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“These are the realities”: insights from facilitating researcher-policymaker engagement in Nigeria’s household energy sector

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Energy has been a key focus of government policy in Nigeria for decades, yet little improvement has been seen in rates of access among the population. Our paper assesses the inputs to policymaking in this context and interrogates the role of scientific evidence and knowledge co-production in the process. Through key informant interviews and participatory workshops with stakeholders, we addressed the practical question of how to strengthen the contribution of evidence to national energy policymaking processes. Two windows of opportunity were identified for this: the critical stage of problem definition; and the time lag between policy adoption and implementation. By engaging proactively with policymakers on these fronts, academic researchers working in knowledge co-production arrangements can make quick inroads into a policy space that has largely excluded them to date. This case is instructive for academics and knowledge brokers in similar contexts where a diminished status for scientific evidence might make more ambitious exchanges with policy difficult, to begin with.

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Introduction

"I just want to state the context of Nigeria. Because reality is a relative term... I don't think we lack the science, I don't think we lack pretty much anything. But I think the political economy of these issues is the bigger deal. But when we do our research, we can't quantify it." Interviewee 1_Gas-to-power consultant.

Around 1.1 billion people globally do not have access to electricity, and 2.7 billion people cook with solid biomass fuels (such as wood, charcoal, crop residue and animal dung) in ways that are damaging to their health and the environment (IEA, 2017). Changing this dynamic has proven especially difficult for governments and international development partners in sub-Saharan Africa, where the primary goal of energy policy is the movement of poor populations up the "energy ladder" (Masera et al., 2000) to modern fuels like gas and electricity. Experience from countries that have had some success in achieving this goal (notably, China and Brazil) shows that, while "improved" technologies can be instrumental in increasing poor people's access to modern energy—a key objective of SDG 7—robust policy frameworks are crucial for achieving far-reaching and long-lasting impact (Smith et al., 1993; Coelho and Goldemberg, 2013). At the same time, the importance of basing public service provision on policies that are informed by rigorously derived scientific evidence is becoming increasingly clear (Stewart et al., 2018), and more so within the domain of global compacts like the SDGs where universal compliance is envisioned on issues that are in fact highly contested and contextualised (Kowarsch et al., 2016).

However, the process of translating scientific evidence into policy impact has been shown to be far from straightforward, both globally and in the Nigerian context (Apollonio and Bero, 2016; Siyanbola et al., 2016). The stakes are especially high in Nigeria where, despite several iterations of key energy policies in recent decades, modern energy access, on the whole, remains out of reach for a majority of the vast population.¹ The underwhelming impact of these policy efforts warrants greater scrutiny of the landscape: how energy policies are made; which actors are involved in—or excluded from—the process; and what role different inputs, especially scientific evidence, have historically played in policy formulation. Starting with the hypothesis that greater application of rigorous scientific evidence in decision making could significantly increase the effectiveness of the country's energy policies, our research set out to identify the status quo in the sector and to facilitate engagements with policymakers that might result in a greater role for evidence in decision making.

This paper presents the outcomes of those engagements. A key aim was to identify how researcher-policy maker exchanges can be strengthened more broadly within the political and economic realities of the context, with a view to institutionalising evidence-informed policy making in the long term. The paper begins by situating global discourses around evidence-informed policy making within the African context, providing a framework for the interpretation of the research process and outcomes. This is followed by a methodology section that describes the rationale for primary research conducted in Nigeria and the knowledge co-production processes undertaken in its implementation. We then draw on findings from the research to underscore the potential for strengthening evidence-policy exchanges at specific junctures in national energy policymaking processes and conclude by reflecting on the implications for similarly challenging policy contexts. Our findings are an important addition to the growing literature on practical pathways to influence public policy (Witting, 2017), especially for researchers ill-prepared for the task by traditional academic training (Wowk et al., 2017).

Knowledge co-production and evidence-informed policy making in African research contexts

The value of expanding the role that scientific evidence plays in shaping policy and practice in various spheres of development is increasingly being recognised (Newman et al., 2012). In particular, the discourse around evidence-informed policy making (EIPM) and the science-policy exchanges it entails has gained significant traction over the past two decades in Africa, where they are seen as a means to facilitate the achievement of multiple facets of the sustainable development goals (Kowarsch et al., 2016; Stewart et al., 2018). These exchanges present a mix of opportunities and constraints, especially when they are aimed at resolving the so-called wicked societal and policy problems that are simultaneously complex and contingent on context (Haas, 2004).

Notwithstanding broad acceptance of the concept of EIPM in the African policy landscape, however, it remains underutilised in practice (Siyanbola et al., 2016). One South African study, for example, found that only a fifth of policy makers who expressed support for the principle of integrating evidence into decision-making processes had actually done so in the course of their own work (Paine Cronin and Sadan, 2015). A similar dynamic has been observed in Nigeria, where the gap between legislators' self-reported awareness of evidence relevant to science, technology and innovation policy and their use of such evidence in the past was found to be very wide (Sanni et al., 2016).

In the sphere of energy policy, studies on Africa have largely focused on making a case for robust institutional arrangements (including legal, regulatory and investment frameworks) to be put in place (see, for example, Edomah et al., 2017; Gungah et al., 2019; Dagnachew et al., 2020). Less attention has been paid to interrogating how inputs to the policy are generated in each context—and by which actors—and the implications of this for the issues and perspectives that get prioritised. Essex and de Groot (2019) paint a picture in which a privileging of normative policy pathways in South Africa leads to an obscuring of the problems faced by the segment of society they refer to as the "energy underclass"—poor people with the least access to energy who are typically in the majority in African countries. MacQueen (2011) and Owen et al. (2013) have suggested that the reasons energy problems persist in Africa are largely political (rather than technological), in the sense that the overall policy direction of many countries mostly ignores the realities of energy demand and supply by household and economic actors. This calls for greater focus in the sector on evidence generated from social science research which, as NACETEM/GDN (2020) notes, is relegated in the Nigerian context in favour of research in the physical and pure sciences.

Globally, transdisciplinary research has emerged as a way of engaging a cast of actors, including policy makers, civil society practitioners and businesspeople, in knowledge co-production processes aimed at solving societal problems and improving the integration of research findings into the policy (Landry et al., 2001; Schneider et al., 2019). The notion of co-production moves beyond problematic framings of research-policy communication as a linear process (q.v. Schaal, 2008) to a more grounded understanding of it as a dynamic, iterative process of knowledge exchange among all the actors involved (Boswell and Smith, 2017). Buyana et al. (2020) note that knowledge co-production has particular relevance for African cities, as it can help both researchers and policy makers to "anchor" global aspirations—such as those expressed in the SDGs—in the realities of local contexts. Buyana et al., citing the "complexity" and "uniqueness" of African cities, go on to make a case for increasing the scholarship on knowledge co-production emanating from researchers embedded in these contexts. The implication is that African scholarship has unique perspectives to contribute, not just to local decision-making processes, but also to

the continuing global discourse around effective modes of knowledge co-production and EIPM.

