

Mitigation Talks

Series on Nationally Determined Contributions

January–March 2018

Volume 2 | Issue 1

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From the Series Editor's Desk

COP 23, held in Bonn this year, saw a slow but steady progress in the operationalization of the Paris Agreement by carving out details of the processes to develop concrete modalities, procedures, and guidelines (MPGs) of the agreement. Beyond this, it also set the stage for the parties in the Talanoa Dialogue, to raise their ambition by 2020. Parallely, the roles of non-state actors and stakeholders gained more prominence.

The first article in this issue focuses on the major successes achieved during COP 23. In the section, 'Perspectives', the authors touch upon implementation issues in the context of NDCs. The key underpinning of the article is the importance of national circumstances and local governance in implementing international goals. The second article in this section titled, 'Dis-embedding Fossil Fuel Technologies: Some Questions', discusses core challenges in transitioning to clean fuel and technology choices and proposes complementarity in policymaking and governance as a solution. The third article emphasizes on the role of gender at the grass roots level climate mitigation actions through brief cases in the Southeast Asian context. These cases highlight the need for inclusive and participatory governance. In the next article in the section, 'Mitigation Brief', authors take Bhutan as a case study to discuss how mitigation actions can be aligned with sustainable development goals and achieve synergistic benefits. In the last article, authors highlight the critical challenges in the energy policy in India and suggest overcoming these challenges in order to also achieve India's ambitious NDC goals. One of the suggestions is to enhance the role of state-level actions in national policymaking.

‘Incremental Success’ at COP 23

Increased Momentum on Key Issues and the Progress on ‘Rulebook’

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The world economy is projected to double in size (in terms of global GDP) over the next 25 years¹ and at the same time, if it is to meet the goal of limiting temperature rise to 2 °C and below, is expected to reduce emissions by 2030 by approximately 30 per cent (from the current policy trajectory).² This massive challenge and the urgency with which it is to be addressed, gives perspective to the scale of climate actions and policies needed to shift to a sustainable, low-carbon and climate-resilient development pathway. The recently concluded COP23 at Bonn initiated the procedural and operational discussions on a strong footing, to be concluded at Katowice (Poland) in 2018, to implement the objectives of the Paris Agreement to achieve the desired transition. While there was incremental progress on issues, such as transparency, finance, adaptation, and loss and damage, the most important decisions were: (i) the launch of Gender Action Plan (GAP) and (ii) an agreement to form additional stocktaking sessions in 2018, under the Talanoa dialogue, with an aim of strengthening pre-2020 actions.

Much of the commitments from the developed countries—like their pre-2020 pledges and the target of mobilizing USD 100 billion of climate finance per year by 2020 to support developing countries—still remain elusive. However, it was clear at Bonn that there is an increased momentum amongst various actors to undertake climate action. It is vital that such ambitious and action-oriented momentum aimed at tackling climate change continues to grow and is driven by innovative and collaborative measures that may need to be proactively developed and implemented at the regional, national, and subnational levels.

There were several examples of positive declarations and collaborative and innovative steps taken by various countries, organizations, non-state actors, and networks that were announced at the COP23, that suggested a heightened pace at which actions ought to be implemented. Prominent amongst these were Syria’s announcement to sign the Paris Agreement against all odds and domestic conflict, thereby isolating the US in its stance to withdraw from the Paris Agreement. Not only this, US’s withdrawal from the Paris Agreement was opposed by a strong contingent of its own subnational actors who came together as the delegation, ‘*We Are Still In*’ and released *America’s Pledge*³ highlighting the role of the non-state actors. Further, 27 countries, led by Canada and the UK, announced their partnership,

Powering Past Coal Alliance, which aims at moving OECD countries beyond coal by 2030.⁴

There was also an increased focus on the generally sidelined aspect of climate adaptation. While 2017 saw catastrophic impacts of climate-related disasters from the hurricanes in the Americas, flooding in South and East Asia, flooding and landslides in parts of South America and Africa (the losses of which are yet to be calculated), it was noted that less than 7 per cent (USD 28 billion) of the global climate finance flows were dedicated for adaptation and related activities in the preceding year.⁵ The tangible impact of climate change experienced in the past year brought attention to the need of building resilience and saw the launch of two focused climate-insurance platforms. A new global partnership, with USD 125 million from the Government of Germany, launched *InsuResilience*,⁶ an initiative which aims at providing insurance for an additional 400 million people from the vulnerable developing countries by 2020. Additionally, Fiji launched the *Drua* Incubator (Pacific Climate Finance and Insurance Incubator),⁷ with an initial funding of EUR 1 million from the Government of Luxembourg, which seeks to bring together various actors and leaders in finance to develop scalable finance and insurance products customized for the Pacific Small Island Development States (SIDS).

Further, the focus on adaptation received a further boost with the Adaptation Fund exceeding its 2017 target of USD 80 million and instead raising USD 93.3 million till date; this was in collaboration with the decision of formally linking the fund with the Paris Agreement in 2018. Global climate funds and development agencies are also increasing its emphasis on resilience and the management of climate risks in their various investments. However, the discussions on adaptation at Bonn were largely procedural, with the real, practical issues of defining and assessing adaptation activities to be finalized by the next COP.

To enable the required energy transition, it is necessary to develop models which allow climate finance to work along with the existing capital, that is the money invested which is nearly USD 200 trillion, in stocks and bonds globally⁸ and the expected money, USD 90 trillion, to be invested in 2015–2030 for building infrastructure.⁹ This will help in ascertaining that future investments and development does not lock in carbon-intensive infrastructure. This necessitates private-sector participation, which can be achieved by building a

business case for climate actions and devising models that facilitate the involvement of the private sector in a more comprehensive manner.

More research and models are needed to address the key question of how public finance can be best utilized for removing barriers for leveraging adaptation finance from the private sources. A successful model discussed for enabling this, was the Zambian public finance funded technical assistance for resilience planning and prioritization programme, which involved a comprehensive and consultative approach, including all key stakeholders. An upcoming innovative business model for mobilizing adaptation finance from private sources, which was highlighted at Bonn, is CRAFT (Climate Resilience & Adaptation Finance Transfer Facility), which

is a commercial growth equity fund that seeks to invest in companies with proven technologies and solutions for climate adaptation and resilience, helping them to expand into new sectors and geographic markets.¹⁰

While COP23 saw some definite, positive steps and tangible progress in framing the rules and procedures, overall, it was an opportunity lost for the world to come out strongly in support of climate actions and push for stronger commitments in the face of increased adverse impact of climate change. However, there is still hope that the momentum will continue through the year leading to COP24 through Track 2 negotiations (under the Talanoa Dialogue) and increased participation from the private sector and subnational actors.

