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Towards understanding capacity development as a system: perceptions from multiple conservation stakeholder groups in Bhutan

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Summary

Capacity development is crucial for enduring conservation success. Recent scholarship has called for a systems perspective based on input from local stakeholders to better understand and develop conservation capacity. However, few studies have adopted such an approach to explore interactions among capacities or how capacity development needs and priorities evolve. We address this gap through a case study from Bhutan, centred on perceptions from 52 local conservation practitioners, planners, funders and community members. We use mixed methods to identify which capacities have been important for conservation success, which capacities are needed for future success, which capacities are foundational and how capacities interact. We find that capacity needs have shifted from individual-level knowledge and skills to community- and societal-level capacities in response to changing political and economic dynamics. Participants identified political support and leadership, reliable and sufficient funding, strengthening the research base, and increasing community awareness and engagement as critical future needs. Investing in these capacities holds the promise of further augmenting capacity development, thus increasing the value of limited resources. Our results demonstrate that capacity development should be viewed as a dynamic process and supported by strategic investment even in countries with track records of conservation success.

Introduction

Evidence suggests that insufficient capacity is a limiting factor for conservation (Gullison & Hardner 2009, Gill et al. 2017, Fariss et al. 2023). However, conservation practitioners and funders face the challenge of identifying which forms of capacity development should be prioritized, at what level and how capacity needs evolve (Porzecanski et al. 2022, Sterling et al. 2022). As expectations for conservation success expanded to include improvements in livelihoods and well-being along with traditional environmental objectives (McKinnon et al. 2016), this challenge has become more difficult. Conservation projects that are more participatory and have a broader set of goals will require additional forms of capacity development (Pascual et al. 2021).

'Capacity development' is an often ill-defined term because it is multidimensional and multi-scalar and it is both an outcome and a dynamic process (Ika & Donnelly 2019). We follow the German Agency for International Cooperation (GIZ) by defining capacity development broadly as 'the process of strengthening the abilities of individuals, institutions, and societies to make effective use of resources to achieve their own goals on a sustainable basis' (Appleton 2015: 6). Table 1 describes these commonly recognized levels of capacity development.

Empirical research and systematic reviews have found that capacity development and the strength of existing capacities are important predictors of conservation project success in terrestrial (Brooks et al. 2012, Mountjoy et al. 2013, Fariss et al. 2023) and marine environments (Gill et al. 2017). However, these studies were unable to indicate what kinds of capacities were important or why (Gill et al. 2017, Farris et al. 2023), provide insights about capacities at different levels (Brooks et al. 2012) or describe changes in capacity needs over time.

Recent work has advocated for viewing capacity development as an ongoing process whereby capacities interact within and across levels and create feedbacks and ripple effects (Knight et al. 2019,

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Table 1. Description of the processes and elements of different levels of capacity development.

Level	Description
Individual	Learning through formal training, social interactions and personal experience that enables people to develop and use the competencies required to do their jobs well. These competencies can include skills, knowledge, behaviours, self-efficacy and motivation (for more detailed descriptions, see Appleton 2015, Porzecanski et al. 2022)
Institutional/organizational/community	Efforts to establish and sustain community groups, organizations, agencies and institutions of all types that contribute to conservation and to develop the capabilities of individuals within these organizations and collaboration within and between organizations (Appleton 2015). These structures can include physical institutions, management processes, organizational culture, data storage and sharing capacities, etc. (Porzecanski et al. 2022)
Societal	Creating an enabling environment that politically, economically and culturally recognizes the values of environmental conservation and enables conservation policies and interventions to thrive (Appleton 2015). This enabling environment can include governance, financing, rights and legal frameworks, public perceptions, attitudes and worldviews and political and social systems of power and influence (Porzecanski et al. 2022)

Porzecanski et al. 2022). Such a systems view suggests that conservation practitioners and planners would benefit from broadening their view of capacity development beyond the historical emphasis on individual-level skills and short-term change (Porzecanski et al. 2022). Despite recognition of capacity development dynamics, conservation programs often (1) focus on short-term, visible outputs rather than less tangible long-term processes, (2) neglect broader governance and socio-cultural contexts and (3) insufficiently integrate local insights (Porzecanski et al. 2022). This last limitation aligns with evidence-based calls for greater involvement of local residents and staff in conservation decision-making (Smith et al. 2009, Brooks et al. 2012, Ruiz-Mallén et al. 2013) and identifying capacity development needs, especially in low- and middle-income countries (Hagelsteen et al. 2021, Pascual et al. 2021, Eklund et al. 2022).

Despite these emerging perpectives, few studies have employed a systems approach to capacity development in their analysis. Here, we combine such an approach with insights from local practitioners, funders and community members in Bhutan to explore relationships among capacities at multiple levels and how broader social, economic and political contexts shape capacity needs and priorities.