While co-production implies a degree of parity in the weighting given to inputs from different actors, when used in the context of EIPM, advocates often make a case for increasing the visibility of scientific evidence and research actors in the process. Gluckman (2014) has suggested that there is a need to elevate the status of evidence in policymaking spheres, specifically because of the reputation that science has for being more methodologically rigorous and less “value-intensive” than other, non-scientific inputs to policy. This idea was echoed more recently by Cairney (2016), who advocates a normative role for “sound science” in the variable field of politics and policymaking and sees academics as being in a position to facilitate its elevation in the policy landscape. This normative stance is arguably even more relevant in African contexts where, as described above, the role of scientific evidence in policymaking has been relatively narrow.

In Nigeria, the diminished role of evidence (and especially social scientific evidence) in policymaking is the upshot of traditionally weak linkages between research actors on the one hand and policy actors on the other (NACETEM/GDN, 2020). This gap is apparent from the earliest stages of research framing and design, a situation that has negative implications for the eventual uptake of findings by relevant policymakers (*ibid.*). This is a missed opportunity for social science researchers in particular, as the landmark NACETEM/GDN study cited above concluded that, contrary to what the low levels of researcher-policymaker engagement might suggest, the political atmosphere in the country is conducive to scientific discourse. The authors urge “extensive research” to enable greater understanding of the dynamics of science-policy interactions in the country and figure out ways to strengthen them.

Following the lead of Uneke et al. (2010) researching on the Nigerian health policy context, this paper examines knowledge co-production both as a means to increase the engagement of energy policy makers in Nigeria with scientific evidence and as an end resulting from the process of engagement. In doing this, we respond to the observation by several authors (notably, Stewart et al., 2018) that context matters; that EIPM strategies will produce suboptimal outcomes unless they are tailored to the realities of policy makers in African contexts. Local researchers based in academic institutions are central to our conception of contextually relevant co-production and EIPM processes. Our findings contribute to the body of work exploring politically viable mechanisms for facilitating the uptake of scientific evidence in constrained policy environments.

Methodology

Primary data for the study were gathered through action research conducted over a one-year period, from May 2018 to April 2019. The study was conducted by two academics with combined expertise in energy access research and science, technology and innovation (STI) policy formulation in the Nigerian context. The study was undertaken in response to a global call to interrogate local mechanisms for deploying scientific evidence towards the realisation of sustainable development goals in developing countries. Preliminary desk research conducted for the study indicated that levels of policymaker engagement with scientific knowledge—and with the institutions that produce it—were low in the energy and other sectors (see, for example, Sanni et al., 2016). Our project therefore aimed, at the outset, to enhance policymakers’ ability to engage with specific evidence-informed insights on energy access through a series of engagements over the study period.

The initial questions that framed the study are as follows:

1. What factors do policy makers consider when choosing what household energy options to prioritise, and what are the relative weights of those factors in decision making?
2. What kinds of evidence are available in the household energy domain, and how legitimate (or otherwise) do policy makers perceive them to be?
3. How can existing forms of evidence be better translated to bridge the gap between research and praxis in the sector?
4. What (if any) needs exist for new forms of evidence, and how can these be incorporated into institutional decision-making processes?

Our relative positioning as outsiders to the policymaking system necessitated the adoption of a reflexive approach to the enquiry. Importantly, we realised that our initial framing of the problem was likely incomplete, and we left it open to revision based on subsequent interaction with stakeholders. To this end, we initiated a cycle of action research in which, rather than offering prescriptive solutions, we proceeded to refine the initial set of questions through an open-ended process of knowledge co-production with relevant policymakers. In this framing, people’s experiences and subjective realities matter for understanding the subject matter and, taken together, they form the context of the enquiry at hand (Koshy et al., 2011). The ultimate goal of action research is to catalyse change in the system through the iterative application of insights gathered during the co-production process (MacDonald, 2012).

One outcome of this reflexive research process was a shift in focus by the authors early on from trying to feed the established evidence around specific energy issues (in particular, cooking energy access) into the policymaking process, to helping decision-makers better engage with the evidence in areas where policy attention was greatest at the moment—even if these did not align with areas that would seem, from a scientific perspective, to require more immediate intervention. The shift was largely driven by a heightened awareness of the complexity of the policymaking landscape and an increasing realisation that the most fundamental task in the context was to establish a culture of evidence use within the system, following which the scientific case can be made for specific issues.

The main methods of enquiry used in our study were in-depth interviews and participatory stakeholder workshops. Interviews were conducted with 13 key informants, comprising stakeholders from government departments with mandates relating to household energy provision,² academia, civil society and the private sector. A number of the interviewees have had fluid careers, straddling various roles in government, private sector, academia and civil society. This was auspicious for the research, as it meant that one interviewee sometimes embodied multiple perspectives. The final interviewee sample was slightly smaller than originally intended due to the difficulty of gaining access to high-level officials in certain government departments, a challenge that has also been associated with interviewing political elites in other contexts (see, for example, Goldstein, 2002). High-level officials that were originally targeted but could not be reached for interview were from the Federal Ministry of Power, Works and Housing; the Federal Ministry of Women Affairs and Social Development; and Federal Ministry of the Environment. Representatives from each of those ministries were however present at a subsequent workshop.

Two workshops—in June 2018 and February 2019, respectively—were held with 27 participants representing the different stakeholder groups identified above. The first workshop was aimed primarily at opening up lines of communication among academic researchers, practitioners and policymakers in the energy sector. A workshop exercise in which participants discussed their

experiences of evidence use (or non-use) on their jobs as technical officers and decision-makers helped to jointly frame perceptions of the utility of scientific evidence within and across stakeholder groups. The exercise presented an opportunity to contrast decision-making processes in the public sector with those of private-sector and civil society actors, revealing characteristics that are unique to the former in the context.

The second workshop took the form of a more intimate round-table discussion targeted at a smaller number of core policy officials in relevant institutions. Participants deliberated on ways in which evidence can better support Nigeria's energy access goals, aided by practical examples of what has worked in other sectors and countries. An important outcome of this workshop was the co-production of an "evidence ecosystem map" of Nigeria's energy sector which identified the different actors and interrelationships needed for the generation, dissemination and use of evidence across the board.³ The decision to convene a smaller forum was informed by our experiences with the first workshop and the key informant interviews conducted in the intervening period. Overall, the approach of combining workshops and interviews yielded a greater range of data: although the former enabled breadth of representation and real-time exchange of perspectives among stakeholders, those were sometimes achieved at the expense of depth, which individual interviews were better placed to deliver. A further limitation experienced with the workshops was that attendance was often delegated to junior officers within government departments. These officers typically had a wealth of technical knowledge which they were willing to share, but they did not necessarily have the political power to make decisions or implement them, precluding straightforward exchanges between science and policy actors at the workshops. It is apparent from the quote below that researchers must find ways to navigate these hierarchies of knowledge and their relationship to power in order to connect evidence to policy:

"The only problem is, government by its very nature being bureaucratic, it's, you know, if you're not getting the decision-makers into the room, and it's low-level officers you send to come and listen to this talk, they'll just write a report... Until we're able to get decision makers in the room, to hear these stories, to... sit down and look at the numbers, maybe it can inform their policymaking in much more concrete ways." Interviewee 2_Civil society actor with government experience.

