Preface and Acknowledgments

"We wrote this book because we got confused."
—Erik Brynjolfsson and Andrew McAfee

We have edited this volume because we intend to address the dilemma of sustainable development. Environmental problems have become persistent and pervasive, affecting almost all life directly or indirectly. The concept of sustainable development evolved out of this ecological crisis. The core idea of sustainable development is directed toward the safety and security of future generations through the judicious use of natural resources in the present. Connecting the past, present, and future regarding the distribution and consumption of natural resources is the fundamental challenge of sustainable development governance. It has been globally accepted that the current crisis is the result of past and present ways of life that, if continued, will jeopardize the future. Now, the pertinent questions are: What to do? How to address this challenge? And most importantly, who is going to do what?

National governments, international economic agencies, and civil society organizations have addressed the issue of environmental crisis like other social and economic problems. Over the years, a range of possible solutions was designed to control the present crisis. Most solutions are directed at those citizens who, defined by their relative poverty, are believed to be the worst affected by ecological disruptions. This process of governance can be summarized as a 'top-down' approach. Due to uneven economic growth and social opportunity, the 'top-down' model failed to reach the bottom of the pyramid. Moreover, many affected people are left out because the economic resources of top-down decision-makers are limited, and they have to prioritize certain issues, communities, and geographic locations.

On the other hand, the people, who are living on the ground, have to encounter the challenges with or without the support of the 'top-down' decision-makers. Their approach is based on their traditional knowledge and limited economic resources. This way of addressing everyday livelihood challenges represents a 'bottom-up' approach. Many climate change adaptation efforts and community resilience in the face of disaster are examples of 'bottom-up' approaches.

This backdrop leads to a dilemma for sustainable development governance. The decision-makers in the 'top-down' model have economic resources and cutting-edge technological solutions. On the other hand, human beings have historically generated extensive local knowledge in response to changing environments. With the help of 'bottom-up' approaches, they have continuously tackled adverse environmental conditions.

This volume is an attempt to showcase instances of both 'top-down' and 'bottom-up' approaches to sustainable development. The book is a collection of various case studies related to diverse environmental challenges by leading scholars from India and Bangladesh. We have focused on micro-level case studies because we believe that case studies are rich in local knowledge, which is difficult to tap otherwise. To elaborate the dilemmas of sustainable development, we have divided the book into four sections. In the beginning, we have tried to summarize the background and context of sustainable development governance. Citing multiple case studies related to forest rights, biodiversity conservation, land rights, and freshwater crisis, section one of this book highlights the challenges of so-called 'top-down' approaches. Section two of this book emphasizes several 'bottom-up' cases on water resource management, flood management, solar home lighting, and ecotourism. We have dedicated section three of this book to the issue of climate change adaptation to highlight the challenges on the ground in actual decision-making procedures. Finally, in the concluding chapter, we have proposed a new approach to address the dilemma of integrating 'top-down' and 'bottom-up' approaches by introducing a new 'middle-out' model. We believe that because of the scale and speed of global climate change, the knowledge being produced locally needs to be aggregated and disseminated as rapidly as possible. And this can be possible with the use of information and communication technologies. With the help of mobile phones and the Internet, a virtual platform can be built on a global scale, where knowledge exchange will be more effective, and resources can be disbursed more judiciously.

This volume would not have been possible without the active support of many individuals and organizations. First of all, we would like to thank our respective institutions for their administrative support to brainstorm and develop this manuscript. Many academic and nonacademic staffs from ABV-Indian Institute of Information Technology and Management, University of San Francisco, and Institute for Social and Economic Change have extended their support to shape the idea, especially Sanjeev Deshmukh, Christopher Brooks, and K.V. Raju. We have organized and reorganized the chapters of this book many times. In this process, we have received valuable

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Introduction: Governance for Sustainable Development in the Anthropocene

Stephen Zavestoski and Pradip Swarnakar

> Because local needs and interests will necessarily vary, sustainable development must be redefined repeatedly, from the bottom up, wherever it is to be put into practice. Sustainable development can have worldwide relevance and appeal, but only if its original purpose of helping the poor live better, healthier, and fairer lives on their own terms is restored.
>
> —David Victor, 'Recovering Sustainable Development'

Earth systems are facing unprecedented pressure due to anthropogenic activities. So profound are the changes triggered by humans—from the extreme weather and sea-level rise exacerbated by climate change, to ozone depletion, mass extinctions, deforestation, and many irreversible phenomena (Monastersky 2015)—that they are now inscribed in Earth's geological record. In this new Anthropocene epoch, human activity has pushed past several key planetary boundaries. The ensuing global and local environmental changes are happening not only faster than previously predicted but also faster than any planetary-scale changes humans have had to adapt to in the past. National and world leaders must continue to grapple with previous commitments to sustainable development, but they must now do so with approaches to governance capable of confronting a new set of constraints and a heightened sense of urgency imposed by the Anthropocene. These circumstances have led Jeffrey Sachs, Director of the United Nations (UN) Sustainable Development Solutions Network and Special Advisor to former UN Secretary-General Ban Ki-moon, to declare:

> Sustainable development is the central drama of our time. In many ways, humanity has squandered the time it once had to adjust to environmental realities. Now our backs are up against the wall. We are living in history, and our generation's history is the threat of unprecedented, global-scale environmental catastrophe. The starting point is our crowded planet. (2014: 106)

Sustainable development may be "the central drama of our time," but to date it has been a drama without a denouement. Furthermore, it is a drama whose

central rhetorical device, as Victor argues, has become meaningless. Finally, it is a drama the conclusion of which will play out in the Anthropocene, a period defined by human impacts on Earth systems having achieved a geological scale. As Kloor explains, the challenge of the Anthropocene is to "meet the needs and aspirations of all of humanity while sustaining the planet's ecology" (2014). This simple equation paradoxically complicates the drama. The Anthropocene erases the society–nature dualism that defined previous sustainable development debates and replaces it with compulsory adaptation to anthropogenic socio-ecological disruption, especially by those in the least developed parts of the world, that risks undermining sustainable development goals (SDGs). To speak of climate change evokes ideas of a depoliticized problem to be tackled by experts applying scientific knowledge toward technological solutions. The Anthropocene, on the other hand, holds discursive power that opens us up to the possibility that economic, cultural, political, and other forms of human social organization may need to be transformed. Within the milieu of the Anthropocene, we must become attentive to alternative approaches to sustainable development that can overcome our past inabilities to bridge the power of top-down approaches with the elements of inclusivity, equity, and justice embedded in bottom-up approaches.

