

RESEARCH ARTICLE

Boundary experts: Science and politics in measuring the Sustainable Development Goals

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Abstract

The Sustainable Development Goals (SDGs) purport to cleanly separate politics and technical matters, embodied by the *political* negotiation of goals and targets, and the *technical* creation of an indicator framework. This article analyses how this boundary between science and politics is managed in practice. The statisticians tasked with selecting indicators through the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) are seconded to a global process from national statistical offices. Boundary management requires acceptance of certain normative and political aspects of creating an indicator framework, such as claims to national relevance. Others, like overt national intervention, are however considered impermissible. Each statistician must manage their role as a *boundary expert* that experience irresolvable tensions due to representing specific countries while being mandated to propound scientific practices and norms. Building on this empirical inquiry, the article sketches out a new normative ideal for knowledge pluralism in the measurement of sustainable development. It argues that indicator processes would benefit from more pluralistic indicator bodies than the IAEG-SDGs. Including diversified knowledge and perspectives from civil society and international organisations would explicate already existing political contestation. It would also contribute to capturing more of the complexities of sustainable development in future monitoring frameworks through consideration of a broader selection of methodologies.

1 | INTRODUCTION

The Sustainable Development Goals (SDGs) have been deemed a crucial vehicle for global development in our time (Dodds et al., 2017), but are designed on the basis of a misconceived separation of science and politics. A crucial principle in the SDGs is the division between the political negotiations of goals and targets, and the technical work of selecting the indicators (Fukuda-Parr, 2019). In its own ambitions, the SDG process would deliver the right balance between political agenda setting and technical feasibility—while keeping the two spheres entirely separate (Dodds et al., 2017). The formulation of the goals and targets was intentionally set up as a process of political negotiations among states, while a group of statisticians from national

statistical offices (NSOs) got the mandate to approve an indicator framework. This article investigates how the boundary between science and politics in the SDGs is managed in practice, sketching out a normative ideal for knowledge pluralism in measurement of sustainable development.

The origins of the SDGs, as well as the post-MDG process are described in detail by Dodds et al. (2017). The Open Working Group (OWG) was given a mandate by the Rio+20 UN Conference on Sustainable Development to develop SDG goals, targets and proposals for indicators. The OWG was a political body consisting of representatives from member states, including developing countries. It concluded its work with a proposal to the UN General Assembly in September 2014, with suggestions for 17 goals and 169 targets.

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The formal process of establishing an indicator framework was initiated only after the OWG negotiations were completed. The OWG did however publish a series of consultative statistical notes mapping different topics likely to be included in the SDGs and their data requirements (UNSD and FoC, 2014). The UN Statistical Commission, which is the highest body of the global statistical system, facilitated a series of events and key reports in 2015 to prepare the grounds for establishing an indicator framework. In February, an expert group meeting on SDG indicators recommended the establishment of the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs), a body with the authority to approve or reject indicators (Dodds et al., 2017).

In March 2015, the Statistical Commission held its 46th session (UNSC, 2015). Here the Statistical Commission and its member states formally established the IAEG-SDGs, passing the responsibility for developing an indicator framework from the OWG to the IAEG-SDGs. The Commission stated that the “development of a high quality and robust indicator framework is a technical process” (UNSC, 2015, p. 11). The IAEG-SDGs was thus intended to be a purely technical body. All 27 representatives in the IAEG-SDGs are statisticians from national statistical offices, each of them in turn representing a larger group of member countries. The members are currently chosen on a regional basis, with regions such as for instance *North America and northern, southern and western Europe, eastern Africa and Oceania* represented at any time, but with member countries supposed to change at certain intervals.¹ These are supplemented by representatives from regional and UN organizations who have status as observers, but provide input and support (UNGA, 2017). NGOs, academia, and private business also contribute to the process, for instance through commenting upon specific indicators.

The SDGs are seen as important to global governance because they reframed international development by integrating environmental sustainability and social inclusiveness (Fukuda-Parr, 2019; Weber & Weber, 2020). They also replaced the framing of the Millennium Development Goals (MDGs) of development as a North–South project: While the MDGs focussed exclusively on developing countries, the SDGs include all countries. Actors from the global South and civil society movements were furthermore instrumental in crafting the agenda (Dang & Serajuddin, 2020; Fukuda-Parr & Muchhala, 2020; Siegel et al., 2020).