Conservation in Bhutan

Bhutan forms an ideal case for examining capacity development. It is home to globally significant biodiversity (Banerjee & Bandopadhyay 2016), and its small size and relatively short conservation history (Dorji et al. 2019) reduce the complexity of analysing capacity development dynamics. Furthermore, significant cultural, economic and political changes provide an opportunity to examine how these dynamics shape capacity development needs.

Bhutan has a population of nearly 800 000, is part of the Eastern Himalayan biodiversity hotspot and is home to over 11 000 species, of which 133 are threatened with extinction (Gyelthshen et al. 2020). Bhutan's commitment to conservation is illustrated by its goal of balancing economic development with environmental and cultural conservation (Planning Commission Secretariat 1999). Over 70% of the country is forested, and a network of protected areas and biological corridors covers 50% of the landscape (UNEP-WCMW & IUCN 2023). Conservation in Bhutan has regularly involved collaboration between the government and non-governmental organizations (NGOs), integrated conservation with community development (Rinzin et al. 2009) and included community participation (Ministry of Agriculture 2002).

Bhutan's conservation efforts have, however, been challenged by cultural, economic and political change. Economic development brought disposable income, higher consumption and a desire for more rapid economic growth (Brooks 2013, Karst & Nepal 2019). These changes were accompanied by the transition from a hereditary monarchy to a constitutional monarchy and a two-party, democratic political system in 2008. As a middle-income country experiencing significant change while aiming to protect its forests and biodiversity, Bhutan is challenged with building conservation capacity at multiple levels.

Recent evaluations in Bhutan highlighted the importance of capacity development for protected area management (Lham et al. 2019, Yoezer & Choden 2022), community-based eco-tourism (Karst & Nepal 2019) and environmental regulation in sectors such as urban development and education policy (Larbi et al. 2006). However, as in the broader capacity development literature, these studies emphasize individual skills and knowledge rather than organizational, community and societal-level capacities (Appleton 2015, Porzecanski et al. 2022, Sterling et al. 2022). Furthermore, these studies do not examine relationships among capacities, which could help decision-makers assess trade-offs in their investments.

Building on calls for a systems lens and incorporating local perspectives, this case study combines qualitative and quantitative methods to explore how capacities and capacity needs interact and have evolved in Bhutan. Our objectives are to examine what capacities have been important for conservation success, what capacities will be important or are most in need of being addressed for future success, which capacities are foundational and how capacities within and across levels interact.

Methods

Sample and data collection

We sought insights from conservation professionals working in the departments and organizations that are directly involved in multiple aspects of conservation as well as residents who have been engaged in conservation programmes. To glean this range of views, we identified four groups: conservation planners, conservation funders, conservation practitioners and community members (Table 2). These groups allowed us to capture variation in perceptions of what constitutes conservation success. We describe these groups below, and see Table 2 and Appendix S1, Section S1 for additional information on these groups and their roles in conservation efforts in Bhutan.

First, conservation planners and practitioners were selected from divisions within the Department of Forests and Park Services

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Table 2. Description of study participant groups. All individuals who were requested to fill out the questionnaire or participate in an interview did so. Where possible, the ratio of female/male participants is listed below the totals. COVID-19 restrictions prohibited a larger sample of practitioners from attending workshops as well as the organization of workshops for community members (see Appendix S1, Section S2). Two separate workshops were held for conservation practitioners.

Stakeholder group	Questionnaire respondents (autumn/winter 2020)	Workshop Participants (summer/autumn 2021)
	Total (female/male)	Total (female/male)
Conservation planners: individuals that have held, or currently hold, leadership positions in the Department of Forests and Park Services, including at UWICE. These individuals oversee environmental conservation programs or education for natural resource management	5 (0/5)	5 (2/3)
Conservation practitioners: individuals who work for the government as forest range officers, district forest officers, national park managers and Sakteng Wildlife Sanctuary staff. This group includes individuals who received training from UWICE	18[a] (gender not recorded for all respondents)	4 (0/4) 5 (2/3)
Conservation funders: individuals currently or previously employed by Bhutan Trust Fund for Environmental Conservation	4 (0/4)	6 (3/3)
Community members: residents of two remote villages in Sakteng *Geog*[b] that live within the Sakteng Wildlife Sanctuary in eastern Bhutan	25 (gender not recorded)	Workshops were not conducted
Total number of participants	52	20

[a]Seven of these individuals responded to the questionnaire via email and 11 responded through in-person interviews.
[b]A *Geog* is an administrative unit akin to a community that is itself composed of *Chiwogs*, which include one or more villages. We refer to Brokpa Indigenous communities as Sakteng residents throughout the manuscript to clarify that our sample includes individual from this location and not Brokpa communities from Merak *Geog*, which is also adjacent to the Sakteng Wildlife Sanctuary.
UWICE: Ugyen Wangchuck Institute for Conservation and Environment Research.

(DoFPS) and from the Ugyen Wangchuck Institute for Conservation and Environment Research (UWICE), which facilitates environmental research and provides technical training to foresters (UWICE n.d.). Given the importance of these departments and institutes, we sought diverse representation from within them for our study.