With this book, we aim to direct attention to the need to bridge bottom-up and top-down approaches to sustainable development, which might offer at least one possible approach to resolving the central drama of our time—sustainable development *in the Anthropocene.* To set the stage, in this chapter, we first unpack the history of the concept and the institutional strategies for realizing sustainable development. After contrasting the advantages and disadvantages of both top-down and bottom-up approaches to sustainable development governance, we construct an argument for case study research as a tool for gathering data across contexts that can guide our approaches to innovating new forms of sustainable development governance robust enough to bridge the gap between top-down and bottom-up approaches. Finally, we explain the organization of the book and introduce the chapters.

The Challenge of Defining Sustainable Development

Often little more than a catchphrase to understand the new paradigm of development (Lele 1991), sustainable development has nevertheless become increasingly influential in national and international policy development (for historical and conceptual reviews, see Bolis et al. 2014; Hopwood et al.

2005; Mebratu 1998). The concept first grabbed the world's attention after publication of *Our Common Future*, commonly referred to as The Brundtland Report, by the World Commission on Environment and Development (WCED 1987). WCED defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." It contains within it two key concepts: first, "the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given" and second, "the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs" (WCED 1987: 43). This definition has received various criticisms in spite of its wide acceptance (Luke 2005; Redclift 1993, 2005; Seghezzo 2009). The concepts of 'need' and 'intergenerational equity', for example, may be defined differently by different cultures and classes of people.

Many attempts have been made at defining sustainable development (for summaries, see Parris and Kates 2003; Kates et al. 2005; Dernbach and Cheever 2015), yet these efforts often result in additional questions. For example, the Board on Sustainable Development of the US National Research Council (NRC) frames the definitional challenge by asking the following three questions: What should be developed? What should be sustained? Over what period? (NRC 1999; see also Redclift 1993). Looking at the national and international policy apparatus, the NRC concluded that the primary "goals of a transition toward sustainability over the next two generations should be to meet the needs of a much larger but stabilizing human population, to sustain the life support systems of the planet, and to substantially reduce hunger and poverty" (NRC 1999: 5). Thus, under the heading "What Is to Be Sustained," the board identified three major categories: nature, life support systems, and community. Similarly, there were three quite distinct ideas about what should be developed: people, economy, and society (Robert et al. 2005: 11).

Sustainable development definitions are important because they point to the indicators that would need to be measured to determine progress. For example, the NRC's emphasis on human development over economic development points to development indicators such as life expectancy, education, equity, and opportunity. The 2002 World Summit on Sustainable Development (WSSD) aimed to add specificity to the Brundtland definition by identifying the now widely recognized economic, social, and environmental pillars of sustainable development (Osofsky 2003; Wapner 2003; JDSD[1]). The wide range of definitional challenges, as well as related

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[1] See http://www.joburg.org.za/pdfs/johannesburgdeclaration.pdf, accessed on February 14, 2017.

measurement challenges, inevitably led to criticism of sustainable development policies and strategies. Critics point out the fundamental contradiction between sustainable development's parallel requirements of expansion of economic growth in developing countries, enhanced levels of ecological conservation, and social equity (Agyeman 2003; Pezzoli 1997). Other critics focus on the inattention to power relations among the local-to-global actors and institutions supporting unsustainable development (Lele 1991; Sneddon et al. 2006). Moreover, business organizations' guidelines (UN Global Compact, the OECD Guidelines for Multinational Enterprises, the ICC Business Charter for Sustainable Development, the Caux Round Table Principles, the Global Sullivan Principles, and the Ceres Principles) "tend to emphasize environmental rather than social aspects of sustainable development, in particular to the detriment of the original Brundtland prioritization of the needs of the poorest" (Barkemeyer et al. 2014).

Meanwhile, sustainable development as an organizing concept continued to evolve. The 1992 Rio Declaration on Environment and Development (United Nations General Assembly 1992), in its first three principles, enshrined a human–nature dualism into our conceptualization of sustainable development. As Principle 1 proclaims, sustainable development is human-centered: "Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature." Principle 2 then acknowledges states' sovereign rights "to exploit their own resources pursuant to their own environmental and developmental policies," while at the same time imposing "the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." Principle 3 asserts intergenerational equity in a manner that furthers the paradox of human development consistent with environmental protection: "The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations."

Agenda 21, the plan for action that emerged out of the Rio Earth Summit, endeavored to resolve the conflict and contention between environment and development, in part by prescribing action strategies at local, national, and global levels (Lafferty and Eckerberg 2013: 1). An emphasis on local decision-making devolved responsibility for resolving and managing the intractable problem of balancing environmental protection with human development to communities:

> Because so many of the problems and solutions being addressed by Agenda
> 21 have their roots in local activities, the participation and cooperation of

local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and subnational environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development. (United Nations General Assembly 1993: Section 28.1)

Agenda 21 specifies the importance of local communities' involvement in decision-making, planning, and implementation of processes in local- and national-level governance (Freeman 1996). In the ensuing years, researchers scrutinized sustainable development projects and programs to determine whether the local-level decision-making called for in Agenda 21 was actually occurring (Mehta 1996; Selman 1998; Smardon 2008).

Building on the sustainable development commitments of the Rio Earth Summit, the UN launched a process of identifying a set of development goals for the new millennium—the Millennium Development Goals (MDGs). World leaders signed on the MDGs in 2000, promising to "spare no effort to free our fellow men, women and children from the abject and dehumanizing conditions of extreme poverty" (United Nations 2015), with a target date of 2015. Ensuring environmental sustainability was the aim of the seventh MDG (MDG7). However, this also had inherent problems for developing countries for whom human development continued to be traded against environmental protection (Castello et al. 2010; Sharma 2013). Despite these challenges, by 2015, former UN Secretary-General Ban Ki-moon concluded that "the MDGs helped to lift more than one billion people out of extreme poverty, to make inroads against hunger, to enable more girls to attend school than ever before *and to protect our planet*" (United Nations 2015: 3; emphasis added).