The effect of these hierarchies was mitigated in our case by the one-on-one interviews we conducted in between workshops: delegation was less likely to occur for those interviews, perhaps as a result of the personalised and often drawn-out nature of the communication that went into fixing appointments.

The paper goes on to discuss key findings from the study. To set the context, we begin with a description of the institutional arrangements governing the household energy sector⁴ in Nigeria. We then consider the status of scientific research and evidence in these arrangements and, based on our findings, proffer practical ways in which academic researchers in the context can work within institutional constraints on the demand side to expand the use of evidence in household energy policymaking.⁵

Results

The Nigerian energy policy landscape: an overview. The first definitive sector-wide energy policy in Nigeria was the National Energy Policy (NEP) of 2003. The NEP paved the way for the draft National Energy Master Plan (NEMP) of 2014 and the National Renewable Energy and Energy Efficiency Plan (NREEEP) of 2015.⁶ Several sub-sectoral policies addressing specific issues (such as energy market reform and rural electrification) have cascaded down from the overarching goals

expressed in those main policy documents. Some objectives of the derivative policies are explicitly linked to broader macroeconomic policies—most prominently the Economic Recovery and Growth Plan of 2017, which lists "power and gas" as one of its focus areas (Ministry of Budget and National Planning, 2017; Udo, 2018).

Indeed, improved energy access, particularly with respect to electricity, has been at the top of government agendas since Nigeria transitioned to democracy in 1999 (Aklin et al., 2018). Some progress has been made in the intervening period: total electricity generation in 1999 was in the region of 2 gigawatts; following 20 years of significant public and private investment, reliable output hovers around 4 gigawatts (Eboh, 2013, USAID, 2019).⁷ However, more than one in three Nigerians still lack access to electricity (World Bank, 2019)—an energy shortage so severe that it has been identified as a "binding constraint" to economic growth in the country (Lewis, 2018).⁸

These disparate outcomes in the country's energy sector can be partially understood in light of the constraints within which policymaking processes operate in the context. A fundamental challenge, one that is not limited to the context, is posed by the need for governments to prioritise particular policies given the reality of scarce national resources (Results for All, 2018):

"You know, in policy, everything is competing for space. So, you identify a new challenge now in policy, and you look at the policy sub-surface, it's already packed and it's already full. And when something is full, it's just full—whether you like it or not.... Now, the future may escalate what you talked about five years ago, and you can now say, you see, I told you. And then we start scrambling to take it... So, that's just how it works in real life." Interviewee 1_Gas-to-power consultant.

The implication is that certain policy areas will necessarily lose out in terms of the level of attention that they receive in the present – even though windows may open up to revisit them in the future (Cairney and Kwiatkowski, 2017). This has been the case within the energy sector in Nigeria (and in Africa more broadly), where certain sub-sectors (such as transportation and electricity) have historically received far greater policy attention than others (notably, cooking energy) (Owen et al., 2013).

The universal challenge of priority-setting combines with several other constraints that are specific to the Nigerian context, including: weak governance and institutional structures (q.v. Aklin et al., 2018); failure to implement the provisions of potentially transformative policies (such as the Power Sector Reform Plan that was recently revived by the federal government in partnership with the World Bank⁹); and ineffective coordination across government agencies working in the sector.¹⁰

In principle, the Energy Commission of Nigeria (ECN) is the government agency responsible for coordinating energy plans and policies across the different stakeholder institutions. In practice, however, the Commission has very little say in whether and how policies are made within the ministries and agencies it nominally oversees—especially in the "super-ministries" (Interviewee 2_Civil society actor with government experience) that, by virtue of their outside contribution to the economy, wield superior political influence.¹¹

The recent relocation of the ECN from its influential position under the Presidency to relative obscurity in the wide-ranging Ministry of Science and Technology alludes to its diminished role within the energy policy landscape. In the absence of coordination by the ECN, imbalances have been created which accentuate the dilemma of policy prioritisation highlighted above and privilege politically expedient sub-sectors (mainly oil, gas and power) while relegating other, equally important ones.

The implications for evidence-informed policy making are dire: the ECN is the only federal agency with oversight of the government's energy research centres—six of them—making it an important channel for knowledge-policy exchanges. During the workshops conducted for this study, it became clear that the potential for knowledge exchange between the ECN and its research centres has not been adequately realised in practice—due, in part, to the unfamiliarity of researchers in the latter with the dynamics of the policymaking environment. This is a capacity issue that can be addressed through training (Oliver and Cairney, 2019); the more fundamental challenge here is that, by weakening the influence of the ECN within the policy landscape, a vital opportunity for institutionalising an important scientific advisory mechanism in the energy sector is being closed off.

Against this backdrop, private sector activity in the energy sector is widely viewed as having a moderating influence on government inefficiency: the common understanding is that the government will have to “raise its game” (Interviewee 1_ Gas-to-power sector consultant) if it is to be taken seriously by prospective investors in the sector. Government actors are themselves proactive in engaging with the private sector, especially in the area of building power and gas infrastructure. Here, there is considerable emphasis on creating an “enabling environment” for investors – even though this vision is itself threatened by the spectre of government inefficiency:

“Because at the end of the day, all these beautiful things stop at the desk of some civil servant that says that company x, y and z is building a 200 km gas pipeline, to carry gas from somewhere in the Niger Delta and bring it to, wherever. Every step of the way, there are all kinds of different requirements that say that you must cooperate with the public sector, because the public sector is the custodian of policy and security. That's where the challenge starts. That's when it takes you seven years to do a one-year job... These are the realities.” Interviewee 1_ Gas-to-power consultant.

The result is an energy policy landscape that is largely driven by political and business interests,¹² and one in which informal/individual advisory channels are often privileged over formal/institutional mechanisms. The case of the NREEEP, which has acted as a lever for recent public and private investments in power,¹³ illustrates this: the process began with the Ministry of Power contracting an individual consultant to produce a draft policy—a task that took about three years—which was then handed over to an inter-ministerial committee for review. As the following interview quote makes clear, the opacity of the draft-production process makes it difficult to discern whether, and how, the policy was informed by research or other evidence:

“Now the question is whether the consultant used any sort of evidence-based approach, whether they went out to do any sort of data gathering, or whether they just looked at great policies that exist in other countries and just thought, well, this will be great for Nigeria, and tried to maybe write something that they could situate in our own local context. That, I don't know. I don't know what the process was.” Interviewee 2_ Civil society actor with government experience.