Conservation funders were selected from the Bhutan Trust Fund for Environmental Conservation (BTFEC), which has funded hundreds of environmental programmes, including the Sakteng Wildlife Sanctuary (SWS) and conservation projects initiated there (BTFEC n.d.).

Located in eastern Bhutan, SWS has been a conservation priority for Bhutan (Ministry of Agriculture 2009) as it has vast, mixed conifer forests and the highest diversity of rhododendron species in the country (UNESCO 2012). It is also among the most remote areas in Bhutan. For these reasons, we chose it as our focus for community perceptions.

The SWS overlaps with the traditional homelands of the Brokpa, a semi-nomadic, Indigenous population. Brokpa communities are represented on the SWS executive governing body and have been involved in an integrated conservation and development project (ICDP) designed to reduce timber consumption, provide solar lighting and fencing for crop protection, develop ecotourism facilities and improve pasture development (Karst & Nepal 2019).

For this study, we combined qualitative and quantitative methods including questionnaires, workshop discussions and Q methodology (Table 2). The University of Illinois at Urbana-Champaign Institutional Review Board approved work with human subjects in this study (Protocol #20308).

Questionnaire

We collaborated with the directors of BTFEC and UWICE and the manager of SWS to identify a subset of current and past leadership, staff, trainees and educators who varied in their experience in conservation activities and years of service (Table 2). In late 2020, 16 individuals were emailed a questionnaire (in English) that included items about capacity development and perceptions of conservation activities in Bhutan (see Table 3 & Appendix S1, Section S4 for questionnaires). All 16 individuals responded (Table 2). In some cases, respondents shared a workspace, so we cannot guarantee that results are independent. For 11 other individuals who worked in remote locations and lacked internet access, the questionnaire was used for in-person interviews conducted by coauthors UN and OK.

We also identified a random sample of Brokpa (hereafter referred to as Sakteng residents) who had been involved in the ICDP in SWS. These individuals were all over 18 years old and were from 25 separate households out of the 69 total households in Sakteng *chiwog* (an administrative unit composed of one or more villages).

Thus, respondents to our questionnaire included (1) a non-random sample of 27 individuals involved in conservation planning, funding and practice, stratified by type of involvement in conservation and years of service, and (2) a random sample of Sakteng residents who had been involved with the ICDP (see Table 2).

Workshops

In summer and autumn of 2021, we held four day-long workshops facilitated by the same two coauthors (UN and OK) and largely conducted in English. Conversations in Dzongkha were translated by the workshop facilitators. Participants were again identified with assistance from the agency directors noted above, with the added objective of increasing gender diversity in the sample. A total of 20 conservation practitioners, planners and funders participated in the workshops, and there was no overlap with the sample of questionnaire respondents (Table 2).

We used Q methodology and asked participants to fit cards containing a set of statements into a normal distribution, forcing them to prioritize aspects of capacity development relative to each other (see Appendix S1, Fig. S1 for the distribution). Participants sorted 37 cards to indicate which types of capacity development

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Table 3. Items from questionnaires and Q-sort discussions used in the analysis. Some items have been combined or are paraphrased for brevity. See Appendix S1, Section S4 for the full set of questions for each group.

What kinds of capacity have been important for conservation success in Bhutan?
Questionnaire
In your opinion what types of capacity-building programmes/activities have had the most impact on conservation? How have they been impactful and why?
What, if any, are the most important ways that [name of institution/agency] has contributed to *short-term/long-term* conservation outcomes in Bhutan?
Q-sort discussion
Looking back over the past 15–20 years, which of the capacities developed in Bhutan have had the biggest impact on conservation? Why do you think these have been so important?
What kinds of capacity development will be most important or is in most need of being addressed?
Questionnaire
What are the most important capacity needs for conservation efforts at (1) the local and community level, (2) the NGO level and (3) the national level?
What types of capacity-building projects are still needed in Bhutan or need more attention?
What do you think are the biggest challenges for biodiversity conservation in Bhutan?
What role do you see capacity building playing in conservation in Bhutan in the future?
Based on your experience, what do you think are the most significant obstacles that must be overcome to achieve the goals of conservation projects in Bhutan?[a]
If future projects were to be developed in your community or other communities, is there anything that you think could be done to make them more beneficial?[a]
Q-sort discussion
You ranked two types of capacity as 'most important'. Why did you rank these two types of capacity development as being most important for long-term conservation in Bhutan?
What is the biggest obstacle to developing these two types of capacity that you think will be most important for future conservation success?
What types of capacities are most foundational for conservation success in Bhutan?
Questionnaire
Can you think of any additional short-term factors that you think are critical for building a foundation for overall conservation success?
Can you think of any additional long-term or indirect factors that you think are critical for building a foundation for overall conservation success?
What are some of the *direct/indirect* ways that [name of institution/agency] has improved the capacity of people working in conservation or who have been impacted by conservation projects?
To your knowledge, do people who have been trained at [name of institution/agency] also help build capacity in Bhutanese communities? If so, how? Can you give any examples?
Questionnaire and Q-sort discussion
What capacities do you think are most foundational? For Bhutan, what capacities do you think should be prioritized because they create the conditions that enable other capacities to be developed?

