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Building capacity for the science-policy interface on biodiversity and ecosystem services: Activities, fellows, outcomes, and neglected capacity building needs

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ABSTRACT

Capacity building has been identified as being of importance for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). As the IPBES is becoming an influential expert organization, it is essential to examine what capacity building means in its context, what capacities it has built, and what implications these capacities have. This study explores these issues by focusing on the IPBES's general strategy for capacity building, the IPBES's fellowship programme and to what extent there are additional capacity building needs that can be addressed. The study shows that the IPBES has focused its capacity building efforts on the science side of the science-policy interface while, thus far, it has neglected to build capacities on the policy side of the interface. The study provides insight into how capacity building for the science-policy interface sets preconditions for science-policy relations at different levels and scales within biodiversity and ecosystem services and beyond.

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1. Introduction

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) was established in 2012 with the overall objective “to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development” (UNEP, 2010: 5). To meet this objective, capacity building has been identified as one of the four functions of IPBES, in addition to knowledge and data, assessment, and policy support. Although in terms of budget allocation, the assessment function has been clearly prioritized over the other functions, the IPBES has engaged in capacity building (Beck et al., 2014; IPBES, 2013a; Koetz et al., 2012; UNEP, 2010); this aspect, together with the policy support function, does set IPBES apart from similar intergovernmental expert organizations, such as the

Intergovernmental Panel on Climate Change (IPCC) (Brooks et al., 2014; Obermeister, 2017).

In a general sense, capacity building could be seen as a goal in and of itself or as a means by which to create sustainable social change and empower individuals, organizations, communities, and nations (Chaskin, 2001; Craig, 2007; Hunt, 2005). Capacity building could contribute to agenda setting, problem framing, answering the question of how to understand an issue or a situation, identifying possible pathways to (sustainable) futures and taking actions that create social change (Beckley et al., 2008; Goodman et al., 1998; Hunt, 2005; UN, 1997; UNDP, 1998; Verity, 2007). Seen as a means, the process of capacity building is used to reach a specific outcome to address an already identified lack of capacity.

As the IPBES is quickly becoming an important organization with an aspiration to gain epistemic authority in the field of biodiversity and ecosystem services, it is of importance to examine what capacity building means in its context; what capacity building needs has the IPBES identified, what capacities are being built and how, and what implications do these capacities have for the functioning of the IPBES and for science-policy interfaces on biodiversity and ecosystem services more generally? Guided by these

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general questions, this study engages in an examination of the IPBES's work on capacity building. To answer these questions, the study will focus on the IPBES's work on capacity building during the time of its first work programme from 2014 to 2019. Through its analysis, this study contributes to knowledge on the organizational development of the IPBES and its approach to the development of the science-policy interface on biodiversity and ecosystem services. In a more general sense, the study also contributes to knowledge on how capacity building for the science-policy interface contributes capital such as knowledge, skills, values, and social processes that set preconditions for how relations between science and policy are created, recreated, and realized (cf. Beckley et al., 2008; Franks, 1999; Moore et al., 2006).

The analysis in this study will focus on three dimensions of the IPBES's work. First, the study will analyze the IPBES's general strategy for capacity building. Second, the study will analyze the IPBES's fellowship programme, which is the most visible and furthest developed programme that the IPBES has undertaken to build capacity within the scope of the first work programme (IPBES, 2017; IPBES, 2019b). Third, the study will explore to what extent there are additional capacity building needs that may need to be addressed concerning the IPBES's prioritization to enhance capacity for effective participation in implementing the platform's work programme. Through this three-dimensional focus, this study allows the analysis of the design and outcomes of the IPBES's capacity building function, as well as the analysis of what possible implications these outcomes may have on the science-policy interface for biodiversity and ecosystem services in particular and on science-policy relations in general. Thus, by analyzing how the fellowship programme is situated in the IPBES's general capacity building strategy and by identifying additional currently unmet capacity building needs, this study contributes vital insights into the IPBES and complements previous studies of the IPBES and of its fellowship programme (e.g., Díaz-Reviriego et al., 2019; Gustafsson, 2018; Gustafsson and Lidskog, 2018; Gustafsson et al., 2019; Koetz et al., 2012; Louafi, 2017; Obermeister, 2017).

2. Conceptualizing capacity building

Since the 1990s, the topic of capacity building has become more frequent in policy discourses on international development (Goodman et al., 1998; Hunt, 2005; UN, 1997; UNDP, 1998; Verity, 2007). Both capacity building and capacity itself have come to be interpreted and operationalized in many different ways (Goodman et al., 1998; Simmons et al., 2011), thereby making capacity building more of an umbrella concept rather than a clearly defined process (UN, 1997). However, in a very general sense, the terms are understood as follows:

The term "capacity" broadly refers to [the] capability or ability of individuals and institutions to perform assigned functions efficiently, effectively and sustainably. Capacity building refers to the process of enhancing individual skills or strengthening the competence of an organization or set of organizations to undertake specific tasks. (UN, 1997: 5)

The work on building capacity has been criticized for creating top-down relations between those who are seen as having the capacity and those who are seen as not having the capacity. These critics have suggested that the logic behind capacity building draws on the idea of a deficit relation regarding knowledge and skills, which is a relation that contributes to the reproduction of old, and in several cases colonial, power structures (Craig, 2007). Taking these criticisms into account, project designs can avoid these top-

down relations by emphasizing the importance of having capacity building processes evolve through collaboration and of leveraging capacities that already exist (Chaskin, 2001; Simmons et al., 2011).

To conceptualize and analyze capacity building, this study makes use of a combination of theories on different forms of capacity and capacity building (e.g., Beckley et al., 2008; Bowen et al., 2015; Franks, 1999; Moore et al., 2006; UNDP, 1998). This conceptualization will help structure and focus our analysis of how different forms of capacity and capacity building emerged and how they relate to one another in the case of the IPBES.