Endnote

- ¹ PwC. 2015. The World in 2020; <https://www.pwc.com/gx/en/world-2050/assets/pwc-world-in-2050-summary-report-feb-2017.pdf>; last accessed on January 18, 2018.
- ² UNEP. 2017. The Emissions Gap Report 2017: A UN Environment Synthesis Report; https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf; last accessed on January 18, 2018.
- ³ <https://www.bbhub.io/dotorg/sites/28/2017/11/AmericasPledgePhaseOneReportWeb.pdf>; last accessed on January 5, 2018.
- ⁴ <https://www.sierraclub.org/press-releases/2017/12/coal-out-27-governments-join-powering-past-coal-alliance-phase-out-coal>; last accessed on January 5, 2018.
- ⁵ Climate Policy Initiative. 2017. Global Landscape of Climate Finance 2017; <https://climatepolicyinitiative.org/wp-content/uploads/2017/10/2017-Global-Landscape-of-Climate-Finance.pdf>; last accessed on January 18, 2018.
- ⁶ <https://cop23.com.fj/125-million-announced-new-global-partnership-provide-financial-protection-climate-risks/>; last accessed on January 5, 2018.
- ⁷ <https://cop23.com.fj/initiative-develop-pacific-finance-insurance-products-launched-e1-million-support-luxembourg/>; last accessed on January 5, 2018.
- ⁸ Allianz. 2017. Allianz Global Wealth Report 2017; https://www.allianz.com/v_1506497732000/media/press/document/AGWR_17-Report_EN.pdf; last accessed on January 18, 2018.
- ⁹ The New Climate Economy. 2014. Technical Note: Infrastructure investment needs of a low-carbon scenario; <http://static.newclimateeconomy.report/wp-content/uploads/2015/01/Infrastructure-investment-needs-of-a-low-carbon-scenario.pdf>; last accessed on January 18, 2018.
- ¹⁰ <https://www.climatefinancelab.org/project/climate-resilience-adaptation-finance-transfer-facility-craft/>; last accessed on January 18, 2018.

Implementing the NDCs

Taking Stock of Approaches and Issues from Implementation Research

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Nationally Determined Contributions (NDCs) under the Paris Agreement collectively mark a shift for climate diplomacy from negotiating a global agreement towards ensuring the implementation of policy, programmes, and projects, aimed at tackling climate change within the national jurisdictions. In gearing up for implementing the Paris Agreement, it is useful to take stock of learning from more than four decades of implementation research. This article briefly presents an overview of the key approaches and issues that the implementation research has dealt with. An important caveat that needs to be highlighted at the onset is the traditional focus of implementation studies on developed countries. The challenges and lessons identified in implementation research, therefore, need to be contextualized.

The subtitle of the Pressman and Wildavsky's book *Implementation*¹ not only provides an insight into the prevalent approach to implementation in the 1970s but also initiated the first generation of implementation research that focused largely on inductive and explorative case studies. By taking a case study approach these studies were able to examine the implementation challenges faced in translating central aspirations into local reality. With an exclusive focus on senior politicians and officials who—although highly involved in policy process—remained at a distance from day-to-day implementation of the policy concerned, this mode gave privilege to the policy formulator.² The second generation of implementation research strived to construct theoretical models using both top-down and bottom-up perspectives. Researchers preferring a top-down approach to studying policy implementation gave prominence to law, whereby policies are developed at the national level and are implemented by state and non-state actors at the local level under the guidance from above. In contrast, researchers taking a bottom-up perspective on implementation research gave prominence to implementers' discretionary powers and duties that had to be often exercised in choosing between conflicting or interacting choices.³ The assumption about the control over policy implementation resting with policy formulators was thus challenged by arguing that implementation is a process that interacts with various other variables, namely, a policy open

to modification, vague interaction structure, external actors and environment affected by the policy and, most importantly, implementing actors with varying skills and commitment. While the first two generations identified challenges facing implementation, they have been criticised for 'not succeed[ing] in sorting out the relative importance of the explanatory variables'.⁴ To address this deficiency, the third generation of implementation studies⁵ argued for undertaking comparative case studies and making use of the quantitative methods to increase the likelihood of developing a uniform theory for studying implementation. However, implementation research continues to grapple with a number of issues, such as the ambit of implementation, difference between policy and its implementation, the bias of the researcher towards a top-down or bottom-up perspective. These are pertinent issues for studying the NDC implementation as well and are briefly discussed here.

It is important to clarify what is meant by implementation. Implementation can be defined as 'anything meant to happen after an intention or aspiration has been expressed'⁶ or as 'what happens between policy expectations and (perceived) policy results'.⁷ But how do we come to know that policy intentions, aspirations, or goals have been expressed in the first place? The government's policy goals on a given matter are often referred to in speeches by its representatives. But policy goals expressed in a speech at a voters' rally is qualitatively different from that in a nation's Parliament. Similarly, whether the policy goals are expressed by the head of the state or by a ministry representative gives different significance to the policy goal. Therefore, where these policy goals are expressed and by whom are important aspects to study. Given the gravity of the challenge that climate change poses, in defining its objective, the Paris Agreement emphasizes "enhancing the implementation of the Convention". Further, the Article 14 provides an avenue to "periodically take stock of the implementation" through a global stocktake exercise scheduled every five years.⁸ This indicates an increased focus on implementation and action-oriented interventions within the Paris Agreement. By institutionalizing an internationally agreed process to communicate the policy goals of national governments

in the form of NDCs, the Paris Agreement provides an avenue to sustain, nourish, and grow the vigour and action in tackling climate change.⁹ NDCs comprise policy goals proposed by the national governments at the international level to deal with climate change and a common platform to assess the adequacy of countries mitigation pledges.¹⁰ Going ahead, NDCs will also serve as the benchmark against which countries actions on climate change will be analysed. Therefore, NDCs, in a way, provide a marker for the beginning of a new implementation phase.

Pressman and Wildavsky¹¹ flag out that it can be difficult to distinguish between policy and its implementation. They ask that since '... policies normally contain both goals and the means of achieving them. How, then, do we distinguish between a policy and its implementation?' This confusion also arises from the fact that implementation is seen both as an end state as well as the process itself. While this has been a problem for those following a stage heuristic, others¹² do not see it as a problem. They argue that this distinction was valid when the implementers were expected to simply carry out orders. Given the fact that local bureaucrats can influence policy delivery, implementation should be seen as a part of a broader continuum. NDC implementation should, therefore, also study the broader policy processes, including the how and why of agenda setting, policy formulation, decision-making, implementation, and evaluation, and not just the material manifestation of the policy itself. However, such processes vary from one country context to another.¹³

Implementation research can also be influenced by the perspective taken by the researcher herself. She can choose to study implementation from either of the top-down, bottom-up, or synthesized perspectives. The top-down models are useful to study when the policy is unambiguous and the conflict in implementation is low. In contrary cases, a bottom-up approach to studying implementation is better.¹⁴ Often, this is the scenario in developing countries as they try to achieve multiple and often conflicting policy objectives. However, a synthesized approach, that has inbuilt avenues to incorporate the feedback received from evaluating NDC implementation as part of the global stocktake exercise, can prove more effective.

