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1 **Scoping article: Research frontiers on the governance of the Sustainable**
2 **Development Goals**

3

4 *Author team*

5 Thomas Hickmann*¹; Frank Biermann,² Carole-Anne S nit², Yixian Sun³, Magdalena Bexell¹, Mitzi Bolton⁴,
6 Basil Bornemann⁵, Jecel Censoro⁶, Aurelie Charles³, Rodrigo Correa Ramiro⁷, Dominique Coy⁴, Frederik
7 Dahlmann⁸, Mark Elder⁹, Felicitas Fritzsche¹⁰, Thiago Gehre Galv o⁷, Jarrod Grainger-Brown⁴, Cristina
8 Inoue¹¹, Kristina J nsson¹, Montserrat Koloffon Rosas¹², Kerstin Krellenberg¹³, Enayat Moallemi¹⁴, Ivonne
9 Lobos Alva¹⁵, Shirin Malekpour⁴, Dianty Ningrum⁴, Aneliya Paneva¹⁶, Lena Partzsch¹⁷, Rob Raven⁴, Eszter
10 Szedlacsek¹², John Thompson¹⁸, Melanie van Driel², J ssica Viani Damasceno¹⁹, Robert Webb²⁰, Sabine
11 Weiland²¹

12 1 Lund University, Sweden, 2 Utrecht University, Netherlands, 3 University of Bath, United Kingdom, 4
13 Monash University, Australia, University of Basel, Switzerland, 6 Newcastle University, United Kingdom, 7
14 University of Brazil, Brazil, 8 Warwick Business School, United Kingdom, 9 Institute for Global
15 Environmental Strategies, Japan, 10 Stockholm University, Sweden, 11 Radboud Universiteit, Netherlands,
16 12 Vrije Universiteit Amsterdam, Netherlands, 13 University of Vienna, Austria, 15 Deakin University,
17 Australia, 15 Stockholm Environment Institute, Sweden, 16 University of Oldenburg, Germany, 17 Freie
18 Universit t Berlin, Germany, 18 University of Sussex, United Kingdom, 19 President Antonio Carlos
19 University Uberl ndia, Brazil, 20 Australia National University, Australia, 21 Universit  Catholique de Lille,
20 France

21 **Corresponding author: Thomas Hickmann, Lund University, Faculty of Social Sciences, Department of*
22 *Political Science, Sweden; email: thomas.hickmann@svet.lu.se*

23

24 ***Author Contributions***

25 *T. H. led the conceptualization, investigation, methodology, writing of the original draft as well as the review*
26 *and editing process. F. B., C.A. S. and Y. S. co-led the conceptualization of the article, supported the investigation,*
27 *methodology, writing of original draft and reviewed and edited the final paper. All other authors provided input*
28 *to the original draft and reviewed and edited previous versions of the paper.*

29

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31 *Policies, politics and governance (based on pre-defined list of keywords in the database of Global Sustainability)*

32

33

Non-Technical Summary

34 This article takes stock of the 2030 Agenda and focuses on five governance areas. In a nutshell, we see a quite
35 patchy and often primarily symbolic uptake of the global goals. Although some studies highlight individual
36 success stories of actors and institutions to implement the goals, it remains unclear how such cases can be
37 upscaled and develop a broader political impact to accelerate the global endeavour to achieve sustainable
38 development. We hence raise concerns about the overall effectiveness of governance by goal-setting and raise
39 the question of how we can make this mode of governance more effective.

40

41

Technical Summary

42 A recent meta-analysis on the political impact of the *Sustainable Development Goals* (SDGs) has shown that
43 these global goals are moving political processes forward only incrementally, with much variation across
44 countries, sectors and governance levels. Consequently, the realization of the 2030 Agenda for Sustainable
45 Development remains uncertain. Against this backdrop, this article explores where and how current
46 incremental political changes are taking place due to the SDGs, and under what conditions these
47 developments can bolster sustainability transformations up to 2030 and beyond. Our scoping review builds
48 upon an online expert survey directed at the scholarly community of the ‘Earth System Governance Project’
49 and structured dialogues within the ‘Taskforce on the SDGs’ under this project. We identified five governance
50 areas where some effects of the SDGs have been observable: (1) global governance, (2) national policy
51 integration, (3) subnational initiatives, (4) private governance, and (5) education and learning for sustainable
52 development. This article delves deeper into these governance areas and draws lessons to guide empirical
53 research on the promises and pitfalls of accelerating SDG implementation.

54

55 1. Introduction

56 In 2015, the United Nations General Assembly adopted the 2030 Agenda with 17 *Sustainable Development*
57 *Goals* (SDGs) and 169 targets with the overall ambition ‘to transform our world’ (United Nations 2015). At
58 that time, expectations were high that the new programmatic vision agreed upon by the United Nations could
59 drive policies at the global, national and local levels to attain sustainable development. With the first half of
60 the timespan of the 2030 Agenda for Sustainable Development (2030 Agenda) now over, the SDGs seem to
61 be in an acute crisis. A recent report by the United Nations Secretary-General even calls for a ‘Rescue Plan for
62 People and Planet’, highlighting that the vast majority of the global goals show limited progress and several
63 goals and targets are even regressing (United Nations 2023).