Outside the UN, the MDGs received mixed reviews despite their claimed poverty reduction achievements, not to mention claimed advances in aid from industrialized countries and stakeholder participation (United Nations General Assembly 2012). Critics claimed that the UN's donor-driven approach to addressing the MDGs resulted in neglect of certain issues in developed countries and the failure to consider the real needs in recipient countries, particularly those of marginalized populations (Holland 2008; Miyazawa 2012). Moreover, the seventh of the eight goals, to "ensure environmental sustainability," is presented separately from the other parallel goals that exhibit lack of an integrated and consistent approach to sustainability (McMichael et al. 2003).
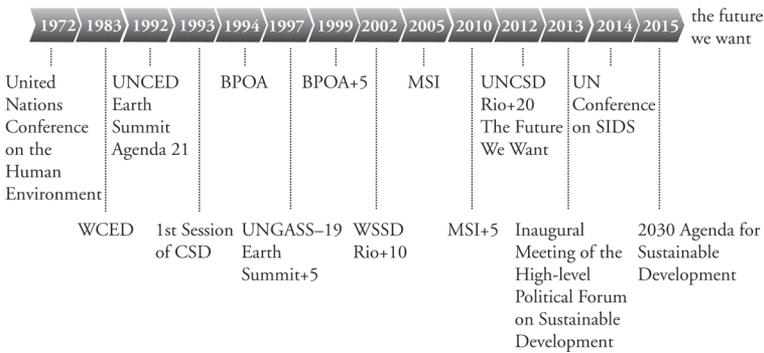
After establishing the MDGs in 2000, the next major event on the sustainable development calendar was the WSSD, held in Johannesburg in August 2002. This meeting was intended to assess the progress toward the goals set at the Rio Earth Summit in 1992 and plan further action. However, by some accounts, the most important outcome of the Johannesburg meeting was a sustained critique of UN mega conferences for failing to "incorporate the views of citizens' groups and NGOs, and build on bottom-up activism, at the same time as top-down governmental decision-making" (Seyfang 2003). Scholars and activists pushed for alternative and more inclusive processes and concepts such as 'stakeholder democracy' (Bäckstrand 2006a) and 'just sustainability' (Agyeman and Evans 2004).

Consequently, for many critics, the outcome of the subsequent Rio+20 meeting in 2012 seemed meaningless. Nevertheless, the UN needed to begin preparing for a post-2015 development agenda when the MDGs would 'expire'. A key component of 'The Future We Want' (United Nations 2012), the outcome document of Rio+20, was the mandate to establish an Open Working Group (OWG) to develop a set of SDGs for future consideration. The OWG was formed in January 2013 and concluded its work in 2014 in the *Report of the Open Working Group of the General Assembly* (United Nations General Assembly 2014). Shortly thereafter, the UN General Assembly declared that the OWG's proposal for SDGs would become the basis for integrating SDGs into the post-2015 development agenda.

The OWG deliberations revealed new challenges for the sustainable development agenda. First, members of the OWG heard extensive testimony from scientists regarding rapidly evolving understanding of the planetary boundaries within which humans must operate.[2] These boundaries circumscribe development options in a way that the prior vague and open-ended debates about balancing human development with environmental protection did not. Additionally, having already exceeded three of the nine planetary boundaries, OWG members were warned that anthropogenic global environmental change is already undermining previous development successes. Consequently, the post-2015 development agenda must provide pathways to adapting to these changes that can maintain previous development gains while

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[2] A decade of research by Rockström et al. (2009) identified nine "planetary life support systems" essential for human survival. Data were collected to determine how far humans have pushed these systems. For climate change, biodiversity loss, and the biogeochemical flow boundaries, evidence suggests humans have surpassed the boundaries, triggering "irreversible and abrupt environmental change" that could make Earth less habitable. For four other boundaries—ocean acidification, land use, freshwater depletion, and ozone depletion—humans remain in a safe operating space. Data have not been collected on the final two boundaries—atmospheric aerosols and chemical pollution.

Figure 1.1:

Evolution of the sustainable development agenda

| 1972 | 1983 | 1992 | 1993 | 1994 | 1997 | 1999 | 2002 | 2005 | 2010 | 2012 | 2013 | 2014 | 2015 | the future we want |

United Nations Conference on the Human Environment

UNCED Earth Summit Agenda 21

BPOA

BPOA+5

MSI

UNCSD Rio+20 The Future We Want

UN Conference on SIDS

WCED · 1st Session of CSD · UNGASS–19 Earth Summit+5 · WSSD Rio+10 · MSI+5 · Inaugural Meeting of the High-level Political Forum on Sustainable Development · 2030 Agenda for Sustainable Development

Source: https://sustainabledevelopment.un.org/intergovernmental

opening up opportunities for achieving the new SDGs. Second, in the face of the added challenges, social scientists urged the OWG to address the issue of governance, thereby strengthening institutions capable of coordinating global action while also supporting local forms of governance where adaptation is already being managed.

Based on this input, the OWG included among the 17 SDGs several that make explicit reference to ecological limits (e.g., Goal 13 on combating climate change; Goal 14 on conserving ocean resources; and Goal 15 on protecting, restoring, and promoting sustainable use of terrestrial ecosystems and halting biodiversity loss). While less explicit, SDGs alluding to issues of governance were also included (e.g., Goal 16 on promoting peaceful and inclusive societies, providing access to justice for all, and building effective, accountable, and inclusive institutions at all levels; and Goal 17 on strengthening the means of implementation and revitalizing the global partnership for sustainable development). The SDGs, perhaps for the first time in the evolution of the sustainable development agenda (Figure 1.1), prompt us to explore critically and creatively alternative approaches, not merely to governance of sustainable development but more significantly to governance of sustainable development in the Anthropocene.

The Challenge: Sustainable Development Governance

There has never been a shortage of action plans for sustainable development. Actual action, however, has often been paralyzed or ineffectual due to the

inability to reconcile human development and environmental protection. As such, there is nothing particularly useful in the UN's intention for the SDGs to "be useful for pursuing focused and coherent action on sustainable development." More importantly, the SDGs represent the first shift from the human-centered development agenda enshrined in the Rio Declaration to a development agenda that attempts to balance more explicitly environmental sustainability with human development, partly by acknowledging ecological limits.

This new focus on what has become known as earth system governance is beginning to generate research and discussions, characterized, for example, by the Earth System Governance Project's series of policy briefs, including one titled 'Integrating Governance into the Sustainable Development Goals' (Biermann et al. 2014). Before returning to the challenge of governing sustainable development in the Anthropocene, we discuss the definitions of global environmental governance. Then, we explain how governing sustainable development in the Anthropocene is further compromised by the ongoing adaptation to global environmental changes such as those to the climate. The challenges posed by integrating adaptation into the goals and practices of sustainable development expose the inadequate synthesis of top-down and bottom-up approaches to sustainable development governance.