For any entity—be it an individual, an organization, a community, or a nation—to have capacity, it needs to have relevant capital, such as human, social, institutional and economic capital in the form of, e.g., skills, knowledge, trust, values, and networks (Beckley et al., 2008; Moore et al., 2006). This entity also needs to have the capacity to make use of this capital, that is, the ability to mobilize capital through one or multiple forms of social relations to reach a capacity outcome (cf. Franks, 1999; Hunt, 2005). Different forms of social relations, such as bureaucratic, associative, communal, or intercultural relations, provide different abilities by which to mobilize capital to reach a specific capacity outcome (Beckley et al., 2008). Thus, capacity outcomes are the result of the use of relevant capital (Beckley et al., 2008).

Drawing on this understanding of capacity, two different forms of capacity building can be identified. Capacity is built (i) by developing the quantity and quality of available capital and (ii) by developing the ability to mobilize this capital through social relations to reach a capacity outcome (Franks, 1999; cf. Goodman et al., 1998; Schuttenberg and Guth, 2015). Capacity building for the science-policy interface could actively contribute to creating new knowledge, skills, values, and social processes that will set preconditions for how relations between science and policy are ideally to be understood and how the science-policy interface, as a consequence, is to be organized in practice (cf. Beckley et al., 2008; Franks, 1999; Moore et al., 2006).

3. The study

The IPBES's general strategy for capacity building is analyzed through a document study focusing on official IPBES documents that describe and guide the platform's work on capacity building. All documents are available on the IPBES website. These documents include decisions and meeting reports from the IPBES's plenary meetings, as well as working documents and publications from the organization. Guided by the conceptualization of capacity building presented above, the current analysis focuses on the development and future direction of the IPBES's work on capacity building, as well as the prioritizations made as part of this work.

The IPBES's fellowship programme is analyzed by combining materials from a qualitative survey of fellows in the first cohort of the IPBES's fellowship programme, interviews with fellows in the second cohort of the IPBES's fellowship programme, and an interview with a representative from the IPBES's Technical Support Unit (TSU) on capacity building. The qualitative survey was conducted among the first fellowship cohort in the last months of their fellowship programme from February–May 2018. Twenty-two out of the 33 fellows in the cohort participated. The survey included three open-ended questions focusing on the outcome of the programme by asking for (i) the fellows' most important experience from being an IPBES fellow, (ii) their most important experience from working with different knowledge forms such as that of science and indigenous and local knowledge, and (iii) what the fellows would not have learned if they had not taken part in the fellowship programme. This current study primarily makes use of the answers given to questions one and three.

The interviews were conducted with fellows from the second cohort of the IPBES's fellowship programme in their last months of the fellowship programme from November 2018–April 2019. Fourteen out of the 16 fellows in the second cohort participated. An interview guide was constructed to function as a structure for the topics to be addressed during the interviews. However, the order of the questions and how the questions were raised were adapted to the unique evolution of each interview. The interview questions were designed to elicit the fellows' expectations on, as well as their experiences and outcomes related to, participating in the programme. Each interview lasted between 45 and 90 min. All interviews, except for one, were conducted using Skype. All the interviews were audio-recorded and transcribed verbatim.

In addition to examining the fellows' experiences of participating in the fellowship programme, the analysis of the fellowship programme also included information on the IPBES perspective through an interview with a representative from the IPBES's TSU on capacity building. This interview was conducted face-to-face during the IPBES's seventh Plenary meeting in May 2019 and focused on the development of the fellowship programme, the organizational context of the programme, and its contextualization in the IPBES's general work on capacity building.

In addition to the fellowship programme, the IPBES consists of a wide range of actors with different roles and responsibilities, depending on which organizational body and expert group they have been enrolled to participate in.¹ Thus, to what extent there are additional capacity building needs within the IPBES was analyzed through a complementary set of 28 semistructured interviews, including a wide range of actors participating in the IPBES. The interviewed group ranged from experts in the IPBES's Global and Regional Assessments to stakeholders, country delegates, focal points, members of the Multidisciplinary Expert Panel (MEP), the IPBES's task forces, and staff from the TSUs of the IPBES Secretariat. It is important to note that while some interviewees hold only one role in the IPBES processes, others have various roles. This group of IPBES actors was primarily interviewed face-to-face during the IPBES's sixth Plenary meeting, March 2018. Additional interviews were performed between March and April 2018 via Skype. Purposive samples, combined with snowball sampling, were employed in an attempt to capture the diversity of attributes—e.g., gender, region, discipline, career stage—and the perspectives of the interviewees. The interview questions revolved around the interviewees' experiences with and practices of participation in the IPBES processes, as well as around associated challenges and opportunities. The interviews were conducted in English or Spanish and lasted between 15 and 40 min. All the interviews were audio-recorded and transcribed verbatim.

In addition to the materials presented above, the analyses were informed by participant observations at the IPBES's sixth and seventh Plenary meetings. These observations served to inform the study by situating the IPBES's work on capacity building in the larger context of the IPBES.

The survey data and all the interview transcripts were coded and analyzed using the conceptualization of capacity building

presented above. In the first step of the analysis, the different dimensions of capacity—*capital, the ability to mobilize capital, and capacity outcomes*—were used as general analytical categories to structure the material. Second, within each category, subcategories were identified in terms of, e.g., different forms of capital, abilities by which to mobilize capital, and capacity building. Third, the conceptualization of capacity building was used to relate the different dimensions of capacity to each other to explore capacity outcomes and additional capacity building needs. Fourth, the results were discussed in view of the relevant scientific discussion related to the IPBES, science-policy interfaces and capacity building.

