Discussion of 'Power Sector Reform and Regulation'

Discussion by Antonio Estache

The main purpose of this chapter is to conduct an assessment of the difficulties observed in Tanzania's power sector as part of a global diagnostic of Tanzania's institutional constraints on its ability to deliver economic policies.[12] To do so, the author provides an historical perspective on the sector's institutional evolution, highlighting governance and financing challenges as well as recurring political hesitations on key policy decisions. The diagnostic is extremely detailed, lucid, and honest, and provides enough details to anchor a discussion of additional reform needs.

The diagnostic is also quite humbling in terms of how much can be done at policy design level with 'standard or imported' policy solutions. The country suffers from a lasting record of imperfect political and technical accountability for failures to deliver, and these are unlikely to be addressed under highly centralised and standardised 'business-as-usual' approaches to sector reform. Tanzania's political preferences and current institutional constraints do not seem to be consistent with large standard reforms, delivering fast improvements more transparently.

This note argues that the diagnostic presented here implies that unless alternative, possibly unusual, institutional and reform strategies are at least piloted on a reasonable scale, progress is likely to continue to be slower than stated in the Master Plans (including the 2016 plan). It is also unlikely that the sector will achieve the financial autonomy required to finance the needs of the 62.3 per cent of the population without access to electricity (75.5 per cent in rural areas) and of the many businesses rationed in quantity and in quality. To help in the identification of alternatives, the following comments on the chapter provide some suggestions to follow up analytical, policy, and political work.

[12] I am grateful to F. Bourguignon, D. Camos, and R. Schlirf for useful discussions. Any mistake or misinterpretation is entirely my responsibility.

1 MARKET CONTEXT: THE UNDERESTIMATED DEMAND AND SUPPLY BOTTOM LINE

Before discussing broad institutional options to address market and government failures in the design and implementation of energy policies in Tanzania identified by the General Electric Company, it seems useful to highlight the outcome of these failures at the very basic quantitative level. This helps to indicate a sense of the size of the challenge and the specific issues to address, as well as possibly anchoring the recognition of the scope for innovative rather than standardised solutions.

Very concretely, for an observer unfamiliar with the country, the data suggest that the investment *level* is not the only problem. Investment *speed* is just as important. Supply has hardly been catching up with a fast-growing demand. Worse yet, the growth of this demand may actually be underestimated. Current consumption is at around 108 kWh/capita. This is only 20 per cent of the sub-Saharan African average.[13] This is a capacity development and management issue, a major weakness of Tanzania, hinting at a mismatch between the institutional choices and the capacity of the country to design and implement a policy in this sector.

The size of the capacity gap continues, indeed, to be huge. As of 2017, Tanzania had less than 1,500 MW of installed grid generation capacity running at 70 per cent load on average to serve a population of 58.2 million with one of the fastest growth rates in the world (3.1 per cent in 2016).[14] In recent times, demand has been growing at an average annual rate close to 10 per cent, and since investment has not followed, about two out of three Tanzanians do not have a chance of seeing their needs met in the short term under the current technological characteristics of the sector.

It will take ten to fifteen years to close the gap, at least.[15] Since the early 2010s, the successive Master Plans have converged towards estimates of investment needs sufficient to cater to a peak demand of 4,000–4,700 MW by 2025–30. The latest plans focus on rapidly developing gas-fired and coal-fired generation in the short to mid-term (2017–19), while focusing on hydrogeneration capacity in the long term (2019–25) – in a region with a record of droughts.[16] The plans

[13] In 2014, this consumption per capita was 1,931 kWh in low- and middle-income developing countries, 745 kWh in lower middle-income countries, and 2,060 kWh in middle-income countries.

[14] Transmission and distribution losses (18 per cent) in Tanzania are standard for the region, but significantly higher than in other countries around the globe.

[15] Note that the new Rural Energy Master Plan 2022–30 provides a roadmap to reach 100 per cent energy access by 2030.