According to Fukuda-Parr and McNeill (2019, p. 14), the SDGs demonstrate how ‘the real locus of power in setting international agendas has shifted to the selection of indicators.’ While using goals, targets and indicators in global development has a long history (Jolly, 2010), the SDGs were arguably the first to deliberately adopt the language of numbers to articulate

Policy implications

- The Sustainable Development Goal indicator process shows the need to move beyond formal and clean distinctions between dichotomous technical and political spaces when formulating development goals and their monitoring systems.
- Indicator processes on sustainable development and global affairs would benefit from more pluralistic indicator bodies than the Inter-agency and Expert Group on Sustainable Development Goal Indicators.
- Including diversified knowledge and relevant expertise from a broadly defined civil society and international organisations would explicate already existing political contestation.
- Greater knowledge pluralism would also contribute to capturing more of the complexities of sustainable development in future monitoring frameworks through consideration of a broader selection of methodologies.
- Complementary monitoring mechanisms that rely on qualitative narratives could be considered for future development goals.

global norms (Fukuda-Parr & McNeill, 2019). The choice of the indicator is essential in defining the norm itself and therefore becomes a critical point of contestation. Such contestation has been argued to bring politics to quantitative data (Merry, 2011). These political differences are not purely a matter of interest but also values and norms, as well as different interpretations of particular ideas, and in turn how to measure them (McNeill, 2019).

The literature on the SDG indicators is built on top of a wider literature on the politics of indicators. Numbers are often framed as objective, universal and timeless (Porter, 1995). Quantification however entails intervention at multiple levels (Iversen, 2023), and has inherent effects on both knowledge and politics (Merry, 2016). It is deeply intertwined with dominant power structures in contemporary society (O’Neil, 2016; Saltelli et al., 2021; Zuboff et al., 2019). Magnitudes that are measured are rarely pre-given (Desrosières, 1998; Fjelland, 2021). Numbers therefore work best if what they represent can be remade in their image (Porter, 1995; Thévenot, 2022).

It is thus empirically well established that there are political aspects of the SDG indicator process. How the inherently political aspects of the process in practice are *managed*, and what this means for the practice of indicator making, has received less attention. The point of departure of the present study is therefore the following research question: *How does the SDG indicator*

process manage boundaries between science and politics? Building on this empirical inquiry, the article also sketches out a normative ideal for knowledge pluralism in measurement.

In what follows, I present the analytical approach chosen to discern important features in the management of boundaries between science and politics in the SDGs. The article combines analytical concepts from the study of so-called epistemic communities and the field of science and technology studies (STS). The concept of *epistemic communities* was developed to account for international policy coordination facilitated by expert groups in issues characterised by high complexity (Bueger, 2014; Haas, 1992; Rommetveit, 2013). It brings attention to the shared normative foundations, beliefs and scientific criteria of the experts designing the SDGs indicator framework.

STS studies how science develops in practice and sees it as inherently 'political' in the sense that scientific practices are informed by and express norms and values (Jasanoff, 2004; Latour, 2012; Star & Griesemer, 1989). Philosopher Bruno Latour (2012) argues that modernity has been characterised by consistent attempts to separate science and politics through processes of purification that inevitably result in hybrids that contain dimensions of both. Jasanoff (2004) meanwhile shows how science and society are essentially co-produced, with no clinical separation possible. This article engages with the STS concept of boundary organizations, which is tailored to study organisations that cross the borders between science and policy (Guston, 1999, 2001; Parker & Crona, 2012).

The paper is structured as follows: In Section 2, I describe the theoretical and methodological approach. In Section 3, I analyse empirical findings. Section 4 discusses the findings and develops a normative ideal for knowledge pluralism, before I provide a final conclusion and policy recommendations in Section 5.

2 | THEORY AND METHODS

2.1 | Analytical framework

Lidskog and Sundqvist (2015) suggested combining the use of analytical tools from STS with the epistemic community framework. Taking their cue, this article engages with the concepts of boundary organizations and epistemic communities. According to Lidskog and Sundqvist (2015), a complementarity between epistemic communities theory and STS arises from their split focus on so-called *frontstage activities* and *backstage activities*. This stage management concept is tailored to analyse strategies by which science and policy are balanced to present science as an authority for determining what should be done (Hilgartner, 2000). In front-stage management, science meets the public and

is often portrayed as certain and independent from politics. Science can, in close collaboration with policy, be framed as *pure*, with no dimension of politics, values or normativity. Backstage management refers to the practical process of crafting scientific knowledge, which is often characterised by uncertainty and controversies.

