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CONCLUSION

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FIGURE 8.1 Recognising the multiple values of mangroves is important to sustain lives, livelihoods and adaptation pathways (Photo credit: Shibaji Bose).

This volume has explored the different ways in which climate-related uncertainties are understood, conceptualised and mediated by different actors in India, one of the most climatically vulnerable countries in the world. It covered case studies from coastal Mumbai to dryland Kutch and the Sundarbans delta in West Bengal and also studied the perceptions of policymakers and climate scientists, also in historical

perspective. The book introduced the three heuristic categories of the “above”, “middle” and “below” to study diverse conceptions and experiences of climate change and uncertainty, with the caveat that this heuristic is fluid and marked by power imbalances between the “above”, “middle” and “below” (Figure 8.1).

The importance of embracing uncertainty and its political nature are the key messages of this volume. Attempts to “control” or “tame” uncertainty in the context of climate change remain the primary response strategy, mostly driven by state actors and usually in the form of technocentric and top-down interventions. However, these largely falter on the ground due to dynamic and variable local systems and intersecting uncertainties. These “decontextualised” top-down policies can often hamper efforts to support locally appropriate and socially just adaptation.

Several chapters in this book have shown that predominant deliberations and knowledge production from the powerful “above” have largely failed to acknowledge finer-grained local-level realities. Instead, deterministic tools and approaches have tended to bypass or undervalue the more qualitative lived experience and conceptualisations of uncertainty from the “below”. This exclusionary framing by the “above” not only faces epistemic tensions but also sidelines and dilutes valuable “experiential” knowledge and perspectives from the “below” who live at the forefront of climate change, and whose perspectives and realities are key to developing more inclusive and diverse adaptation pathways. In this regard, this volume has highlighted the critical role of the “middle” as translators who play an active role in facilitating plural approaches and act as a mediator between “above” and “below”.

Climate-related uncertainties are not new. Climate extremes, variability and seasonality in the Indian subcontinent have been part and parcel of everyday life for generations, and a wide repertoire of knowledge and practices have been developed by the “below” to cope and adapt to them. However, the timing, scale and intensity of climatic patterns have changed, sometimes drastically, signalling the anvil of a new age of radical uncertainty that increasingly falls outside the coping range, which communities have traditionally relied on.

The often devastating impacts of climate change are not the only sources of anxiety and uncertainty for local communities. As we described in this book, dominant concerns for poor and marginalised people relate to daily, existential threats that revolve around livelihoods, access to resources or land that interact with climate-related uncertainties. Uncertainties are being accentuated or re-enforced when people are left disenfranchised and disempowered through forced displacement (Mumbai), state neglect (Indian Sundarbans) and progressive marginalisation of traditional livelihoods (Kutch), leaving them with token livelihood alternatives. For example, the case of chronic flooding and retainer wall construction in Mumbai is an obvious case of maladaptation (Chapter 6). Similar examples are discussed across the volume, which outline the socially differentiated impacts of climate-related uncertainties that often exacerbate the vulnerabilities of the most marginalised communities, especially women. For

example, the empirical findings have demonstrated the gendered implications of increasing vulnerabilities linked to climate-related uncertainties and how these add to women's existing daily burdens.

What could be the way forward for concept, policy and praxis? Multi-sectoral and interdisciplinary approaches are required to understand the impacts and manifestations of uncertainty. It is important to challenge the positivist understanding of uncertainty that dominates science and policymaking. Social science aspects concerning socio-political issues, gender dynamics and site-specific vulnerabilities of different social groups and how these interact with climate-related uncertainties also need to be included in mainstream debates (Bhatt *et al.* 2018). It is also important for actors from “above”, “middle” and “below” to see different aspects of climate change while recognising the values (and opportunities/limitations) of diverse knowledge regimes. The book has highlighted that a power re-configuration through epistemic and cognitive justice for vulnerable people is a key component to develop transformative pathways.

For this, one needs to recognise and embrace the perspectives from the “below” and bring their voices and concerns to the centre stage of climate action. While policymakers often find it uncomfortable to work with high degrees of uncertainty at the local level, ignoring it is no solution either. There is a need to factor uncertainty into decision-making and scientists also need to effectively communicate the role of uncertainty in their forecasts and models. Instead of paralysing decision-making, effective communication of uncertainty configurations across all heuristic categories can facilitate inclusive change (Bhatt *et al.* 2018). The building of “hybrid alliances” that allow multiple actors (researchers, NGOs, activists, state, ordinary people), disciplines (humanities, natural and social sciences) and perspectives on climate change to come together promises to enable the sharing of knowledge and expertise.