Over the last two decades, there has been a gradual evolution from exclusively bureaucratic and managerial-style top-down approaches that treat underdevelopment as a scientific problem to be solved through objective empirical observation and analysis, to a collaborative approach that engages communities in conceiving and implementing sustainable development strategies within acceptable bounds established by the top-down sustainable development apparatus.[3] Both approaches, however, are still very much rooted in the Western notions of 'governance' in which sustainable development is seen as a challenge that must be embedded within a system of global governance. Yet, there is a lack of shared understanding of what is meant by global governance, in general, and global environmental governance (Gupta 2005) or sustainable development governance (Meadowcroft 2007), in particular. Governance, as conceived by Baker et al., is "the institutions, mechanisms or processes backed by political power and/or authority that allow an activity or

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[3] Victor defines the sustainable development apparatus in terms of the conferences, commissions, and task forces that all find their focus within the UN system (2006: 92). Before Victor, Escobar (1995) referred to a "global institutional apparatus" that aims to manage progress, growth, and efficiency in "underdeveloped" areas according to the norms of development.

a set of activities to be controlled, influenced or directed in the collective interest" (2005: 4).

Global collective interests, such as human rights or a stable climate, require a level of coordination and integration among transnational actors. In its simplest form, this is what is meant by global governance. *Our Global Neighborhood*, the 1995 report of the Commission on Global Governance, advocates going beyond conceptualizing global governances merely as intergovernmental relationships, arguing that "it must now be understood as also involving non-governmental organizations (NGOs), citizens' movements, multinational corporations, and the global capital market." Environmental governance, on the other hand, is "the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes" (Lemos and Agrawal 2006). As global environmental challenges emerged, the concepts of global governance and environmental governance were merged into 'global environmental governance'.

Biermann and Pattberg (2008: 279–280) differentiate between three broad usages of the term global environmental governance: analytical (to make sense of current sociopolitical transformations), programmatic (as a counterweight to the negative consequences of economic and ecological globalization), and critical (as the attempt of the UN and other international organizations to limit the freedom of action of powerful States, in particular the United States). In this context, the roles and responsibilities of nonstate actors are central to global environmental governance. Biermann and Pattberg, who argue that "many vital institutions of global environmental governance are today inclusive of, or even driven by, non-state actors" (2008: 280), identify three elements of this shift. First, the number of organizations and the degree of participation have increased. Second, there has been a diversification of organizations, which goes beyond the government, business, intergovernmental organizations, and NGOs. For example, forest management and biodiversity conservation public–private partnerships emerged as a new mechanism. Finally, traditional organizations have adopted new roles and responsibilities such as NGOs' involvement in agenda setting and policy formulation. The expansion of notions of global environmental governance to include nonstate actors has not, however, necessarily been linked to a shift away from top-down approaches to sustainable development. Strong criticism comes from the global South where the groups gaining access to governance processes are seen as being more favorable to the North's agendas, perspectives, and interests (South Centre 1997). Moreover, the global environmental assessments designed and examined by actors in the North have little influence in developing countries like India (Biermann 2001).

While the SDGs acknowledge the importance of recognizing differing national circumstances, the sustainable development apparatus stops short of promoting bottom-up approaches to sustainable development. They do not, in the words of David Victor, appreciate that "sustainable development must be redefined repeatedly, from the bottom up, wherever it is to be put into practice" (2006: 103). On the other hand, the language of 'good governance' has begun to work its way into the rhetoric used by the sustainable development apparatus. Jeffrey Sachs, in a book that features a foreword by Ban Ki-moon, former Secretary-General of the UN, emphasizes the centrality of good governance to achieving the SDGs: "To achieve the economic, social and environmental objectives of the SDGs, a fourth objective must also be achieved: good governance" (2015: 3). This awareness of the role of good governance, and what it might mean for top-down and bottom-up sustainable development strategies, is discussed next.

Top-down Approaches to Sustainable Development Governance

From the outset, the sustainable development agenda was constructed around an understanding of the challenge as requiring production of knowledge through scientific research and application of that knowledge through the tools of management, all of which happen through an internationally coordinated effort. This understanding of the problem is evidenced in *Our Common Future's* assertion that "ecology and economy are becoming ever more interwoven—locally, regionally, nationally and globally" (WCED 1987: 5). As Bolis et al. point out, "Scientific issues related to sustainability were the basis for the adoption of the term 'sustainable development' in international discussions" (2014: 10). Science, in other words, provided the early evidence justifying discussion of limits to growth and the need to achieve human development goals against a backdrop of limited resources. More recently, international scientific collaboration has been vital in advancing our understanding of global environmental problems and the human drivers of global environmental change, as well as in identifying planetary boundaries and measuring human pressure against them. Reliance on scientific knowledge to form and then drive the sustainable development agenda produced a sustainable development apparatus designed to work from the top down.

Among the problems with the top-down approach of the sustainable development apparatus is its depoliticization of sustainable development. The

post-development school of thought (e.g., Escobar 1995), which views the concept of development as bankrupt, has even less kind words to say about *sustainable* development. Prefixing sustainable to development is seen as little more than "the wholesale justification for a new wave of state interventions in people's lives all over the world" (Sachs 2010: 32). The top-down orientation of the sustainable development apparatus emerged out of the managerial focus of the development discourse that preceded it, which allowed for the formation of a consensus around the necessity of global management strategies that produce international declarations, statements, assessments, policies, and interventions. As Pfeifer explains, "the sustainable development discourse de-politicizes the issue of socio-natural relations through the mechanisms of problematization, institutionalization, professionalization and hierarchization" (2011).[4] Put differently, "[t]he production of environmental interventions is intimately connected to the production of environmental knowledge" (Guthman 1997: 45). Yet, in failing to acknowledge that both are intrinsically bound up with power relations, the sustainable development apparatus has historically excluded ways of knowing and forms of knowledge that do not fit its discourse. In examining the major discourses associated with deforestation, desertification, biodiversity, and climate change, Adger et al. find that "in each of the four areas there is a global environmental management discourse representing a technocentric worldview by which blueprints based on external policy interventions can solve global environmental dilemmas" (Adger et al. 2001: 681). Importantly, however, they also observe that "each issue also has a contrasting populist discourse that portrays local actors as victims of external interventions bringing about degradation and exploitation." These populist discourses make up one part of the movement for bottom-up approaches to sustainable development that we discuss next.

