CAPACITIES FOR
Sustainable
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Building Capacity to Govern Cooperatively in Pursuit of Sustainable Development: Lessons from scholarship and practice

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Abstract: Solving many if not most sustainability challenges will require coordination and cooperation amongst a wide variety of actors with diverse interests, resources, and abilities. At the same time, in the rapidly changing Anthropocene system, governance arrangements must become better equipped to respond not just to individual challenges such as increasing heat intensity or infectious diseases, but to multiple and interacting stresses, all happening at once. Meeting the goals of sustainable development will therefore require the capacity of diverse actors (often with competing interests and unequal power) to work together in the face of deep uncertainty. This working paper provides a high-level overview of scholarship governance in sustainability science as well as insights from the past several decades of practice in the field. The paper is designed as a jumping off point for a seminar series on Building Capacity for Sustainable Development (C4SD) organized by the Mossavar-Rahmani Center for Business and Government, the Sustainability Science Program, Salata Institute for Climate and Sustainability, Center for International Development, and the Belfer Center for Science and International Affairs at Harvard Kennedy School. For more information about the seminar series see this link: https://www.hks.harvard.edu/centers/mrcbg/programs/sustainability-science-program/c4sd-seminar-series

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1. Introduction:[1]

What capacities are most needed for the effective pursuit of sustainability in the face of the multiple crises currently facing the Anthropocene system? Taken together these intertwined crises – climate, pandemics, extinction, inequity, and others arising from the increasingly intense interactions between nature and society – are threatening the implicit promise of sustainability which has emerged over the last decades as one of the most widely shared goals in human history: **that each generation should hand on to its successors whatever it takes to allow them to achieve a standard of living at least as good as its own, while simultaneously seeking to alleviate poverty and inequity within its own time** (Solow 1993; WCED 1987). Keeping this promise will ultimately require decisive action on multiple fronts. But in this complex world, what will it take to foster our collective ability to pursue sustainability in the face of deep uncertainty and the inevitability of unexpected change?

In the Capacity Building for Sustainable Development (C4SD) research project,[2] we argue that advocates for sustainable development should pay greater attention to building a set of strategic capacities that empower and enable actors (individuals, communities, organizations etc.) to make strategic decisions, and to take deliberate and collective action in the pursuit of sustainability. By capacity we mean both the intention and the ability to accomplish a task or achieve an outcome or, more bluntly, "the ability to get stuff done". Why? Because failure to build, exercise, and improve capacity for the pursuit of sustainability has too often resulted in a "missing middle"—an inability to connect widespread agreement on the goals of sustainable development with the scientific understanding of the dynamics of intertwined nature-society systems that set the stage on which those goals must be pursued.

Three features of today's world make the need to build such strategic capacities particularly urgent:

1) Crises challenging the goals of sustainable development are multiplying and intensifying (Folke et al. 2021), threatening the remarkable progress in many dimensions of well-being that has been achieved over the last two centuries or more (Deaton 2013; McNeill

[1] This "Introduction" is, in large part, common to all the white papers we have written in support of the present seminar series. Readers who have already encountered it in another of those white papers can skim or skip ahead to Section 2 without loss.

[2] The Capacity Building project is an activity of the Sustainability Science Program, hosted by the Mossavar-Rahmani Center at Harvard's Kennedy School of Government.

2016). More effective action to address the multiple threats to sustainability is increasingly urgent.

2) The threats to sustainability are interconnected, as is the underlying nature-society system from which they emerge (Preiser et al. 2018). Efforts to address them one-by-one at best become a Sisyphean nightmare of whack-a-mole and often end up competing with or undermining one another. All too visible examples are provided by unsatisfactory results of siloed efforts taken in pursuit of one or another of the UN's 17 SDGs. Strategic approaches are needed to support actions likely to be effective across multiple interconnected challenges and where efforts to foster sustainable development require attention to the whole intertwined system rather than just the parts.
3) Better assessments, forecasts, and the scientific models to support them are necessary components of such strategic approaches. But they are not sufficient. The reason is that nature-society interactions constitute complex adaptive systems in which novelty (innovation, evolution), uncertainty and surprise are the norm rather than the exception (Preiser et al. 2018). This complexity virtually guarantees that even the most scientifically informed plans will eventually turn out to be at best incomplete if not altogether wrong. Effective strategies must complement "thinking through" with "acting out" approaches, i.e. with capacities to approach problems and solutions from a systems perspective, to treat interventions as experiments, to learn from those experiments, and to course correct when forecasts eventually, and inevitably, go wrong.