[a]These questions were asked of Sakteng community members. All other questions were posed to conservation planners, practitioners and funders.
NGO = non-governmental organization.

were most and least important for long-term biodiversity conservation (see Appendix S1, Section S2 & Table S1 for additional information).

After sorting the cards, participants responded to open-ended questions about their rankings and other perspectives on conservation capacities (see Table 4). Group discussions about these responses were recorded and transcribed using a transcription service (www.rev.com).

Data analysis

We coded qualitative data (questionnaire responses and workshop responses and discussions) to categorize the types and levels of capacity development that participants identified. Two members of the research team and two research assistants developed a coding protocol guided by previous descriptive work on capacity development (e.g., Appleton 2015, Elliott et al. 2018, Porzecanski et al. 2022, Sterling et al. 2022) and preliminary evaluations of the data (see Appendix S1, Section S3a for coding labels).

We also reviewed the qualitative data to infer how respondents conceptualized conservation success and used a thematic analysis (Boyatzis 1998) to identify patterns in the data related to (1) why different capacities are important for conservation, (2) why capacity needs have changed, (3) which capacities are foundational and why and (4) how capacities relate to each other (Appendix S1, Section 3b contains details on the thematic analysis).

Q methodology (Q-sort) data can be analysed descriptively or participant rankings can be grouped following a multivariate data-reduction technique (Zabala et al. 2018). We conducted a factor analysis to identify groupings of participants with similar Q-sort rankings. The amount of variance explained by the factor analysis was low, and the three groupings from the analysis were similar to rankings in the raw data. As such, we only present the rankings (see Appendix S1, Section S3c & Table S2 for additional information on the Q-sort and factor analysis results).

In our analysis, we gave equal weight to questionnaire and workshop data. However, questionnaire responses were often limited to short phrases and provided insights into past conservation efforts, whereas workshop responses were often more detailed and future-orientated.

Results

Conceptualizations of conservation success varied within and across the stakeholder groups. Many practitioners focused on ecological outcomes by emphasizing research, enforcement of regulations and species monitoring as important goals. A few practitioners expressed a more holistic perspective that went beyond environmental objectives. For instance, one practitioner stated that '[c]onservation in Bhutan is more focused on people's participation and well-being in the community, and that will ultimately help in good conservation work,' and that '[i]nvolvement of communities in decision making for biodiversity conservation related activities would lead to success for longer-term conservation' (Practitioner 5, male).

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Table 4. List of capacity development types that were identified as being most important for the future of conservation development in Bhutan. Raw counts from the Q-sort activity show the number of individuals who placed the card in the first (+4) or second (+3) column. Only cards that were ranked in the highest two columns (+4, +3) by at least five participants are presented (see Appendix S1, Table S3 for additional Q-sort results).

Type of capacity development	Q-sort raw data	
	First column (+4)	Second column (+3)
Political support for conservation	7	3
Reliable funding for conservation over the long term	7	1
Leadership skills for conservation professionals	3	3
General public is aware of importance of biodiversity and threats to it	2	3
Sufficient funding available for conservation	2	3

Conservation planners, funders and Sakteng residents tended to share this holistic perspective, mentioning community awareness, engagement and livelihood development as important elements of conservation programmes. For instance, one participant suggested that '[c]onservation projects with livelihood components are more successful than those without. I think of it from the prospect of improved living standard that spares the natural resources' (Funder 1, male).

The capacities that participants identified as being important for conservation success are described below.

Individual skills

The majority of participants attributed past conservation success to improvements in individual knowledge and skills, and some participants suggested individual-level capacities will remain important for future success. Of particular note were skills associated with plant and wildlife surveys, issuing permits, using new technologies for monitoring and enforcement and grant writing. Several participants also emphasized how international study tours expose participants to new skills, change their mindset and increase motivation.

Community engagement and participation

Community engagement and participation were also important contributors to past success. For instance, one participant noted: 'Involving the public in the conservation sector [was] the biggest thing that has helped in conservation' (Implementor 2, female), and another participant stated: 'In the conservation journey of Bhutan one of the important aspects of the success story ... is the engagement of people's awareness, public awareness and their engagement. I think we have been ... taking that into account from the very beginning of conservation in the country, involving people, taking in their views and then also looking into their issues ...' (Implementor 6, male).

Participants also suggested that community engagement will be important in the future, including through strengthened citizen science programmes.

Sakteng residents, however, felt that local participation had been insufficient. Many residents called for involving community members earlier in the planning process, facilitating coordination and communication between agencies and the community and more fully decentralizing project implementation and the oversight and management of project funds. For instance, when asked about improvements for future projects, one community member recommended 'community consultation and ... prior to implementation, conduct[ing] a needs assessment survey' (Community Member 2, female).

