicators, usually associated with developmental effectiveness, worsened the electricity sector's performance by facilitating the speed of infrastructure construction. If the bureaucracy had more leeway to deploy its expertise and shape policymaking, it could have changed electricity planning and managed project negotiations.

Second, our argument could be undermined if Rwanda's electricity issues are merely temporary, a blip that will iron out through learning and adaptation. Indeed, adaptation occurred: policy changes between 2016 and 2018 publicly acknowledged issues with contracting and demand forecasts as well as the need to centralize contracting of PPAs to ensure strategic coherence. However, these, as well as the revision of the 1,000 MW target, only occurred when top politicians, and, crucially, the president, finally realized the issue and questioned targets, not because of continuous civil service concerns. Moreover, they came too late to prevent a fiscal and over-supply crisis set to last until 2030 at the earliest. Delayed adaptation did not therefore resolve the sector's crisis, revealing how a lack of bureaucratic independence creates fragility in Rwanda.

sector and develop the corresponding institutional capacities'" (European Union, Brussels, 2015).

114. World Bank, *Rwanda—electricity sector strengthening project* (World Bank, Washington D.C., 2015).

115. 'Businesses count losses as erratic power supply takes toll', *The New Times* (Kigali), 26 February 2013.

116. 'Editorial: Rwanda can't afford another Gishoma-like saga', *The New Times* (Kigali), 5 March 2015.

A third competing explanation could be that Rwanda's strategy, although imperfect, was simply to create the supply of electricity before demand to spur growth. Whatever the relevance of such a strategy (and evidence shows that it might be a bad one),¹¹⁷ process-tracing of key decisions shows that targets ran counter to technical inputs and even the most optimistic industrialization forecasts. High modernist ideology, highlighted earlier in the literature on Rwanda, appears relevant here. Top politicians, unchallenged by the professional opinion of bureaucrats, had confidence in electricity technology's ability to singularly overcome structural constraints and wanted to project modernity through ambitious targets.¹¹⁸

A fourth counter argument could claim that the electricity sector is not representative. However, we find the opposite. For instance, in education policy, Williams shows that the '12 Years Basic Education' policy, and a switch from teaching in French to English in 2008, emanated directly from the presidency, with little bureaucratic input or consultation.¹¹⁹ This has had impacts on educational quality: the 'strong political will of the President and political elite, coupled with a lack of real opposition or push-back, has enabled it to introduce transformative educational policies—but in a way that has evidently prioritized access and expansion over quality.'¹²⁰ Similarly, the headlong pursuit of monocropping in the agricultural sector, despite expert warnings, led to crop production stagnation and the manipulation of data to hide it. As Heinen notes, 'the ruling elite's unrealistically high expectations coupled with its uncompromising enforcement [of monocropping and land use consolidation] may have encouraged agronomists to command peasants to report high yield growth results' in a context where agricultural production in reality stagnated.¹²¹ Overall, as noted by an external observer, 'Rwanda goes about implementing every aspect of its development bargain [...] the only way it knows: command and control—the military system in which all problems are addressed using strict hierarchical structures, all the way to the top'.¹²² Thus, a decade of problematic prioritization and target-setting in the electricity sector appears representative, not exceptional.

117. Charlie Robertson, *The time-travelling economist: Why education, electricity and fertility are key to escaping poverty* (Palgrave Macmillan, London, 2022), pp. 66–81.

118. Dye, 'Ideology matters'.

119. Williams, 'The political economy of primary education', pp. 555–557.

120. *Ibid.*, p. 559.

121. Sebastian Heinen, 'Rwanda's agricultural transformation revisited: Stagnating food production, systematic overestimation, and a flawed performance contract system', *Journal of Development Studies* 58, 10 (2022), pp. 2044–2064, p. 2058.

122. Stefan Dercon, *Gambling on development*.

Conclusion: the fragility of the Rwandan model and beyond

Why, then, did such a major failure occur in the electricity sector, despite Rwanda having the conditions suggested by the PSF to deliver development? We demonstrate that concentrated political power, especially in the Presidency, not only supported rapid policy implementation and a long-term planning horizon but also created a policy-making process that undermined technical inputs, expert challenge, learning, and adaptation, i.e. factors necessary for structural transformation. Consequently, Rwanda began an overzealous and misguided construction boom that created too many power plants, with ill-suited contracts. An ongoing fiscal crisis ensued.

It could be argued that this article's findings be found universally under all types of political structure, rather than being distinctive to dominant party settlements. After all, in an authoritarian regime with extremely concentrated political power or in a liberal democracy where power is more fragmented, there are always civil servants willing to please politicians or unwilling to speak truth to power or politicians ready to ignore experts' sobering analysis on some ill-conceived, yet politically important, policy. The recent book by Nicholas Westcott on the failure of the East African Groundnut Scheme in Tanganyika (now Tanzania) is a case in point. Developed under the Labour Government in 1946, it aimed to fill shortages of vegetable oils in post-war Britain with a large-scale, 2.5 million acres project.¹²³ It spectacularly failed largely because politicians and top executives systematically dismissed experts' inputs, especially those of local colonial officials.

Yet, the Rwandan case shows that authoritarian regimes are more likely to intensify the political override of bureaucratic caution. Lack of political opposition and media scrutiny creates an information asymmetry, preventing governments from accessing reliable information, and shelters it from immediate civil society's pressure. Returning to the Groundnut Scheme, as soon as failure became known, 'the public eye was firmly focused on the scheme. Every move was scrutinised and dissected. [...] It was an irresistible subject'.¹²⁴ Even though it occurred under a colonial regime, the Scheme's problems were mocked in newspapers and used by the Conservative political opposition in the 1950 general elections campaign. It is hard to imagine similar scrutiny in Rwanda. Consequently, supposed contradictions between more open political space and economic development, often implied by the PSF, might not be so contradictory. In Rwanda, a less authoritarian political leadership may have allowed meaningful debates in

123. Nicholas Westcott, *Imperialism and development: The East African groundnut scheme and its legacy* (Boydell and Brewer, Rochester, NY, 2020).

124. *Ibid.*, p. 165.

the bureaucracy and a more open policy-making process that could have benefited from the critiques of external consultants, a more vibrant civil society and the press.

This is not to say that Rwanda's trajectory is doomed to failure. Yet, lack of bureaucratic independence inevitably makes this development fragile when nuanced policy processes are required. As the Rwandan economy and society grow in complexity, insufficient bureaucratic independence is likely to detrimentally impact the delivery of long-term development beyond surface-level success, such as GDP growth or rapid infrastructure construction. At worst, an excessive concentration of decision-making power may result in 'USSR-style' problems, most famously captured by the Chernobyl nuclear disaster, where no one dares to adjust course, or speak truth to power, before it is too late. This article consequently demonstrates a weakness in the PSF and its application to the bureaucracy, which assumes the beneficial effect of a 'dominant party' settlement creating autonomy and Weberian-ness, thereby overlooking the significant costs of rendering the state subservient.