This working paper focuses specifically on the capacity to govern cooperatively (i.e., to build and maintain collaborative relationships) in pursuit of sustainable development as one of a broader set of six capacities that we argue connect the goals of sustainable development with the scientific understanding of the multiple, interacting, and complex sustainability challenges currently facing the Anthropocene. These six capacities emerged from decades of research across multiple interdisciplinary—but often disparate—research programs focused on what is needed to foster sustainability (Clark and Harley 2020). Taken together the six capacities enable collaborative action for sustainability in the face of uncertainty. As summarized in Fig. 1, they are:

1. **Capacity to measure** progress toward sustainable development
2. **Capacity to adapt** development pathways to protect human well-being in the face of shocks
3. **Capacity to transform** unsustainable development pathways into sustainable ones
4. **Capacity to promote equity** both within and among generations
5. **Capacity to govern cooperatively,** i.e., to build and maintain collaborative relationships in pursuit of sustainable development
6. **Capacity to link knowledge with action** for sustainability

The remainder of this working paper is organized in three sections: the first section reviews the state of knowledge and scholarship on governance for sustainable development; the second section reviews the history of practice around governance and sustainability; and the third section synthesizes emerging insights from practitioners and scholars collected as part of the Capacity Building for Sustainable Development (C4SD) research project about what is needed to build and maintain and strategic capacity to govern cooperatively in pursuit of sustainable development. We hope that the seminar series for which this background paper has been prepared will further contribute to the C4SD research project, deepening the insights found in this working paper.

2. Governance for Sustainable Development: A brief overview of the scholarship

Early research on governance for sustainability dates to the post-World War II era, when scholars and policymakers began grappling with transboundary environmental problems and resource management challenges. The 1968 publication of Garrett Hardin's "The Tragedy of the Commons" catalyzed much of this early work, framing environmental degradation as a collective action problem requiring either state control or privatization. Throughout the 1970s and 1980s, governance research remained largely siloed, with economists focusing on property rights and incentives, political scientists examining regulatory approaches, and anthropologists documenting indigenous resource management systems. These disparate streams of research laid important foundations for the more integrated approaches to governance for sustainability that would emerge in the 1990s (Ostrom et al. 2002).

Research on governance for sustainability gained momentum in the 1990s with the work of Elinor Ostrom which demonstrated that, in contrast to the conventional wisdom of the day, local communities could work together to successfully manage common resources such as fisheries, grazing lands, and forests. Ostrom and colleagues built on this hopeful assessment of humanity's capacity to govern for sustainability to identify the principles and institutional arrangements that were most likely to promote successful community stewardship of natural resources, including i) clearly defined boundaries; ii) rules fit to local context; iii) community participation; iv) ongoing monitoring; v) sanctions for rule breakers; vi) mechanisms for conflict resolution; vii) the right to organize; and viii) support from regional networks (Ostrom 2005).

At the same time, a growing recognition of the complexity and transboundary nature of sustainability challenges in the Anthropocene led to a focus on conflict and cooperation across scales and jurisdictions and recognition that traditional top-down governance arrangements were ill-suited for solving the complexity of sustainability challenges. Polycentric governance arrangements—made up of multiple governing authorities across different scales and engaged in a system of self-organization and mutual adjustment—were proposed as a more accurate description of the state of real-world environmental governance (Ostrom 2010). Empirical research demonstrated the value of polycentric governance arrangements for fostering cooperative solutions to sustainability challenges (Lebel et al. 2006).

But calls for polycentric governance also began to be used as a panacea that outstripped the empirical evidence of their effectiveness (Steffen et al. 2018). Today, cutting-edge research in governance for sustainability is focused on understanding the circumstances under which polycentric governance arrangements support cooperative governance for sustainable development and the circumstances under which polycentricity can lead to continued conflict. Recent research by Morrison and colleagues has shed light on how power dynamics significantly shape cooperation in polycentric governance systems. Their work identifies three crucial types of power—power by design (formal authority), pragmatic power (implementation capacity), and framing power (ability to shape agendas)—that determine whether polycentric arrangements foster cooperation or exacerbate conflict (Morrison et al. 2019). Successful cooperation in polycentric systems requires both horizontal coordination across diverse landscapes and vertical coordination across governance levels, with particular attention to the network structures that connect decision-making venues (Berardo and Lubell 2016). "Conflict contagion" can undermine

cooperation when tensions in one policy forum spread to others through shared membership patterns (McLaughlin, Mewhirter, and Lubell 2022). Fostering cooperation in polycentric governance requires careful attention to institutional design, network structures, power balancing, and strategic coordination across multiple decision-making venues (Lubell, Mewhirter, and Berardo 2020).