STS concepts such as boundary organizations can contribute to research on the SDGs by analysing what takes place behind its formally separated science–politics framework of the process. The concept of boundary organizations is intended to analyse organisations at the interface of science and politics (Guston, 1999, 2001; Parker & Crona, 2012), and is inspired by the earlier concept of boundary objects (Star & Griesemer, 1989). Boundary organizations are characterised by participation of policymakers and researchers and mediate between them, while remaining accountable to both. Organisations that have both scientific and political commitments are prevalent in international contexts. The IAEG-SDGs is an example of a body that may be considered as a boundary organization that operates at the interface of science and policy. It is made up of technical experts but has a decision-making mandate in terms of crafting the indicator framework for the SDGs.

The concept thus implicitly operates with a degree of separation between politics on the one side and science on the other. Boundary organizations exist in between these two distinct realms. I take inspiration from the conceptualisation of boundary organizations presented by Parker and Crona (2012), which emphasises that boundary organizations exist in landscapes of tension with complex institutional environments. They are best conceived of as working in a hybrid space where activities of politics and science are deeply intertwined with no clear separation or permanent stability, even within the organisation itself.

The epistemic community concept is a prominent theoretical concept in studies of expertise within international relations. Peter M. Haas formulated it as means of exploring the influence of knowledge-based experts in international policy-making (Dunlop, 2012). It was partly inspired by earlier concepts of communities of expertise such as Thomas Kuhn's notion of *paradigm* and Ludwik Fleck's concept of *thought collective* (Haas, 1992).

Haas proposed a four-aspect system used to analyse relevant communities of expertise: (1) shared sets of normative and principled beliefs, (2) shared causal beliefs, (3) shared notions of validity, and (4) a common policy enterprise. A mix of principled beliefs, shared notions of validity and expertise thus distinguish the relevant communities of expertise (Haas, 1992, p. 22). The criteria are relevant for many knowledge-intensive contexts (Cross, 2013; Rommetveit et al., 2012).

I take inspiration from the conceptualisation of epistemic communities as networks (Ballo, 2015;

Rommetveit, 2013; Rommetveit et al., 2012, 2021). Such networks are defined as looser affiliations than epistemic communities (Rommetveit, 2013). The concept can therefore accommodate heterogeneous roles and identities across the science–policy interface, as well as differing degrees of involvement in policy projects (Ballo, 2015).

Haas builds on an understanding of science as disinterested and objective, speaking ‘truth to power’ (Rommetveit et al., 2012, p. 4). The epistemic network concept is however more integrative of central lessons from STS: It entails a conceptual acknowledgement of the hybridity of roles across science and policy, with the need for management of the boundaries between them (Rommetveit, 2013). I engage with the epistemic networks concept because it fits the IAEG-SDGs hybrid role of technical expertise and decision-making. It also brings attention to the belief structure of a specific group of technical experts embedded in a transnational network constituted by NSOs.

I furthermore use it to discern how the *front-stage* separation of science and politics in the SDGs is reflected in the self-interpretation and belief structures of a specific group of statisticians, and how this in turn impacts indicator process. In doing so, I assume that the ideas of experts operating in international affairs can impact the outcome of international and global processes (Wendt, 1998). The concept of boundary organization is meanwhile used to discern the crucial features of the continuous boundary work that is undertaken in practice *backstage* by the same statisticians to protect and project the scientific status of a global indicator process.

2.2 | Methods

The paper draws on 15 interviews with key informants from the IAEG-SDGs, UN organizations, diplomatic missions, national bureaucracies and academia. The informants were chosen to investigate the work of the IAEG-SDGs at different levels in the SDG indicator process. Interviewing statisticians that have the mandate to shape the indicator framework is crucial. So is interviewing individuals in UN agencies and national bureaucracies that play a role in the process. This wide variety of relevant backgrounds ensures a plurality of perspectives and accounts of the process of crafting an indicator framework. With regard to the IAEG-SDGs, I have interviewed representatives from its secretariat as well as member countries and observers.

It has however not been possible to get access to interview all members of the expert group. A possible explanation for this is the sensitivity of its work. The IAEG-SDGs has a high-profile international mandate: It consists of technical experts charged with crafting an immensely complex indicator framework in the

contested field of global sustainable development. This position as dual experts and government officials in a sensitive international process may have brought about a hesitancy to do interviews.