Bottom-up Approaches to Sustainable Development Governance

Against the backdrop of a global environmental governance framework dominated by a top-down sustainable development apparatus, there are

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[4] Pfeifer (2011) nicely summarizes characteristics of post-development thinking as first put forth by Escobar: the interest in alternatives to development, not the interest of alternative development; a fundamental rejection of the classical development paradigm; an interest in local culture and local knowledge; a critical perspective on established scientific discourses; and solidarity for pluralistic grassroots movements.

nevertheless many NGOs and other civil society actors working diligently at much smaller scales, occasionally at the grassroots level, to drive specific sustainable development innovations and initiatives at community or perhaps regional scales. A range of perspectives, some of which are summarized by Brosius, Tsing, and Zerner (1998), try to understand these efforts and their potential effectiveness.

Adaptive management, multistakeholder partnerships (Bäckstrand 2006b), grassroots ecosystem management (Weber 2000), grassroots environmental action (Ghai and Vivian 1995), and other related approaches generally share the underlying belief that through stakeholder participation local and scientific knowledges can be integrated to provide a more comprehensive understanding of complex and dynamic socio-ecological systems and processes (Reed 2008). Research shows that approaches triangulating local and scientific knowledge sources are more robust and have better chances of success (Johnson et al. 2004; Reed 2008).

Some of these approaches have their roots in alternative development models of the 1980s (e.g., Chamber's [1983] work on participatory development) while others draw from theoretical developments such as Sen's (1985, 1999) work on the 'capabilities' approach, which in turn shaped the community capabilities perspective on environmental justice (Schlosberg and Caruthers 2010). Their origins help determine where these various bottom-up approaches might be placed on Hopwood et al.'s (2005) continuum of sustainable development perspectives on the changes required in society's political and economic structures to achieve sustainable development. For example, those viewing bottom-up strategies as crucial to legitimating the sustainable development apparatus fit into Hopwood et al.'s 'status quo' category of actors who believe sustainable development can be achieved within present structures. Others see bottom-up approaches as essential in reforming the sustainable development apparatus while being adequate (Hopwood et al.'s 'reform' category), and the final group fits into Hopwood et al.'s 'transformation' category in its belief that bottom-up approaches are a vehicle for driving transformation of the economic and power structures of society that are at the root of the problem.

An example of the latter category can be found in Ecuador's '*buen vivir*' philosophy, which has been codified in the nation's constitution. *Buen vivir* is an ancient indigenous philosophy striving for harmony and equilibrium among humans and between humans and nature. According to Kauffman and Martin,

> [B]uen vivir breaks with the internationally dominant notion of development as accumulation through economic growth…. Rooted in indigenous

worldviews, buen vivir rejects conventional notions of development based on Western ideals of individualism, a dualism between humankind and nature, and a linear notion of progress rooted in material growth. Proponents see it as an alternative to conventional development that overcomes a false dilemma posed by Western ideals. (2014: 41)

The sustainable development apparatus cannot embrace *buen vivir* as a sustainable development strategy because it cannot be adapted to the dominant development discourse:

> Buen vivir is difficult to define because it is not meant to be a preformulated route to sustainable development. Fundamental to the concept is the recognition of rights of a diversity of peoples, deliberation, and respect for many ideas. It involves a dialogue within and among communities to determine the best pathways of sustainable development. Therefore, buen vivir will manifest itself differently in various social and environmental contexts. (Kauffman and Martin 2014: 43)

Even getting the sustainable development apparatus to engage meaningfully at the community level in more conventional ways is challenging. For example, with respect to farmers interacting with environmental regulators, Bartel concluded that "there is an epistemic distance between the bureaucratic knowledge held by government and the vernacular knowledge (place-based knowledge) of heterogeneous environments held by farmers" (2014: 891). Nygren (1999) points to similar challenges in the integration of local knowledge in the sustainable development discourse.

The diversity, range, and uncoordinated nature of bottom-up sustainable development efforts produces an impasse. The top-down orientation of the sustainable development apparatus cannot control the spontaneous and organic efforts happening at the grassroots level, it cannot always understand the forms of knowledge produced and communicated from the grassroots, and it subsequently cannot organize that knowledge into its global management strategy, which hinges on the scaling up of local efforts. For example, agencies or individuals responsible for implementing community-based development projects may discover that carrying out participatory planning processes creates more work for them while making less clear how their work is resulting in the expected outcomes. As a result, rather than transforming the system, community-based approaches may entrench bureaucracies in old ways of doing things.

Where institutions of the sustainable development apparatus have attempted to support bottom-up strategies, they often abandon the work or conclude that it is effective within the metrics established by the apparatus.

Mansuri and Rao (2004) report that the World Bank has spent approximately US$7 billion on community-based and community-driven development projects, despite limited evidence that they are at all effective. Not a single study, report Mansuri and Rao, establishes a causal relationship between any outcome and participatory elements of a community-based development project. Although they uncover "some evidence that participatory projects create effective community infrastructure and improve welfare outcomes," they quickly add that "the evidence does not establish that it is the participatory elements that are responsible for improving project outcomes" (2004: 30). Furthermore, to explain the ineffectiveness of community-based development projects, they engage in blaming the victim. Local governments, they claim, are less accountable and more prone to capture by locally powerful elites, a problem that can be solved by creating close links between higher levels of government and communities.

Bottom-up approaches have their limitations, as do top-down approaches. But whereas top-down approaches generally de-politicize sustainable development by turning it into a managerial task carried out by institutional decision-makers being fed data by producers of scientific knowledge, bottom-up approaches, unless they become co-opted, seem to have greater potential for changing the discourse. Certain types of bottom-up approaches, particularly those working beneath the level of the sustainable development apparatus, have the potential to develop new forms of governance inconceivable to the apparatus. They may also develop promising social and technological innovations precisely because they are more spontaneous, less planned, and at their small scale far less risk-averse than the large institutions of the apparatus. On the other hand, the results of bottom-up approaches are difficult to quantify. They can seem idiosyncratic and anecdotal. Unable to make systematic sense of the wide range of bottom-up approaches, the sustainable development apparatus struggles to understand how to scale up the innovations that work at the community level.