Public-private partnerships have emerged as another important dimension of polycentric governance for sustainability, transforming traditional governance structures and creating alternative platforms for collaboration. These partnerships can overcome gridlock in traditional intergovernmental settings by engaging non-state actors in collective action (Andonova, Faul, and Piselli 2022) . Such partnerships do not simply fill governance gaps but represent fundamental institutional innovations that can advance objectives across various aspects of sustainable development, including biodiversity conservation, climate action, and social development. The effectiveness of these partnerships depends on "governance entrepreneurs" who build coalitions between public and private actors and on proper institutional design that addresses accountability challenges. This research highlights the importance of broadening our understanding of cooperative governance beyond state-based institutions to include the diverse array of partnerships that increasingly characterize global sustainability efforts.

3. Building Capacity to Govern Cooperatively: A brief review of practice

Efforts to build governance capacity for sustainable development have evolved significantly over the past half-century, with varying levels of success across different scales and contexts. At the international level, the 1972 United Nations Conference on the Human Environment in Stockholm marked the first major global attempt to structure governance around environmental concerns, establishing the United Nations Environment Programme (UNEP) as a coordinating body for environmental action. This was followed by a succession of international environmental agreements including the 1987 Montreal Protocol addressing ozone depletion and the 1992 Rio Earth Summit establishing the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD).

While environmental protection dominated early governance efforts, a parallel governance stream focusing primarily on human development and poverty reduction emerged in the late 20th century. This approach gained significant momentum with the adoption of the

Millennium Development Goals (MDGs) in 2000. The eight MDGs—targeting poverty, education, gender equality, child mortality, maternal health, disease, environmental sustainability, and global partnership—represented the first time-bound, quantified targets for addressing extreme poverty (Sachs 2012). Though environmental sustainability appeared as Goal 7, the MDGs primarily emphasized human well-being and social development with limited integration of ecological considerations.

The adoption of the 2030 Sustainable Development Goals (SDGs) in 2015 marked an important attempt to bring together environment and development into one set of global goals for sustainable development. And unlike the MDGs' focus on developing countries, the SDGs apply universally to all nations and explicitly recognize the interdependence of social, economic, and environmental dimensions of sustainable development (Kanie and Biermann 2017). The 2015 Paris Agreement on climate change, adopted in the same year as the SDGs, further reinforced this integrated approach by acknowledging the connections between climate action and sustainable development.

Despite these attempts at integration, implementation of global governance for sustainable development has been hampered by multiple challenges including fragmentation of authority across different agreements and agencies, insufficient financing mechanisms, and limited enforcement capacity (Biermann, Kanie, and Kim 2017). In response to these challenges, various innovations in global governance have emerged. The Global Environment Facility (GEF), established in 1992, created a novel funding mechanism to help developing countries meet the objectives of international environmental conventions. More recently, the Loss and Damage Fund established at COP27 in 2022 represents an important, if still underfunded, effort to address climate justice concerns by creating financial mechanisms to support vulnerable countries facing climate impacts.

At the national level, governments have pursued a wide variety of approaches to foster sustainable development. Some nations have established dedicated SDG coordination mechanisms that attempt to bridge traditional ministerial divides between environmental protection and poverty reduction (Tosun and Leininger 2017). Other governance innovations include the emergence of independent environmental agencies with regulatory authority, environmental courts with specialized expertise, and constitutional amendments enshrining environmental rights.

Costa Rica has pioneered governance approaches that align economic incentives with environmental goals while simultaneously addressing poverty, including its Payments for Environmental Services (PES) program which compensates landowners for maintaining ecosystem services while providing income to rural communities (Porras et al. 2013). New Zealand has taken innovative steps toward recognizing Indigenous perspectives in environmental governance, most notably by granting legal personhood to the Whanganui River in 2017, creating a governance framework that acknowledges the river's intrinsic value and cultural significance to Māori people (Talbot-Jones and Bennett 2022).