The presentation of the analysis is structured as follows. First, the analysis of the IPBES's general strategy for capacity building is presented below, with the main focus on how the work on capacity building has been initiated and the identification of capacity building needs. Second, the analysis of the IPBES fellowship programme is presented with the main focus on the building of capital, the ability to mobilize capital, and capacity outcomes. Third, the analysis of additional prospects for capacity building is presented with the main focus on the limits to the IPBES's current work on capacity building. The final section discusses the findings in relation to ambitions and future development of the IPBES.

4. Analyzing capacity building

In the following section, we will analyze (i) the IPBES's general strategy for capacity building, (ii) the capacity building within the IPBES's fellowship programme, and (iii) to what extent there are additional capacity building needs that need to be addressed concerning the IPBES's prioritization to enhance the capacity to participate effectively in implementing the platform's work programme.

4.1. The IPBES's general strategy on capacity building

In the implementation of the IPBES's first work programme, capacity building was addressed in the programme's first objective, *Capacity and Knowledge Foundation*, and concretized in the following two deliverables:

- (a) Priority capacity building needs to implement the Platform's work programme matched with resources catalysing financial and in-kind support. [...]
- (b) Capacities needed to implement the Platform's work programme developed (IPBES, 2013b: 54–55).

Leading up to this first work programme, during the establishment of the IPBES, the IPBES's member states and stakeholders together identified 26 capacity building needs important for the IPBES (IPBES, 2013a; 2013b); these needs were later categorized into five different categories. Among these five categories of capacity building needs, the IPBES Plenary initially decided to prioritize categories one and five, while the other three categories would be based on expressions of interest by facilitating pilot and demonstration projects (IPBES, 2015b: 24). The five categories were as follows (IPBES, 2015b: 24):

- (i) The need to enhance the capacity to participate effectively in implementing the Platform's work programme.
- (ii) The need to develop the capacity to locate and mobilize financial and technical resources.
- (iii) The need to improve the capacity for access to data, information and knowledge (including the experience of others).

¹ The IPBES Plenary, the main decision-making body, consists of IPBES's member states' national delegations and focal points. The IPBES Bureau, an administrative body, consists of two experts per United Nations (UN) region. The IPBES MEP, a technical and scientific body, is composed of five experts per UN region. There are also a number of expert groups and task forces, such as the task force on capacity building, which is composed of scientists and other knowledge holders whose task is to produce and support the IPBES's deliverables. Furthermore, the IPBES is making some effort to mobilize and engage diverse networks of stakeholders. Finally, the implementation of the work programme is supported by the IPBES Secretariat, including its TSU.

- (iv) The need to develop the capacity for enhanced and meaningful multi-stakeholder engagement.
- (v) The need to develop the capacity to carry out and use national and regional assessments.

To lead the work on implementing its deliverables and address its identified needs for capacity building, the IPBES established a special task force (Louafi, 2017). The task force was assigned the responsibility of organizing the work on capacity building in collaboration with other task forces and expert groups, as well as with external partner organizations (IPBES, 2013b). In dialogue with member states and stakeholders, through the IPBES's capacity building forum and additional dialogue meetings, drawing on lessons learned from pilot projects as well as from partner organizations' previous and ongoing work on capacity building, the task force developed a rolling plan on capacity building that aimed "to identify the principles, strategic directions and modalities for building and further developing capacities of individuals and institutions based on the priority needs established by the IPBES Plenary" (IPBES, 2017: 1). The rolling plan was suggested to the Plenary at its fifth session, and the Plenary welcomed the plan and requested its implementation (IPBES, 2017).

The capacity building rolling plan presents and structures the IPBES's work on capacity building, describes how the work is to be carried out, and informs interested partners on how they could contribute their support (IPBES, 2017). When established, the rolling plan was perceived as a living document intended to guide the work of the IPBES and contribute to the matching of prioritized capacity building needs with financial and technical resources. The rolling plan consists of three strategies (IPBES, 2017). In the development of the IPBES rolling work programme up to 2030, these strategies were translated into the IPBES's new objectives on capacity building (IPBES, 2019a).

The first strategy is titled *Learning and engagement*. The strategy focuses on capacity building at the individual level to support the implementation of the IPBES work programme. The general idea behind the strategy is that building individual capacity will "create a pool of competent professionals" (IPBES, 2015a, Appendix) who will, in turn, generate an enhanced institutional capacity both within the IPBES and within the individual actors' home institutions and nations. The second strategy is titled *Facilitating access to expertise and information*. The strategy focuses on capacity building at the organizational and community levels to support both the implementation of the IPBES's work programme and to increase the IPBES's reach and impact. The strategy aims to build capacity by supporting efforts made by the IPBES's two other task forces: the task force on knowledge and data and the task force on indigenous and local knowledge. The third strategy is titled *Strengthening national and regional capacities*. The strategy focuses on capacity building at the national level to address the IPBES prioritized capacity building needs. The strategy aims to create partnerships with external organizations that are interested in contributing their support to building capacity on a national level, such as developing the capacity to execute self-assessments, as well as national and subregional ecosystem assessments.

The rolling plan on capacity building shows the general picture of how the IPBES is building capacity to strengthen the science-policy interface on biodiversity and ecosystem services by focusing on building capacity for the implementation of the IPBES's work programme. On the one hand, through this focus, the IPBES has drawn quite narrow boundaries as to what capacity building means. The IPBES builds the capacity to enable knowledge assessments, conceptual and methodological competence, as well as knowledge communication and self-reflexivity (IPBES, 2017; IPBES, 2019b). On the other hand, the rolling plan on capacity building

makes it evident that the IPBES's prioritized capacity building needs have a great variety in terms of among whom and where the capacity is to be built. The IPBES aims to build capacity on all societal levels, from the individual to the organizational, community, and national levels. For this to be possible, the IPBES's work on capacity building consists of a combination of capacity building projects, including projects run by the IPBES, such as the fellowship programme, and projects that are headed by partner organizations, such as the Biodiversity and Ecosystem Services Network (BES-Net).