[16] More specifically, the government plan under the BRN initiative to be implemented by 2020 is to generate 1,500 MW from gas, 160 MW from oil, 100 MW from wind, 60 MW from solar, 11 MW from small hydropower, and 200 MW from coal, as well as 650 MW from estimated geothermal potential. The strategy is partially anchored in the recent discoveries of 55.08 trillion cubic feet of natural gas reserves off the coast of Tanzania. For now, Tanzania is a net importer

appear to be realistic in theory, but the details available to casual observers do not seem to internalise the lessons from the recurring delays observed in Tanzania for large-scale power projects and the factors driving demand growth. This is a process-related issue that needs to be addressed in the design of reforms.

Progress has mostly benefited urban users. According to the 2016 Energy Access Situation Report, about two-thirds of urban areas have access to electricity. The main beneficiaries of access rate improvements have been the capital city and the upper-income classes and businesses.[17] Technically, they also benefit from the lowest-cost solutions. Cost-effective grid electricity prevails in urban areas, with 96.4 per cent of the households with access to electricity connected to the grid.[18] Grid connection is only available to 34.5 per cent of households in rural areas and, in many cases, the technological choices deliver a load level inconsistent with the willingness and ability of populations to pay.[19]

The outcome is a heterogeneity of costs faced by users and a somewhat regressive investment plan timing. Currently, the poor, the majority of the rural population, spend about 35 per cent of their household income on energy, two and a half times what the rich spend.[20] This distributional issue linked to both investment costs and timing should be a much larger concern to the various sources of financing supporting the transformation of the sector, given that there is now enough evidence that the decision-making process needs to be revamped to speed up the delivery of energy at a reasonable cost consistent with the preferences of the majority of the population outside of the major cities.

Timing and technological choices drive the investment financing capacity and options. Irrespective of any institutional or policy issue, the physical challenge boils down first to a financial challenge in the short run. The continued backlog, the slow investment speed, and the significant financing gaps are recognised in the 2016 Master Plan update. Various sources mention investment needs of around USD 40 billion investment under current technological preferences.[21]

of petroleum products, although over 30 per cent is re-exported to landlocked neighbouring countries (Zambia, the Democratic Republic of Congo, Rwanda, Malawi, and Burundi).

[17] Only 16.9 per cent of areas enjoy this service in environments in which efforts are being made to reduce poverty and improve standards of living.

[18] As of 2016, in Dar es Salaam, 99.3 per cent of households are connected to grid electricity. Another region with a high number of grid electricity is Kilimanjaro (88.0 per cent). The least-connected regions to grid electricity are Lindi (24.5 per cent), Njombe (36.6 per cent), Mtwara (38.9 per cent), and Katavi (41.1 per cent).

[19] As of 2016, according to the United States Agency for International Development (USAID, 2018), a connection charge to the TANESCO grid in a rural area costs at least USD 200, and this is for an unreliable service.

[20] Most of the rural population relies on expensive, hazardous, and low-quality fuels such as kerosene for lighting and charcoal for cooking.

[21] For example, Peng and Poudineh (2016).

If this were to be spread over ten years, the high case scenario, it would roughly mean 10 per cent of GDP. This is unrealistic. It means that closing the gap will have to be slower and that the sector needs to consider ways of cutting costs to make the most of the fiscal envelopes to be allocated to the sector. It also means that, unless technological choices are adjusted, it is hard to see how Tanzania will be able to produce enough electricity fast enough to meet its objective of becoming a middle-income country by 2025.[22] And this should matter to the assessment of the location and nature of investment decisions in the sector and to growth expectations.

How much scope is there to adjust technological options? Tanzania's successive Master Plans have long recognised that there are alternatives to the traditional energy sources, and that these are expected to help during the transition to the 2025 access rate goals. In 2016, of the electrified households, about 25 per cent are not connected to a grid – 24.7 per cent with solar power and 0.3 per cent through individual electricity generated from sources such as small generators. But these technological approaches could also be considered for the medium to longer run to cater to the rural population as a way of managing both cost and time preferences. This is a serious option in an environment in which new low-cost technology relying on local renewable options is emerging fast and providing reliable, affordable service.[23]

So far, progress in making the most of the alternatives has been slow considering the potential they offer – even if it has been high by sub-Saharan African standards. According to a WRI (2017) report, Tanzania has at least 109 mini-grids (93 operating as isolated), with installed capacity of at least 157.7 MW, but they only serve about 184,000 customers, a far cry from meeting the needs of the 35 to 40 million living in rural areas.[24]

[22] Kichonge et al. (2014) show the dominance of hydro, coal, natural gas, and geothermal as least-cost energy supply options for electricity generation in all scenarios. Under a dry weather scenario, they argue for a shift to coal and natural gas to replace hydroenergy, with little scope for solar thermal, wind, and solar photovoltaic (PV), but this ignores the discount rate/rate of time preference dimension. Lower values favour wind and coal-fired power plants, while higher values favour the natural gas technologies.