Thirteen interviews were audio-recorded while two interviews were documented by written notes. All interviews were conducted with the consent of the informants and all used quotes have been approved by interviewees. The individuals interviewed are anonymised, as most have an active role in the SDG indicator process and are interviewed about sensitive subject matter. The interviews were conducted on a prior informed consent basis.

Interviews were semi-structured and aimed to be process oriented (Tavory, 2020), emphasizing the how, who, when and where of the SDG indicator selection process. Informants were asked broad questions about the work and position of the IAEG-SDGs. The interviews also dwelled on the broader significance of science and politics in the SDGs. An emphasis was put on the particular role of the IAEG-SDGs as a technical body.

Tavory (2020) suggests that the metaphor of Isaac Reed (2011) of culture as a *landscape of meaning* is useful when analysing narratives from interviews. In-depth interviews provide some sort of window into cultural sense-making. They can therefore help us construct the general contours of the landscape where the action takes place. This provides a useful way to think about the different possible relationships between the representations that interviews draw forth and belief structures that exist outside the interview setting. Interviews give a sense of what kind of narratives make sense in the world of the interviewees, which may in turn identify structural aspects in their landscapes of meaning.

Through using interviews, I attempt to chart out such underlying landscapes of meaning that shape how actors central to the IAEG-SDGs make sense of the SDG process. I specifically analyse the parts of my material that revolve around the meanings that the specific community of statisticians in the IAEG-SDGs formulate when making sense of their own role in a complicated international process.

Why care about the landscapes of meaning of international experts? Wendt (1998) shows how the ideas of experts can have real world impacts in international affairs. Scientists for instance participated in the naturalisation and reification of the Cold War, sharing the responsibility for its prolongation. I postulate that the ideas of experts also can impact the design and management of an indicator framework.

The NVivo software was used to identify, organise and code relevant themes for the purpose of data analysis. The specific themes used in the analysis of interview material will be elaborated upon in the next section. To Ryan and Bernard (2003, p. 87), the terms

theme and *expression* connote the fundamental concepts we are trying to describe when performing analysis. They describe themes as conceptual linkages of expressions. Themes were also chosen for further analysis because they can be interpreted as *indigenous* (Ryan & Bernard, 2003), in the sense that they arise from specific scientific discourses that require exposure to certain kinds of academic traditions and disciplines to partake in. Understanding and translating such discourses is particularly valuable in shedding light on the landscapes of meaning of crucial actors in the SDG process.

The article also includes a review of 50 documents from the SDG indicator selection process. The documents were used to chart out the process of crafting the indicator framework and contributions of different communities of expertise. A list of reviewed documents is included in Appendix S1.

3 | ANALYSIS: SEPARATING POLITICS AND SCIENCE IN THE SDGS

This section contains empirical analysis, which will be used to sketch out a normative ideal for knowledge pluralism in the management of indicators in the next chapter. The general finding from the interview material is that the statisticians held particular views of their own role as arbiters and guarantors of scientific objectivity in crafting the indicator framework. This view in turn entailed a binary conceptualisation of technical and political aspects of the SDG indicator process. The community of statisticians was contrasted to what is considered decidedly *political* actors, such as diplomats and policy experts.

Three more specific and interrelated themes emerged. One theme was the IAEG-SDGs as a community of expertise. The other aspects were the role of national perspectives in different forms in the indicator process, such as the expression of national interests and sensibilities in the indicator process. A third topic was the role of different kinds of expertise. The structure of the coming analysis follows these three themes.

3.1 | The IAEG-SDGs and NSOs as a network of expertise

In this section, I will show how the narrative of separation between science and politics built into the SDGs is reproduced by the experts involved. The epistemic network concept directs my attention to the common normative foundations and belief structure of this crucial group of statisticians. Below I argue that the embeddedness in an epistemic network constituted by

official statistics and NSOs is crucial for enabling the IAEG-SDGs to distinguish itself from what is considered undue *political* influence.

This article takes cues from Dunlop (2012), which recommends structuring analysis of communities of expertise by employing the four-aspect system of Haas (1992). Regarding shared normative beliefs, belief in the independence, integrity and objectivity of statisticians from NSOs is a key element in the IAEG-SDGs. One of the most pronounced features of the IAEG-SDGs lies in the way it draws on the professional ethic and self-interpretation of statisticians from the NSOs. This ethic crosses borders through a tight network of official statistics that supports a distinct professional and scientific identity built on notions of independence and objectivity. According to an interviewee:

When we sit in the IAEG-SDGs we are above all technical experts. It is clear when I talk to my colleagues that it is different how many instructions governments give on what should be said. Some people have presented already written statements. But the statistical agencies are proud to be objective, so they regard that as a disturbing element in our affairs. We are the most fateful to the idea that we should show what is happening in society. And then you should not wonder about what looks nice or not. So there is surely political influence, but not in the room where I sit.