Both the second and third strategies of the rolling plan primarily focus on capacity building on community and national levels outside of the organizational boundaries of the IPBES. In these capacity building efforts, the IPBES is dependent on partners to carry out capacity building projects, while the task force on capacity building takes the role of support and matchmaking. Thus, in strategies two and three, instead of initiating new projects to build capacity, the work of the task force, with support of its TSU, is largely focused on creating networks among existing and new organizations that are working on capacity building initiatives. As a consequence, and in line with delivery 1(a) of the IPBES's first work programme (IPBES, 2013b), three of the task force's most important tasks have been (i) to create ongoing dialogs with multiple actors to identify capacity building needs, (ii) to create networks to minimize overlaps between projects and make sure that resources are used as efficiently as possible, and (iii) to take the position as matchmaker, facilitating relations between capacity building needs and financial and technical resources.

However, the IPBES also undertakes capacity building as an integrated part of the work programme (IPBES, 2015b). In the rolling plan's first strategy, the IPBES carries the responsibility for planning and implementing capacity building projects. The first strategy includes (i) a fellowship programme, (ii) a training and familiarization programme, (iii) the promotion of secondments and internships, and (iv) the promotion of exchange visits and study tours (IPBES, 2017). All these efforts are aimed at giving individual actors the opportunity to increase their knowledge on the IPBES and their capacity to contribute to the IPBES's work and to encourage these individual actors to pass their knowledge on to other actors to contribute to the institutionalization of the IPBES, as well as to enhance its impact. In this context, most efforts have been put into the establishment of a fellowship programme, which has become the flagship programme of the IPBES's work on capacity building and which we will discuss in more detail in the next section. While this fellowship programme on paper could be interpreted as only a small part of the IPBES's comprehensive ambitions on capacity building, it is in practice the IPBES's largest and most developed effort to build capacity. Thus, due to its central position in the IPBES work on capacity building, it is of great importance to study what capacity is built through the fellowship programme to understand its impact on the IPBES work to strengthen the science-policy interface on biodiversity and ecosystem services.

4.2. Capacity building through the fellowship programme

The establishment of the IPBES's fellowship programme has been a prioritized issue since the very start of the IPBES (IPBES, 2013b; 2015a, 2015b). A pilot of the fellowship programme was launched in 2015, enabling a first cohort of 33 fellows to participate in the IPBES's four regional assessments and the thematic assessment of land degradation and restoration (IPBES, 2018). Since then, additional cohorts have enrolled in the fellowship programme. The second cohort consisted of 16 fellows who participated in the IPBES's global assessment. The third cohort consisted of 13 fellows who participated in the IPBES's assessment of values and 9 fellows

who participated in the IPBES's thematic assessment of the sustainable use of wild species. The fourth cohort consisted of 14 fellows who participated in the thematic assessment of invasive and alien species and their control, and 5 fellows who were enrolled in the IPBES's work on scenarios and models. In this analysis, we will focus on the first two cohorts that finished the programme in 2018 and 2019.

The IPBES fellowship programme invites scholars in the early stages of their careers to participate on equal terms with senior experts in IPBES's assessments. Throughout the assessment process, based on a combination of the fellows' interests and the needs of the assessment, the fellows are assigned and sign up for multiple responsibilities, such as performing literature reviews, coordinating work among small groups of authors, writing sections for the report, and representing the chapter in cross-chapter groups. As support in these assignments, the fellows are given a mentor through the fellowship programme. In addition, the fellows also receive support from multiple informal mentors from among the assessment's authors (cf. Gustafsson, 2018). In addition to working with the assessment, the fellows participate in separate capacity building workshops. The combination of participating in an IPBES assessment and in capacity building workshops allows the fellows to gain unique experiences of the IPBES and enables them to develop human, social, and institutional capital and the ability to mobilize this capital by both gaining from and contributing to multiple forms of social relations.

4.2.1. Building capital

The fellows from the first and second cohorts described the fellowship workshops as being crucial for their fellowship experience. Taking the global assessment's fellowship programme as an example, the fellowship programme starts with an introductory one-day workshop in the days before the assessment's first author meeting. The workshop introduces the fellows to the IPBES, to the assessment process and to each other. The introduction allows the fellows to start building social capital by coming together as a group before meeting the other authors in the assessment. The fellows themselves identified this introduction as crucial for how they were able to establish a network among themselves that later came to function as an important support structure that enabled a knowledge exchange between the assessment's chapters, facilitated critical thinking, and initiated long-term collaborations and alumni relations. Following the introduction, the IPBES organizes three additional fellowship workshops as part of the global assessment's fellowship programme. One of the global assessment's fellowship workshops ran parallel to the IPBES's sixth Plenary meeting, allowing the fellows to participate in and learn from the procedures as well as from the workshop's sessions.

The workshops are what make the fellows' role in the IPBES different from the other roles of the authors (cf. Gustafsson, 2018). It is in these workshops that the experience of being in the assessment is verbalized, contextualized, and transformed into knowledge. It is also in the workshops that the fellows most strongly experience how the IPBES trusts their ability to contribute, as well as the explicit and implicit expectations that follow from this trust. First, the workshops make explicit that the IPBES expects that the fellows will be contributing to the IPBES not only in a direct way but also by passing on their newly built capacities to other actors in their home institutions and nations. Second, the

workshops communicate an implicit expectation that, in the future, the fellows will be contributing to the IPBES institutional memory by becoming new Lead Authors and eventually perhaps also Coordinating Lead Authors.² Similarly, the workshops allow the fellows to show their commitment and loyalty to the IPBES, e.g., by taking the opportunity to learn from each other to improve their contributions to the assessment and by supporting the development of the fellowship programme by offering their feedback.