Importantly, however, the rationale underlying this tentative approach to policymaking points to a goal that may be more valued in the context than scientific appeals to evidence use, namely, a desire to avoid contention and promote consensus:

“...you know, having sat on a lot of committees, if you're starting from zero, it could be chaotic. We got an almost—

70 percent—ready document, and then that's where we started working from, and then we were trying to make sure that at least there was something that everybody could agree on. Or that there was a consensus document everybody could work off from... Consensus building is one of the biggest challenges, across ministries, within ministries. Very difficult. If you can build consensus across several parameters, half the battle is done.” Interviewee 2_ Civil society actor with government experience.

Having understood some of the constraints in the Nigerian policy environment, where “people don't believe in evidence-informed policy making, or have no remarkable demand for it,” (Interviewee 3_ Evidence-to-policy advocate), the paper proceeds to interrogate the ways in which scientific evidence, to the extent that it is considered a valuable input to policymaking, is deployed in the energy sector.

There is scope for intervention in spite of significant evidence gaps that exist at the institutional level

In discussions with stakeholders from different government agencies, several factors came to the fore as being important considerations in decision making on the issue of energy access. Those factors include: provisions in pre-existing laws and policies; development priorities of the incumbent administration; the degree to which a policy proposal aligns with international agreements ratified by the country; the availability of funds with which to implement a given policy; the degree of difficulty and complexity associated with the implementation of particular policies (so-called low-hanging fruit are often prioritised); the availability of local capacity to implement policy proposals; and the geographical spread/reach of those proposals (the more diverse the target population, the better). These factors mostly reflect pragmatic concerns, and they seemingly bear little relationship to considerations of evidence-informed policymaking.

However, a few other factors were mentioned in the discussions—albeit less prominently than the pragmatic considerations above—that indicated a degree of reflexivity among policymakers regarding the utility of evidence in some form. The most common themes that emerged in this regard were: best practices and “policy failures” identified from other countries and contexts; and feedback from pilot projects. Indeed, the government's predilection for looking to pilot projects for evidence of what might work is a mechanism that external actors, particularly local businesses and non-governmental organisations, have latched on to as an effective way of drawing the attention of the former to issues of public concern. These pilots are typically implemented by local organisations with funding from non-state actors (such as grant-making organisations and donor agencies), and they tend to be small in scale. However, these organisations value those pilots for the proof of concept they provide to government actors and for the potential they have to open the door to public funding for larger-scale replications. The creed among these external stakeholders is that, where the government is concerned, “seeing is believing”: in their experience, show-and-tell approaches have opened up more opportunities for influence than presenting government officials with facts and figures as evidence of the desirability of particular proposals.

Instances of the use of scientific evidence in policymaking do exist in the context, although such evidence tends to be overwhelmingly quantitative and, by implication, incomplete (Sheldon, 2005). The government (as well as the public) has a ready source of such data in the National Bureau of Statistics (NBS), a state-owned research institution that generates and curates macro-level data on just about every aspect of Nigerian life. All data generated by the bureau is sent to the Ministry of

Budget and National Planning, the agency of government responsible for overall economic planning, implying that the evidence is available to policymakers by default. In parallel, requests for specific data points are made by civil servants and politicians (including those in the executive and legislative arms of government) at the point of making weighty decisions, suggesting that the government has a high degree of confidence in the evidence generated by the bureau. There is a good basis for this: apart from using digital platforms to enhance the data collection process, quality control mechanisms (such as the deployment of GPS detection technology and the recruitment of highly qualified staff) have been put in place to improve the reliability of the data generated by the bureau. Nonetheless, data requests to the bureau overwhelmingly come from a narrow range of fields—statistics, economics, banking, agriculture and petroleum—perhaps underscoring the partial nature of the evidence available, to begin with.

The predilection toward quantitative evidence at the macro level is echoed in sector-specific government institutions like the Rural Electrification Agency where scientific evidence appears to be given some weight in policymaking and implementation. The REA's approach to engaging with evidence, however, rests on the widely challenged assumption (see, for example, Sesan, 2012, Akintan et al., 2018), that the problem of energy poverty in developing countries like Nigeria is a purely technical one:

Interviewee 4_ Federal government executive: We are on the field, we're getting the data, we're doing our own modelling, and then we're seeing how we can implement based on the data we have...

Researcher: You've been talking about modelling... so you do a lot of quantitative data. Do you bring in other kinds of data, for instance, qualitative data? [...] You don't think there's a social aspect to, sort of cultural... maybe people are used to certain ways of doing things?

Interviewee 4_ Federal government executive: There's no cultural aspect to anything. If people see that there is electricity and it's working, they will pay for it.

Moreover, to the degree that scientific evidence is applied to decision making within specific government institutions, it often occurs as a result of the effort of individual "champions" acting out of their own initiative rather than as a deliberate institutional strategy. This is not for a lack of designated structures: the REA itself hosts a research department, as do many other government agencies. The ECN's research centres highlighted earlier are another example of an existing but underutilised institutional mechanism for evidence-policy exchanges. According to an interviewee from one of those research centres, they have long been alienated from the Commission even though they continue to demonstrate technical capacity by making inputs to donor-led initiatives. Similarly, though the government-owned Nigerian Institute for Social and Economic Research (NISER) is nominally responsible for the "policy side" of the 2017 Economic Recovery and Growth Plan—including its Gas and Power component—in practice, the interlinked issues of poor federal funding and low institutional capacity have contributed to a situation where the agenda is being set by a few prominent individuals, with little oversight of the role that scientific evidence plays in their decision making.

Notwithstanding the poor record that institutions have in engaging with evidence, however, our findings indicate that there is latent demand for such engagement: in the words of an interviewee affiliated with the REA, there is "great interest" within government institutions in strengthening engagement with

research actors, even if they do not always take the initiative to engage. This appetite for engagement was evident during one of the workshops conducted for the study, where a session aimed at getting stakeholders to engage with some of the established evidence around energy access saw participants debating back and forth in an attempt to reconcile their previously held assumptions with new scientific information.

The existence of latent demand on the policy side presents an opportunity for local research institutions in academia and beyond to initiate engagement with government actors. It is especially important for academic researchers to be proactive in this regard because, as our workshops also revealed, this group has historically been excluded from policy discourses in the energy sector. This is particularly consequential, as the research produced in local universities has the potential to broaden the pool of publicly available evidence beyond quantitative data—a point that adds to the urgency of the task of facilitating the interaction of academics with policy processes. The paper goes on to discuss two key areas of energy policy that emerged out of our research as being particularly valuable and viable for academic researchers to engage with in the context: the problem-definition stage; and the time lag between policy adoption and implementation.

Evidence could make a greater contribution to energy policy at the problem-framing stages

As has been highlighted in previous sections, there are significant gaps in the energy policymaking process in Nigeria that scientific evidence can contribute to filling. This paper makes the argument that, notwithstanding the limitations in the context, opportunities exist for academic researchers to bolster the fringe status of evidence in the policymaking process. One way to achieve this would be for researchers to introduce evidence into policy deliberations at the critical stage of problem definition (Cairney and Kwiatkowski, 2017), rather than going along with the norm in policy circles of inviting expert input, as one interviewee put it, "when the [policy] document is already real."