(IAEG-SDGs member 1)

A causal belief found in the interviews is that if statisticians can tend to 'technical' matters in an independent fashion, it will result in a framework characterised by both objectivity and relevance to the SDGs. According to an interviewee, the best way to create the framework is to let the statisticians of the IAEG-SDGs handle it without including other kinds of policy expertise: 'I actually think having the technicians in the room is the best way to do it, and then we go back and talk to experts particularly about the policy indicators' (IAEG-SDGs member 2). The policy enterprise of the IAEG-SDGs is creating a monitoring and indicator framework for the SDGs grounded in the international statistical system and based on statistical methodology and principles.

The IAEG-SDGs is made up of statisticians from NSOs. Methodology from the statistical science and the principles of official statistics undergird shared notions of validity. An interviewee states that the work of the IAEG-SDGs is largely characterised by ideals of independence and objectivity and that there is a shared belief in statistical systems: 'The statistical principles are one of the things that we know we agree on. There

is a document saying that we need to base our work on statistical standards when measuring so we return to statistical framework all the time' (IAEG-SDGs member 1). The statisticians of the IAEG-SDGs are already embedded in this international community of statistical experts—networked through the collaboration between NSOs and international bodies such as the Statistical Commission.

This also highlights how statisticians from NSOs are no neutral arbiters of statistical data and indicators. A member of the group explains that the NSOs of the IAEG-SDGs can be conservative in what data sources they prefer: 'National statistical offices in general are very conservative. They tend not to move away from what they do as hard figures and objective numbers. Whatever is subjective or perception they do not like very much' (IAEG-SDGs member 3). This is corroborated by Satterthwaite and Dhital (2019, p. 98), who shows that the statisticians have resisted data innovations such as big data, geo-located data and crowd-sourced data by insisting on 'internationally established methodology' as a requirement for SDG indicators.

Analysing the IAEG-SDGs as a group of expertise shows the importance of being embedded in a wider epistemic network. The epistemic network that undergirds the IAEG-SDGs has, to some extent, evolved historically. It builds on the scientific traditions, ethos and professional culture of NSOs that were established from the 18th century onwards (Hacking, 1990), as well as the international statistical system as embodied by, for instance, the Statistical Commission. Hacking (1990) also emphasises how statisticians as a group historically have often been supporters of the liberal interventionism, which arguably also characterises the SDGs. In this sense, the indicator process of the SDGs builds on an established epistemic network.

Networks are looser and more organic affiliations than the ideal type of epistemic communities outlined by Haas (1992). Members of the IAEG-SDGs, however, propound the belief that deciding on the SDG indicator framework should be left to themselves as independent technical experts to become as *objective* as possible. This separation relies heavily on the self-interpretation and scientific ideals of statisticians working in NSOs. The networks of official statistics thus glue the IAEG-SDGs together through shared normative underpinnings, professional ethics and statistical methodology and principles. Such traits form the basis of shared self-interpretation that enables it to clearly distinguish itself and its normative project in the SDGs from other actors, centring itself as a neutral arbiter of the scientific nature of the SDG indicator process. It corresponds to and in turn supports an image of objectivity that is vital to uphold the technical framing of the process, and

what Hilgartner (2000) would call the *front-stage management* of the SDGs.

3.2 | Managing national interest in a global process

In this section I turn my attention to the practical management of boundaries between science and policy performed by the IAEG-SDGs, or what Hilgartner (2000) would refer to as *backstage management*. This particular management is enabled by the belief structures elicited in the previous section, separating the role of scientific expertise from what is considered to be political actors. I emphasise the role of national interests in a global indicator process that is managed by experts from NSOs.

According to a diplomat intimately involved in the SDG negotiations, worries were expressed already at an early stage in the SDG negotiations that the indicator process would be politicised if based on negotiations between country representatives. This was an important argument for making the IAEG-SDGs a technical body and handing the process to statisticians from NSOs (Ministry of Foreign Affairs diplomat 1). Several informants allege that the entry of national interest requires that the IAEG-SDGs defends its *technical* space from intrusion by political actors such as policy makers:

We came together as technical experts, but unfortunately sometimes for some countries the push from policy makers was evident. We had to fight against that. For instance, there are countries that have concerns with indicators on certain topics – for example subsidies – because a country may have developed policy on the issue and there was concern over the topic being measured. So the IAEG-SDGs members had to try and balance all of that and remain technical and above the politics.