The experiences of being a part of the IPBES fellowship programme have given the fellows knowledge on topics such as (i) the IPBES's organization and its function as a science-policy interface, (ii) the IPBES's conceptual framework and theories and methods from diverse scientific disciplines, (iii) knowledge gaps in the field of biodiversity and ecosystem services, and (iv) practical knowledge on how to balance parallel responsibilities. This knowledge has created a foundation on which fellows have been able to develop different skills. For example, the fellows from the global assessment described how the knowledge on what the IPBES is and how the IPBES operates has contributed to enhancing their skills in science communication and making knowledge policy relevant. Similarly, the knowledge on the IPBES conceptual framework has enabled the fellows to develop their analytical skills, as they used the framework as an analytical lens when working on the assessment, and some of them have also used the framework in their work outside of the IPBES. In addition to functioning as an analytical lens, the global fellows also stressed the importance of the IPBES's conceptual framework in creating a common vocabulary and narrative within the IPBES. In this capacity, the IPBES's conceptual framework has come to foster social capital in the form of both attitudes towards the relation between nature and society, as well as the methods on how to analyze these relations (cf. Gustafsson et al., 2019).

In addition to enhancing the fellows' skills of science communication and how to perform a conceptually informed analysis, participation in the fellowship programme has allowed the fellows to develop additional skills, such as (i) how to do extensive, systematic, and critical literature reviews, (ii) how to make use of and synthesize knowledge from different knowledge systems, (iii) how to coordinate and lead teamwork, (iv) how to work on a team with different disciplinary and cultural backgrounds, and (v) how to manage deadlines and a high workload. In most of these cases, skills have been developed through learning-by-doing while observing senior experts and other fellows. For example, no explicit training has been offered on how to perform systematic and critical literature reviews, how to analyze large quantities of material or how to synthesize different knowledge forms. The training at the workshops has instead focused on tacit skills of importance for the assessment, such as how to manage different types of social relations, including bureaucratic, intergenerational, intercultural, and interdisciplinary relations. By creating a forum for discussion at the workshops, the different social relations in which the fellows participate have been made visible, and the development of the skills of participating in them have been supported.

The IPBES's strategy to build capacity among the fellows through the approach of learning-by-doing has had mixed results. On the one hand, in the case of learning how to perform a literature review, it is the fellows who had limited knowledge going into the assessment who describe the greatest personal development. On the other hand, in the case of learning how to use and synthesize knowledge from different knowledge systems, the different levels of previous knowledge and skills had a reversed effect; in this case, the fellows who already had experience with how to engage with other knowledge systems describe the most personal growth. The variation in outcomes of the skill of synthesizing knowledge ranges from still having great difficulties understanding how to ensure

² Lead Authors are IPBES experts enrolled in the IPBES to contribute to performing and writing an assessment. Coordinating Lead Authors are IPBES experts who are enrolled in the IPBES to lead and coordinate the assessment in one of the assessment's chapters.

that assessments reflect and synthesize different knowledge systems and are able to contribute to developing the IPBES's theoretical and methodological strategies.

4.2.2. Building abilities to mobilize capital

During their time in the fellowship programme, the fellows are a part of many different forms of social relations with the ability to mobilize capital to create capacity outcomes. The social relations are both formal and informal in character. In the most formal sense, the fellows are made part of the bureaucratic relations that constitute the formal structure of the IPBES. These bureaucratic social relations systematize the IPBES's work, regulate participation, and decide on the division of labor.³ In general, these relations facilitate and mobilize the IPBES's collective capital, intending to create capacity outcomes that meet the IPBES's identified capacity building needs. In the specific context of the global assessment, the bureaucratic relations mobilize the collective capital of the participating experts following the rules and procedures to gain the capacity outcome of being able to produce the assessment report.

By being enrolled in the fellowship programme, the fellows are also introduced to intergenerational social relations (cf. Lim et al., 2017). These relations are formal in that sense that they are the very premise on which the fellowship programme is built, i.e., the idea that the fellows who are early in their careers should be given the opportunity to learn from more senior and thus more experienced experts. This formality is most clearly manifested in the fellowship programme's mentorship structure, whereby the mentors, in addition to providing support, serve as gatekeepers to professional networks that span ages, disciplines, cultural boundaries, and geographical distances (cf. Gustafsson et al., 2019). However, by leaving it up to the mentors (the formal as well as informal mentors) and the fellows themselves to decide what their relations should look like, the idea of intergenerational social relations also relies on informal qualities. It is worth noting that these informal aspects of intergenerational social relations are two-way relations. Thus, even though the fellowship programme formally uses intergenerational relations with the intention to build capacity among the fellows, the facilitation of relations and exchanges of knowledge, skills, and values between fellows and mentors also creates opportunities for senior experts to learn from early-career experts.

Within the framework of the IPBES's formal bureaucratic and semiformal intergenerational social relations, additional informal social relations unfold, which also contribute to the development of capacity outcomes. Among these social relations, intercultural and interdisciplinary relations are shown to be the most prominent and important both among the fellows themselves and in the broader context of the assessment process. For example, the intercultural and interdisciplinary aspects of the fellowship cohort's internal social relations are highlighted as factors that have allowed the group to develop into a "knowledge hub" that facilitates knowledge exchange between the assessment's different chapters. In other words, the intercultural and interdisciplinary social relations of the fellowship programme mobilize the fellows' collective capital, resulting in multiple capacity outcomes, such as the bridging of cultural and disciplinary differences, exchanging knowledge, communicating knowledge, and publishing peer-reviewed papers to further the knowledge on the IPBES. Similarly, the fellows described how well-functioning and sustainable intercultural and

interdisciplinary relations are key factors in the assessment process to reach a high-quality outcome. This is an observation that the fellows most often exemplified by referring to situations when the relations did not work, i.e., by referring to situations when intercultural and interdisciplinary problems hindered the mobilization of the participants' capital.