This brings us to some practical and persistent challenges faced by the implementation research.¹⁵ First, any in-depth analysis of policy implementation will present a number of explanatory variables to deal with. This can be addressed by undertaking qualitative studies comprising a small number of cases that deal with a limited number of hypotheses and, subsequently, undertake quantitative studies that analyse a large number of cases. Second, the researcher needs to

be clear about his or her motivation in studying policy implementation, whether it is for knowledge accumulation or for influencing action. Lack of clarity on the same 'may lead to confusing normative with the empirical'.¹⁶ This is not to say that equity and normative aspects of climate change research are undesirable,¹⁷ instead, it emphasizes bringing in politics and focusing on 'what happens, rather than what *should* happen'.¹⁸ An important study on implementation that prioritises influencing action over knowledge accumulation is the 9/11 report, which brings to light how the lack of interdepartmental coordination was responsible for the 9/11 tragedy.¹⁹ In studying climate change, various governance models, namely, polycentric governance and multiple levels of governance have been put forward.²⁰ These models need to be tested in the context of developing countries to improve their explanatory power and study the gap between the normative and empirical. Third, implementation is generally carried out by multiple actors at different layers. It is, therefore, important to factor in the politics at both the national and subnational levels to analyse implementation. The increased role of cities, business, and non-governmental actors needs to be recognized in a similar vein. Finally, the researcher needs to treat policies consistently. Whether the formal policy documents are used as the main reference point, thus resulting in a focus on presupposed behaviour, or they are treated as one of the variables affecting the implementation can vastly change the approach to researching implementation.

In addition, the caveat identified at the very beginning of this piece needs to be factored in while incorporating lessons for the NDC implementation. Can the existing implementation theories explain the Indian or Brazilian way of getting things done, as reflected in the words *jugaad* and *jeitinho*, both referring to conceptions of frugal innovation, or the South African way of speeding up implementation by usage of the phrase *phakisa*?²¹ Should we rather pause and pay heed to the counsel of the controversial Fukuyama, who argues to stop obsessing about public policy and instead focus on strengthening public administration?²² Dealing with these questions will be useful in understanding how climate change is being dealt with in different country contexts.

Climate change, because of its complexity, scale, and interdependent nature, cannot be addressed by a single decision. Instead, it demands a series of decisions and processes on how to implement government policies.²³ Studying the implementation of the NDCs will not only depend on the national context in which they are carried out but also on the type of interventions that are proposed. Mitigation policies and strategies may have a vastly different character than those on adaptation. Policies promoting off-grid power solutions may share

common attributes with adaptation and may also require more bottom-up research design. Interventions such as energy-efficiency standards for big industries may be more top-down in nature and may depend on the availability of 'a dominant piece of legislation structuring the situation'.²⁴ Whether the NDC is the dominant piece of legislation in a given country context or whether the existing policy documents compete for that space,

whether the law and legislation are taken at the face value or whether the role of implementers is taken into account in a given country context, such factors will influence the approach to be taken in studying NDC implementation. Climate change research would need to grapple with these and many such other questions from the ground if it needs to understand and influence NDC implementation in concrete terms.

Endnote

- ¹ Pressman, Jeffrey L. and Aaron Wildavsky. 1973. *Implementation: How Great Expectations in Washington Are Dashed in Oakland; Or, Why It's Amazing That Federal Programs Work at All, This Being a Saga of the Economic Development Administration as Told by Two Sympathetic Observers Who Seek to Build Morals on a Foundation*, 1st ed. Berkeley: University of California Press.
- ² Howlett, Michael and M. Ramesh. 2009. 'Policy Implementation', in *Studying Public Policy: Policy Cycles and Policy Subsystems*, 3rd ed, pp. 160-177. Canada: Oxford University Press.
- ³ Lipsky, Michael. 1980. *Street-Level Bureaucracy: Dilemmas of the Individual in Public Services*. New York: Russell Sage Foundation.
- ⁴ Winter, Søren C. 2007. 'Implementation Perspectives: Status and Reconsiderations', in *The Handbook of Public Administration*, p 135. London: SAGE Publications.
- ⁵ Goggin, Malcolm L et al. 1990. *Implementation Theory and Practice: Toward a Third Generation*. Glenview: Scott Foresman/Little, Brown.
- ⁶ Hupe, Peter. 2014. 'What Happens on the Ground: Persistent Issues in Implementation Research', in *Public Policy and Administration* 29 (2): 166.
- ⁷ Hill, Michael and Peter L. Hupe. 1990. *Implementing Public Policy: An Introduction to the Study of Operational Governance*, 2; from D. J. Palumbo and D. J. Calista, eds., *Implementation and the Policy Process: Opening Up the Black Box*, Contributions in American History, p. 39. New York: Greenwood Press.
- ⁸ UNFCCC. 2015. 'The Paris Agreement'.
- ⁹ Jennifer Jacquet and Dale Jamieson. 2016. 'Soft but Significant Power in the Paris Agreement', in *Nature Climate Change* 6 (June): 643.
- ¹⁰ CAT. 2016. 'Rating Countries: Climate Action Tracker', in the Climate Action Tracker.
- ¹¹ Hill, Michael. 2014. *The Public Policy Process* 6th Edition, p. 207. Abingdon: Routledge.
- ¹² Refer to Palumbo Dennis J. and Calista Donald J. 1990. *Implementation and the Policy Process: Opening Up the Black Box*. New York: Greenwood Press.
- ¹³ Upadhyaya, Prabhat. 2017. 'National Appropriateness of International Climate Policy Frameworks in India, Brazil, and South Africa'. Sweden: Linköping University.
- ¹⁴ Winter, Søren C. "Implementation Perspectives: Status and Reconsiderations". SAGE Knowledge.
- ¹⁵ Hupe, Peter. 2014. 'What Happens on the Ground'. SAGE Journals.
- ¹⁶ Refer to footnote 15, p. 176.
- ¹⁷ Klinsky, Sonja et al. 2017. 'Why Equity Is Fundamental in Climate Change Policy Research', in *Global Environmental Change* 44: 170–3.
- ¹⁸ Hupe, Peter. 2014. 'What Happens on the Ground,' p. 178. SAGE Journals.
- ¹⁹ The 9-11 Commission. 2004. 'National Commission on Terrorist Attacks Upon the United States'. Washington DC: The 9-11 Commission.
- ²⁰ Jänicke, Martin. 2017. 'The Multi-Level System of Global Climate Governance: The Model and Its Current State', in *Environmental Policy and Governance* 27 (2): 108–21; Dorsch, Marcel J. and Christian Flachslund. 2017. 'A Polycentric Approach to Global Climate Governance', in *Global Environmental Politics* 17 (2): 45–64.
- ²¹ Costa, Florencia. 2017. 'No "Jugaad" Politics: Brazil Rises Against Austerity and Its Rich Elite', in *The Wire* (blog), <https://thewire.in/131676/brazil-politics-protests-against-austerity-and-rich-elite/>, last accessed on January 3, 2018; Republic of South Africa. 2018. 'Home', in *Operation Phakisa*. <http://www.operationphakisa.gov.za/Pages/Home.aspx>, last accessed on January 07, 2018.
- ²² Fukuyama, Francis. 2017. 'Why Public Administration Gets No Respect But Should', *The American Interest* (blog) <https://www.the-american-interest.com/2012/01/01/why-public-administration-gets-no-respect-but-should/>, last accessed on January 07, 2018.
- ²³ Howlett, Michael, Ramesh M, and Anthony Perl. 2009. 'Policy Implementation', in *Studying Public Policy: Policy Cycles and Policy Subsystems*, 160-177. Canada: Oxford University Press.
- ²⁴ Sabatier, Paul A. 1986. 'Top-down and Bottom-up Approaches to Implementation Research: A Critical Analysis and Suggested Synthesis' in *Journal of Public Policy* 6 (1): 37.