64 A global assessment of the political impact of the SDGs (subsequently referred to as the ‘SDG Impact
65 Assessment’) published in 2022 has pointed to serious governance gaps in the implementation of the SDGs
66 (Biermann et al. 2022a, 2022b). The assessment brought together 61 scholars who evaluated more than 3,000
67 studies to determine whether and how the SDGs have steered the behaviour of actors and institutions at all
68 governance levels. The meta-analysis identified three main types of steering effects of global goals, described
69 as *discursive*, *institutional* and *normative* effects. The assessment showed that the political impact of the SDGs
70 has so far largely been discursive, affecting the way actors understand and communicate about sustainable
71 development. At the same time, the assessment indicated that the SDGs have in some instances led to the
72 creation of new institutions and norms mainly understood as rules and policies, with much variation across
73 countries, sectors and levels. Overall, the assessment concluded that the SDGs had only limited transformative
74 impact and are at best slowly moving political processes forward. The findings of the assessment were
75 reinforced by other major studies that also found that SDG implementation is lagging behind due to a series
76 of interlocking crises and governance challenges (e.g., Sachs et al. 2022; United Nations 2022).

77 In this larger context of slow and insufficient action for implementing the SDGs, we focus here on five
78 governance areas where at least some steering effects have been observable: (1) global governance for the SDGs,
79 (2) national integration of the SDGs, (3) subnational initiatives for SDG implementation, (4) private
80 governance for the SDGs, and (5) education and learning for sustainable development. These governance
81 areas were identified through an online expert survey directed at researchers affiliated with the Earth System
82 Governance Project and were further discussed and elaborated within five working groups of the specialized
83 ‘Taskforce on the SDGs’ under this project. Our review points to fragmentation in the current efforts to
84 implement the 2030 Agenda for Sustainable Development and underscores the need of a deeply integrated
85 approach to achieve the SDGs across all governance levels.

86 The remainder of this article proceeds as follows. The following section offers an overview of the current state
87 of SDG implementation. The third section describes our approach with the online expert survey and the focus
88 on five governance areas with initial political changes and explains our rationale to draw lessons from these
89 areas. The fourth section presents insights gained through our scoping review of these five governance areas.
90 Finally, we summarize the main findings of this review and point to avenues for further research and policy in
91 the fifth section.

92 **2. Where are we heading with the SDGs?**

93 The 2030 Agenda with its 17 SDGs was the outcome of two years of intense diplomatic efforts and
94 international negotiations (Kamau, Chasek and O'Connor 2018). Conceptually, the SDGs constitute the
95 most comprehensive attempt by the United Nations to define universally agreed political ambitions to shift
96 the world on to a more sustainable and resilient path and can be seen as a major diplomatic success. Based on
97 the concept of governance by global goal-setting (e.g., Kanie and Biermann 2017), the SDGs suggest policy
98 directions to encourage national governments and ultimately all other political and societal actors to increase
99 their efforts to attain sustainable development. The SDGs are not legally binding, however, and governments
100 do not have to formally incorporate the goals into their political-administrative systems. Overall, both the
101 global goals and the 2030 Agenda are highly aspirational, which led many scholars and policymakers placing
102 high hopes on these goals to advance a global transformation towards sustainable development.

103 Such hopes have since then been watered down by many reports that point to the lack of progress in meeting
104 the SDGs, even though first years after the adoption of the SDGs witnessed some achievements in limited
105 areas. For example, between 2015 and 2020, maternal and child mortality was reduced considerably globally,
106 more people gained access to electricity, and the proportion of women in leadership positions slightly
107 increased (United Nations 2020). On the other hand, already in this period the number of people in absolute
108 poverty grew (for the first time since 1989) along with little progress in the fight against hunger, climate
109 change, and social inequality (Global Sustainable Development Report 2019).

110 The outbreak of Covid-19 and a lack of a concerted global action against the pandemic, Russia's invasion of
111 Ukraine with the related global energy, food and security crises, numerous other conflicts as well as the
112 growing frequency and severity of environmental disasters have made the situation worse (e.g., Krellenberg
113 and Koch 2021a). Earlier successes have been reversed and at the midpoint of the SDGs, disappointment and
114 frustration with the lack of political motivation or will among decision-makers to put the global goals as policy
115 priority is ubiquitous. The latest available reports now stress that it is becoming increasingly unlikely that any
116 of the 17 SDGs will be met by 2030. The 2023 special edition of the United Nations General-Secretary's report
117 on SDG progress goes even so far as to call on world leaders to deliver a rescue plan for people and planet that
118 is focused on three issues: policies and investments that accelerate progress across goals, financing and
119 improving conditions for developing countries to attain sustainable development, and most importantly for
120 this article, governance and institutional capacities for sustainable and inclusive transformation (United
121 Nations 2023: 26-41).

122 Better governance of the SDGs is crucial for the transformation towards global sustainability. With this article,
123 we delve deeper into key governance areas where at least some progress towards sustainable development has
124 been achieved. By this means, we contribute to the current debate about opportunities for accelerating SDG
125 implementation and ask: Where and how is incremental change taking place due to the SDGs, and under what
126 conditions can these areas be seen as engines of change for a larger transformation?