In contrast to the past, results from the Q-sort, discussions and questionnaires indicate a clear emphasis on community and societal-level capacities for future conservation success (Fig. 1). Capacity needs have evolved, and Q-sort rankings suggest that political support and leadership, reliable and sufficient funding, the scientific research enterprise and public awareness were deemed most important as conservation efforts progress (Table 4). Participants' discussions of these rankings and perceptions of foundational capacities also revealed important relationships between capacities.

Political support

Political support emerged as the most important future need (Table 4), and participants identified it as a foundational capacity.

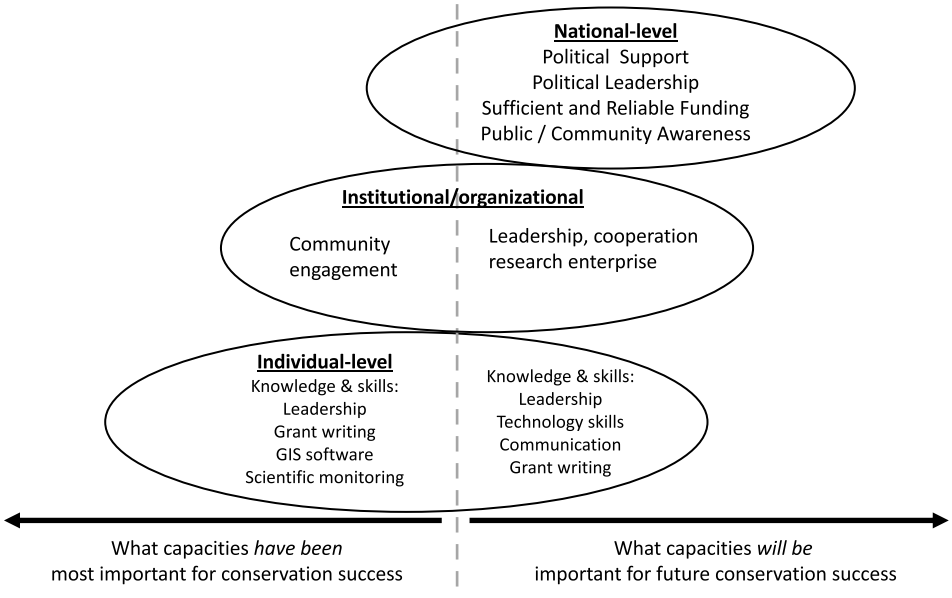


Figure 1. The evolution of capacity needs in Bhutan according to study participants. Differences in the types of capacity and the levels of capacity anticipated to be important (right side) relative to those that have already been important (left side). GIS = Geographic Information System.

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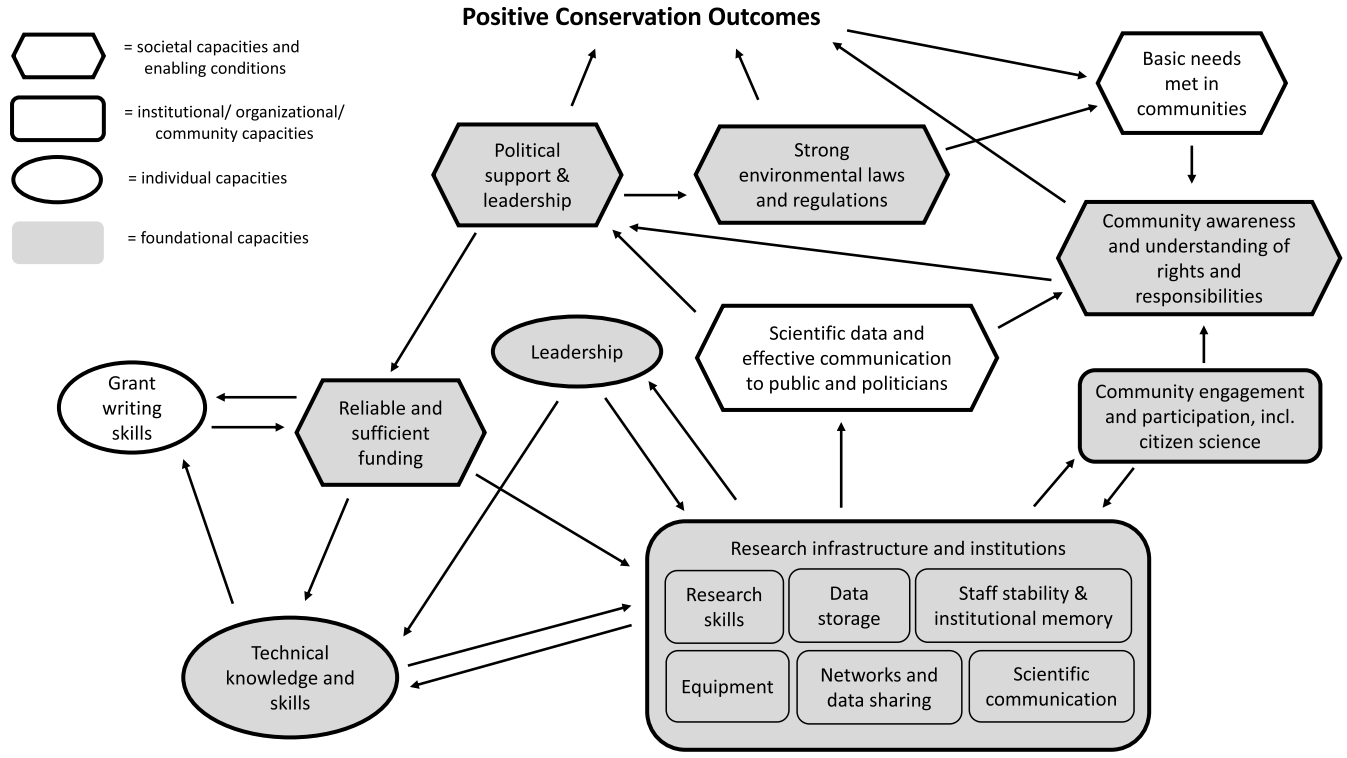