Dis-embedding Fossil Fuel Technologies: Some questions

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The growth and evolution of economic activities since the beginning of the 20th century is a story of embedding fossil fuels in the economy. Increasingly, coal, oil, and natural gas became integral parts of the techno-economic paradigm characterized by investments in industries, infrastructure, and services that are heavily dependent upon fossil fuels, the increasing availability of finance for such investments, development of policy frameworks supporting these investments, and so on.¹ Social aspirations and notions of material well-being also evolved around the use of fossil fuels, for example, the use of automobiles for transportation, use of gas for cooking, and so on. Undoubtedly, this also created employment, contributed to growth in productivity, and encouraged a certain lifestyle.

The 21st century began with a recognized need and an increasing demand to dis-embed fossil fuels from the economy, climate change being the prime driver of this demand. Till date, the NDCs (Nationally Determined Contributions) are the most organized, voluntary response by the countries to this demand. So far in the efforts of dis-embedding fossil fuels from the economy, the following three positive developments can be observed: first, the evolution of policy frameworks to support non-fossil fuel-based technologies (e.g., feed-in tariffs for renewable energy) and encourage the efficient use of fossil fuels (e.g., energy-saving certificates); second, increasing investments in non-fossil fuel-based technologies, particularly the renewable energy technologies—the new renewable sources of wind, solar, biomass and waste, geothermal, small hydro, and marine accounted for 55.3 per cent of the total addition in the global power-generation capacity in 2016;² third, the private sector has shown a growing interest in renewable energy as is evident in the venture capital and private equity funds into specialist renewable energy firms accounting for more than \$3 billion in 2015 as well as in 2016.³ The challenge, however, is the glaring fact that these positive developments do not count for more than ‘nudging’ when seen in the context of the degree of embeddedness of fossil fuels in economic activities. In particular, the existing industries, infrastructure, social aspirations, and notions of material well-being are still wedded to fossil fuels. Policy focus on increasing the penetration of LPG as a cooking fuel with significant well-being and co-benefits (health and social status) stands as testimony to this embeddedness. The fact that cleaner options, such as induction cook stoves based on renewable energy are not yet given a comparable priority, for a number of reasons of course, shows that fossil fuels such as LPG are further getting embedded into the household economy.

Strategies for Dis-embedding

There are three strands that can be distilled from the on-going technology-centric discourse on low-carbon transition. Not in any particular order, these are: (a) the abandonment of fossil fuel technologies, for example, de-commissioning of coal-fired power plants; (b) use of transition fuels, for example, gas instead of coal in power plants; and (c) building alternate infrastructure displacing direct fossil fuel consumption, for example, electric vehicles. Considering that the embeddedness of the fossil fuels is also sustained by social preferences such as using private vehicles and associated notions of well-being such as ease of refuelling, a fourth desirable strand can also be added—inculcating new social aspirations and notions of material well-being consistent with a low-carbon economy.

Each of the above-mentioned strategies for dis-embedding fossil fuels faces its own set of challenges. In the following section, these strategies will be briefly discussed vis-à-vis the Indian scenario so as to understand the broader approach, wherein the strategies could complement each other towards dis-embedding fossil fuels from the economy.

- A. Abandon fossil fuel technologies:** This strategy is mostly advocated in the context of moving away from coal for power generation. The challenge, in the case of abandoning coal, is the large volume of installed capacity (58 per cent as on October 31, 2017)⁴ and huge employment embedded in its supply chain. The inadequate development of a parallel infrastructure for renewable energy on account of lower-capacity utilization factors, technology system gaps, such as storage and grid integration, along with doubts about long-term job creation potential, do not allow a complete shift from coal to renewables. Gas is widely considered as a transition fuel, however, the economics and availability of gas is a major constraint. As such, the social preferences for power generation are primarily limited to the price as the consumer pays for electricity. At the moment, abandoning coal that is the decommissioning of coal-fired power plants seems possible only in selective cases driven by other reasons (such as old age) than dis-embedding fossil fuels from economy.
- B. Transition through intermediate technologies:** This strategy broadly focuses on the possibilities of a fuel switch where cleaner fuels can replace carbon-intensive fuels, for example, switching to gas instead of coal for power generation or meeting the heating requirements in the industry and switching to CNG/LNG instead of petrol/diesel in the transport sector. Improvement in fuel efficiency can also be considered under this strategy. Clearly, this strategy only aims at

moderating the fossil fuel intensity of the economy. In other words, it does not aim at dis-embedding fossil fuels from the economy, and neither does it strengthen the strategy of abandonment of fossil fuel technologies. Deploying this strategy, however, does not require significant changes in the existing infrastructure or social behaviour.

C. Build parallel infrastructure: The objective of this strategy is to embed non-fossil fuel technologies into the economy with the primary focus being on dis-embedding the power sector from fossil fuels and the electrification of other energy services. Investments and policy support (including instruments, such as capital subsidy, accelerated depreciation, and so on) for power generation from renewable energy sources is already a priority with a target of 175 GW of installed capacity by 2022. Similarly, schemes such as FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) and public procurement of 10,000 electric cars⁵ aim at encouraging the use of transport technologies that replace direct consumption of fossil fuels. However, in addition to technology system gaps, such as storage and grid integration, this strategy faces a major challenge in terms of cost competitiveness vis-à-vis fossil fuel-based technologies. Additionally, there are various trade-offs to be considered. For example, if EVs are powered by coal-based electricity, then, effectively, oil is being replaced by coal. Hence embedding non-fossil fuel technologies into the economy would require a lot more coherence and complementarities imposed and sustained by policy support as well as social preferences. While policies would need to support both renewable energy and electric vehicles, a stronger social preference for electric vehicles will ensure that renewable energy replaces oil. If owning an electric vehicle and having a solar rooftop installed at a residence becomes a status symbol, perhaps as prestigious as owning a Ferrari, it may provide a long-term boost for pursuing the alternative infrastructure.