127 **3. Five governance areas with initial political changes**

128 The SDG Impact Assessment (Biermann et al. 2022a, 2022b) was the first comprehensive study that focused
129 on the political steering effects of the SDGs on the governance of sustainable development across actors,

130 sectors and levels. Despite the lack of substantial political impact of the SDGs, this study pointed to a number
131 of governance areas where initial political changes occurred due to the SDGs. Building upon these insights,
132 we conducted an online expert survey that we directed at the members of the Earth System Governance
133 Project, which is the largest global research alliance on sustainability governance with more than 500 scholars
134 across the globe mainly from the social sciences and humanities (Earth System Governance Project 2023). The
135 survey comprised 15 questions and entailed closed and open response options. The main rationale of the
136 survey was to solicit the opinions of field experts on the areas in which they see the strongest impact of the
137 SDGs on actors and institutions at various governance levels, as well as on the themes they perceive as deserving
138 more attention in future research on the SDGs. Following an initial personal invitation in April 2021 and a
139 reminder via email, a total of 49 experts took part in the survey (the survey questions are available as
140 supplementary material).

141 This online expert survey led to insights into five key governance areas in which the adoption of the SDGs
142 generated some political steering effects, namely (1) *global governance for the SDGs*: the impact of the SDGs
143 on international institutions set in place to promote goal implementation, (2) *national policy integration of*
144 *the SDGs*: the impact of the SDGs on strengthening institutions and policies for sustainable development in
145 national governments, (3) *subnational initiatives for SDG implementation*: the impact of the SDGs on efforts
146 by subnational authorities to foster sustainable development in their jurisdictions, (4) *private governance for*
147 *the SDGs*: the impact of the SDGs on the private sector and (5) *education and learning for sustainable*
148 *development*: the impact of the SDGs on knowledge and higher education institutions. While some of these
149 areas are widely studied, current scholarship has not comprehensively focused on the conditions that trigger
150 or hamper sustainability transformations across countries, sectors and levels of governance. After the
151 identification of these five areas, we thus established five working groups under the ‘Taskforce on the SDGs’
152 of the Earth System Governance Project in which the different governance areas were further scrutinized. We
153 present here main findings from the discussions in these working groups in a condensed version.

154 **4. Scoping review**

155 The following subsections first provide a brief overview about the respective governance area. After that, we
156 discuss research trends based on a review of the state of the art. As the present article builds upon the SDG
157 Impact Assessment which synthesized the literature on the governance of the SDGs published between 2015
158 and early 2021, this article focuses on most recent studies about the impact of the SDGs on the respective
159 governance area. Finally, each subsection adopts a forward-looking perspective and sketches new directions
160 for research and policy for the remaining years until 2030 and beyond within their area.

161 **4.1 Global governance and the SDGs**

162 **Overview**

163 With the adoption of the SDGs, a new United Nations institution has been established to review progress on
164 SDG implementation. The *High-level Political Forum on Sustainable Development (HLPF)* replaced the
165 Commission on Sustainable Development and has the mandate to provide political leadership for sustainable
166 development. Moreover, various international organizations and other bodies have integrated the SDGs into

167 their portfolios and made efforts to advance the implementation of some SDGs. In addition, global
168 partnerships have been launched comprising United Nations entities, national governments and non-state
169 actors. Despite all these activities, much remains unknown about the effects of the SDGs on global
170 governance. So far, changes in the system of international agencies, programmes and policies within and
171 outside of the United Nations have been understudied. In the following subsections, we carve out current
172 research trends as well as new research directions in this governance area on implementation, reviewing and
173 political contestations of the SDGs in global governance.

174 Current research trends

175 A first research trend focuses on the challenges to SDG implementation at the global level. Some recent
176 examples include studies in the area of human mobility (Denaro and Guiffré 2022) and sustainable fisheries
177 (Cochrane 2021). Studies have also traced developments that might speed up implementation, including the
178 integration of the SDGs with legally binding mechanisms (e.g., Krauss 2022, Bexell et al. 2023) or proposals
179 for governance improvements for specific areas (e.g., Zulfiqar and Butt 2021 for ocean governance).

180 Challenges in mainstreaming the SDGs in the operations of international organizations have also received
181 some attention. Recent literature maps the (lack of) capabilities by international organizations to work on the
182 SDGs (Haas and Ivanovskis 2022), assesses how they differ in their motivations and approach towards SDG
183 implementation (Addey 2021), or even cherry-pick goals (Bogers et al. 2023). Moreover, authors point to
184 potential cooperation and coordination challenges between international organizations in their endeavour to
185 implement the SDGs (Bogers et al. 2022; van Driel et al. 2022). Some researchers uncover path dependencies
186 and limitations in creating transformative change (e.g., Taggart 2022, Novovic 2022), while others identify
187 positive institutional changes in the United Nations Development System despite continued substantive
188 limitations (Weinlich et al. 2022). Overall, research indicates that the goals mainly affect communication
189 about cooperation (Schnitzler et al. 2021) and questions their steering potential towards holistic global
190 (policy) integration (Bornemann and Weiland 2021).