(IAEG-SDGs member 2)

National interest can seep into the IAEG-SDGs from both outside and inside due to the ambiguous position of its representatives. The body represents a heterogeneous group of countries, with regards to for instance size, development, interests, geopolitical clout and statistical capacity. Countries at times have fundamentally different interests and sensibilities with regards to the design of the indicator framework. Developed countries for instance frequently express divergent interests from developing countries pertaining to inequality, aid and climate change:

We have a different condition of the players in terms of countries mainly because developed countries do not have the same interests in specific fields as the rest of the world. In some fields I think the interests are shared by everyone, but not necessarily for some topics.

(IAEG-SDGs member 3)

A key challenge of the IAEG-SDGs is thus to get its members to propound a global and scientific perspective, as its statisticians are crafting a worldwide indicator framework while representing countries:

In some cases my feeling is that the positions of the representative of member countries are not always the statistical positions, but rather political positions. Now there is also this trade off because when you go to this meeting you have to keep your mind in the global setting, not in the national setting.

(IAEG-SDG member 3)

A channel through which national interests manifest themselves in the IAEG-SDGs is the compromised independence of certain NSOs. Lack of institutional independence leave their respective representatives vulnerable to political influence:

Now for most countries there is practical independence from government decisions. I will tell you that usually the government respects the independence of the statistical offices. But not in all cases. And so this is a problem.

(IAEG-SDGs member 3)

Some countries are also not comfortable with certain indicators due to political sensitivity in areas such as for instance sexual health or agricultural subsidies:

There were instances where they were quite reluctant to improve an indicator if they knew it would be hard to get at the national level. Those were a few very isolated cases. But the rest it was more like trying to come up with something that would make sense to every regional context.

(UN statistician 1)

A national perspective that is considered more legitimate by members of the IAEG-SDGs is the relevance of the indicator framework to member countries. Some indicators were not perceived as relevant to all countries, which in turn induced protests and reservations. This has led the IAEG-SDGs to reassure countries that they

are not required to use all indicators in their own national reporting.

The IAEG-SDGs must moreover approve indicators in policy fields that are not traditionally in the domain of NSOs, which has led some informants to suggest the inclusion of relevant expertise from national bureaucracies or international organisations directly in the indicator process (National ministry of agriculture bureaucrat 1). Suggestions of further integrating policy expertise has however caused worries. Some informants fear that this could further politicise the work of the IAEG-SDGs, to the detriment of its technical mandate and priorities. According to a member of the IAEG-SDGs, including policy professionals or diplomats could lead to a greater politicisation: 'It would become a political discussion and not a technical discussions' (IAEG-SDGs member 2).

Including other experts and policy professionals in the process would therefore render the work of the IAEG-SDGs *more* political or political in a qualitatively different manner. Several sources from the IAEG-SDGs cite its first meeting as an example of supposed politicisation due to the presence of policy officials and diplomats that in some cases stood in for statisticians. This in turn led to a sentiment for moving its second meeting out of New York, and to Bangkok, where diplomats and international policy officials are less present. These accounts are somewhat corroborated by McNeill (2019). According to two interviewees, such external pressures have subsided in the following meetings due to limited presence in the IAEG-SDGs of other professions than statisticians (IAEG-SDG member 2; IAEG-SDGs observer 1). This overt boundary work reflects the attempt to neatly sort politics and technical matters.

The boundaries between science and politics and the need to manage them are thus immanent not only in the IAEG-SDGs as a collective body, but also in its individual members. They are intended to embody the international norms and scientific practices of official statistics in crafting a global indicator framework, all the while representing member countries. Its members can in this sense be understood not only as partakers in a *boundary organization*, but as *boundary experts*. The tension between national perspectives and interests, and the internationalised norms, institutions and culture of the statistical science, is tangible.

As predicted by Parker and Crona (2012), this boundary management requires continuous negotiation. Management of politics and science in the SDGs is ceaseless and complex. It needs to be understood as a shared outcome of not only an institutional setup which attempts to clinically divide science and politics, but also the shared belief structures of the epistemic network that is embedded with decision power. The IAEG-SDGs defends its technical space from a manifold of actors, distinguishing itself through drawing upon the professional and scientific ideals of official statistics.