D. Social aspirations and notions of well-being: While affordability is the primary determinant of effective demand, it is well established that consumer choices are also governed by a number of other factors. For example, despite being a cheaper option, use of mass transport systems may be limited on account of considerations of class, safety, age, punctuality, convenience, connectivity, and so on. Some of these limiting factors may be addressed if using mass transport systems is seen as a symbol of being responsible citizens and is valued as such. The use of energy-efficient products by the end users can

potentially reduce the final energy demand, which in turn can make other strategies more effective. Energy saving as a value system going beyond financial savings in terms of energy bills can facilitate faster deployment of intermediate technologies as well as alternative technologies.

It is clear from the above discussion that technology-centric strategies are already being pursued, albeit at different a pace and scale. Huge social and economic implications, such as the loss of employment and energy security due to abandoning fossil fuel technologies without an alternative infrastructure and reliable renewable energy supply in place, prohibit aggressive pursuit of *abandon fossil fuel* strategy. The strategy of building *parallel infrastructure* is also beginning to get implemented. However, the pace of deploying this strategy is constrained by technical, economic, and social reasons. While the technical and economic barriers have been the focus of policies, resulting in visible improvements such as greater penetration of renewable energy, there is little indication of new social aspirations and notions of well-being revealed at the scale necessary to push dis-embedding fossil fuel technologies.

Complementarity between Strategies

It may be inferred from the above-mentioned discussion that a combination of building *parallel infrastructure* and *new social preferences* would make the use of transition technologies as well as abandonment of fossil fuel technologies easier. In other words, dis-embedding fossil fuel technologies will be difficult unless alternative technologies are sufficiently embedded in the economy structure and social preferences. There is a need, therefore, to articulate a composite strategy for creating a systemic bias in favour of non-fossil technologies by building new infrastructures, institutional frameworks to develop a new supply chain, and encouraging fresh consumer choices and social values. In particular, the manufacturing sector will need to begin supplying products compatible with parallel infrastructure and consumers with sufficient purchasing power will need to value those products beyond their financial cost. In that context, the important questions to be examined are:

- (a) to what extent can the available technologies enable such a composite strategy?
- (b) whether the emerging practices and norms related to financing and governance provide sufficient space for dis-embedding fossil fuel technologies? Furthermore, if there are gaps, what specific changes need to be brought in? And
- (c) what are the barriers to nudging social preferences and how can they be removed?

Endnote

- ¹ Perez, C. 2002. Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages. London: Elgar
- ² <http://fs-unep-centre.org/sites/default/files/publications/globaltrendsinrenewableenergyinvestment2017.pdf>; last accessed on January 4, 2018.
- ³ Refer to footnote 2.
- ⁴ <http://powermin.nic.in/en/content/power-sector-glance-all-india>; last accessed on January 4, 2017.
- ⁵ <http://powermin.nic.in/en/content/power-sector-glance-all-india>; last accessed on January 4, 2017.

Gender-Responsive Climate Mitigation in Southeast Asia

A Role for Participatory Governance

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1. Introduction

The adverse effects of climate change often fall more heavily on women than men (Demetriades and Esplen 2008, Terry 2009, Alston 2015, Gupta 2015). This is partially due to long-running inequalities and natural resource dependences—women provide anywhere from 50% to 80% of the world’s food production, but own less than 10% of its land (UNDP, 2009). It is further attributable to vulnerabilities after extreme events—women and girls can be more susceptible to breakdowns in the social order that often accompany these events (Neumayer and Plümpner 2007). For these reasons, the challenges women face in adapting to climate change have tended to overshadow the contributions women make to *mitigating* climate change (Hostettler et al. 2015, Leach et al. 2016).

Fortunately, there is a growing recognition that women are both capable of adapting to and mitigating the adverse effects of climate change. Part of the reason for this recognition involves reforms to the international climate regime. The Green Climate Fund (GCF), for instance, has a gender mandate at its core and is arguably the best example of several climate funds that are increasingly promoting gender-responsive climate finance for both mitigation and adaptation (GCF 2015, Schalatek 2015). The recently agreed to Gender Action Plan (GAP) at the 23rd Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 23) also has as one of its five priorities to increase climate-related financial resources that integrate gender priorities and reflect the needs of women and girls (UNFCCC 2017). Lastly, many countries are including the references to gender in their nationally determined contributions (NDCs) (UNFCCC 2015).

There is nonetheless a possibility that the recent progress within countries stops with references in the NDCs. One way to harness the energy of women in mitigating climate change is to make climate governance more participatory at the national level. In many environmental policy areas, participatory forms of governance has been found to incorporate wider-ranging values, accumulate richer information, and generate more equitable and effective outcomes (Fischer 2000, Steele 2001, Beierle 2002, Pellizzoni 2003, Richards et al. 2004, Koontz and Thomas 2006, Newig 2007, and Reed 2008). In 2013, the Asian Development Bank (ADB) initiated a technical assistance project entitled *Harnessing Climate Change Mitigation Initiatives to Benefit Women*

that sought to make mitigation more participatory in Cambodia, Lao PDR and Vietnam.¹ The remainder of this article describes how the ADB technical assistance—financed by the Nordic Development Fund (SNV) and jointly implemented by IGES and SNV Netherlands Development Organisation—operated in those three countries.

2. Climate Change Mitigation Initiatives to Benefit Women

The technical assistance project worked on three different levels: at the first level, the project was working with policymakers in gender and climate institutions to equip them with the skills and knowledge to mainstream gender into climate policies. At the next level, they helped ensuring that the policies contained language and provisions that supported local initiatives that empowered women to mitigate climate change and deliver other co-benefits. On the ground level, the technical assistance helped to initiate many of the pilot project activities described previously that offered tangible evidence of the multiple benefits from a value chain of gender-responsive interventions.

This multilevel approach was not only consistent with trends supporting the growing supplies of international climate finance but helped build leadership skills and strengthened participation to capacities to articulate demands for those resources. For example, in Lao PDR, the Ministry of Natural Resources and Environment had not factored gender into the national climate change action plan. In consequence, the lack of consideration of how projects might include and/or affect women’s lives could easily be overlooked. Through the project, gender was integrated into a review of the 2010–2020 National Climate Action Plan. This was also facilitated by the formal invitation to a representative of the Laos Women’s Union to participate in the Technical Working Group on Climate Change. Meanwhile, in Cambodia, the Ministry of Agriculture, Forest and Fisheries’ Gender Mainstreaming Policy Strategic Framework lacked a climate element, whereas the Ministry’s Climate Action Plan did not include gender issues. Following the project’s gender-sensitive thrust, the Climate Action Plan references gender and the Gender Mainstreaming Policy Strategic Framework to climate mitigation.