191 Challenges in implementing the SDGs through multi-stakeholder partnerships also gained considerable
192 academic attention. So far, empirical analyses note that some pre-SDG deficiencies in partnerships continue,
193 such as the exclusion of marginalized actors (Sénit and Biermann 2021) and weak reporting, while actor
194 dynamics have shifted towards a stronger participation by non-governmental organizations and business
195 actors (Bäckstrand et al. 2022). With over 7,700 entries on the SDG Partnership Registry, scholars have started
196 studying partnerships for the SDGs more closely (e.g., Glass et al. 2023; Widerberg et al. 2023; Long et al.
197 2022).

198 A second research trend focuses on monitoring and reviewing SDG implementation, where the global level
199 plays an important role (Bexell and Jönsson 2021). Research has taken a critical stance on the orchestration
200 efforts of the HLPF constrained by political conflicts and a lack of resources (e.g., Qerimi 2022), and explored
201 whether this institution stimulates inter-institutional and cross-level governance (Beisheim and Fritzsche
202 2022). Additionally, the contribution and impact of other actors and governance arrangements, such as
203 regional organizations (e.g., Marx et al. 2021) or multi-stakeholder partnerships (e.g., Koliev and Bäckstrand
204 2022), on global follow-up and review processes remains understudied.

205 The SDGs are not implemented in a (geo-)political vacuum and their achievement hinges on global
206 cooperative arrangements. Power structures and political contestations underpinning the SDGs are thus a
207 third research trend in the area of global governance. Thus far, scholars have signalled that the global goals are
208 likely to impact power dynamics between global governance actors, notably through the use of partnerships
209 for implementation (Jägers 2021). Political willingness (e.g., Li et al. 2023) and politics (Beisheim et al. 2023)
210 play a key role in this regard. In addition, the potential and role of middle-income countries (e.g., Chatuverdi
211 et al. 2021) and ‘middle powers’ (Torresini 2021) in addressing new global demands such as the SDGs has
212 been studied.

213 As the business sector is considered paramount for bridging the SDG (finance) implementation gap, scholars
214 need to dive into the study of SDG funding and financing (Park 2022) and how this affects the narratives on
215 development finance (see Mawdsley 2021) and ultimately power dynamics. Power relations between states are
216 also an emerging research topic. Research suggests that conflict lines from other arenas of international
217 cooperation act as barriers to reforms of the HLPF (Beisheim 2021) and that contested understandings of key
218 terms in the 2030 Agenda are a barrier to implementation (Taggart 2022). Nevertheless, early scholarly
219 assessments of the 2030 Agenda have suggested that the SDGs mainly reflect a ‘traditional’ cooperation
220 regime, aimed to maintain legitimacy of the United Nations system and multilateral institutions as enablers of
221 Western interests and imperial power (Caria 2022; Vogt 2022).

222 New research directions

223 Given the knowledge gaps sketched above, we warrant studies focusing on the 2030 Agenda and the SDGs to
224 facilitate discussions on the future of multilateralism and international cooperation. If, as some claim, a
225 multipolar order world has become a reality (Flockhart and Korosteleva 2022), it is crucial to study this reality
226 in global sustainable development. The role of partnerships within global sustainable development
227 governance, and questions of power within those, also deserve increased academic attention. Investigating
228 questions of power will require more in-depth study of the political nature of arenas of global sustainable
229 development governance, as well as increased collaboration amongst scholars from different issue areas.

230 **4.2 National policy integration of the SDGs**

231 Overview

232 Policy integration is the leitmotif of the 2030 Agenda, and the complexity of the SDGs indeed brings new
233 challenges to goal integration, policy interlinkages and transformative implementation. The national level is
234 critical in achieving integrated implementation, especially ensuring high-level policy commitments and
235 creating the needed institutional structures in the early stage, when governments need to translate the SDGs
236 to their country’s context. Governments must encourage and facilitate action at the national level, as a pivot
237 between global and local politics, with their power to regulate and enforce rules and their budgetary power to
238 tax, borrow and spend. Furthermore, the SDGs were created and agreed by national governments, so they
239 continue to play an important role for coordinated multilateral action. In later stages of implementation,
240 national governments have resources to maintain momentum. Analysing nationally integrated
241 implementation is therefore key for understanding the impact of the 2030 Agenda.

242 Current research trends

243 Integrated national implementation initiatives are a prerequisite for promoting sustainable development.
244 Such a political strategy requires consideration of interactions between different goals. Furthermore, national
245 integration has been discussed as a multi-directional, rather than a linear, process, whereby the SDGs influence
246 – and are influenced by – domestic contexts, priorities and political dispositions (Nilsson et al. 2022; Ordóñez
247 Llanos et al. 2022; Okitasari and Katramiz 2022; Forestier and Kim 2020). In this understanding, the
248 contextual integration (that is, the need to adapt the goals and targets to their national and subnational
249 contexts) is a key part of national integration (Bowen et al. 2017; Allen et al. 2018; Nilsson et al. 2018; Weitz
250 et al. 2018). Some regard the SDGs as an ‘enabler of integration’, and a ‘common benchmark against which
251 development progress can be assessed’ (Le Blanc 2015: 180-182). Here we see an urgent need to investigate
252 the linkages and connections among the 17 global goals.