4 | DISCUSSION

4.1 | Managing science and politics as boundary experts

The position as a *boundary expert* is never stable. The concept highlights the conflicts experienced by experts when scientific norms and ideals come into conflict with the tangled reality of science–policy interfaces. The case of the IAEG-SDGs shows how not only organisations, but also individual experts may get caught in an unresolvable hybridity of science and politics. It stands between the internationalised networks and scientific ideals of official statistics, and allegiance to states that is manifested both as overt influence and intervention in the indicator framework, as well as more accepted notions of national relevance.

The lines between what is rendered acceptable and not can, however, appear blurred. The boundary between science and politics in the SDG indicator process is drawn at the kind of politics that the statisticians invariably must deal with: Inside falls certain unavoidable normative aspects of making an indicator framework to monitor politically negotiated targets and national sensibilities about what kind of indicators are relevant for different countries. Outside falls the entry of more overt forms of national interests, rejection of certain types of indicators out of national sensibilities, as well as diplomacy and policy expertise.

Its individual members operate in a landscape of frequent tension between national interests and scientific criteria and norms that reflect their own positions as technical experts in a global process that are seconded from government bureaucracies. The SDG indicator process therefore serves as an illustrative example of the ‘irreducible problems’ that epistemic networks often manage (Rommetveit, 2013, p. 6), in the sense of being mandated with the task of separating science and politics in crafting a global indicator framework. The *boundary experts* of the IAEG-SDGs face dual epistemic and institutional demands that are impossible to fully reconcile.

4.2 | Knowledge pluralism in measurement of sustainable development

I will now sketch out a normative ideal informed by the empirical analysis for how to manage indicator processes in sustainable development with regards to their knowledge composition. The practical task of crafting a globally relevant indicator framework on sustainable development is fraught with enormous practical difficulty. Hiding politics and value contestation beneath a façade of technical discourse, however obscure them from the public eye. An unfortunate side effect of the division of the SDGs into a *political* and *technical*

component may be that contestation about indicators that are highly political and value-laden are suppressed because it is regarded as inappropriate in a technical body. Rendering these matters purely *technical* could hide power struggles and shut down political debate where it is direly needed (Merry, 2011).

It would, for instance, be impossible to design an indicator that is intended to monitor sexual health or reductions of agricultural subsidies in a manner that is not subject to political contestation. Such contestation may reflect deeply embedded differences in not only values, but also theories of development (Fukuda-Parr, 2019; Satterthwaite & Dhital, 2019; Yamin, 2019). It is however concealed by a technical process that remains even less accessible to the public than an overt international political negotiation.

Indicators have effects on other actors through impacting governance and knowledge (Merry, 2016). In the case of the SDGs, such effects are worldwide in their impact. The indicators reinterpret the goals and frequently waters down or distorts their ambition. Quantifying parts of a complex problem does not necessarily entail the exclusion of deep analysis, but that is often the outcome (Porter, 1994). The IAEG-SDGs has played a decisive role in such a flattening of the SDGs. The SDG indicators for instance frame food insecurity first and foremost as an issue of caloric supply and demand and individual experience, while the dimensions of democratic agency and environmental sustainability remain elusive (Iversen et al., 2023a, 2023b). It is therefore a risk that policies and programmes with indirect and long-term effects on food security receive less attention than more direct and short-term interventions. To ensure that not only what is easily counted counts (Turnhout et al., 2014, p. 594), but also future monitoring systems could rely more on complementary qualitative narratives.

Processes for establishing monitoring frameworks for global development goals are furthermore too important to suppress open and democratic contestation that will in any case take place under the guise of a purely *technical* process. They should become more transparent, inclusive and democratic. Country-level negotiations over an indicator framework could bring more transparent contestation over the value conflicts inherent in designing a crucial pillar of the SDGs. Such negotiations would however bring its own host of problems, and risk falling prey to more overt stand-offs between national interests.

Similar critiques of technocratic governance have already been made inside and outside the context of the SDGs. When managing issues that entail extreme complexity, such as global sustainable development, including a plurality of perspectives is legitimate and warranted (Funtowicz & Ravetz, 1993a, 1993b). Global affairs are too complex and situated to be arbitered exclusively by highly specialised expertise (Zambarnardi,

2016). According to Wendt (1998, p. 117), decision-making in such contexts needs 'every kind of knowledge it can get'.