The project empowered women and enabled them to bring benefits to their communities. In Cambodia,

the project has helped women set up low-carbon technology businesses and partnered with the private sector in a pilot initiative that trained women as sales agents for fuel-efficient cook stoves. Not only did this improve stove access, it also helped enhance operations in the private sector. With women now representing over 70% of newly trained sales agents, Cambodians have learnt that supporting women's access to technology can be more equitable and efficient.

In Vietnam, women masons were trained to build household biodigesters in Dong Hoi, a coastal city vulnerable to numerous climate risks. This effort also deepened the use and benefits of biodigesters as well as business development and sales skills. These small but strategic activities enabled participants to proactively respond to climate change. The project has also created the opportunity to the National Biogas Programme to expand potential benefits to women producers and users of biogas technologies. This has been achieved by updating training materials and methods to make them less intimidating to potential women trainees and enhancing the capacity of male trainers, who were previously inexperienced in training women masons.

3. Concluding Thoughts

The pilots involved women in concrete on-the-ground initiatives that built knowledge and skills to mitigate climate change while earning other livelihood benefits. Simultaneously, the institutional capacity building and policy mainstreaming empowered women and women's groups, engaging them in decisions that could help achieve longer-lasting results. The project concluded that these multi levels of activities reinforced each other—institutions supported policies that encouraged pilot initiatives.

The next step is transitioning from a grant-financed project to securing larger private flows for gender-responsive climate mitigation. This is particularly important since, "As of 2013–2014, only 2% ODA to these sectors targeted gender equality as a principal objective" (OECD 2017: 52). This transition will also arguably require institutionalizing the participation of women in climate change mitigation at multiple levels. This ADB technical assistance offers some insights into how these can be achieved in three diverse contexts, leading to an environmentally and socially sustainable policy.

References

- Alston, M. 2015. 'Women and Climate Change in Bangladesh', in ASAA Women in Asia Series. London: Routledge.
- Beierle, T.C. 2002. 'The Quality of Stakeholder-based Decisions' in *Risk Analysis* 22: 739–49.
- Demetriades, J. and E. Esplen. 2008. 'The Gender Dimensions of Poverty and Climate Change Adaptation' in *IDS Bulletin* 39(4).
- Fischer, F. 2000. 'Citizens, Experts and the Environment. The Politics of Local Knowledge'. Duke: University Press, London.
- Gupta, H. 2015. 'Women and Climate Change: Linking Ground Perspectives to the Global Scenario' in *Indian Journal of Gender Studies* 22(3): 208–420.
- Hejnowicz, A.P., H. Kennedy, M.A. Rudd, and M.R. Huxham. 2015. 'Harnessing the Climate Mitigation, Conservation and Poverty Alleviation Potential of Seagrasses: Prospects for Developing Blue Carbon Initiatives and Payment for Ecosystem Service Programmes' in *Frontiers in Marine Science* 2(32): 1–22.
- Hostettler, S., A. Gadgil, and E. Hazboun (Ed). 2015. *Sustainable Access to Energy in the Global South*. Switzerland: Springer.
- Koontz, T.M. and C.W. Thomas. 2006. 'What Do We Know and Need to Know About the Environmental Outcomes of Collaborative Management?' In *Public Administration Review* 66: 111–21.
- Leach, M. (Ed). 2016. *Gender Equality and Sustainable Development*. London: Routledge.
- McKinney, L. A. and G.M. Fulkerson. 2015. 'Gender Equality and Climate Justice: A Cross-National Analysis'. *Social Justice Research* 28: 293–317.
- Neumayer, E. and T. Plümper. 2007. 'The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002' in *Annals of the Association of American Geographers*, 97 (3): 551–66.
- Newig, J. 2007. 'Does Public Participation in Environmental Decision Lead to Improved Environmental Quality? Towards an Analytical Framework. Communication, Cooperation, Participation in Research and Practice for a Sustainable Future 1: 51–71.
- GCF. 2015. *Gender Policy for the Green Climate Fund*. https://www.greenclimate.fund/documents/20182/319135/1.8_-_Gender_Policy_and_Action_Plan.pdf/f47842bd-b044-4500-b7ef-099bcf9a6bbe; last accessed on December 22, 2017.
- O'Brien, K.L. and R.M. Leichenko. 2000. 'Double Exposure: Assessing the Impacts of Climate Change within the Context of Economic Globalization' in *Global Environmental Change, Part A: Human and Policy Dimensions* 10: 221–32.
- OECD Publishing. 2017. *The Pursuit of Gender Equality: An Uphill Battle*. Paris.

- Pellizzoni, L. 2003. 'Uncertainty and Participatory Democracy' in *Environmental Values* 12(2): 195–224.
- Reed, M. 2008. 'Stakeholder Participation for Environmental Management: A Literature Review' in *Biological Conservation* 141: 2417–31
- Richards, C., K.L. Blackstock, C.E. Carter. 2004. 'Practical Approaches to Participation' in *SERG policy Brief No. 1*. Macauley Land Use Research Institute: Aberdeen.
- Roberts T.J. and B.C. Parks. 2007. 'Fueling Injustice: Globalization, Ecologically Unequal Exchange and Climate Change' in *Globalizations* 4: 193–210.
- Steele, J. 2001. 'Participation and Deliberation in Environmental Law: Exploring a Problem-solving Approach' in *Oxford Journal of Legal Studies* 21(3): 415–442.
- Terry, G (Ed). 2009. 'Climate Change and Gender Justice' in *Oxfam Working in Gender and Development Series*. Oxfam: Great Britain.
- UNDP. 2009. 'Resource Guide on Gender and Climate Change'. http://www.uneca.org/acpc/about_acpc/docs/UNDP-GENDER-CLIMATE-CHANGE-RESOURCEGUIDE.pdf; last accessed on December 22, 2017.
- UNFCCC. 2015. 'Submitted INDCs'; available at [http://www4.unfccc.int/submissions/indc/Submission Pages/submissions.aspx](http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx); last accessed on December 22, 2017.
- UNFCCC. 2017. 'Establishment of a Gender Action Plan'; available at http://unfccc.int/files/meetings/bonn_nov_2017/application/pdf/cp23_auv_gender.pdfYoung; last accessed on December 22, 2017.

Endnote

- ¹ Additional information about the project, including relevant knowledge products, instructional videos, and closing workshop details, can be found here: <https://gender-climate.iges.jp/>; last accessed on December 22, 2017.

Synergies between Mitigation and SDGs: The Case of Human Settlements in Bhutan

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The Rapid Urbanization of Bhutan

Recently, discussions on the linkages between NDCs and Sustainable Development Goals (SDGs) have gathered momentum. This topic is of particular importance for many developing countries because of their pressing needs to address climate change while improving the livelihoods of citizens.