253 The literature on steering effects of the 2030 Agenda has captured some initial empirical trends during the
254 2030 Agenda’s first implementation phase: Nilsson et al. (2022) found that the SDGs mostly impacted the
255 political discourse on interlinkages and interactions, along with some governments advancing institutional
256 integration by aligning their public-administrative systems to the 2030 Agenda, and some designating bodies
257 or forming new units for goal implementation. Considering cross-country variation, Allen et al. (2018) found
258 that, while all countries face challenges with the interlinkages among SDGs, lower-income countries are
259 generally less advanced than higher-income countries in this regard. On the SDGs’ normative effects, countries
260 have increasingly reported in their Voluntary National Reports (VNRs) the integration of the SDGs into their
261 national policy frameworks, though they have mostly failed to fundamentally change the state’s dominant
262 development paradigm (Okitasari and Katramiz 2022). Therefore, contrary to the often-misplaced views by
263 bureaucrats that mere alignment of policy and SDG aims will suffice (Bolton, 2021), integration needs to
264 occur on an institutional and organisational level.

265 In sum, policy coherence for SDG implementation has not increased significantly (Nilsson et al. 2022). This
266 may partly be explained by the need to set up institutional and policy structures in the first few years of SDG
267 implementation to overcome institutional silos, as well as to dedicate time to building momentum and high-
268 level policy commitments. Meanwhile, SDG implementation has recently been marked by multiple crises,
269 which have heavily affected all countries and disrupted all modest progress. Worryingly, the United Nations
270 Department of Economic and Social Affairs (UNDESA) reports that ‘the overlapping crises have led to
271 cumulative backsliding in SDG progress’ (UNDESA 2022: 1), and similarly, the Sustainable Development
272 Report 2023 found that ‘all of the SDGs are seriously off track’ (Sachs et al. 2023, vi). In this rapidly changing
273 context, updating the picture of empirical trends is more important than ever.

274 New research directions

275 Overall, national integration of the SDGs is a complex field. Halfway through the timeline for implementing
276 the goals, we are only beginning to see their impact on national and subnational decision-making (Barquet et
277 al. 2021). More empirical analysis of SDG policies and their implementation is needed to assess the extent,
278 nature and effectiveness of national implementation and integration efforts, and for comparative analysis
279 across countries.

280 A starting point for research could be to study emerging good practices at the national level, including what
281 constitutes successful SDG integration. This is likely to involve elements of discursive, normative,
282 institutional and relational change, and greater policy coherence. The latter includes national policies that
283 support capacity-building (e.g., in finance, technology, knowledge, skills, resources, tools and methods) to
284 provide the ‘means of implementation’ referred to in the 2030 Agenda. Capacity building in the 2030 Agenda
285 is related mainly to developing countries, although capacity building is needed in developed countries as well
286 (Sagar and VanDeveer 2005; Bloomfield et al. 2018). Here, different dimensions of capacity need to be better
287 understood which is also highlighted in the latest report of the Independent Group of Scientists appointed by
288 the United Nations Secretary General to assess the state of the SDGs (Global Sustainable Development Report
289 2023).

290 An important line of inquiry should focus on how national governments can actively promote SDG
291 implementation. Key questions include: Under what conditions will change occur in different countries?
292 Does the time pressure to achieve the SDGs by 2030 play a role? And how could governments address
293 synergies and trade-offs between the SDGs, build alliances and reduce conflicts between a complex web of
294 stakeholders? In view of the central role of national governments in SDG implementation, more analysis on
295 their transformation strategies is urgently needed.

296 **4.3 Subnational initiatives for SDG implementation**

297 Overview

298 In the end, the SDGs require implementation at the subnational level, such as in cities and regions. It is here
299 where global goals are translated into concrete action, where SDGs can impact people’s lives and trigger
300 material effects, and where people may contribute. Moreover, governments often lack decision-making
301 authority in areas affected by the SDGs where it is subnational entities that have formal and informal authority
302 and power regarding SDG implementation (Hickmann 2021). The engagement of subnational institutions
303 and their collaboration with civil society is also important to increase participation, political ownership,
304 community autonomy and accountability regarding the SDGs (Pisor et al. 2022).

305 Current research trends

306 Since the adoption of the 2030 Agenda, many subnational actors have engaged with the SDGs. There is also
307 much research on subnational SDG implementation, often under the term of ‘SDG localization’ (e.g., Ansell
308 et al. 2022; Moallemi et al. 2021). In this literature, there are two overarching and sometimes overlapping foci.

309 The first involves empirical research or reviews that analyze subnational SDG initiatives worldwide. Much of
310 this research is based on empirical studies to document actions, highlight innovations and reveal challenges in
311 implementing the SDGs at the subnational level (e.g., Croese et al. 2021; Diaz-Sarachaga 2023; Wang et al.
312 2020). This literature is dominated by single cases rather than comparative analyses (but see Ningrum et al.
313 2023) and focuses on individual or only few SDGs. Other studies review a range of SDG engagements, for
314 example through examining *Voluntary Local Reviews* (VLRs) (Ortiz-Moya et al. 2021; Ortiz Moya and
315 Kataoka 2022). The spatial focus of this research is predominantly on the urban level, with studies on Bristol,
316 United Kingdom (Fox and Macleod, 2021); Cape Town, South Africa (Croese et al., 2021); Kisumu City,

317 Kenya (Croese et al., 2021); or Växjö municipality, Sweden (Krantz and Gustafsson, 2021). Some studies also
318 go beyond descriptive account of programmes, institutions and processes to explore the mechanisms and
319 effects of (selective) SDG translation in municipalities (Reinar and Lundberg 2023), or the transformative
320 potential of subnational SDG initiatives (e.g., Leavesley et al., 2022; Ningrum et al. 2023). There is some
321 evidence that the exercise of producing VLRs may facilitate policy integration at local level by creating
322 awareness of links between sustainability issues and requiring coordination and information sharing among
323 departments preparing the VLR (Ortiz-Moya and Reggiani 2023).