In the context of SDGs, Fukuda-Parr (2019) argued that the technical nature of the indicator process stifled broad debates and definitions of inequality. Kim et al. (2022, p. 383) meanwhile recommend the revival of a more political conception of gender equality and women's empowerment in SDG monitoring, due to negligence of the structural aspects of gender equality. Building on my analysis, I suggest including a greater plurality of knowledges and perspectives directly into similar indicator processes.

A feasible solution to avoid suppressing the political and value dimensions of choosing indicators is to include a much more varied group of actors. Fukuda-Parr (2019) has suggested diversifying the IAEG-SDGs with development data specialists from UN agencies as a potential remedy for such concerns. A broadly defined civil society should also be included. The SDGs have no built-in enforcement mechanisms, leaving civil society as its primary watchdog (Fukuda-Parr, 2016). It should therefore play a much more pronounced role in shaping the monitoring framework that it tracks and compels countries and organisations to comply with.

The plurality of expertise of members from different sectors of civil society would further complement that of statisticians from NSOs. Civil society has in several cases argued for indicators to embody broader interpretations of goals (Fukuda-Parr, 2019; Unterhalter, 2019). At the extended consultation process surrounding the SDG indicator framework, such actors displayed a keen interest in and complementary competence for designing the indicator framework. In an open consultation on Target 2.1 (Zero Hunger), NGOs, the private sector and academia for instance submitted almost 50 remarks (UNSD, 2015). The proposed indicators captured elements of food security such as dietary diversity, malnutrition, public welfare schemes, public financing, the presence of food security legislation, agricultural technology investment, crop yields, food safety, the impact of climate change, freshwater availability, resilience, sustainability, self-sufficiency and breastfeeding. There were also repeated calls for disaggregation of SDG 2.1 indicators into groups of gender, ethnicity, age and disability.

Such a body should be set up through a deliberative, open and inclusive process. This requires resolve in dealing with a main constraint of current indicator process, which is the very short time frame allocated to the SDG indicator process (Iversen et al., 2023a, 2023b). Demarcating the boundaries between relevant and irrelevant expertise will be challenging but not impossible. A good starting point is including professionals with experience in development statistics and monitoring frameworks from academia, NGOs and international organisations. My goal is, however, to sketch

out normative ideal for how to conduct an indicator process, rather than crafting a detailed organisational map of such an institution. That topic deserves a whole article in and of itself.

5 | CONCLUSIONS AND POLICY RECOMMENDATIONS

The SDGs are built on top of a misconceived and binary separation of science and policy. This division is reproduced by the statisticians that manage its indicator process. The IAEG-SDGs is embedded in the epistemic networks of NSOs, which provides shared normative underpinnings, scientific principles and belief structures. Manifesting the supposedly scientific side of this binary partition enables them to claim the role as neutral experts and arbiters of objectivity, while defending their technical space from influences that are considered politicising. Certain political aspects of creating an indicator framework, such as claims to national relevance, are however considered inherent. Others, such as overt national intervention or the presence of policy expertise, are determined to threaten its scientific nature.

Another key finding is that each statistician must manage science and politics as *boundary experts*. Like boundary organizations, they experience irresolvable tensions due to operating at the interface between science and politics. For the members of the IAEG-SDGs, this tension arises from individual members representing specific countries, while being mandated to propound scientific norms that are intended to promote the greater global good.

The SDG indicator process furthermore shows the need to move beyond clean distinctions between dichotomous technical and political spaces when formulating development goals and their monitoring systems. To decide upon future international indicator frameworks, decision bodies that are more diverse than the IAEG-SDGs are needed. In addition to relevant expertise from international organisations, new indicator processes should draw upon the breadth of experience and expertise of a broadly defined civil society, including NGOs and academia. The inclusion of a more diverse set of actors with decision power would bring the SDG indicator process much needed democratic contestation building on a greater plurality of knowledge and perspectives. It may also contribute to capturing more of the complexities of sustainable development in future monitoring frameworks through consideration of a broader selection of monitoring methodologies.

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CONFLICT OF INTEREST STATEMENT

Thor Olav Iversen declares that he has no conflict of interest.

DATA AVAILABILITY STATEMENT

Some of the data (document list) that supports the findings of this study are available in the supplementary material of this article. The interview material is not publicly available due to privacy or ethical restrictions.

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ENDNOTE

¹ The current membership of the IAEG-SDGs is [listed here](#).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Appendix S1.

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