Bhutan, classified as a least-developed country (LDC), is growing rapidly and is likely to graduate from the LDC category in the next few years.¹ In the context of this development process, Bhutan is rapidly transforming from a predominantly rural to an urban economy. In 2005, rural residents still constituted 69% of the total population, while just half a generation later, an urbanization of 60% is expected for 2020.² The rapid urbanization in Bhutan has led to strongly growing GHG emissions. In its NDC—which iterates the commitment made in 2009 to remain carbon neutral—Bhutan puts an emphasis on mitigation through low-carbon transport, green buildings, smart cities, and sustainable waste management, and eyes support from the international community.³

The Role of Gross National Happiness for Mitigation in Urban Areas in Bhutan

In a recent UNDP-funded project, we identified appropriate mitigation measures for urban areas to support NDC implementation in Bhutan (see Table 1). We first evaluated the historical and baseline emission of each of the three urban sectors listed in the NDC. Subsequently, we identified mitigation measures and assessed the respective mitigation potential as well as abatement costs. In order to prioritize mitigation planning, the well-being of citizens also needed to be assessed as Bhutan is a leader in the application of the concept of 'Gross National Happiness' (GNH). The concept of GNH was promulgated by the fourth king of Bhutan in the early 1970s to guide the national development process,⁴ where a GNH index was subsequently introduced as a holistic approach to measure the happiness and well-being of the Bhutanese population for policy planning. The index evaluates the dependent factors of happiness in nine domains, namely, psychological well-being, health, time use, education, cultural diversity and resilience, good governance, community vitality, ecological diversity, and resilience and living standards.⁵

Table 1: Mitigation measures and the prioritization

Mitigation measure	Ranking mitigation potential	Ranking abatement costs (payback period)	Ranking sustainable development	Overall ranking amongst mitigation measures	Recommended for the rural (R) or urban (U) sector
Composting	+++	+++	+++	1	U + R
Buildings energy efficiency	+++	++	+++	2	U + R
3R	++	++	+++	3	U
Efficient streetlighting	+	++	+++	4	U
Public transport	++	+	+++	4	U
Wastewater management	+	++	+++	4	U
Cable cars	++	+	+++	4	U
Appliance efficiency	++	+	++	5	U + R
Electric vehicles	+	+	+++	5	U
Solar PV	+	+	+++	5	U + R
Non-motorized transport	+	+	+++	5	U
Biofuels	++	+	+	6	R
LFG flaring	+	+	+	7	U

Operationalizing Gross National Happiness through Criteria and Indicators

A sound understanding of Bhutan's national planning process is crucial for one to understand the way SDGs and NDCs can complement each other. Bhutan has a tradition of following a regular 5-year planning cycle to identify national development priorities and programmes. The 5-year plans also identify the National Key Result Areas (NKRAs) comprising several subordinated key performance areas (KPI). These are also aligned to one or more domains of the GNH index. Thus, the national planning process is closely connected to the GNH concept and tries to operationalize it throughout all fields of policymaking in Bhutan.

How GNH and SDGs Correlate

Several SDGs are directly related to the area of human settlements, such as Affordable and Clean Energy (SDG7), Decent Work and Economic growth (SDG8), Industry, Innovation and Infrastructure (SDG9), Sustainable Cities

benefits) alongside results from consultations with key Bhutanese stakeholders (see Table 1).

Conclusions

Our Bhutanese case study shows that that mitigation actions can be aligned with metrics for sustainable development benefits if an appropriate methodology for this purpose exists. Based on such an approach, sustainable development considerations can be incorporated in the decision-making to derive a priority list of mitigation actions for the NDCs achievements. In the case of Bhutan, the sustainable development benefits could be relatively easily expressed through the existing national frameworks, such as criteria and indicators developed under the GNH index and operationalized in policy planning through the NKRAs. For other countries that do not have similarly elaborated sustainability metrics in place and enforced, two general options exist for linking the NDC with SDGs. The country could develop its own set of (sustainable) development indicators that it deems appropriate and then the metrics can be linked to the SDGs.

Table 2: Selected criteria, GNH indicators, and SDGs applied for the prioritization of mitigation

No.	Criterion	Indicator (NKRA/KPI)	Related SDGs
1	Supporting clean development (reduction of air pollution)	(12th 5YP) NKRA_5: Healthy ecosystem services maintained/Ambient air quality levels (PM10) (11th 5YP) NKRA 7: Carbon neutral/Green and climate-resilient development/ Ambient air quality sustained or reduced	SDG11, SDG13
2	Improved public services	(12th 5YP) NKRA_9: Infrastructure, communication, and public service delivery improved/ Gewogs connected by public transport (12th 5YP) NKRA_9: Infrastructure, communication, and public service delivery improved/ Travel time in trucking hours along the national highway	SDG9
3	Promotion of eco-efficient new technologies	(12th 5YP) NKRA_9: Infrastructure, communication, and public service delivery improved/ Electric vehicle penetration	SDG9, SDG11, SDG13
4	Employment created	(12th 5YP) NKRA_11: Productive and gainful/ National unemployment rate (11th 5YP) NKRA 4: Employment	SDG8
5	Improved liveability of human settlements	(12th 5YP) NKRA_15: Liveability, safety, and sustainability of human settlements improved/ Waste managed at the national level (12th 5YP) NKRA_15: Livability, safety, and sustainability of human settlements improved/ Residents satisfied with municipality services	SDG11

and Communities (SDG11), and Climate Change (SDG13). We applied a set of criteria linked to the NKRAs of the latest two 5-year plans and specific SDGs (see Table 2).

As a last step, the proposed mitigation measures were prioritized based on the three factors (mitigation potential, abatement costs and sustainable development

Alternatively, it could directly start using the 17 SDGs and the list of 232 indicators included in the global indicator framework, which was adopted by the General Assembly on the Work of the Statistical Commission pertaining to the 2030 agenda for sustainable development in July 2017. However, the selection of the relevant indicators and their operationalization would remain a challenge.

Endnote

- Asian Development Bank. 2017. 'Bhutan: Economy', available from: <https://www.adb.org/countries/bhutan/economy>, accessed 30 Nov. 2017; last accessed on December 22, 2017.
- World Bank. 2016. 'Bhutan Country Snapshot', available from: <http://documents.worldbank.org/curated/en/196691468013837110/pdf/916250WPOBhuta00Box385333B00PUBLIC0.pdf> last accessed November 30, 2017.
- Royal Government of Bhutan. 2015. 'Intended Nationally Determined Contribution'; available from: <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Bhutan%20First/Bhutan-INDC-20150930.pdf>; last accessed November 30, 2017.
- GNH Centre Bhutan. 2017. 'GNH Happiness Index', available from: <http://www.gnhcentrebhutan.org/what-is-gnh/gnh-happiness-index/>; last accessed on November 30, 2017.
- Gross National Happiness Commission. 2013. 'Eleventh Five Year Plan Document 2013–2018', available from: <http://www.gnhc.gov.bt/12rtm/wp-content/uploads/2013/10/Eleventh-Five-Year-Plan-Volume-I-Final.pdf>; last accessed on November 30, 2017.