324 The second focus area is to guide or assist SDG localization, sometimes adopting a prescriptive or design-
325 oriented approach. Much of this research is focused on translating SDG targets and indicators, through
326 developing and quantifying local targets and indicators against the global goals (e.g., Bandari et al. 2022; Patole
327 2018), characterizing interactions between them and analyzing synergies and trade-offs in a specific local or
328 regional context (e.g., Szetey et al. 2021; Nilsson et al. 2018). Here, cities are illustrative examples (Krellenberg
329 and Koch 2021b). A smaller and growing line of research looks at localization from a governance perspective,
330 focusing on actors and strategic action. This includes research that highlights the urgency for local action (e.g.,
331 Hajer et al. 2015, Moallemi et al. 2019), discusses challenges related to local SDG implementation (e.g.,
332 Herrera 2019), tests existing frameworks or develops new frameworks and tools to facilitate the activities of
333 subnational actors towards SDG implementation (e.g., Allen et al. 2023; García-Peña et al. 2021; Meuleman
334 and Niestroy 2015; Moallemi et al. 2020; Righettini 2021; Mejia-Dugand and Pizano-Castillo 2020; Masuda
335 et al. 2021). Some studies use action-oriented research methods to develop contextualized and actionable
336 implementation frameworks (Annesi et al. 2021).

337 New research directions

338 We see the in particular four research directions regarding the implementation of the SDGs at subnational
339 level. First, future research should aim at a more comprehensive, differentiated and systematic understanding
340 of subnational SDG implementation, including typologies of forms, processes, challenges and mechanisms of
341 localization in different contexts. Relevant questions are: What subnational implementation patterns can be
342 observed in different contexts (urban-rural, global North and global South, federal-centralist, etc.)? How does
343 the 2030 Agenda connect with and change policy-making and planning practices? What governance
344 innovations emerge as a result? How do local SDG processes interact with one another and with those at
345 transnational scales?

346 Second, future research should aim at assessing the success of local implementation initiatives. This includes
347 the conceptualization and empirical measurement of the potential SDGs transformative impact on systems,
348 sectors and societies. Relevant questions are: What should be the criteria for measuring the success of
349 subnational implementation? What does effective and legitimate governance of subnational implementation
350 look like? What are the transformative impacts and outcomes of subnational implementation, including on
351 national and international governance?

352 A third research line may focus on explaining local implementation successes (as well as failures) and identify
353 critical factors and conditions, including institutional, financial and knowledge-based capacities that shape
354 successful implementation of the SDGs. Explanatory research questions could include: What are the key

355 success factors in legitimating and implementing the SDGs in different local contexts? How is the process of
356 localising the SDGs shaped by national and local politics, institutions, policies, and power relations?

357 Finally, building on theoretical and empirical knowledge and in close transdisciplinary exchange with
358 practitioners, research should focus on designing and testing practical strategies and approaches to
359 strengthening the 2030 Agenda in local contexts. Potential questions include: How can subnational
360 implementation of the 2030 Agenda be strengthened – and what role can science play? What governance
361 innovations are needed at the subnational level to enable translation processes between local and national
362 levels and to strengthen accountability for implementation at local levels?

363 **4.4 Private Governance for the SDGs**

364 Overview

365 The adoption of the 2030 Agenda was preceded by comprehensive stakeholder consultation including the
366 private sector (Fukuda-Parr and MacNeill 2019). The agenda refers to the United Nations Guiding Principles
367 on Business and Human Rights (Article 67) and dedicates one goal exclusively to multi-stakeholder
368 partnerships (SDG 17). This shows that the private sector was identified as a critical actor in helping achieve
369 the ambitious goals and targets through their regulations and actions. In addition, partnerships between
370 public and private actors have become a mainstream implementation mechanism for attaining the SDGs
371 (Pattberg and Koloffon Rosas 2023). Several reports and calls such as ‘Better Business-Better World’ (Business
372 and Sustainable Development Commission 2017) and ‘SDG ambition - Scaling business impact for the decade
373 of action’ (United Nations Global Compact 2020) stressed not only the urgency and importance for the
374 private sector in engaging with this agenda, but also the significant commercial opportunities involved in
375 addressing the SDGs. We understand the private sector as consisting of organizations not under direct
376 government control and ownership, including banks, insurance companies, corporate multinationals, small
377 and medium sized enterprises, consultants and Not-For-Profits such as advocacy groups, charities,
378 philanthropists, social enterprise, endowments and impact investors. Due to their varied direct impacts on
379 individual goals as well as their influence stretching across often complex global supply chains, many have
380 called on the private sector to embrace and integrate the SDGs in a significantly strategic manner by exceeding
381 voluntary and marginal corporate social responsibility efforts (Dahmann et al. 2019; Sachs and Sachs, 2021;
382 Scheyvens et al., 2016; Stubbs et al. 2020).