Figure 2. Simplified depiction of the system of capacity development for conservation in Bhutan based on input from respondents in this study. Not all relationships or capacities identified by participants are depicted, and additional relationships and feedbacks between capacities may exist but were not explicitly mentioned by respondents in our study.

Several participants noted the importance of political support in general and felt that improving 'knowledge and awareness of key decision-makers and planners' (Implementor 1, male) would provide a strong foundation for conservation. Another participant noted the link between regulations, environmental health and basic needs, noting: 'I feel the strong laws and policies for environment conservation is the most foundational for Bhutanese to meet basic needs' (Practitioner 10, female; Fig. 2).

However, several participants focused on how Bhutan's young democracy can impact conservation and noted that changing political conditions have affected political support. Participants expressed frustration that political parties can interpret rules differently, creating uncertainty that makes enforcement challenging. Several participants also expressed concern about how changes in political support can shape laws and policies in ways that favour short-term economic growth, possibly at the expense of conservation. One participant summarized this challenge by stating: 'Bhutan is very young in [its] democratic situation. As of now, we have very dedicated leaders. But over the long term, politics means vote[s]. So . . . leaders may interfere in conservation activity to gain support . . . [T]o do any kind of activity in conservation . . . we need to have full support from political leadership' (Practitioner 10, male).

Leadership

Leadership was also ranked high as a future need. Participants suggested that leadership is 'at the heart of successful implementation of conservation programmes' (Practitioner 2, male) and 'enables a conservation organization to be more effective in achieving positive results' (Practitioner 1, male).

Leadership was most frequently mentioned in the context of national political dynamics, mirroring concerns about tenuous political support. One participant noted differences in the leadership and support of future politicians relative to Bhutan's past kings, who highly valued conservation, stating: 'In Bhutan, the conservation journey has been successful mainly because of the political support that we have for conservation and the leadership skills that our monarchs have shown over the several decades in the field of conservation . . . I feel that in the future, we need to build the capacity of people in using the field of politics and by enhancing their leadership skills for the betterment and for the improvement of the conservation' (Implementer 9, male).

Reliable and sufficient funding

Several participants noted that Bhutan has limited internal funding and that securing external funds is time-consuming and difficult, with one stating that 'Bhutan has been too dependent on external funding . . . [We have] very limited option[s] for self-financing biodiversity conservation programmes' (Funder 2, male). Inadequate funding was also a theme among Sakteng community members, who noted that additional funding was needed to maintain solar-powered electric fences and to continue monitoring activities associated with conservation projects.

Scientific research enterprise

Other participants noted the importance of 'investment in improving basic conservation science and [the] biodiversity research system' (Implementor 1, male) and efforts to 'develop and strengthen scientific research institutions' (Practitioner 4, male). Improving the research enterprise was considered

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foundational because it can help to build a body of evidence to inform politicians about the importance of conservation.

Conservation funders also identified research needs including more baseline data, centralized research and data storage, improved cross-sectoral coordination, reductions in staff turnover to retain institutional memory, better translation and communication of scientific information and efforts to enhance citizen science.

Community awareness

This topic was also raised repeatedly by participants when asked about the most important community-level capacity needs. For instance, one respondent noted: 'It is important to create awareness first to inculcate the knowledge of biodiversity conservation' (Implementor 4, male), and another wrote: 'Education and awareness need to be addressed first as I believe that if one is educated and aware of the importance and relevance of biodiversity and conservation, it will only be natural to support conservation' (Implementor 1, male). Other participants emphasized public understanding of environmental rules and regulations. One respondent wrote: 'Making them understand the laws and regulations in place is the top priority ... most of our rules are formulated at the national level but the implementation is carried out at the local levels, wherein most of the time the local people are hardly aware of the rules' (Implementor 3, male).