Two groups of stakeholders currently stand out with respect to the degree of influence they wield in framing policy agendas in the country's energy sector: private sector actors and "development partners" usually representing other country governments.

A high-profile example of the former is the Nigerian Economic Summit Group (NESG), a politically powerful coalition of business actors and investors operating across several sectors of the economy. The NESG engages actively with the energy sector via dedicated platforms such as its Energy Policy Commission and the Nigerian Renewable Energy Roundtable. The kinds of policy discussions that the group facilitates are perhaps most discernible through its annual Nigerian Economic Summit, a high-level meeting that the group has hosted since 1993, with a focus on advancing business interests within the policy environment (Nigerian Economic Summit Group, 2020).¹⁴ There is considerable support within the government for a private sector-driven energy regime, based partly on the expectation that market forces will foster equitable outcomes, as illustrated by the following quote from an interviewee formerly affiliated with the Ministry of Power:

"I think I come from a very market-driven approach, in the sense of an ethically and responsibly driven market approach. With the right checks and balances—have a strong regulator who is going to hold people accountable—and make sure that vulnerable communities are protected and not taken advantage of... It hasn't happened so far in Nigeria, but I think that as we're evolving this our energy sector... that's actually the model we should begin to look

at.” Interviewee 2_ Civil society actor with government experience.

Indeed, a high-level official at the Ministry of Power suggested during discussions at the 2018 edition of the NES (which the authors participated in) that policymakers do not have much of a role to play in further developing mini grids in the country given that an existing policy makes provision for electricity distribution companies to be directly accountable to their customers. This assertion obscures the reality that there is a potential for tension between a commitment by those privately owned distribution companies to be accountable to poorer constituents and their ability to fulfil their primary mandate of prioritising profit. This tension was summed up by a financial regulator at the same summit the following way: “You can either auction power or ration it. If you ration it for equitable distribution, investors don’t get paid. It’s basic economics.”

Expectations that private sector involvement will mitigate the policy failures of the government ignore the evidence pointing to a more fundamental lack of institutional capacity in the electricity sector (Aklin et al., 2018). Paradoxically, discussants at the summit highlighted above pointed out that electricity distribution companies in Nigeria are among the lowest-performing utilities within the West Africa bloc, despite having undergone an extensive privatisation process aimed at improving their performance (q.v. Gnansounou, 2008). There is an opportunity for scientific evidence to make a contribution here by, for instance, highlighting the effects of existing energy policies and regulations on various segments of the public, with a view to finding solutions that decrease the tension between equitable access for customers and business viability for utilities.

The other group of stakeholders that have proved influential in setting national energy policy agendas, often backed by funding and technical expertise, are bilateral and multilateral agencies or development partners,¹⁵ characterised by an interviewee from the REA as “foreigners who don’t understand the context.” The disproportionate influence of this diverse group cuts across multiple policies and institutions, as the following quote indicates:

“So, there’s a new plan for the Transmission Company of Nigeria, it was done by some German organisation. There is the Power Recovery Programme, it was done by a bunch of foreigners, the ERGP implementation that we just did was done by Malaysians... So what I’m saying is that even those that you imagine are at that advisory level, they find themselves in implementation—not at the actual problem definition [stage]. So we have a document that says Nigeria wants to do x, y, z – the universe is now running around moving those things.” Interviewee 1_ Gas-to-power consultant.

Stakeholders in this group are generally perceived as having high technical capacity, with interviewees agreeing that they bring a lot of expertise to bear on policy development. The interview data were corroborated by findings from the workshops we conducted. Participants from international organisations were reasonably familiar with the idea of drawing on scientific sources when making policy decisions: in addition to authoritative sources such as government websites and national statistics, this group cited “international publications” and “journal papers” as valid sources of information for decision making. They were also very clear on the qualities they expected of scientific data, namely, reliability, transparency, and accessibility. Overall, this group appeared to be better primed for engaging with scientific evidence than were the participants from government institutions. Notwithstanding their technical expertise, however, the influence of

this group in setting national policy agendas is viewed by interviewees as being potentially problematic for several reasons: apart from their limited knowledge of the context, there is ambivalence over their motives and relevance in a global system where, as one interviewee put it, “everybody has their own agenda.”

The mix of technical expertise and contextual knowledge necessary to shape context-relevant policies (Broadbent, 2012) can be achieved by expanding the role that local researchers, particularly those in academia, play in the agenda-setting process. In particular, involving academic researchers in the problem-definition stages alongside government, business and development actors would broaden the range of policy questions that are asked, and this would, in turn, widen the reach of policy solutions that emerge. Indeed, there may be a case for interrogating why some ostensibly good policies in the sector are not being implemented – whether it might, for example, have to do with a lack of fit or appropriateness, given that policies that work in one context may not necessarily work in another. This links directly to the imperative of identifying questions that are fit for the context: for solutions to be relevant and inclusive, academics, policy makers, practitioners and the public all need to be involved in scoping and framing problems early on in the policy process. Furthermore, the process of knowledge co-production may have the added advantage of increasing the likelihood that policymakers will identify with the outputs of the research undertaken, and consequently improve the outlook for evidence-informed policy making in the context (The Royal Society, 2018).

The time lag between adoption and implementation presents a window of opportunity for academics to engage with policy

We have highlighted key characteristics of the Nigerian energy policy landscape and showed how some of those elements pose a challenge to the systematic use of evidence in policymaking. We have also shown that one way to address the resulting evidence gaps in the policymaking process is to put evidence-to-policy mechanisms in place at the fundamental phase of problem definition. Another strategy for research-policy engagement that emerged from this study relates to an issue perceived by many interviewees to be more immediate, namely, the failure of government agencies to implement many of the energy policies that already exist.

Concern over the government’s poor implementation record cuts across officials at all levels in ministries that are themselves responsible for translating policy into action, as well as among stakeholders outside of government structures. A high-level official at the Ministry of Finance expressed the dilemma this way: “policies are made, plans are made, but execution is weak.” The situation would seem to present a conundrum for advocates of evidence-informed policymaking: if government actors perceive that the main problem lies at the tail end of implementation rather than at the initial stages of policy design, what incentive will they have to focus on the inputs (including evidence or not) that shape those policies in the first place? Our findings indicate that this tension can be addressed through a strategy that sees academic researchers employing evidence as a tool to highlight the importance or desirability of implementing specific policies. Such a strategy would simultaneously acknowledge the short-term need of government actors to address the issue of implementation and lay the foundation for more robust researcher-policymaker engagement in the long term.

The explanations given by interviewees for weak policy implementation vary. They include: poor governance of the energy sector; high dependence on individual initiative rather than institutional direction; low human resource capacity in

government departments; failure to adequately incentivise and challenge key personnel in relevant agencies; poor accountability among public and private officials; inadequate and irregular funding for key programmes; corruption; and political patronage. It is interesting to note here that none of those explanations reckon with the idea of evidence as a potential mitigating factor, indicating that the gap between insider perceptions of how things work in the “real” world of policy and outsider persuasions of the value of evidence is a wide one.