The fellows' experiences accentuate the fact that social relations are ongoing processes and that these relations are not something that could be formally decided on or something that should be taken for granted. Thus, the IPBES's decision to establish a conceptual framework to create sustainable inter- and transdisciplinary relations has to be understood as an ongoing process. The same applies to the establishment of sustainable intercultural and intergenerational relations. Having experts with experience from previous intercultural and intergenerational projects does not guarantee well-functioning social relations in the present.

In the program, the fellows also meet other IPBES actors who expressed an interest in and a need to build similar capital and abilities by which to mobilize this capital to enhance their capacity to participate effectively in implementing the IPBES's work programme. In the following section, we will explore these capacity building needs beyond the fellowship programme by looking at a wider group of IPBES actors and their experiences of challenges to effective participation.

4.3. Prospects for capacity building beyond the fellowship programme

In the IPBES's processes, there are multiple types of actors, including delegates, technical staff, scientists and experts, and diverse stakeholders. The set of experiences and the knowledge and skills that these different actors bring to the IPBES processes are manifold and frame the different ways in which they see the challenges to meaningful and effective participation. Thus, in this last part of the analysis, we identify prospects for capacity building for effective participation in the IPBES beyond the fellowship programme by drawing on the collective experiences of a wider range of IPBES actors who participated in the IPBES's processes during the IPBES's first work programme.

4.3.1. Additional needs to build capital

The interviewed IPBES actors together describe five general forms of capital that need further capacity building to enhance effective participation in the IPBES: (i) knowledge of the IPBES's processes, (ii) leadership skills, (iii) political skills, (iv) networks, and (v) institutional logics. In what follows, we will describe and analyze these forms of capital one at a time.

First, one of the main challenges described by the interviewed experts and stakeholders was their lack of previous knowledge of the IPBES processes. This lack of knowledge created difficulties with engaging in and executing the tasks assigned to them, e.g., the experts and stakeholders had limited knowledge to imagine what it entails to pursue an assessment and what the output(s) should look like. Knowledge about the IPCC was seen as an external example to draw on. However, the experts and stakeholders also acknowledged that as the IPBES has additional features and functions, the IPCC was a limited source of inspiration. Thus, the process of selecting and introducing new actors to the IPBES's way of working was seen as a critical point in the process of enhancing effective participation in the IPBES.

Second, leadership skills were portrayed as an element that in different ways needs capacity building. First, the fact that experts from one UN region (mainly from the Western Europe and Others group) sometimes lead the IPBES's process in another UN region was identified as potentially creating barriers for the science-policy

³ The IPBES rules of procedures formally guide the recruitment of all IPBES actors with a core principle of engaging a broad and diverse range of stakeholders and experts with an appropriate regional, disciplinary and gender balance (Gustafsson and Lidskog, 2018).

interface. Interest and commitment risk are limited if and when the process is perceived as being led from other centers of power. Thus, to mitigate the risk of losing member states' interest and commitment, enhancing the leadership skills necessary to take on leadership roles within the IPBES is of great importance. A similar point was made concerning stakeholders' process leadership, where European stakeholders tend to lead stakeholder processes. Additionally, leadership and its intersection with seniority were described as an element that could be improved by allowing and giving the capacity to early-career researchers, who may not be as well-known (or cited) as senior researchers, to have leading roles. This was perceived as potentially enriching the processes by combining the accumulated experience of more senior leaders with the energy, time availability and knowledge of qualified early-career experts. Finally, closely related to the question of leadership skills, the experts also brought up the need to pay attention to process facilitation. The experts considered that during the first work programme, the same IPBES actors, mostly scientists, were in charge of both content and process. These responsibilities were allocated to them, although they did not always have the skills or abilities to deal with both at the same time, especially when the IPBES was aiming to, as interviewees have noted, do things differently and in innovative inclusive ways, as well as in cases when a combination of conflict management and facilitation skills was needed. Thus, building capacity in leadership skills needs to be done both on an individual level by strengthening individual actors' performance and on an institutional level by building capable teams that together lead the IPBES's work. Overall, the interviewed actors' experiences of being part of the IPBES indicate that promoting and building capacity for more diverse leadership profiles and roles would enhance the IPBES's processes and outputs.

Third, political skills were also generally identified as crucial but sometimes missing among the participating actors. On the one hand, a stakeholder representative who was interviewed acknowledged that to some extent, the actors would need more political skills to be able to negotiate and make their case among the delegations before the Plenary decision making takes place, as this is the only way the actors have available to influence the decision-making process. On the other hand, a delegate also asserted the following:

The MEP is highly skilled but largely academic-based people, and they do not have political skills. In most cases, they do not have bureaucratic skills. / ... / However, this is one of the problems of the IPBES because in all IPBES organs, such as the Secretariat, the MEP and even the Bureau, you do not have people with a sufficient political experience in my view, and that is a difficulty. Even the delegates by the way, by and large. So, if you have a country, and there are several in this Plenary, who come along with a highly structured political agenda, they can create problems in the process because no one knows how to react.

This lack of political skills among many of the IPBES actors, as well as at the institutional level of the IPBES, reveals a great need for political capacity building to develop the science-policy interface. Thus, building capital that is closely related to scientific practices and is intended for the execution of assessments is not enough to enhance participation and strengthen the IPBES as a science-policy interface. In the process of capacity building, both sides of the science-policy relation need to be included and developed further.

Fourth, the process of building social capital by expanding the IPBES's networks of experts was also seen by the interviewees as an essential capacity building activity to enhance participation in the

IPBES. However, this process was interpreted as having two major challenges. First, when developing new or connecting to already existing social networks, there is a risk of provoking gatekeeping effects, so that people who are invited and engaged in the IPBES's network once are those who are also invited to take part in future IPBES events. This risk was interpreted as skills recycling that impedes other people from joining the process and potentially doing things differently. Second, working in a multi- and transdisciplinary network with unfamiliar people from different communities of practice was also perceived as a challenge. This challenge of building networks closely relates to the challenge and need to build the informal social relations analyzed above within the area of the fellowship programme.