[23] USAID (2018) explains that Devergy, one of the providers of alternatives to TANESCO catering to rural areas of western and eastern Tanzania, relies on an adaptive mini-grid system controlled by a wireless communication system allowing the monitoring of individual meters working with a pay-as-you-go system. Its mini-grids use distributed, networked solar PV with battery storage delivering reliable (99 per cent) 24-volt direct current electricity to between 60 and 400 households. Each household receives up to 250 watts of electricity, and compatible appliances can be purchased at local kiosks. The initial connection fee ranges from USD 6 to USD 12 per customer; this covers the meter, wiring, installation costs, and two bulbs. This is less than 5–10 per cent of the connection fees charged by TANESCO for connections to their grid. The recurring cost is based on consumption on a standard tariff structure allowing the recovery of operational expenditures.

[24] Hydro is the most common technology (forty-nine mini-grids), although the nineteen fossil fuel systems account for 93 per cent of customer connections and almost half of total installed

The growing interest in these alternative technological options has been matched and stimulated by the development of pay-as-you-go solar companies supported by mobile phone companies (MKopa, Zola, and Mobisol). This has smoothed cost recovery through mobile payment systems such as Airtel, Tigo-Pesa, or M-Pesa. Mobile operators have become essential drivers of the growth potential of these alternative providers in rural regions.[25]

In the short run, these solutions may be seen by some observers as a niche to be exploited to deliver faster in areas unlikely to see the benefits of the investment programmes before the end of the plan period.[26] But it is not unreasonable to argue that these solutions should be considered as more than a short-term niche. And the scope to make the most of this option should be included in the assessment of the potential changes in the design of institutions in the sector.

How much are current choices biased by the insufficient analytical support to decisions? For a newcomer to Tanzania going through the recent literature and policy documents available on the sector, it is difficult not to think that there may be a recurring optimism bias in the sector diagnostics used to anchor policy decisions.

First, on the demand side, needs may be regularly underestimated. They seem to ignore the expected change in the purchasing power of the population, which implies much higher income elasticity than recognised by the Master Plan. They also underestimate important details of the consequences of the ambitious economic growth and diversification targets aimed at by the authorities in their strategic development plan. This implies that it may be useful to take a more precise look at the data anchoring the Master Plan. It would be beyond the main purpose of this note to go through a data and methodological diagnostic, but an independent audit of these basic quantitative dimensions would not be an unusual exercise in an environment in which institutional and governance weaknesses may reduce the incentives to take a cold look at the facts. This is what countries such as Vietnam and Laos have been doing since the early 2010s as part of the sector-restructuring efforts, for instance.

Second, on the supply side, there is a common bias in favour of the lowest-cost technologies. This is fine if the assessments are not biased by a reliance on standard financial discount rates rather than rates accounting for

capacity. Tanzania has twenty-five biomass mini-grids and thirteen solar mini-grids (ten of them small donor-funded, community-owned demonstration projects). There are no wind mini-grids in Tanzania.

[25] Ohio State University (2017).

[26] This is not an irrational option under tight financing constraints, considering that the cost of grid extensions ranges from about USD 6,500 per kilometre in densely populated regions to as much as USD 20,000 per kilometre in regions with dispersed populations. This high cost of grid extension in remote areas and the slow speed at which these extensions tend to take place are two of the main reasons for considering opportunities for off-grid electrification more rigorously.

the relevance of the time preferences of users. The rate of time preference is relevant to reflect the sense of urgency of regions otherwise expected to stay unconnected for a while. Over two-thirds of Tanzanians seem to have a much higher discount rate than is reflected in standard project evaluations. This matters for the choice of technology since this choice impacts the time of delivery. The relevance of this time preference in Tanzania is actually quite clear from the craving for mini-grids, which reveals a willingness to go for more expensive marginal costs as long as delivery is faster. It would seem useful to consider the differences in investment costs accounting for these differences to see whether the resources allocated to the sector are going to the most cost-effective technology once more realistic discount rates have been accounted for. If the preference for alternative faster options is confirmed in the Tanzanian case, the next challenge is to see how best to internalise these in the institutional design, as discussed in the next section.