Climate Change Adaptation: A Bottom-up Challenge to Top-down Sustainable Development

The imperative of bridging top-down and bottom-up approaches to sustainable development is clear. The path, however, is less clear and increasingly obscured by the uncertainties introduced by the Anthropocene. When sustainable development discourse could engage with climate change

as a future concern, development projects could easily enough integrate notions of mitigation (i.e., reducing greenhouse gas emissions) into their goals. It was possible to embrace optimistic visions of development projects simultaneously creating economic opportunity and reducing emissions. As climate impacts moved from future possibility to present reality, the realization that adaptation to these impacts could hinder or even reverse development efforts began to sink in. Ireland and McKinnon point to an important implication of this shift: "[I]n the face of the uncertainties of climate change, and as yet unknown challenges of a future in the Anthropocene, the development sector must learn … to act in and for acute uncertainty" (2013: 165). Benson and Craig put it even more starkly: "From a policy perspective, we must face the impossibility of even defining—let alone pursuing—a goal of 'sustainability' in a world characterized by extreme complexity, radical uncertainty, and unprecedented change" (2014: 778).

Others advocate, instead of abandoning sustainable development altogether, developing a new definition for the Anthropocene: Griggs et al. define sustainable development in the Anthropocene as "development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends" (2013: 306). The unpredictability of the Anthropocene combined with the added urgency of taking action to minimize further uncertainty and disruption in the future lays bare the inadequacy of the sustainable development apparatus, particularly its governance approaches. This is best illustrated in terms of how climate change adaptation is being integrated into the sustainable development agenda.

Adaptation poses a host of questions that the sustainable development apparatus has had to address. So far, responses to its answers run to extremes, as explained by Ireland and McKinnon:

> At its best adaptation is focused upon enhancing the adaptive capacity of communities who are facing increasing uncertainties as the climate changes and their environment is transformed. At its worst, adaptation is merely the new catch phrase that is being applied to all kinds of development aid programs, whether they genuinely address climate change or not. Either way, adaptation is being rolled out across the globe. (2013: 158)

Most approaches to understanding adaptation employ a variation of the IPCC's definition of adaptation as "adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm and exploits beneficial opportunities" (2001). Under this definition, adaptation can be anticipatory or reactive, it can happen spontaneously or in planned

ways, and it can be undertaken by private or public actors. In another definition, Nelson, Adger, and Brown define adaptation as "the decision-making process and the set of actions undertaken to maintain the capacity to deal with current or future predicted change" (2007: 396–397).

Interestingly, approaches to understanding and conceptualizing adaptation parallel evolution of the concept of sustainable development. Schulz and Siriwardane, for example, identify three analytically useful categories of adaptation: "(1) 'adjustment' adaptation (also referred to as 'incremental', 'coping', 'resilience' or 'restoration'); (2) 'reformist' adaptation (also called 'systemic', 'transition', 'transitional' and 'more substantial' adaptation); and (3) 'transformative' or 'transformational' adaptation" (2015: 7). The three dimensions of governance—normative change, knowledge production, and social intervention—can then be analyzed for each category of adaptation (see Table 1.1).

As Schulz and Siriwardane (2015: 10) explain, adaptation as adjustment focuses on returning socio-ecological systems to some sort of state of equilibrium, a goal that is achieved through expert-led knowledge production and is then applied in top-down implementation of managerial, technological, and governance solutions. Adaptation as adjustment is equivalent to Hopwood et al.'s 'status quo' category of sustainable development. Reformist adaptation, with obvious connections to Hopwood et al.'s 'reform' category, acknowledges the need for socio-technical system change but aims for incremental rather than transformative change. Coproduction of knowledge and participatory management strategies produce minor modifications of technologies, rules, and decision-making processes. Iterations of small changes, undertaken within the still-dominant managerial, economic, and scientific paradigms, are followed by assessments of outcomes that are then applied in subsequent iterations to result in incremental adaptation. Transformative adaptation, again with obvious linkage to Hopwood et al.'s 'transformation' category, normatively embraces systemic change. Experimentation,

Table 1.1:

Types of adaptation and dimensions of governance

	Adaptation Category		
Governance Dimension	*Adjustment*	*Reformist*	*Transformative*
Normative Change	Equilibrium	Incremental	Systemic
Knowledge Production	Expert-led	Coproduction	Experimentation
Social Intervention	Top-down	Participatory	Intrinsic

Source: Schulz and Siriwardane (2015: 10).

independent of expert status, becomes the knowledge-production paradigm, and social interventions are mostly driven by 'intrinsic' motivations.

Our purposes in discussing the similarities between sustainable development and adaptation frameworks is to point out the risk of adaptation becoming a meaningless aspect of sustainable development discourse, much the way Victor (2006) claims sustainable development itself has lost meaning. Cannon and Müller-Mahn enumerate these risks quite thoroughly, eventually concluding that adaptation and 'adaptive governance' are "embedded in an institutional setting that needs to be critically assessed, especially as they tend to be 'depoliticised' and reliant on systems approaches that play down the significance of self-interested actors who have disproportionate access to and control over ecosystems" (2010: 626). On the one hand, it is impossible to separate adaptation from development (Agrawala 2005; Agrawala and van Aalst 2008). Attempting to do so raises countless questions: "Is adaptation a type of development or something much more? Does development facilitate adaptation? What is meant by development in the context of climate change? Is adaptation the form that development must take under conditions of climate change?" (Cannon and Müller-Mahn 2010). To the extent that answers to these questions are rooted in the same frameworks that dominate sustainable development discourse—that is, an adjustment approach to adaptation that responds to change by seeking to maintain equilibrium, produces knowledge primarily through expert-led science, and is a style of social intervention or governance that is top-down and managerial—we are no closer, and perhaps are further, from dealing with the real challenge of sustainable development in the Anthropocene.

Meanwhile, a diverse range of innovative approaches to adaptation—some more effective than others—unfolds around the world. What would it look like for the institutions engaged in top-down sustainable development (and adaptation) to focus on absorbing lessons from, rather than steering, these processes? What would it look like if, rather than actively incubating or intervening in bottom-up efforts, these institutions allowed space for bottom-up innovations to emerge, identified patterns in the forms of governance linked to successful bottom-up adaptations, and then through collaborative processes evolved new forms of governance to bridge top-down and bottom-up approaches to sustainable development? With few exceptions (Rayner 2010; Urwin and Jordan 2008), attempts to explore these questions have not been made. This volume is a gathering of case study research on adaptation and governance to the potential, as well as the challenges, of building such bridges. Case studies are often criticized as crude tools for evaluating, much less developing, sustainable development strategies. But they hold

particularly useful potential for producing the kind of knowledge needed to begin building the top-down/bottom-up bridge so desperately needed.