383 Current trends

384 Since 2015, private sector engagement with the SDGs has primarily been captured in assessments by audit and
385 accounting firms that have tracked the extent to which companies refer to and discuss the SDGs in their
386 sustainability reports (Bebbington and Unerman 2018; Diaz-Sarachaga 2021; Pizzi et al. 2021; Rosati and
387 Faria 2019). Overall, such voluntary efforts are limited to specific issues and reflect an agenda set in the global
388 North, rather than in the global South (Consolandi et al. 2020; Partzsch et al. 2021). Concerns about green-,
389 or more broadly ‘SDG-washing’, remain even where spending for corporate social responsibility has become
390 mandatory (e.g., Poddar et al. 2019; Waddock 2020). Although little research exists on how philanthropies

391 address the SDGs, there is a risk of selective engagement with the SDGs in this sector, given that philanthropic
392 funding often mirrors business and capitalist strategy (McGoey 2012).

393 A report series on Japanese companies' engagement with the SDGs was conducted through survey research
394 examining their awareness, activities, and level of engagement, views on specific topics such as climate, gender
395 equality, and decent work (Onoda et. al. 2022), and efforts to integrate SDGs into their business operations
396 (Oba et al. 2019). While these reports suggested increasing levels of awareness, activities and engagement, they
397 were not able to assess their overall impact.

398 Research has also examined whether the private sector sufficiently appreciates and responds to the
399 interconnected nature of the 17 SDGs that are meant to be treated as an 'indivisible whole' (Dahlmann and
400 Bullock 2020; van Zanten and van Tulder 2021). Pattberg and Koloffon Rosas (2023) find evidence for
401 partnerships being 'nexus facilitators', whereby partnerships combining 'green goals' are most prevalent, that
402 is, the environmental dimension is pioneering the partnership concept. In a similar vein, Kosovac and Pejic
403 (2023) express confidence that city networks in combination with private sector partnerships can contribute
404 to effective implementation of SDG 11 (Sustainable cities and communities). The C40 network offers an
405 illustrative example, as it has been first underpinned by funding from Bloomberg Philanthropies but now has
406 a broad range of funding partners including governments, foundations and global brands such as IKEA
407 (Kosovac and Pejic 2023). Overall, private actors play a major role in global, national and local economic
408 systems with both positive and negative impacts upon the SDGs.

409 New research directions

410 Given the importance of private actors, we need to better understand, critique and improve their role in
411 achieving transformations towards sustainable development. However, we still lack sound knowledge of the
412 needed transformations, and change is likely to vary across geographies and scales (Dahlmann and Stubbs
413 2023). Future research should hence examine the role of private actors and partnerships in these
414 transformations and the ways in which they enable or constrain SDG implementation.

415 Specifically, we propose a research agenda that distinguishes between governance of, and governance by, the
416 private sector (Burch et al. 2019), and four types of steering effects: discursive, institutional, relational and
417 resources (Ordóñez et al. 2022). *Governance of the private sector* refers to novel governance systems designed
418 to deliberately trigger private sector participation in achieving transformation processes towards the SDGs,
419 while recognizing the conditions within and by which 'governance of the private sector' is situated, enabled
420 and constrained. In this perspective, the private sector is primarily an object of SDG governance. In contrast,
421 *governance by the private sector* refers to governance activities and initiatives originating in and led by the
422 private sector to achieve transformations for the SDGs. In this perspective, the private sector is a subject in
423 SDG governance.

424 Discursive effects concern the ways in which the SDGs are referenced in organisational narratives, policy
425 discourses and external communications. Key questions include: What are the needs expressed by private
426 actors to enable achievement of the SDGs and how do businesses use the SDGs in justifying their investment
427 and strategy? On institutional effects, research is urgently needed to explain various changes in rules and
428 institutional arrangements in support of the SDGs. For instance, how to understand private actors' responses
429 to emerging policies and institutions created for the SDGs? How did some new private institutions emerge to

430 support the SDG implementation (e.g., the World Economic Forum’s Commission on Business and
431 Sustainable Development)? How do private governance initiatives (e.g., corporate reporting and eco-labelling
432 initiatives) adapt to the SDGs? On relational effects, the changing relations between actors such as new
433 partnerships or contestation are worth investigation, including how private actors engage in SDG partnerships
434 and to what extent the SDGs provide a common umbrella, or whether they lead to further fragmentation by
435 actors that target only some goals. Finally, more attention should be given to private actors’ resource
436 allocation, including their budgets, investments or human resources. In this respect, we need to examine
437 whether private actors can be incentivized to commit new or repurposed resources for the SDG
438 implementation, how private actors can attract and retain the necessary skills and talent for addressing the
439 SDGs, and under what conditions additional sources of funding can be generated.

440 Ultimately, the key question is which conditions enable effective and meaningful engagement of private actors
441 in *transformative* SDG governance, that is, beyond business-as-usual? Comparative research of what works
442 and why across multiple and diverse organisations, scales and geographies will be critical to answer this
443 question and develop useful strategy and policy recommendations.