II TOWARDS AN ACTIONABLE INSTITUTIONAL DIAGNOSTIC

Walking through the history of the sector as we do in this chapter is both fascinating and depressing as it highlights the recurring character of some of the mistakes and the high degree of politicisation of decisions in the sector. In countries with stronger sector governance, these decisions are usually handled through simple administrative processes designed to cut the risks of capture and distortions, ultimately sustaining and increasing accountability. A few of the issues identified in the chapter, and rephrased here to deal with them more conceptually, are:

- An inability to establish credibility: the repetition of promises unmet for over twenty-five years should simply have been internalised long ago in the design of reforms and institutions and has largely been ignored in successive reform waves.
- The excessive margin given to some agents, both public and private, to bias and/or capture processes and officials/authorities, or to be opportunistic in exploiting policy failures and random weather shocks (most notably in the award of IPPs).
- The inability of authorities to minimise the risk of cream-skimming in the preparation of PPPs, allowing private actors to take the rents from low-hanging fruits, leaving the government with the unmanageable fiscal and bureaucratic burden of dealing with the high-cost items – most notably in the preparation of service obligations and entitlements as well as in the distribution of cost and revenues in the design of IPPs.
- The misuse of tariff reforms, notably when they ignored the fiscal limits on efforts to rely on direct subsidies, or the lack of continuity in the staffing and rules, which tends to be important for key technical and contractual dimensions, even if too much continuity may sometimes increase the risks of capture and corruption.

TABLE 8.A.1 *Impact of institutional weaknesses on key sector service performance indicators*

	Quantity	Quality	Costs	Prices
Limited technical, human, regulatory capacity	?/-	-	?	+
Limited commitment capacity	?/-	-	+	+
Limited accountability	-	?	+	?
Limited fiscal capacity	?/-	-	+	?

Source: Adapted from Estache and Wren-Lewis (2009)

In sum, conceptually, each of these examples fits into the usual main characterisations of institutional weaknesses: non-benevolence, non-commitment, non-accountability, non-technical, regulatory, or human capacity, and non-fiscal capacity problems.[27]

The consequences of these weaknesses have been quite well documented empirically.[28] They all imply a lower welfare for the country and each has somewhat predictable consequences for the key dimensions of interest in any sector diagnostic – that is, the quantity of service delivered (both in terms of volume and coverage), its quality (which can be either insufficient or excessive), its cost (which can be influenced by the quantity and quality choices), and its price (which is related to costs but may also be linked to the specific regulatory regime adopted).

Table 8.A.1 summarises the likely impact of institutional weaknesses as identified in the academic literature. These are quite consistent with the evidence available on Tanzania. Coverage (i.e. quantity) has been lower than it should be as a result of a combination of the various types of institutional weaknesses (there is no question mark for Tanzania on this dimension). Quality is lower on average, even if it may be better for some users, such as in the large cities. Costs have all been higher than needed in Tanzania as well. Finally, prices may appear to be too low to cover costs, but they are all higher than they should be given the margin there is to cut cost through alternative technological choices and improvements in management approaches. Tanzania does not appear to be different in terms of the institutional weaknesses characterising the sector, based on the evidence available.

Of course, this characterisation largely focuses on very basic correlations between institutional weaknesses identified and outcomes. Causality often runs both ways. For instance, high costs may limit the capacity to do more with the

[27] See Estache and Wren-Lewis (2009) for a detailed discussion of this classification and for its implications for the restructuring of a sector and its regulation.

[28] See, for instance, Estache and Wren-Lewis (2010) for a non-technical survey.

fiscal resources allocated to the sector. Moreover, interactions between the various types of weaknesses are relevant.