In contrast, Sakteng residents highlighted a lack of cooperation, unity and support from the community. Some residents suggested that '[p]oor cooperation and integrity of people' (Community Member 12, male) were significant obstacles and that 'community integrity needs to be improved' (Community Member 6, female). These issues were partly attributed to problems in programme design. One respondent noted that cattle belonging to some households can damage fencing used for crop protection. However, the costs of maintenance and repair are shared by households that do not own cattle. This misalignment between who causes the problem and who bears the cost of solving it contributed to a lack of unity and cooperation.

Interrelationships among capacities

Participants described relationships between (1) grant-writing skills, (2) reliable and sufficient funding, (3) the infrastructure, training and communication elements of a scientific research enterprise, (4) community awareness, (5) community engagement and (6) political support. These relationships were based on insights from all portions of the study and participants' perceptions of some of the pathways through which different forms of capacity development can impact conservation outcomes (depicted in Fig. 2).

As an example, reliable funding was deemed to be foundational, and participants described connections between political support for conservation funding, reliable and sufficient funding to improve research infrastructure and the importance of scientific evidence for influencing political support (see Fig. 2 & Table 4). One participant noted: 'I think if we can really train or invest in ... [making] our front-liners very familiar or ... professional with research, then research could help in generating the data ... To convince politicians or leadership, we need concrete information or data' (Practitioner 11, male).

Several participants echoed this idea that rhetoric supporting conservation has not always been matched by funding commitments, development decisions or policies. One participant noted that, although biodiversity conservation is recognized as being important, 'unfortunately, it is never a priority when it comes to budget allocation' (Practitioner 4, male). Another quotation captures these concerns: '[Reliable funding is] going to become a challenge because now we have this democratic system of governance, whereby the focus is very short term and then it's more into capital and more into economics and benefits to the people and not into the conservation sector' (Implementor 6, male).

Although community engagement and community awareness are not the same, participants often drew connections between them. For instance, some participants suggested that community engagement in citizen science can be foundational because such programmes contribute scientific information, but also because participation can increase knowledge about and support for conservation (Fig. 2).

Discussion

This study drew on insights from participants who varied in their conceptualizations of conservation success but tended to consider ecological, economic and social dimensions in their perceptions. Future studies of capacity needs could directly examine how participants define and perceive conservation success, which would improve our understanding of whether conceptualizations of success influence which capacity needs are identified as being most critical.

Our results demonstrated a shift in emphasis from the historical role of individual capacities to the future importance of institutional and societal capacities in Bhutan. The results also highlight the importance of expanding the scope of capacity development beyond the tangible skills and knowledge associated with short-term, project-driven efforts (Ika & Donnelly 2019, Bruyere et al. 2022, Porzecanski et al. 2022). For instance, as community-orientated conservation programmes increase, new training in specific social science methods (Miller et al. 2023) and less tangible traits such as cultural sensitivity (Karst & Nepal 2019) may need to complement standard training in conservation biology and ecology. These shifts in the level and scope of capacity needs reflect the more holistic perspective that conservation works best when it incorporates ecological, social and economic elements. However, additional research is needed to determine any generalizability of our findings beyond Bhutan, particularly those pertaining to the evolution of capacity needs as socio-economic and political conditions change.

This study reinforces the idea that capacities are best viewed as working together in a system (Porzecanski et al. 2022) and highlights the importance of examining how capacity needs evolve. We suggest that it is important to invest in the development of foundational capacities that impact other capacities in the system and to regularly monitor evolving capacity needs across levels as political, economic and environmental conditions change.

Political support was identified as one of these foundational capacities and as the most pressing future need, which was surprising in a country known for placing conservation on equal footing with economic development (Brooks 2013). Studies that have examined the effects of various governance regimes on conservation and sustainability suggest that conservation can be hindered in young democracies that are at earlier stages of economic growth and have fewer civil society organizations (CSOs; Pickering et al. 2020, Rydén et al. 2020). These conditions in Bhutan may explain concerns about the erosion of political support and point to the importance of building capacity among CSOs as

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Bhutan's democracy matures (Pickering et al. 2020). Such efforts could include the Royal Society for the Protection of Nature as well as CSOs that focus on rural development (e.g., Tarayana Foundation) and women's empowerment (e.g., Bhutan Network for Empowering Women).

Similar to previous work (Gutièrrez et al. 2011), participants also suggested that leadership was foundational. Although they did not articulate what leadership meant to them, participants emphasized political leadership from the highest levels of government. Previous studies identified several strategies and competencies of effective conservation leadership including partnership building, encouraging learning, adopting systems thinking, building trust and generating and sharing a vision (Bruyere 2015, Webb et al. 2022).