There is a large body of research on the imperative of learning from the evidence of “what works” through post-implementation evaluation of policies and programmes (Dhaliwal and Tulloch, 2012; Newman et al., 2012; Newman et al., 2013). Much can be learned from the failure of such policies as can be done from their success (Witting, 2017). This is certainly applicable to the Nigerian context where energy policies, even when they have been implemented, have frequently fallen short of their desired targets. However, our research indicates that there is scope for evidence to play a role as well in emphasising the value of policy objectives that may have been on the horizon for some time but were relegated in favour of others deemed to be more economically or politically expedient. A good example of this in the Nigerian context is the disparity highlighted earlier between the levels of policy attention given to electricity and cooking energy access, respectively, the latter being an issue that mainly affects poor women and children with little political voice (Aklin et al., 2018). While this kind of targeted approach might threaten to make academic researchers into “issue advocates” rather than “honest brokers” (Oliver and Cairney, 2019), it can be more productive in the context than trying to champion the idea of evidence-informed policy making in a vacuum. Further, success in this area could contribute to strengthening the extremely weak feedback loop between evaluation and implementation that, according to an interviewee from the ECN, currently prevails.

A key point to highlight here, as was done in previous sections, is that engagement on this front will likely have to be led by academic researchers in the first instance, particularly given the dearth of institutional evidence-to-policy mechanisms in the context. For example, as indicated in the methodology section, we started out in this study by identifying a few willing champions within relevant government institutions and engaging them through workshops and interviews. We followed this engagement up in the medium term with the initiation of a third-party-funded research partnership with selected staff in one of the institutions, with a view to scaling up engagement to other departments within the institution in the long term.

It is particularly important that academics initiate engagement with policymakers on platforms that the latter are comfortable with. As we learned from our study, for example, it is not sufficient for an academic to publish an opinion piece advocating a policy position on any outlet that opens up; research must be conducted beforehand to know which platforms targeted policymakers are disposed to engage on based on their political leanings. A further advantage of the researcher-led evidence-policy exchanges advocated here is that they can help to address some of the capacity gaps in research institutions highlighted in earlier sections.

In this regard, academics can learn some lessons from the policy engagement strategies found to be effective by stakeholders from local non-governmental organisations that we engaged with in the course of the study. The strategies include: storytelling in accessible formats (for example, video documentaries—like the one produced as part of this study¹⁶); presenting empirical evidence in highly visual formats (for example, colourful brochures that draw heavily on imagery);

inviting influential third-party institutions to mediate on particularly thorny or heavily politicised issues; courting potential champions – people who “want to shine” on particular issues—long before they get into influential positions within government; and the privileging of smaller, intimate engagement platforms that are conducive to diplomatic deliberations.

Taken together, the experiences of these non-governmental organisations—some of which operate in areas other than energy—show that the way engagement is done can be the distinguishing factor for success in policy advice. Central to these organisations’ approach is the recognition that a long-term strategy is required to even register as a substantive presence on the policymaking scene, independent of the content of their contribution:

“I think the language and manner of approach to policy-makers is important as well... When you talk of the weight of evidence, it’s the presentation of it. The strategy for presentation of that evidence is quite important... We need to change the rules of engagement. Those are things that get people to listen, to look at facts in the first place. Because if you don’t catch my attention to look at something, there’s no way you can convince me.” – Interviewee 5_Non-governmental parliamentary adviser.

In taking a patient, non-confrontational approach to engagement, the non-governmental organisations referenced above have succeeded in breeding a degree of trust, cooperation and co-production with policymakers, even though institutional constraints remain on the side of the latter. The experiences reported by these organisations validate a key finding that emerged from the workshops—that, although the prospect of outsiders influencing household energy policy in the context might at first seem unlikely, the goal can be achieved if the approach and execution are right.

Taking the long view in policy engagement has also impressed upon many non-governmental actors a recognition of the validity of incremental change—the realisation that success can be measured in intermediate steps, and not only in terms of the achievement of a distant end goal. For example, policy engagement that succeeds in sparking vigorous public conversation around an issue should be considered a veritable measure of progress, even if desired policy changes around the issue are yet to be enacted. Coming to terms with the notion of incremental change will be particularly important for outsider actors seeking to engage in a policymaking context where insider actors have historically valued consensus over conflict. A major challenge for academics going forward will be to understand the workings of this context sufficiently to make inputs to policy processes in a robust and realistic fashion.

Conclusion

This paper has provided an overview of the institutional and political context within which household energy policies are made in Nigeria. Action research was conducted through in-depth interviews and workshops with policymakers and non-governmental stakeholders to determine the extent to which they use scientific evidence in policymaking and to identify practical ways of broadening their engagement with such evidence. The analysis adopted a knowledge co-production framework in interpreting the outcomes of the research and their implications for strengthening the science-policy interface in the Nigerian energy sector.

Our findings indicate how, against the backdrop of extreme energy poverty, context-specific constraints in the policy landscape result in the privileging of pragmatic and political considerations and a diminished role for scientific evidence in energy policy discourses.

In the absence of functional evidence-to-policy structures, efforts to facilitate knowledge exchange between academic researchers and policymakers often depend on the initiative of individual “champions,” with little institutional oversight or coordination. Further, where evidence is used in policymaking, it is mostly limited to statistical and technical data that reflect macro-level trends but leave out more qualitative understandings of the social, cultural and political economy issues that underpin those data. This reflects the general observation by NACETEM/GDN (2020) that, even though considerable scope exists for social science researchers in Nigeria to communicate their work to policy makers, challenges exist on the “supply” and “demand” sides that would preclude the straightforward integration of both.

Notwithstanding these challenges, however, our study identified two windows of opportunity—hitherto largely unexplored—for academic researchers in the context to initiate evidence-policy interactions with policymakers. The first window opened up as a result of a historical pattern in which private-sector and international development actors have taken centre-stage in agenda-setting processes, while linkages between national policy and academic research institutions—including research centres that are officially embedded within government structures—have progressively weakened. An opportunity exists here for academic researchers in the context to bring evidence-informed insights to the table early on in the policy process, when agendas are still fluid and can benefit from a wider range of perspectives. The second window of opportunity for academics emerged from the apparent gap between policy and reality, occasioned by the failure of the government to implement many existing energy policies, including some that would be most beneficial to vulnerable segments of the population. We argue that, by harnessing the evidence around such relegated policies and using it to build a case for the desirability of implementing them, academics can make relatively quick in-roads into ongoing policy discourses in the energy sector. Beyond any policy-specific impacts that these tentative engagements might deliver, the process of knowledge co-production they entail can contribute to building both policymakers’ *capacity* for engaging with evidence (in the near term) and a *culture* of evidence uptake within relevant institutions (in the longer term).