For instance, a lack of accountability is often a good predictor for lack of commitment and hence lack of credibility, which tends to slow down the interest of the average private investor or lender. This may make specific deals in the sector easier in the short run because they focus on the easy transactions, or, worse, governments have to come up with packages that guarantee the low-cost high margins are passed on to private investors while the high-cost, high-risk low margins are left to the public sector without any room for cross-subsidies or risk of mitigation opportunities. But these 'cream-skimming' deals tend to be disproportionately more in the interest of specific public and/or private actors than in the longer-run country interest. This is why it is crucial to internalise in the design of procurement practices that the accumulated evidence shows that the tolerance for cream-skimming allowed by weak capacity and weak accountability tends to favour the few and penalise the majority. The biases in favour of Dar es Salaam and of targeted private actors provide good illustrations of this risk.

Note that theory and empirical evidence also explain some counterintuitive observations. For instance, the fact that prices may need to be higher may be consistent with the fact that the various types of institutional weaknesses imply higher than needed risk levels. This implies a high cost of capital, which in turn implies a high average tariff to allow the private investors to recover their risky investment. This is not an easy sell politically, but it can be addressed by making the most of tariff structure adjustment to minimise the social consequences of higher average tariffs, even when the ability to subsidise is limited.[29]

This conceptualisation of Tanzania's problems does not simply serve to show that the consequences of the institutional weaknesses identified in this chapter are and were predictable. It is also useful because it allows the identification of institutional adjustments suggested by theory and supporting evidence to reduce the importance of these weaknesses and of their consequences. Once more, it would go beyond the scope of these comments to review the list of possible solutions, but a few of them seem to be particularly relevant to the Tanzanian context.

A first relevant insight is that the effectiveness of policies depends on the matching of instruments with institutional weaknesses. Much of the debate tends to focus on increasing the role of the private sectors, on deregulating, on the degree of independence of regulators, on the design of procurement rules, and on the quality of contracts as a key tool to stimulate performance in the sector. All are of course relevant. But theory and experience also suggest that other

[29] See, for instance, Peng and Poudineh (2016) to see the scope for tariff adjustment available in the Tanzanian case.

institutional dimensions, such as decentralisation or the extent to which mandates are shared within government or across government, may offer additional options. A decentralised energy system is characterised by locating energy production facilities closer to the site of energy consumption.[30] In many contexts, this makes it easier to optimise the use of local renewable energy, and, from an institutional viewpoint, easier to reduce the consequences of institutional weakness inherited from history (including legal and constitutional history) or built-in culture, for instance.[31] This is because decentralised energy systems tend to put power sources closer to the end user. This increases the accountability of the local decision makers and gives them the option of reducing their need to wait for network expansions decided nationally. Whether the local managers are named by the local authorities or are simply local representatives from the national government, the pressure they will face to deliver faster is likely to be stronger than it currently is in Tanzania.[32] While these options seem to be realistic and have been adopted by other countries, this chapter suggests that they may not have been considered thoroughly enough in the Tanzanian case. And indeed, based on the information available publicly, it seems that the potential role of local authorities in the design, selection, implementation, and monitoring of more local solutions to make faster progress in achieving rural access targets or secondary cities targets may have been underestimated.

A second relevant insight from the theory and supporting evidence is that when there are multiple sources of institutional weaknesses, a ranking in terms of urgency may be needed. Moreover, particular attention needs to be paid to the impact of any policy across institutional weaknesses because solutions to one problem may make things worse in another dimension. For instance, regulatory capacity limitations argue for higher-powered incentive regulation (i.e. price or revenue caps), while commitment or credibility problems argue for low-powered incentive regulation (i.e. cost plus/rate of return). In the Tanzanian context, a casual observer of the evidence available thanks to the diagnostic presented in this chapter would be more concerned with the commitment issue than with the regulatory capacity problem.

The third insight that is of direct use to the policy debates in the Tanzanian power sector may be that when institutional weaknesses imply systemic uncertainty in the choice of options, the best is often the enemy of the good. Picking

[30] Decentralised generation facilities may be connected to a grid (national or mini) or simply serve a particular site without feeding potential excess generation into the grid. As the regions develop, mini-grids can become more common and eventually be upgraded to form a distribution network that is connected to a larger transmission network. This sequential approach has the advantage of increasing the system's reliability in the longer run (in particular when intermittent sources are used), while allowing consumption in the short run.