Case Study Research: Crude Tool or Underutilized Methodology?

Case study methodology is ideal for studying bottom-up approaches. The case study approach examines intensely a single example of the phenomenon of interest within its socio-spatial context. As Ford et al. note, case studies are "commonly used in the social sciences to answer scientific queries related to questions of 'how' and 'why' and have thus been used to address research requiring context-dependent analysis" (2010: 377). The chapters in this volume employ case study methods to explore the 'how' and 'why' of bottom-up approaches to governance and adaptation for sustainable development. In doing so, they reflect some of the benefits of case study methods: deep and rich narrative accounts absent from much quantitative research; careful unpacking of nuances and complexities of a problem; and the organic emergence from field observations of useful analytical concepts as opposed to the typically more deductive approach of quantitative research in which pre-existing theoretical frameworks pre-determine analytical concepts. There is, however, a downside. The extent to which this knowledge is context-specific—a particular challenge for case study research in India where regional and local differences can be pronounced—means that generalizing to other contexts is problematic. For example, as Ford et al. explain, "It has been argued that observations from individual examples cannot be used to infer valid general processes, and that case studies thus have limited value in rigorous scientific analysis" (2010: 377).

Ideally, case study research would be carried out as part of a larger project designed to utilize both of the functions of case study research summarized by Cerceau et al.: "a deductive function that tests theories using case studies to assess a priori models, and an inductive function that generates theories using recurring patterns of case studies to generalize postulates" (2014: 3; Eisenhardt 1989). Over time, the iterative nature of such an intentionally designed case study strategy allows for the emergence of explanatory frameworks and their subsequent testing against additional cases. A case-study-based research agenda could, for example, be aimed at producing a more systematic understanding of the possibilities and limitations of bottom-up governance and adaptation approaches to achieve SDGs. The challenge,

however, is that most case study research is conducted not as part of a larger, collective research agenda but rather independently by lone researchers examining a particular aspect of phenomena such as governance and adaptation. Furthermore, these dissimilar case studies might be carried out using discipline-specific methodological traditions, terminology, and interpretive strategies.

One alternative is to carry out meta-analyses of otherwise disconnected collections of case studies. Hoffman, Hinkel, and Wrobel (2011) explain that meta-analysis emerged in the social sciences as a more systematic 'literature review' where criteria for selecting studies and other methodological steps are made transparent. According to Hoffman et al., a meta-analysis consists of three steps: first, selection of relevant studies (with definition of criteria for inclusion and exclusion); second, classification of the information provided by the selected studies in order to translate it into a common language; and third, analysis of classified text. Hoffman et al. (2011) cite a wide range of case study meta-analyses in the context of understanding drivers of environmental change using procedures summarized by Rudel (2008). But they also point to a need for a type of meta-analysis at an intermediate level of abstraction, "between the vague and general concepts such as vulnerability, adaptive capacity etc. on one hand and the specific data, measurements and methodologies applied on the other hand" (Hoffman et al. 2011: 1108).

Our aim in this volume is to hint at the possible benefits of organizing case study research in this way. Although the cases explored vary greatly—from governing freshwater wetlands in Bangladesh to an ecotourism planning process in Goa—by organizing them conceptually around adaptation and governance, we intend to draw out patterns and processes that future case study research can test in the iterative process that gives case study research its power. Ultimately, as we argue in the conclusion, there is much to be gained from more effectively harnessing case study research as a mechanism for aggregating knowledge that is emerging through grassroots and other community-level approaches to adaptation and governance. Organizing this knowledge is the first challenge; linking it to top-down decision-making structures may be an even greater challenge, one explored in the book's third section. Additionally, in the concluding chapter, we offer readers a framework for scaling up the analytically useful yet rather modest power of collecting case studies in an edited volume like this one, into a global database of bottom-up sustainable development efforts. Such a database would produce a type of 'qualitative big data' capable of generating conceptual categories, analytical frameworks, and questions for future research that we were previously incapable of imagining.

To offer a hint at the potential power of a global database of qualitative case study research on sustainable development efforts, we have chosen to focus in this volume on case studies from India and Bangladesh. While many places around the world already feel the pressure to adapt to weather extremes, unpredictable weather, and other global environmental changes, India and Bangladesh are particularly useful locations for examining bottom-up adaptation strategies and the challenges of bridging bottom-up and top-down forms of governance. Both have received extensive attention from the sustainable development community over the last several decades before adaptation became part of the discourse. Today, given their large populations with high levels of vulnerability, India and Bangladesh are ideal places to examine how adaptation is happening beneath the radar of the sustainable development apparatus, as well as the challenges of integrating these efforts into new forms of governance that blur the top-down and bottom-up distinction. In India, Prime Minister Narendra Modi has expressed a vision for "sustainable economic growth without compromising on environmental safety" (Consulate General of India 2015). But broad political brushstrokes from the central government cannot deliver on such promises. Case study research from India and Bangladesh, for example, reminds us that community-level factors like social capital play important roles in the success of sustainable development efforts (Bhuiyan 2011). Wright et al. (2014) draw similar conclusions using case studies from Bangladesh, India, Mozambique, and Uganda. Williams et al. (2016) use case study research from Cambodia, Lao PDR, Bangladesh, and India to demonstrate how livelihood activities and the nonclimate stressors are generally overlooked in the development of adaptation options. The organization of this, which we discuss next, has the modest aim of illustrating how aggregating case studies across a diverse range of researchers can reveal useful insights into sustainable development challenges.

Outline of the Book

The book is organized around four sections. The first two sections point to the limits of top-down approaches to sustainable development (Section 1) and highlight challenges and opportunities revealed in bottom-up experiments in governance for sustainable development (Section 2). Section 3 focuses on climate change adaptation to illustrate the complications to sustainable development introduced by climate change and the potential of

bottom-up and hybrid bottom-up/top-down approaches to navigate this complex terrain. Section 4 explored the possibility to synergize top-down and bottom-up approaches.