The private sector has also developed governance mechanisms to address sustainability challenges. Following the 2008 financial crisis, efforts to integrate environmental, social, and governance (ESG) criteria into investment decisions have grown rapidly, with global sustainable investment reaching $35.3 trillion in 2020, representing 36% of professionally managed assets (Global Sustainable Investment Alliance 2021). Multi-stakeholder initiatives such as the Forest Stewardship Council (FSC) and Marine Stewardship Council (MSC) have created governance systems that bring together industry, civil society, and other stakeholders to establish standards and certification systems for sustainable resource management (Auld, Renckens, and Cashore 2015). However, these voluntary governance approaches have been criticized for insufficient stringency, limited coverage, and the potential for corporate capture (Dauvergne and Lister 2013).

Cities and local governments have increasingly become important laboratories for sustainability governance innovation that integrate environmental and social concerns. The C40 Cities network connects 97 of the world's megacities representing over 700 million people and one quarter of the global economy in efforts to address climate change through urban policy innovation and knowledge sharing.

4. Emerging Lessons at the Interface of Practice and Scholarship

While the past several decades of research and practice have generated important insights into institutional processes that lead to coordination and cooperation in the governance of common pool resources, our understanding of what it takes to build and maintain the capacity to govern cooperatively in pursuit of sustainable development is still relatively limited (Agrawal et al. 2022). As part of the C4SD research project, we are conducting interviews with practitioners

and scholars at the forefront of ongoing efforts to promote both intra- and inter-generational equity to begin to distill and synthesize the lessons coming out of their work to date and point to directions forward for efforts to build and strengthen the capacity to govern cooperatively in pursuit of sustainable development. Here are six initial lessons that have emerged from this research that we believe are important for building this capacity:

1) **Define goals:** There is growing consensus that governance should not merely be about managing processes or resolving conflicts, but about actively creating shared public value (Kattel and Mazzucato 2018). For sustainable development this value is denominated in the broadest sense as increases in human well-being that are shared equitably within and between generations (Clark and Harley 2020; Dasgupta et al. 2015; Stiglitz, Fitoussi, and Durand 2019). Beneath this general goal, there is much room for specific variants reflecting particular social and environmental contexts. Strengthening our collective ability to define and pursue shared sustainability goals is thus integral to the very project of sustainable development. But the process of defining shared goals is also instrumentally valuable for building our capacity to govern cooperatively. A comprehensive review of 137 cases of collaborative governance found that principled engagement around goals is one of the critical drivers of successful collaboration (Emerson 2015). Similarly, the UN Sustainable Development Goals (SDGs) function as a form of "governance through goals" that can mobilize stakeholders and drive action even in the absence of traditional enforcement mechanisms (Kanie and Biermann 2017). Corporate sustainability initiatives have been shown to be more effective when they begin with clear, strategic goals that connect sustainability to core business objectives (Henderson 2020). Research has found that for goals to succeed in fostering cooperation and collaboration towards sustainability, they must be specific enough to guide action and invite accountability. They must be flexible enough to accommodate local contexts and changing conditions. And they must also reflect the diverse values and priorities of affected stakeholders if they are to gain legitimacy and support (Biermann, Kanie, and Kim 2017). The importance of defining clear sustainability goals extends to the private sector.

2) **Reject Panaceas:** A central finding of sustainability science research is that there are no panaceas or universal solutions to the complex and context dependent challenges to sustainable development (Ostrom, Janssen, and Anderies 2007; Young et al. 2018). Panacea approaches fail because nature society systems are characterized by i) tremendous diversity and complexity; ii) continuous evolution and change, and iii) heterogenous actors with different values, knowledge systems and power relationships that profoundly influence governance outcomes. Effective governance arrangements must be to 'fit to place' to solve the geographically specific, socially and historically contingent challenges of sustainable development (Epstein et al. 2015; Young 2002). [In other words, governance arrangements for sustainable development must take into account the specific complex-adaptive dynamics of nature-society system in which they operate.] Moving beyond panaceas requires building the capacity to design governance arrangements that align actors and institutions across multiple dimensions: environmental fit (matching biophysical characteristics), social fit (alignment with community values and practices), and temporal fit (appropriate responses across different timescales) (Galaz et al. 2008). Around the world, communities are experimenting with local approaches to getting this alignment right. In Nepal forest user groups have developed context-specific management approaches across diverse environmental settings. These management approaches blend both endogenous institutions (rooted in customs, traditions, and social hierarchies) and exogenous institutions (stemming from national and international policies), leading improved forest conditions across diverse regions (Charmakar, Kimengsi, and Giessen 2024).