Three Issues to be Addressed through Energy Policies to Achieve the Indian NDC Goals

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With lower than world average per capita emissions of greenhouse gases, and with a large section of its population with a low standard of living, the Indian climate policy has adopted a 'development first' approach. A reading of India's Nationally Determined Contributions (NDC) will reveal that the country has taken the climate change problem seriously, and has laid down a broad framework across different sectors with associated targets.

In the energy sector, the aim is to transition to cleaner sources of energy and attain energy independence.¹ To achieve this, the following two targets have been set for the country: (a) achieve 175 GW of installed capacity by 2022 and (b) achieve 40 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources from the current level of 30 per cent by 2030.² This ambitious target has helped to shift gears in RE deployment, but the transition is not without its challenges.

Along with the efforts to clean the generation mix, two other important developments need to be kept in mind—(a) the thrust on grid expansion to fulfil the 100 per cent electrification target and (b) addressing the long-standing issues of utilities finances through introduction of UDAY scheme. To achieve these goals in the stated timeframe, the following must be ensured: (a) state government buy-in of the national vision and targets (b) long-term policy clarity at the state level, and (c) achieving development goals by overcoming the current fixed mindset focused on grid expansion models.

Bringing States on Board

Implementing the NDC goals will require co-ownership by state governments. However, in the recent past, not many state governments have shown interest to align their policies with the NDC commitments.³ For example, while the central government has allocated state-wise targets that will add up to the 175 GW by 2022, most of the states are yet to align themselves with this.⁴ This could be due to the lack of political will to scale up the RE growth at the state levels.

In the recent past, the national government has simultaneously pushed towards meeting the RE target and provide 24x7 power for all. However, the major hurdle towards these have been the poor financial health of the DISCOMs. Even after implementing UDAY, the DISCOMs continue to be in trouble,⁵ mainly due to the challenge

of not being able to balance between their revenue from sale of power against capital expenditure and O&M costs and AT&C losses. In addition, they also have the obligation of supplying free/subsidized electricity to certain customer categories, rural electrification, special agricultural pump-set schemes, and so on.

When stacked against these developmental priorities, the need to fulfill RE targets is not a priority in the state government planning. In addition, states are not well equipped to deal with this challenging transition. Issues, such as RE grid integration, proactive planning of DSM, and the overall grid management in a higher RE scenario, are areas where the states need manpower and institutional capacity building.

Policy Uncertainty at the State Levels

The positive stories that have resulted due to the large-scale RE auctions in different parts of the country have been dampened by the debilitating effect that these price discoveries have started to exercise on previously signed Power Purchase Agreements (PPAs). Many states have started renegotiating previously signed PPAs, thus creating uncertainty in the market.

Another positive trend that has seen some pushback from utilities and regulators in the form of additional surcharges is the corporate procurement of RE. Utilities are being impacted by the migration of such customers to RE power sources to meet their energy requirements, while still relying on the utility to cater to their needs during certain periods. Although it is important to recognize that some aspects of open access are not fair to the utilities, especially given the constraints under which they have to operate, it must also be mentioned that the utilities need to adjust to the new reality that has dawned mainly because of technological improvements and a growing desire amongst corporate consumers to fight climate change. Holding onto an outdated monopolistic vision will not help in their survival and growth.

Meeting the Development Needs versus the Modes of Supply

The NDC acknowledges the possibility of increased consumption of energy to meet aspirational levels of development. In this regard, the government's efforts are mixed. On the one hand, it is putting all its energy in rapid expansion of grid to connect all households by 2019,

while at the same time it is not grasping the opportunities afforded by mini/micro grids to solve the energy access problem. While the announcement regarding the Saubhagya Scheme is on record, the government is going slow on finalizing the mini-grid policy for the country—a counter-intuitive situation.

The Way Forward

The role of states in helping achieve the country's NDC targets cannot be emphasized enough.⁶ However, they will need to be brought on board via a consultative process that recognizes the political economy that they encounter and the capacity deficits that exist in

their system. Solutions to these issues must be jointly evolved, and must consider the various socio, political, and economic realities.

Policy certainty is a non-negotiable requirement for this transition. While it is difficult to keep a constant policy instrument in the light of the overwhelming changes in all spheres that crop up, the course correction must be transparent and must also give due respect to investment decisions that may have been taken based on previous policy regimes.

Lastly, policymakers should avoid placing bets on technology that could help in this transition, and instead provide an enabling environment for the market to evolve solutions.

Endnote

- ¹ Asian Development Bank. 2017. 'Bhutan: Economy', available from: <https://www.adb.org/countries/bhutan/economy>, accessed 30 Nov. 2017; last accessed on December 22, 2017.
- ² World Bank. 2016. 'Bhutan Country Snapshot', available from: <http://documents.worldbank.org/curated/en/196691468013837110/pdf/916250WPOBhuta00Box385333B00PUBLIC0.pdf> last accessed November 30, 2017.
- ³ Royal Government of Bhutan. 2015. 'Intended Nationally Determined Contribution'; available from: <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Bhutan%20First/Bhutan-INDC-20150930.pdf>; last accessed November 30, 2017.
- ⁴ GNH Centre Bhutan. 2017. 'GNH Happiness Index', available from: <http://www.gnhcentrebhutan.org/what-is-gnh/gnh-happiness-index/>; last accessed on November 30, 2017.
- ⁵ Gross National Happiness Commission. 2013. 'Eleventh Five Year Plan Document 2013–2018'; available from: <http://www.gnhc.gov.bt/12rtm/wp-content/uploads/2013/10/Eleventh-Five-Year-Plan-Volume-I-Final.pdf>; last accessed on November 30, 2017.
- ⁶ <http://wri-india.org/blog/plan-action-three-considerations-meaningful-electricity-planning-india>; last accessed on January 4, 2018.

The Paris Agreement sets an ambitious goal of keeping the increase in temperature rise well below 2°C. Almost all countries put forward their INDCs as a start towards meeting this goal, which will be further revised as NDCs. Further, countries also agreed to undertake regular stock-taking to assess whether they will be able to reach their commitment and to what extent their efforts are enabling them to keep the GHG emissions trajectory on track with the above-mentioned goal. The achievement of these goals will depend on: i) effective implementation and ii) enabling means of implementation or support. Continued analysis, deliberations, and knowledge sharing is imperative for countries to implement their 'nationally determined contributions' along with identifying specific international cooperation needs. This project aims to contribute to this effort. The focus of the project is on issues related to implementing NDCs in both the international and domestic context. The following activities will be undertaken under this project:

1. Tracking of Nationally Determined Contributions and domestic linkages with SDGs
2. Role of international cooperation and domestic innovation on climate finance
3. Technology cooperation needs for implementing and enhancing India's NDC
4. Understanding gender dimension in mitigation actions

This series of Mitigation Talks acts as a platform to initiate discussions on various issues under these four themes.

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