Finally, the interviewees noted how the IPBES, due to its organization, faces a great challenge in the form of a drain and loss of skills and various human and social capital. The challenge is connected to the time-bound character of assignments within the IPBES. For example, MEP members are renewed every three years, and every time an assessment finishes, all technical staff who have been trained and worked on that assessment are likely to be lost. Therefore, it is essential to build capacity by strengthening institutional capital to foster and facilitate smooth and coordinated transitions whereby the knowledge and skills learned are transferred to those actors still working at the IPBES, as well as to those actors who are new to the IPBES process.

4.3.2. Additional needs to build abilities to mobilize capital

As in the case of the IPBES's fellowship programme, the IPBES's bureaucratic structure is the most formal social relation through which its rules of procedures shape the actors' opportunities to participate. The bureaucratic structure differentiates the roles and rights of governmental and non-governmental actors in Plenary sessions, determines the process of nominating and selecting experts, divides tasks and responsibilities inside working groups and structures participation in scoping processes for the identification and prioritization of deliverables (cf. Gustafsson and Lidskog, 2018). However, the structures also bring about challenges in the mobilization of capital to achieve IPBES capacity outcomes. For example, some stakeholders described the rules of procedures, which were to a large extent borrowed from the IPCC, as a threshold, especially since the participation of Indigenous People and Local Communities (IPLC) and the inclusion of the Indigenous and Local Knowledge (ILK) that they hold was not contemplated in the IPCC. The rules of procedure were also seen as compromising the idea that assessments and science-policy outputs are co-produced by confining the engagement of practitioners and national focal points mostly to the review process of the assessments and to the negotiation of the summary for policy makers during the Plenary sessions. This was regarded as hindering other entry points for non-scientific actors in producing the assessments.

Furthermore, the interviewees' collective experience points to how the bureaucratic relations of the rules of procedure also affect other types of social relations that are important for the IPBES's mobilization of capital. For example, the IPBES's bureaucratic relations forge science-policy relations, as expressed by one of the delegates interviewed as follows: "When you say science-policy interface, it's actually more science and less policy and not much interface". Thus, for the IPBES to reach its objective of strengthening the science-policy interface for biodiversity and ecosystem services, the capacity of its science-policy relations to mobilize capital in constructive ways needs to be further developed. For this to take place, the interviewees argue for shared responsibility between the IPBES and the actors who are invited to participate. First, the IPBES has the responsibility for developing a bureaucratic structure that may facilitate participation. For example, the IPBES has held a series

of ILK dialogues as part of the assessments. According to an IPLC representative, these are events that have aimed at enabling communication and linking scientists and nonscientists but that have thus far been unlikely to bring substantive input into the work programme. Second, the invited actors have the responsibility for taking advantage of the opportunity to shape the IPBES's agenda, to bring multiple pieces of evidence into the process and to put efforts into building collaborations and partnerships between scientific and nonscientific actors to contribute to the coproduction of assessments.

The expression of a shared responsibility shows how the science-policy relation within the IPBES is tightly connected to the development of transdisciplinary relations. In other words, the bureaucratic and science-policy relations cascade into transdisciplinary social relations between scientific and nonscientific actors (e.g., delegates and stakeholders), relations that are key for the IPBES. In the IPBES's effort to enhance institutional capacity and create new ways of thinking about diverse knowledge systems, the interviewees depicted the building of abilities to mobilize capital through science-policy and transdisciplinary relations as the IPBES's greatest challenge but also as its greatest promise to strengthen the science-policy interface for biodiversity and ecosystem services.

The idea of shared responsibility also shows how building abilities to mobilize capital through science-policy relations, in addition to formal bureaucratic social relations, also includes informal social relations at the intersection of intercultural, interdisciplinary, intergenerational and gender relations. Similar to the fellows, the interviewed IPBES actors also emphasize the importance of these semiformal social relations in their description of the challenges and problems that occur when these capacities are lacking. A first example of this is the sociocultural differences in communication styles, which are closely related to other cultural practices, such as social hierarchies, the space left between speakers, and disparate ways of dealing with conflict. A second example of this is the challenge of the "different languages" in the sciences or the difficulties faced by social scientists in understanding the jargon and language of natural scientists and vice versa. A third example is the epistemological differences between experts on what is considered evidence in the assessment process and how diverse forms of evidence and knowledge systems are to be included and woven together when writing the assessment reports. Thus, building capacity on how to make the best out of diversity within the assessment process is crucial for the quality of the assessment and for increasing people's ability to mobilize their capital to put it into action.

5. Discussing capacity building in the IPBES

To reach its main objective "to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development" (UNEP, 2010: 5), the IPBES has identified and prioritized capacity building needs that have been treated as desired future capacity outcomes (cf. Beckley et al., 2008; Moore et al., 2006). This study has shown how the IPBES, through multiple activities such as the IPBES fellowship programme, has engaged in capacity building as a means of reaching these capacity building needs (cf. Chaskin, 2001; Craig, 2007; Hunt, 2005). The analysis has also shown how capacity building needs, such as skills related to the policy side of the science-policy interface, have not been addressed or even identified as important to address (see the table in the supplementary material for a summary of the capacity building in the IPBES). In this section of the paper, we will problematize capacity building in the IPBES by discussing

the key findings regarding what capacity has been built and what capacities still need to be built by situating these findings in the wider and ongoing discussion on the development of the IPBES.