[31] For more details, see Estache (2017b).

[32] And, of course, this will require developing new regulations. For instance, an evaluation of the need to adapt ownership and pricing rules for off-grid and mini-grid services is likely to be needed.

options that limit regulatory failures initially at least, rather than focusing on the adoption expected to deliver an uncertain high payoff, may be the most effective way of building up institutional capacity, credibility, and accountability. Smaller, simpler-scale approaches tend to work better in this context as they are easier to implement and to monitor locally, for instance. Moreover, simply trying to adopt solutions designed for other contexts, similar only in technical dimensions but quite dissimilar in terms of institutional weakness intensity or nature, tends to be quite counterproductive. Increasingly, evidence suggests that designing options that recognise local traditions and norms is the way to go, as seen in research on the role of religious norms in the incentive to deliver in infrastructure.[33]

A fourth insight to be considered here is that the assessment of the institutional context of the sector needs to account for *all* actors. Each has its own agenda and each of these agendas is likely to overlap with the others only partially. For instance, investors will push for short-term returns in negotiations, while politicians are likely to be concerned with the next election and users with their own well-being rather the country's well-being. This chapter nicely illustrates the multiplicity of players, both local and foreign as well as both public and private. However, it may not do justice to the relevance of both national and sub-national players as well as to the potential role of civil society. The main point here is that the analysis of the political economy of the sector needs to help the government look into its strengths and weaknesses, but it also needs to get donors and other foreign actors to do the same. Overoptimism is mentioned as an issue in the design of the Master Plans, but it is difficult not to wonder why donors are so keen to share this optimism and to continue going for solutions that do not seem to address the local institutional limitations and opportunities.

A final insight is that politics is the main determinant of many of the relevant outcomes. This has also been documented in various overviews of experiences of reform in the sector, in sub-Saharan Africa (Eberhard et al., 2016) and elsewhere (Scott and Seth, 2013). The relevance of the political economy of the sector is quite obvious in the overview presented here, and it is perhaps even more brutally stated in McCulloch et al. (2017). What they add is how surprising it is that donors have not really been keen, or able, to internalise the role of political constraints in their own diagnostics and most importantly in their support programmes. These concerns had already been raised by others such as Tripp (2012), Faustino and Booth (2014), and Piron et al. (2016); but McCulloch et al. (2017) add that donors also underuse the margin they have to do so within the new aid modalities, such as the possibility of engaging groups outside government in favour of support. This is perhaps more relevant to donors than to the Tanzanian authorities, but it is certainly relevant to the effectiveness of institutional reforms to improve the power sector performance in Tanzania.

[33] See, for instance, Pal (2010) and Pal and Wahhaj (2016).

III SO WHERE CAN TANZANIA GO FROM HERE?

It would be inappropriate for this note to try to make specific suggestions to address the many issues raised in this chapter, since I did not have the opportunity to conduct detailed fieldwork. But it may be helpful to conclude the discussion by arguing that the analysis makes a strong case to support the consideration, in much more detail than the available information suggests, of one specific institutional reform that may be of relevance in the debates on power sector reform in Tanzania. It addresses the underuse of both technological and institutional options (Ahlborg and Hammar, 2014; AfDB, 2015; Ahlborg and Sjöstedt, 2015; Grimm et al., 2015; Moner-Girona et al., 2016; Peters and Sievert, 2016; World Future Council, 2017; WRI, 2017).[34] The REA has already been working on its development (e.g. REA, 2016). These insights need to be matched with those produced by the analysis of the potential roles of local communities in the development of Tanzania's power capacity (e.g. Kaundinya et al., 2009; Goldthau, 2014; Alstone et al., 2015). Experience suggests that decentralisation of power sector decisions can fail to deliver, but it also shows that it can work if homework is carried out to match technology, regulatory tools, institutional options, and institutional constraints (e.g. Peters and Sievert, 2016).