Having leaders generate and share a vision may be particularly critical for Bhutan given apparent tensions between conservation and development. Historically, Bhutan's small population, limited economic development and Buddhist cultural foundation contributed to a relatively healthy environment (Larbi et al. 2006, Brooks 2013). However, modernization and prosperity have created incentives to increase household resource use (Karst & Nepal 2019) and indirectly affected environmental conditions by shaping public and political support for more rapid economic growth. Although participants expressed concern about this process, sustainable development may require some degree of economic growth to facilitate positive, long-term environmental outcomes (Mol et al. 2013). Among conservationists at least, there is a sense that the traditional vision of maximizing Gross National Happiness (Planning Commission Secretariat 1999) is no longer driving policy decisions. It may be important for political leaders to either reinforce that traditional vision or work with conservationists and the general public to reach a new consensus, perhaps one that is informed by research about the relationship between conservation, ecosystem services and well-being. However, additional research is needed to determine the broader public sentiment about Bhutan's current political vision for sustainable development.

Related to this, participants suggested that improving the research enterprise could strengthen the scientific case for conservation that might underlie this vision. The importance of research infrastructure and scientific communication has been noted in other low- and middle-income countries (Elliott et al. 2018), particularly for advancing capacity development (Toomey et al. 2017). Bhutan could invest in information technology to facilitate data storage and sharing, revise staffing policies to reduce the loss of institutional memory and provide advanced scientific training through public education opportunities and institutions of higher learning.

Improving the research enterprise could also build adaptive capacity, of which flexibility and learning are key components (Cinner & Barnes 2019). Better information communicated at the right times could improve the ability of individuals and institutions to learn about changing environmental and social conditions and increase their flexibility in responding to those changes. Such capacities could be fostered by leaders who themselves are flexible, collaborative and adaptive learners (Bruyere 2015). However, more and better scientific information does not automatically lead to policy change. Conservationists could also be trained in identifying or creating policy windows or framing results to align with existing policy windows to maximize the impact of additional data (Rose et al. 2020). It is also important to note that the emphasis on research infrastructure we observed may have been a function of obtaining input from leaders and many past graduates from UWICE. Individuals from other institutions or organizations might have identified other important elements of capacity development.

Enabling quicker responses to changing conditions is another element of adaptive capacity, and such responses may be enhanced by increasing local control over funding. Inadequate funding and short-term funding cycles are common challenges in conservation globally (Waldron et al. 2013) and in Bhutan specifically (Devkota et al. 2023). Environmental trust funds such as BTFEC and Bhutan for Life, which provide long-term financing for conservation, give more control over funding to national experts who may have a better sense of local needs. Additional investments in such strategies may be more efficient and effective by directing funds to capacity needs that local practitioners have identified as critical for conservation.

The other individual skills and knowledge that were identified as being important to past successes (e.g., technologies for monitoring and enforcement, grant writing, biological surveys) largely matched those identified in other studies conducted in Bhutan (Karst & Nepal 2019, Lham et al. 2019, Yoezer & Choden 2022) and within other contexts (e.g., Appleton 2015, IUCN 2015). Participants also noted that developing individual skills and knowledge will continue to be important, which may reflect the ongoing need to train new generations of practitioners and scholars. However, our study did not identify aspects of capacity development that were described in other studies. For instance, participants did not discuss variation in capacity needs across gender differences, which may reflect a sense of gender equality in Bhutan (Priyadarshini 2014) or a lack of awareness of gender inequalities or may be a limitation of our sample. Although climate change was mentioned as a challenge, it did not feature prominently, possibly because of how the surveys and the broader context of the study were framed.

Our results also reinforce the importance of integrating local perspectives and seeking insights from multiple stakeholder groups to identify often intangible but important elements of capacity development (Hagelsteen et al. 2021, Eklund et al. 2022). The perceived need to bolster political support may have been overlooked by external evaluators because of Bhutan's reputation and the high-level political support for conservation that existed in the past. In addition, conservation planners' perceptions that community engagement had been critical for success did not align with perceptions of some community members themselves. This result suggests that additional dialogue between conservation planners and local residents is needed to ensure that different definitions of conservation success – and subsequent decisions about project design and management – do not create more problems than they solve.

This study would have benefitted from insights from additional conservation NGOs and communities involved in conservation programmes. Relative to other forms of community-based conservation (CBC), ICDPs are known for being more top-down. This was reflected in the dissatisfaction in levels of participation expressed by Sakteng residents in our study and others (Karst & Nepal 2019). Although insights from communities engaged in other types of CBC projects might produce different results, there is evidence that Bhutanese communities can be reluctant to fully engage in CBC due to a historical reliance on and trust in the government (Brooks & Tshering 2010).

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Conclusion

Even in Bhutan, a country with a record of strong commitment to conservation, continued capacity development is crucial to coping with emerging and perhaps unexpected threats. Our results lead to the conclusion that the Bhutanese government and both internal and external conservation funders should increase support for capacity development at multiple levels to benefit long-term conservation. Such a conclusion is probably relevant for other countries as well. Future capacity development in Bhutan should focus on foundational capacities such as the research enterprise, community engagement and awareness, leadership skills at all levels and, perhaps most importantly, political support for conservation activities, with the recognition that capacity needs may change over time due to changing social and political contexts.

Supplementary material. For supplementary material accompanying this paper, visit https://doi.org/10.1017/S0376892924000225.

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