Section 1, 'Governance I: Questioning the Top-down Approach of Sustainable Development', begins with Jyotiprasad Chatterjee's chapter 'Forest, Adivasis, and the Forest Rights Act (2006): Interrogating Top-down Environmental Governance'. Chatterjee's analysis illustrates the intractability of top-down approaches rooted in the market-oriented managerial framework that has largely dominated sustainable development and conservation discourses. As this chapter shows us, even when nation states advance policies intended to ensure access to resources for people who depend, for example, on forest resources for their livelihood, the uneven implementation and enforcement of these policies constrains people's abilities to meet basic needs and engage in localized economic activity. Chapter 3, 'Science and Politics of Wildlife Enumeration: Questioning the 'Tiger Count' in India', by Jayanthi A. Pushkaran, makes a similar critique but with the target more focused on science and its inability to produce objective knowledge for informed decision-making. The chapter illustrates how what we assume to be science-based policies that are logical and rational can actually be quite political. It is in precisely such instances, according to many of the other chapters, that local-level governance is needed. Chapter 4, 'Urban Land Governance Reforms and Sustainable Development: A Study of Urban Property Ownership Records (UPOR) in Karnataka', suggests that new forms of governance may not necessarily require new institutions. Smitha Kanekanti Chandrashekar and Manasi Seshaiah demonstrate how old institutions can develop new administrative procedures for better coordination of local land use. Whether old or new institutions, Nidhi Yadav and Naresh Chandra Sahu's research, 'Challenges of Sustainable Biodiversity Management: National Chambal Sanctuary in Uttar Pradesh', in Chapter 5, reveals the limits of science-based decision-making when community involvement in decision-making is absent. Their analysis of attempts to sustainably manage the National Chambal Sanctuary in Uttar Pradesh, in fact, reveals negative outcomes for local communities and missed opportunities for economic uplift. In the final chapter of Section 1, titled 'Freshwater Wetlands in Bangladesh: The Need for Alternative Governance', Mohammad Chowdhury introduces the concept of 'comanagement' as a strategy to integrate the state apparatus with local institutions so that community and local governments can more effectively manage natural resources. Chowdhury's discussion of the challenges of sustainable management of freshwater wetlands in Bangladesh highlights the need for innovating new multi-level governance structures.

Section 2, 'Governance II: Experiments with 'Bottom-up' Approaches', covers a range of bottom-up efforts to drive sustainable development. Satabdi Datta's research in Chapter 7, 'Dynamics and Pay-offs in Community-based Water Resource Management: A Case Study from Indian Sundarbans', examines the relationship of pre-existing institutional bodies designed to handle water management with community-led water resource management innovations. In 'Local Solutions to Local Disasters: Governance in Flood Management in Assam' (Chapter 8), Arpita Das and Partha Jyoti Das illustrate how previously existing autonomous councils have taken over decision-making around flood management in Assam. In Chapter 9, 'The Role of Rural Local Bodies in Sustainable Development', James Rajanayagam shows how state agencies are often incapable of providing adequate infrastructure to local communities. Yet, at the same time, rural local bodies lack the resources to take on significant infrastructure projects. The chapter demonstrates a way through the impasse by focusing on strategies for rural local bodies to become entrepreneurs in infrastructure development. Occasionally, top-down efforts, such as electrification of rural villages, begin at the community level. Kartikeya Singh's analysis of outcomes of two electrification efforts in Chapter 10 suggests that without community participation, the benefits of top-down sustainable development projects, even when targeted at the household level, can be mixed. Section 2 concludes with Rohini Fadte's focus on community participation in developing a community-based ecotourism model in Goa (Chapter 11) and confirms what prior research has found: When done well, participatory processes can produce significant outcomes with respect to community empowerment.

Section 3, 'Climate Change Adaptation: A Bottom-up Challenge to 'Top-down' Sustainable Development', offers a selection of case studies illustrating the real-world obstacles of bridging top-down and bottom-up approaches. The section begins with a chapter by Farhat Naz, Marie-Charlotte Buisson, and Archisman Mitra (Chapter 12) that draws on interviews with farmers in West Bengal, India, to identify significant differences in the strategies of smallholder farmers compared to their counterparts farming larger tracts of land. The chapter suggests that not all bottom-up adaptation is equal and that new sustainable development strategies, in fact new forms of governance, may be required to facilitate healthy adaptation strategies that contribute to, rather than detract from, the objective of sustainable development. Toward this end, Chapter 13, 'Adaptive Capacity of Marginalized Urban Women to Climate Change: National Capital Territory of Delhi', by Sakshi Saini and Savita Aggarwal, introduces both a challenge and an opportunity. The challenge is that many people are not consciously aware of the changing climate and so fail

to perceive a need to adapt. But communication strategies are being tested and implemented that not only raise awareness but also prompt behavior change. In Chapter 14, 'Community-based Climate Change Adaptation in Coastal India: A 'Bottom-up' Approach Using 3P Model', Rachna Arora, Ashish Chaturvedi, Manjeet Saluja, Nikita Mundra, and Arushi Sen detail a community-based approach to climate change adaptation that aims to understand the perceptions of local communities and how these perceptions can be translated into the planning process through the mediation of pilot initiatives (3P: Perceptions, Planning, Pilots). In the final chapter of Section 3, 'Local Knowledge, Social Capital, and Governance of Climate Change Adaptation in Bangladesh', Md. Masud-All-Kamal explores how local knowledge is converted into social capital to steer climate change adaptation in Bangladesh. Collectively, these chapters point to a sample of the types of adaptation strategies being employed and highlight both the opportunities these strategies present for evolving new forms of governance and the challenges of linking local-level adaptation and decision-making with regional or even higher-level institutions.

In the concluding chapter, 'Neither 'Top-Down' nor 'Bottom-up': A 'Middle-out' Alternative to Sustainable Development', we argue that academics and policy-makers have done an insufficient job of utilizing the extensive knowledge being produced in case studies of sustainable development and climate change adaptation. This is partially due to the nature of case studies that are seen as having limited usefulness because idiosyncratic differences across cases make generalizations problematic. The conclusion draws on the preceding 15 chapters to demonstrate how the power of case studies comes from the accumulated knowledge that is only available when a large number of case studies are aggregated and then analyzed. We call for scaling up the aggregation of case study research to a regional and then global level so that knowledge accumulation and dissemination can happen more rapidly and efficiently than it currently does. The scaling of sustainable development case study findings can generate valuable insights that can subsequently be adapted and implemented through the new forms of local governance described by the authors of the volume.

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