This case is instructive for academic researchers and knowledge brokers in similar contexts where a diminished status for scientific evidence might make more ambitious exchanges with policy difficult, to begin with. The strategies outlined above will require academics in such contexts to be more proactive in engaging with policy actors than they might initially be comfortable with. Training in policy engagement can help to address some of the skill gaps identified in this area. There is also scope for academics to learn from the experiences of non-governmental actors with a track record of engagement in policy circles, particularly with respect to the accessibility of evidence and a commitment to the long term. This will be one more step in getting both academics and policymakers to embrace, rather than shrink from, the complexity and uncertainty often associated with evidence-to-policy processes.

Data availability

The datasets generated and analysed during the current study are not publicly available due to the sensitivity of the research context, but they are available from the corresponding author on reasonable request.

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Notes

- 1 According to the World Bank (2019), rates of access to electricity and modern cooking fuels in the country stand at 59 percent and 5 percent, respectively.
- 2 The interviewees included high-level officials (such as Directors) at the Energy Commission of Nigeria, the Rural Electrification Agency, the Federal Ministry of Science and Technology and the Nigerian Institute of Social and Economic Research.
- 3 The evidence ecosystem map identified the funders, producers and users of research in the Nigerian energy sector, as well as the barriers to, and facilitators of, interactions among these groups. There is a diversity of actors on the supply side (i.e., funders and producers), with a range of organisations representing government, donors, civil society and the private sector. The map is revealing for the wide gap it shows between outputs from the supply side and inputs to the demand side (which consists mostly of government institutions), indicating that this is where evidence-to-policy efforts need to be concentrated.
- 4 “Household energy” is defined here as energy for basic services (i.e., cooking and electrification), as distinct from energy for productive and other uses. The term is used interchangeably with “energy” throughout the paper.
- 5 We focus on academic researchers partly because we are writing from this perspective, but also because it is the group revealed by our analysis to be most alienated from energy policy discourse in the Nigerian context.
- 6 Of all the energy policies and plans that have been proposed in the current democratic era, the only one that has been formally adopted to date is the National Energy Policy of 2003. The closest to the NEP in terms of adoption is the NREEEP, which was approved by the Federal Executive Council in 2015 but has not yet undergone the mandatory next step, which is approved by the legislature. The 2014 NEMP is still far behind at the level of review, despite being a more comprehensive policy than the NREEEP.
- 7 For comparison, South Africa, the second-largest economy on the continent after Nigeria, with about a third of the latter’s population, has an electricity generating capacity of approximately 50 gigawatts (USAID 2018).
- 8 According to Aklin et al. (2018), this apparent connection between electricity and economic growth explains the tendency for developing country governments the world over to prioritise electricity above cooking energy access, which is an even more urgent dimension of energy poverty.
- 9 In a recent social media thread (July 2019), the Bureau of Public Enterprises (the entity that directs the Nigerian government’s privatisation initiatives) publicly blamed the poor state of power supply on the failure of past administrations to honour the terms of previous agreements, declaring that “the BPE is of the firm belief that the faithful implementation of the Power Sector Recovery Plan will return the power sector reform back on track...” <https://twitter.com/BPENigeria/status/1148202360113700865?s=09>.
- 10 The core policymaking and implementing institutions in this regard are the Energy Commission of Nigeria, the Federal Ministry of Power, Works and Housing, the Rural Electrification Agency and the Nigerian Electricity Regulatory Commission.
- 11 The Ministry of Power, for instance, led the process of formulating and reviewing the electricity-focused National Renewable Energy and Energy Efficiency Plan, and has secured approval from the Federal Executive Council to implement the policy in partnership with the Rural Electrification Agency – all without input from the Energy Commission.
- 12 This reflects the broader policy/governance landscape in the country: policy makers and politicians—including those in institutions with explicitly scientific mandates like the Ministry of Science and Technology—regularly appoint economic advisers but not science advisers.
- 13 This is the anchor for a number of policies guiding implementation in the power sector today—most notably, the Rural Electrification Strategy and Implementation Plan of 2016 and the Mini-grid Regulation of 2017.
- 14 More recently, the NESG has been involved in projects with an explicit social inclusion component – such as its facilitation of a government-funded socioeconomic empowerment programme targeted at some of the country’s most vulnerable populations. This, however, remains a small part of the group’s focus.
- 15 These are mostly international and non-governmental policy and development finance organisations, although there has been significant input recently from a non-profit technology firm with the government’s increasing emphasis on developing mini-grids for electricity access.
- 16 Feedback from non-governmental organisations at the February 2019 workshop highlighted the disparity between existing national policies on cooking energy access (as stated in the 2003 NEP and the draft 2014 NEMP) and implementation of those policies. This prompted the authors to collaborate with one of those organisations on a video documentary citing the established evidence on the costs of policy inaction, as well as proven technological solutions. The documentary is available here: <https://youtu.be/2sp5ljFaGBg>.

References

- Akintan K, Jewitt S, Clifford M (2018) Culture, tradition, and taboo: understanding the social shaping of fuel choices and cooking practices in Nigeria. *Energy Res Soc Sci* 40:14–22