Drawing on creative methodological experiments such as roundtables, we argued that there is a potential to harness this diversity to facilitate practices of engagement and co-production between diverse stakeholders. For example, the use of visual methods such as photovoice and photo stories can effectively capture the lived and tacit experiences of uncertainty. Besides providing agency to the “below”, who have often been categorised as “subjects” of research, such approaches provide a voice to vulnerable and marginalised communities, making them active participants in research and the creation of knowledge. Such co-produced research requires sustained engagement but can potentially empower people to shape the conditions of their lives, creating spaces to produce and disseminate knowledge and actively shape development and research processes (see Mehta and Srivastava 2020).

Hence, co-production of climate knowledge will require altering the modernist and homogenising frame of knowledge production and dissemination that has for long colonised practices through target-oriented top-down framings. This means embracing more decentralised and plural ways of knowing with an aim to co-produce both new knowledges and social orders (Mehta and Srivastava 2020).

We have also outlined the challenges in such processes in tackling existing power relations and existing social and gender inequities. We, thus, argue for a more granular, localised, participatory and place-based understanding of climate-related uncertainty to provide entry points to enable a bottom-up transformation that pushes social justice, equity and more inclusive adaptation. This must go hand in hand with a radical re-structuring of power relationships that puts the concerns of the most vulnerable people centerstage (O'Brien 2012; Ribot 2014; Taylor 2014; see the Introduction chapter). Climate action and policy will have little meaning or could even be counterproductive unless they are mobilised to question deep-seated inequalities and unjust framings that feed into epistemic closures and deny possibilities of having plural pathways (Scoones *et al.* 2015; Newell *et al.* 2021).

Bottom-up approaches to transformation may, in fact, provide an entry point to challenge precisely such incumbent power structures. In such spaces or “patches”,¹ specific processes (alliances, initiatives) are challenging dominant trajectories of development, and where relations of power and knowledge are being reconfigured in more heterogeneous and deliberative ways to challenge dominant framings of nature–society relations and create spaces in which new practice emerge (see Mehta *et al.* 2021). It is also at this “local level” where climate impacts ultimately materialise and complementary responses to market or state directives are formulated. In order to nurture such transformative pathways, new discourses and stories are required to guide our actions. This can be through challenging dominant narratives around what unproductive landscapes are (Kutch) or support different narratives and storylines that emerge from small and incremental changes, experiments and mobilisations and percolate into giving birth to new ideas, values and social norms that are more adept at addressing climate-related uncertainties. However, one needs to remain attentive to structural political economy factors and ensure that the burden of responsibility for adaptation is not shifted “downwards” to the most vulnerable people (Taylor 2014; Blythe *et al.* 2018).

The ongoing pandemic has laid bare problems with local to global inequalities, unequal access to public goods such as health, water and sanitation as well as the unsustainable nature of human–nature relations, all of which underpin the global climate crisis. The pandemic has also intersected with ongoing crises of food, water and climate, thus threatening already fragile livelihoods, especially in marginal environments creating compounded uncertainties and vulnerabilities for marginalised people. In most countries, the responses from “above” have been inadequate, too late, or even failed. In India, the right-wing authoritarian government has used the pandemic to “other” and victimise minorities and marginalised groups, while using the pandemic time to push through controversial and unsustainable projects bypassing social and environmental concerns. Despite inadequate responses from “above”, in many cases – even in our research sites – there has been a burst of local forms of mutual aid and solidarity as well as civic action. There are also many examples of resilience at the local level, especially amongst communities that have largely relied on subsistence production (Pickard *et al.* 2020; Mehta *et al.* 2019, 2021).

Lastly, the injustices of the pandemic, especially India's deadly second wave, have called for fairer and more just futures, including the need for investment in public goods and to address issues concerning climate justice. The post-COVID recovery period should, thus, build on reflections, trends and lessons and hopefully bring about the systemic shifts badly needed to address locally appropriate and socially just transformations to sustainability in an increasingly uncertain world.

Note

- 1 The concept of patches and praxis is investigated in a follow-up project TAPESTRY. For more information, see <https://steps-centre.org/project/tapestry/>.

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