Looking closer at the fellowship programme as one of the IPBES's formal capacity building activities, we can see how informal social relations play an important role in the IPBES's everyday work on capacity building. Formally, the general goal of the fellowship programme is to contribute to enhancing and effective participation in the IPBES by "creating a pool of competent professionals able to carry forward the Platform [s] agenda" (IPBES, 2015a, besides Appendix). This general goal is treated as enough of a guarantee that the programme's capacity outcomes will coincide with the capacity building needs identified and prioritized by the IPBES. No additional specified capacity building outcomes are identified as guidance on what capital and which abilities to mobilize this capital that is supposed to be built by the programme. This lack of guidance on how to operationalize the general goal of the programme results in a situation where the specific capacity outcomes at which the fellowship programme aims, instead of being decided on by the IPBES, are individually decided on by the fellows themselves (cf. Gustafsson, 2018). This relatively large autonomy by fellows has advantages because autonomy allows for individual development and empowerment (cf. Chaskin, 2001; Simmons et al., 2011), but there is also the risk that the fellowship programme does not meet the capacity building needs that have been identified and prioritized by the IPBES Plenary (IPBES, 2015b). To ensure this would entail the restructuring of the fellowship programme, in which the IPBES would set the boundaries for capacity building through bureaucratic structures and take stronger control over the process of capacity building and of the capacity building's outcomes (cf. Gustafsson, 2018).

Furthermore, our analysis has shown that the bureaucratic structures within the IPBES, such as the rules of procedures, determine who is to participate in the IPBES and who is not (cf. Díaz-Reviriego et al., 2019; Esguerra et al., 2017; Gustafsson and Lidskog, 2018) and that these structures are the main way in which participation in the IPBES is made possible. It is also within these bureaucratic structures that the IPBES's formal capacity building activities, such as the IPBES fellowship programme, are constructed as a means to "enhance the capacity to participate effectively in implementing the Platform's work programme" (IPBES, 2015b: 24). Thus, the IPBES's bureaucratic structure is to be understood as the key social relation through which expertise is built and mobilized in the form of capital such as skills, knowledge, trust, values, and networks. Due to the importance of this bureaucratic structure for the IPBES's overall capacity, the IPBES's work on capacity building needs to include a critical discussion on the extent to which the IPBES's current bureaucratic structure is enough to address its identified, as well as the yet unidentified, capacity building needs, or whether these structures need to be amended. This conclusion also fits with other insights that also have pointed to the limitations of the IPBES's current rules and structures to achieve its aim of diverse participation by experts and stakeholders (Díaz-Reviriego et al., 2019). Our analysis of what capacities are being built by the IPBES reflects the priorities that it has set in the implementation of the work programme, which has a very strong focus on the production of assessments (IPBES, 2019b). It has repeatedly been suggested, also by the recent formal review of the IPBES (Stevance et al., 2020), that this focus on assessments has come at the expense of the other functions of the IPBES, particularly policy support. As our findings also show, the building of capacities to strengthen this policy support function is not taking place, revealing a severe gap in the IPBES's efforts to strengthen the science-policy interface for biodiversity and ecosystem services.

6. Conclusions

Our findings have pointed to the existence of a variety of objectives for IPBES capacity building activities. While the identified capacity building needs suggest that the IPBES intends to use capacity building as a means to preidentify ends, we have also seen that in practice, the fellows can identify and pursue their own needs. This practice comes closer to capacity building being used as an end in itself to achieve autonomy and empowerment. While this is important and should be maintained, we also identified a significant gap in the capacity that is being built in the IPBES concerning policy support.

What we have seen is that IPBES's work on capacity building has focused its efforts on the science side of the science-policy interface by developing activities that have empowered individual actors in their role as IPBES experts and strengthened the IPBES itself as an epistemic authority. However, the IPBES has at the same time, thus far, neglected to build capacities on the policy side of the interface, resulting in science and policy to develop separate parallel practices within the IPBES instead of developing enhanced and strengthened interactions and collaborations between the two in the field of biodiversity and ecosystem services. This omission is typical of the current literature on science policy interfaces and joint processes of knowledge coproduction, which emphasize the processes of interaction involved in the production of knowledge at the expense of effectively addressing potential users beyond those directly involved and of supporting the processes of decision making that the assessments are meant to inform (e.g., Dewulf et al., 2020; Kowalczywska and Behagel, 2019; Turnhout et al., 2020; Wong-Parodi et al., 2020). We suggest that capacity building for effective and legitimate science-policy-society relations should focus not only on the (co)production of assessments but also on the political capacities in civil society to use these assessments and on supporting policy processes to reflect on the implications of assessments and the translation of findings into locally appropriate options and measures.

The study's findings are relevant beyond the IPBES itself. Intergovernmental expert organizations, such as the IPBES, are not neutral social spaces in which science and policy meet, interact, and work together. Instead, the organizational structure of these expert organizations sets preconditions for how science and policy are able to interact. As the IPBES grows in importance, its capacity building activities will contribute to the shaping of science-policy relations in the environmental domain. Therefore, putting more resources and effort into building capacities specifically dedicated to science-policy relations, including political, communication, and transdisciplinary skills, is important for the IPBES to fulfil its own objective to bridge the gap between science and policy. In addition, enhancing capacity building dedicated to science-policy relations will also contribute to fostering effective and legitimate coproduction processes between science, policy, and society at different levels and scales within and beyond the domain of environmental governance at large.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRedit authorship contribution statement

Karin M. Gustafsson: Conceptualization, Methodology, Formal analysis, Investigation, Writing - original draft, Writing - review & editing, Project administration, Funding acquisition. **Isabel Díaz-Reviriego:** Conceptualization, Methodology, Formal analysis, Investigation, Writing - original draft, Writing - review & editing, Funding acquisition. **Esther Turnhout:** Conceptualization, Methodology, Writing - review & editing, Supervision, Funding acquisition.

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Appendix A. Supplementary data

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