- Aklin M, Bayer P, Harish SP, Urpelainen J (2018) Escaping the energy poverty trap: when and how governments power the lives of the poor. MIT Press, Cambridge
- Apollonio BE, Bero LA (2016) Challenges to generating evidence-informed policy and the role of systematic reviews and (perceived) conflicts of interest. *J Commun Healthc*. <https://doi.org/10.1080/17538068.2016.1182784>
- Boswell C, Smith K (2017) Rethinking policy 'impact': four models of research-policy relations. *Pal Commun* 3(44). <https://doi.org/10.1057/s41599-017-0042-z>
- Broadbent E (2012) Politics of research-based evidence in African policy debates. Evidence-based Policy in Development Network. ODI. <https://www.odi.org/publications/8757-politics-research-based-evidence-african-policy-debates-four-case-studies>. Accessed 26 Jul 2019
- Buyana K, Paulavets K, McClure A (2020) Advancing the 2030 Agenda in African cities through knowledge co-production. <https://doi.org/10.24948/2020.01>
- Cairney P, Kwiatkowski R (2017) How to communicate effectively with policymakers: combine insights from psychology and policy studies. *Pal Commun* 3(37):1–8
- Cairney P (2016) The politics of evidence-based policy making. Palgrave Macmillan, London
- Coelho ST, Goldemberg J (2013) Energy access: lessons learned in Brazil and perspectives for replication in other developing countries. *Energy Policy* 61:1088–1096
- Dagnachew AG, Hof AF, Roelfsema MR (2020) Actors and governance in the transition toward universal electricity access in Sub-Saharan Africa. *Energy Policy* 143. <https://doi.org/10.1016/j.enpol.2020.111572>
- Dhaliwal I, Tulloch C (2012) From research to policy: using evidence from impact evaluations to inform development policy. *J Dev Effect* 4(4):515–536
- Eboh M (2013) FG invests N5trn in 2,500MW power. *Vanguard Newspapers*, April 2. <https://www.vanguardngr.com/2013/04/fg-invests-n5trn-in-2500mw-power/>. Accessed 5 Jul 2019
- Edomah N, Foulds C, Jones A (2017) Policy making and energy infrastructure change: a Nigerian case study of energy governance in the electricity sector. *Energy Policy* 102:476–485
- Essex S, de Groot J (2019) Understanding energy transitions: the changing versions of the modern infrastructure ideal and the 'energy underclass' in South Africa, 1860–2019. *Energy Policy* 133. <https://doi.org/10.1016/j.enpol.2019.110937>
- Gluckman P (2014) The art of science advice to government. *Nature* 507:163–165
- Gnansounou E (2008) Boosting the electricity sector in West Africa: an integrative vision. *Int Assoc Energy Econ* 17:23–29
- Goldstein K (2002) Getting in the door: sampling and completing elite interviews. *Polit Sci Polit* 35(4):669–672
- Gungah A, Emodi NV, Dioha MO (2019) Improving Nigeria's renewable energy policy design: a case study approach. *Energy Policy* 130:89–100
- Haas PM (2004) When does power listen to truth? A constructivist approach to the policy process. *J Eur Public Policy* 11(4):569–592
- IEA (2017) Energy access outlook: from poverty to prosperity. International Energy Agency, Paris
- Newman K, Capillo A, Famurewa A et al. (2013) What is the evidence on evidence-informed policy making? Lessons from the international conference on evidence-informed policy making. International Network for the Availability of Scientific Publications, Oxford
- Koshy E, Koshy V, Waterman H (2011) What is action research? In: Koshy E, Koshy V, Waterman H (eds) *Action research in healthcare*. Sage, London, pp. 1–24
- Kowarsch M, Garard J, Rioussel P (2016) Scientific assessments to facilitate deliberative policy learning. *Pal Commun* <https://doi.org/10.1057/palcomms.2016.92>
- Landry R, Amara N, Lamari M (2001) Utilization of social science research knowledge in Canada. *Res Policy* 30(2):333–349
- Lewis P (2018) Poverty to prosperity: making governance and institutions work. Keynote speech presented at the 24th Nigerian Economic Summit, Abuja, Nigeria, 22–24 October 2018
- MacDonald C (2012) Understanding participatory action research: a qualitative research methodology option. *Can J Action Res* 13(2):34–50
- MacQueen D (2011) Bearings for the biomass boom. International Institute for Environment and Development, London
- Masera O, Saatkamp B, Kammen D (2000) From linear fuel switching to multiple cooking strategies: a critique and alternative to the energy ladder model. *World Dev* 28(12):2083–2103
- Ministry of Budget and National Planning (2017) Economic recovery and growth plan (2017–2020). Federal Republic of Nigeria, Abuja
- NACETEM/GDN (2020) Doing research in Nigeria. National Centre for Technology Management. Ile-Ife & The Global Development Network, New Delhi
- Nigerian Economic Summit Group (2020) <https://nesgroup.org/>. Accessed 2 Jul 2020
- Newman K, Fisher C, Shaxson L (2012) Stimulating demand for research evidence: what role for capacity building. *IDS Bull* 43(5):17–24
- Oliver K, Cairney P (2019) The dos and don'ts of influencing policy: a systematic review of advice to academics. *Pal Commun* 5(21):1–11
- Owen M, van der Plas R, Sepp S (2013) Can there be energy policy in sub-Saharan Africa without biomass? *Energy Sustain Dev* 17:146–152
- Paine Cronin G, Sadan M (2015) Use of evidence in policy making in South Africa: an exploratory study of attitudes of senior government officials. *Afr Eval J* 3(1):1–10
- Results for All (2018) Using evidence to improve policy implementation: a peer learning workshop for government policymakers. Available via Results for All. <https://results4america.org/page/using-evidence-improve-policy-implementation/>. Accessed 26 Jul 2019
- Sanni M, Oluwatope O, Adeyeye A (2016) Evaluation of the quality of science, technology and innovation advice available to lawmakers in Nigeria. *Pal Commun*. <https://doi.org/10.1057/palcomms.2016.95>
- Schaal B (2008) The role of communications and scientific thinking. In: Schweitzer G (ed) *Science and technology and the future development of societies: international workshop proceedings*. National Academies Press, Washington, DC
- Schneider F, Giger M, Harari N et al. (2019) Transdisciplinary co-production of knowledge and sustainability transformations: three generic mechanisms of impact generation. *Environ Sci Policy* 102:26–35
- Sesan T (2012) Navigating the limitations of energy poverty: lessons from the promotion of improved cooking technologies in Kenya. *Energy Policy* 47:202–210
- Sheldon TA (2005) Making evidence synthesis more useful for management and policymaking. *J Health Serv Res Policy* 10(S1):1–S1. 5
- Siyanbola W, Adeyeye A, Olaopa O et al. (2016) Science, technology and innovation indicators in policy-making: the Nigerian experience. *Pal Commun* 2:16015. <https://doi.org/10.1057/palcomms.2016.15>
- Smith K, Shuhua G, Kun H et al. (1993) One hundred million improved cookstoves in China: how was it done? *World Dev* 21(6):941–961
- Stewart R, Langer L, Erasmus Y (2018) An integrated model for increasing the use of evidence by decision-makers for improved development. *Dev South Afr*. <https://doi.org/10.1080/0376835X.2018.1543579>
- The Royal Society (2018) Evidence synthesis for policy: a statement of principles. <https://acmedsci.ac.uk/file-download/36366486>. Accessed 26 Jul 2019
- Udo B (2018) Six core sectors emerge as Nigeria's ERGP focus labs close. *Premium Times Newspapers*, May 14. <https://www.premiumtimesng.com/business/business-news/268310-six-core-sectors-emerge-as-nigerias-ergp-focus-labs-close.html>. Accessed 5 Jul 2019
- Uneke CJ, Ezeoha A, Ndukwe CD et al. (2010) Development of health policy and systems research in Nigeria: lessons for developing countries' evidence-based health policy making process and practice. *Healthc Policy* 6(1):48–65
- USAID (2018) South Africa: power Africa fact sheet. United States Agency for International Development, Washington, DC
- USAID (2019) Nigeria: power Africa fact sheet. United States Agency for International Development, Washington, DC
- Witting A (2017) Insights from 'policy learning' on how to enhance the use of evidence by policymakers. *Pal Commun* 3(49):1–9
- World Bank (2019) The energy progress report. <http://trackingsdg7.esmap.org/>. Accessed 15 Apr 2019
- Wowk K, McKinney L, Muller-Karger F, Moll R, Avery S, Escobar-Briones E, Yoskowitz D, McLaughlin R (2017) Evolving academic culture to meet societal needs. *Pal Commun* 3(35). <https://doi.org/10.1057/s41599-017-0040-1>

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Competing interests

The authors declare no competing interests.

Additional information

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