3) **Build strategic coalitions:** Advocates for sustainable development are often (if not always) up against powerful interest groups intent on maintaining the status quo. Building strategic—often broad-based—coalitions that link diverse actors with common or linked interests can help increase negotiating power and lead to more durable governance outcomes (Bodin 2017; Young 2011). Research shows that the effectiveness of collaborative networks depends significantly on their structural characteristics - who participates, who collaborates with whom, and how these patterns align with the dynamics of the nature-society system at hand. Different sustainability challenges require

different coalition structures. For example, cohesive, dense networks foster trust for cooperation problems, while more centralized networks with hub actors facilitate coordination for less contentious issues (Bodin 2017). The Alliance of Small Island States (AOSIS) offers an important example of the effectiveness of broad-based collations for influencing international governance outcomes. AOSIS strengthened its influence in climate negotiations by forming a "high ambition coalition" during Paris Agreement negotiations, successfully advocating for the 1.5°C target despite the limited individual power of its members (Betzold 2010; Falkner 2016). By linking climate action to existential security threats, AOSIS effectively reframed what might otherwise be viewed as a distant environmental concern into an immediate moral imperative that attracted broader support. The C40 Cities Climate Leadership Group offers a second example of how coalitions can wield power despite limited formal authority. Comprising nearly 100 cities representing over 700 million citizens and one quarter of the global economy, C40 connects city governments worldwide to implement climate actions while simultaneously addressing urgent urban priorities like transportation and housing, demonstrating how coalition-building across similar actors facing common challenges can amplify influence (Gordon and Johnson 2018). Through this coalition, C40 cities have collectively implemented over 14,000 climate actions, secured over $1 billion in climate financing for member cities, and achieved measurable emissions reductions while creating policy models that have been adopted by non-member cities worldwide (C40 Cities 2021).

4) **Leverage multi-level governance:** Effective governance for sustainable development requires strategic use of institutional arrangements that leverage the unique contributions to coordination and cooperation that are possible across local, regional, national and transnational levels (Ostrom 1998). Decades of governance research demonstrates that while under specific conditions (see overview of scholarship in section 2) local communities can effectively manage some common-pool resources through reciprocity and self-governance, more complex sustainability challenges often require support from higher level assemblages of actors and institutions (Mansbridge 2014; Ostrom 2010). The term of art for this approach to governance is “polycentric” where local decision-making

authority is “nested” within larger institutional frameworks that provide crucial support functions. Support from governance bodies at higher levels can range from purveyors of relatively neutral information (providing local parties with data to support decision-making); to facilitators of negotiations; to outside monitoring and enforcement of local agreements; to threats to impose solutions from outside if local parties are unable to reach agreement (Mansbridge 2014). Nested governance structures are especially important when complex sustainability changes cross jurisdictional boundaries.

5) **Get participation right**: Participatory approaches to environmental governance have become a cornerstone of sustainable development efforts, with widespread evidence that involving diverse stakeholders leads to more effective, equitable, and legitimate governance outcomes (Newig et al. 2018). However, research increasingly shows that participation is not a universal solution but must be carefully designed and implemented to achieve its potential benefits. Participation comes with significant costs for stakeholders in terms of time, resources, and sometimes social and political risks (Grillos et al. 2019; Oliver, Kothari, and Mays 2019). These costs are disproportionately burdensome for disadvantaged groups, potentially reinforcing rather than addressing power imbalances. Effective participatory processes must therefore be strategically designed to engage the right stakeholders at the right times with the right methods. Building the capacity to govern cooperatively therefore requires a strategic approach to participation. Research suggests that participation should be targeted toward specific decision phases where stakeholder input provides greatest value, rather than uniformly applied throughout governance processes (Newig and Fritsch 2009). The format of participation also matters substantially - deliberative approaches that foster meaningful dialogue and mutual learning outperform shallow consultation that merely validates predetermined decisions (Dryzek et al. 2019). The Watershed Committees in Brazil's Paraíba do Sul river basin illustrate how providing meaningful authority to participants - including legal powers over water allocation and pollution control - enhances motivation and commitment that outweigh participation costs (Abers and Keck 2013). Similarly, the Great Bear Rainforest agreement in British Columbia emerged through a carefully structured participatory process that included indigenous communities, environmental

organizations, industry representatives, and government agencies in different capacities at different stages, strategically allocating participation to maximize impact while minimizing stakeholder burden (Cullen et al. 2010).