The challenges to get decentralised options implemented in Tanzania are unlikely to be minor given the current political context. But getting ready to make things happen and to go further than simply thinking through the fine tuning of regulation to allow renewable sources to grow seems like a desirable option. In doing so, WRI (2017) argues that it may be a good idea to take a look at success stories such as the one experienced by Bangladesh, for instance. Box 8.A.1 summarises the lessons for Tanzania from Bangladesh's increased decentralisation of decision processes sustained by national financial and technical assistance used to speed up rural access rates. It illustrates the long checklist of dimensions that need to be taken into account. All of them seem realistic in the Tanzanian context.

The adoption of a much more decentralised approach to cater to the needs of rural areas, combined with a large role for local stakeholders and civil society, would not be unusual in sub-Saharan Africa. Equivalent approaches have been adopted by many sub-Saharan African countries in the water sector. Over 80 per cent of the countries in the region have

[34] The World Future Council argues that by deploying 100 per cent renewable energy, Tanzania could provide reliable universal access to the level of industrialised countries by 2050. The study also argues that renewable sources are about 30 per cent cheaper than fossil resources. This can be seen in the 2017 financing agreements for the West Lunga project under Zambia's first Scaling Solar mandate. It was signed between Bangweulu Power Corporation Limited (sponsored by Neoen/First Solar and Zambia's Industrial Development Corporation), the International Finance Corporation, and the Overseas Private Investment Corporation. This PV plant will bring a capacity of 47.5 MW of reliable solar energy for a 6.015 cent/kWh tariff, fixed for twenty-five years. This is much lower than the current price of a kWh in the country.

Box 8.A.1: Learning from Bangladesh?

The recent WRI (2017) report argues that Tanzania could adapt the Bangladesh experience with the fast development and adoption of renewable alternatives in rural areas. The main insights may be that the policy framework and long-term strategy need to address not only policy and regulation, but also financing, maintenance, and technical assistance commitments.

At *the institutional level*, it requires a more decentralised vision of the implementation of energy policy in the country than currently considered by Tanzania. This implies local leader and stakeholder involvement and the management of synergies across local stakeholders, including local businesses, parliamentarians, media, and civil society groups.

At *the technical level*, to diminish the variability of intermittent renewable sources, several renewable energy sources will have to be connected. This implies that Tanzania would be willing to facilitate and adopt the technical and structural changes needed for an energy system only fed by renewable energy. This could be done regionally at least initially as part of a pilot.

At *the financial level*, Tanzania would have to develop a comprehensive national finance mechanism for individuals, households, and possibly smaller businesses to access funds to invest in local renewable sources. This implies a willingness to develop dedicated affordable credit lines, for instance, as well as monitoring systems to ensure the transparency of funding. It also demands regulatory adjustments to link funding to performance.

At *the human level*, the approach also implies a commitment to invest in education and awareness of technological and financial options to make sure that the financial options and subsidies find takers, and that the beneficiaries of these support mechanisms are those who need them. This may require some nudging to help local communities make the right decisions rather than wait for options that are unlikely to come fast enough to meet their needs.

Ultimately, *at the political level*, the approach demands a willingness to adopt a national vision endorsing an unbundling and delegation of some responsibilities as part of an institutional reform of the sector. This may be the most important challenge to achieve the necessary improvements in autonomy and accountability. According to WRI, the challenge is unlikely to be met.

Source: Adapted from WRI (2017)

implemented at least some form of shift of responsibilities in the sector to sub-national authorities, although often more in the form of devolution rather than full decentralisation.[35] For instance, an increasingly standard element of the institutional framework of the water sector in many countries of sub-Saharan Africa is the requirement for local public participation in water planning, management, and regulatory decisions, as well as consultation with local stakeholders. The role of local authorities in the design and implementation of policies has also increased.

Besides an increased role for local authorities, there are other options that Tanzania could consider in its efforts to accelerate the efficient, equitable, and financially sustainable delivery of electricity in the country. But their discussion would demand a much more technical diagnostic of financial, planning, and regulatory tools than can be covered in this chapter. For now, there may be enough food for thought in addressing the institutional and political issues already identified and possibly arguing for a more thorough follow-up audit or diagnostic of the sector processes and tools available to address institutional weaknesses. More and better analysis is not only possible. It is needed.

[35] See, for instance, Estache (2017a) for a longer discussion and additional sources and, in particular, Jaglin et al. (2011) for a useful and relevant discussion of decentralisation implementation challenges in the water sector.