6) **Adress tradeoffs**: At the core of sustainable development is a fundamental tension: how to balance the immediate needs and well-being of current generations against the rights and interests of future generations (Caney 2018; Ribas, Lucena, and Schaeffer 2017). Governance for sustainability requires navigating inevitable tensions and tradeoffs between competing objectives. Research demonstrates inherent tensions between rapid and just low-carbon transitions, where participatory processes that enhance justice may slow implementation, while incumbent-led acceleration often entrenches inequities (Newell, Geels, and Sovacool 2022). These tradeoffs extend beyond speed versus justice to include tensions between adaptation (maintaining system functionality) and transformation (fundamentally changing systems), with each strategy producing different winners and losers across time and space (Clark and Harley 2020; Zanotti et al. 2020). Research suggests that effective governance doesn't eliminate tradeoffs but makes them explicit, creates deliberative forums about difficult choices, and establishes mechanisms for iterative adjustment (Burch et al. 2019). Moreover, power dynamics significantly influence how tradeoffs are managed, suggesting governance arrangements must deliberately address power asymmetries through institutional design (Morrison et al. 2019). The Netherlands' Delta Programme exemplifies governance that explicitly acknowledges such tradeoffs by balancing short-term protection with long-term transformation through institutional mechanisms that bring diverse stakeholders together to deliberate difficult choices (Termeer, Dewulf, and Biesbroek 2017). Through adaptive delta management, the program creates forums where safety, economic, and ecological values across different timeframes can be negotiated transparently.

Our intention is that the seminar series for which this working paper provides a foundation will provide further opportunity to refine (or refute) these lessons, add examples and new lessons we have not yet included.

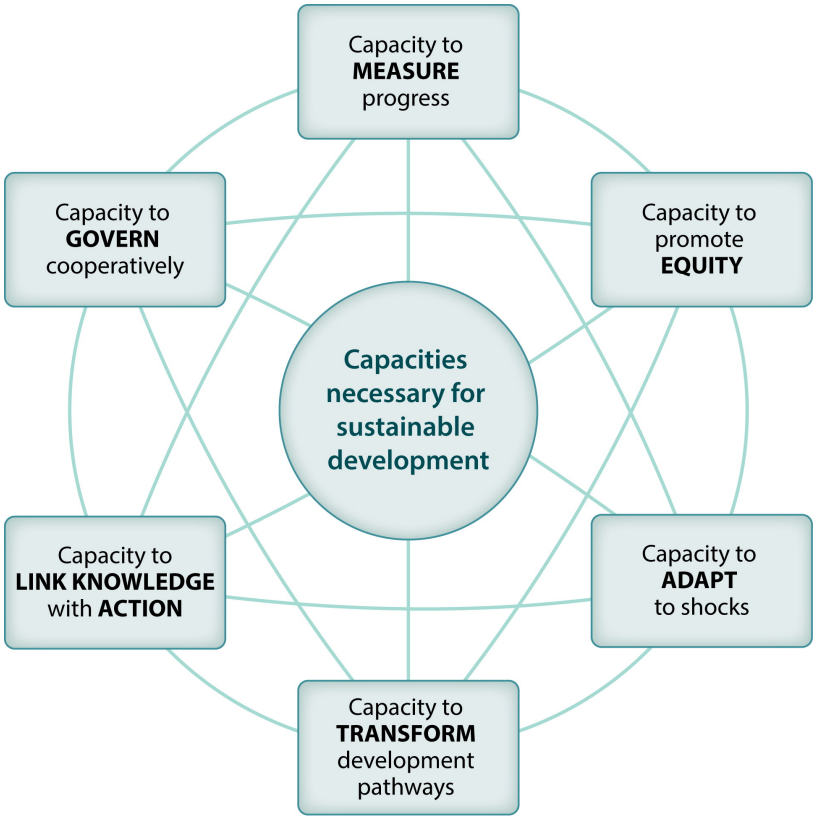

Figure 1: An integrated perspective on capacities for sustainable development. Six interdependent capacities are necessary for the successful pursuit of sustainability: (a) capacity to measure progress toward sustainable development, (b) capacity to promote equity within and between generations, (c) capacity to adapt to shocks and surprises, (d) capacity to transform the system onto more sustainable development pathways, (e) capacity to link knowledge with action for sustainability, and (f) capacity to devise governance arrangements that allow people to work together in exercising the other capacities. Source: (Clark and Harley 2020).

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