444 **4.5 Education and learning for sustainable development**

445 Overview

446 Education is a driving force to bring about behavioural and structural transformative changes. By including
447 SDG 4 as a specific goal related to education, the entire system of SDGs could have become a driver towards
448 sustainability. The synergies of education with other SDGs and societal sectors make this area especially
449 relevant in studying the catalyzing effects of the SDGs. However, the literature on the topic is still recent and
450 limited, focusing so far on exploring the relationship between ‘Education for Sustainable Development’
451 (ESD) and the SDGs in educational institutions and programmes and on challenges of operationalization and
452 integration.

453 Current trends

454 The SDGs encourage an interdisciplinary and transversal approach, which enhances critical thinking and thus
455 contributes to education for citizenship and for promoting changes in society (Ferrer-Estévez and Chalmeta
456 2021). So far, the literature has mainly focused on SDG implementation in connection with higher education
457 institutions and concepts such as ESD, which we identify as a first research trend. Recent research describes
458 the SDGs as a means to promote behavioural changes and considers SDG 4 as fundamental for all other SDGs
459 to be achieved (Sarabhai 2015), through enhancing the role of ESD as a mechanism capable of generating
460 transformation in principles, values, skills, and form of conduct in the teaching-learning spectrum (Academic
461 Network on Global Education & Learning 2021; Sarabhai 2016). Particularly, systematic studies (e.g., Ferrer-
462 Estévez and Chalmeta 2021) that have mapped the links between the SDGs and ESD identified various ways
463 through which the SDGs are being invoked in (and are having impact on) education. These mainly relate to
464 defining the methods and strategies for SDG integration within curricula and the academic field and
465 developing teaching methods and pedagogical approaches for the SDGs. Related to teaching methods and
466 pedagogies, research has advanced the use of concept maps to train teachers and students on the SDGs,

467 allowing them to reflect on synergies (Mandrikas 2020), or has promoted case-based learning as a teaching tool
468 to enhance practical knowledge on the SDGs (Sibbald and Haggerty 2019). However, research on the subject
469 is still limited, which calls for further investigations on practices of integrating and operationalizing the SDGs
470 in education. This can be encouraged through participatory planning, identifying the various synergies
471 between the SDGs with different areas of knowledge, and elaborating training and initiatives that enhance
472 commitment of educational institutions and staff to sustainable development (Filho et al. 2019).

473 A second research trend is the integration of the SDGs in higher education institutions. Research suggests here
474 an overall lack of awareness of the SDGs, along with limited critical understanding of their usefulness and the
475 worldview that the SDGs convey (Filho et. al. 2019) and lack of financial, human and material resources
476 (Ferrer-Estévez and Chalmeta 2021; Serafini et. al 2022). Furthermore, many initiatives concerning the
477 integration of the SDGs into higher education institutions are focused on producing rankings and other
478 standardized measures that often frame knowledge production and practices without considering local
479 contexts, power relations and asymmetries between the Global North and South.

480 New research directions

481 Based on these research gaps, we see four new directions that could contribute to developing our
482 understanding of the conditions under which the incorporation of the SDGs within education could trigger
483 transformation towards sustainability. First, more research is needed on educational activities that address
484 both SDGs and ESD. This would deepen our knowledge of the synergies between the two and of the ways
485 through which the SDGs could be better integrated and implemented in educational institutions and
486 programmes. This research should also focus on the implementation of local solutions through ESD that
487 integrate and align with the SDGs (Shulla 2020).

488 Second, as higher education institutions have over the years become agents of change to improve sustainability
489 practices (Filho et al. 2023), research should focus on improving our understanding of the role of educational
490 institutions in SDG implementation. This implies further investigating whether and how educational
491 institutions engage with the SDGs, what are the discrepancies on how it is perceived and how it differs across
492 contexts, particularly in the Global North/South divide, and identifying the conditions that could accelerate
493 this engagement. These may include, for instance, encouraging peer learning across educational institutions,
494 designing indicators to monitor the incorporation of the 2030 Agenda into educational practices, elaborating
495 guidelines for the participation of educational institutions in monitoring and evaluating the goals, and
496 creating pedagogical approaches that use cognitive, active and problem-based learning to create a knowledge-
497 building process to promote sustainable development (Gehre Galvão et al. 2020; Filho et al. 2019; Filho et al.
498 2023; Long 2017; Purcell 2019; Serafini et al. 2022).

499 Third, research needs to better address the conceptual complexity related to education and sustainable
500 development and to highlight local contexts under the North-South divide. As a myriad of concepts now
501 exists, such as global education, education for global citizenship, environmental education, education for
502 sustainable development, sustainability education, and education for the SDGs, research should offer more
503 clarity on the relationships and potential synergies and conflicts between conceptualizations in order to
504 increase knowledge on education and the role of the SDGs therein (Weitz 2018) and highlighting solutions
505 led by localities and communities.

506 Finally, future research should explore how decolonial theory (Mills 2022) and pluri-versal approaches
507 (Pashby et al. 2020) can be used to deconstruct dominant global higher education institutions imaginaries
508 and include an intersubjectivity dimension to the agency of marginalized people. A pluri-versal and decolonial
509 SDG education study makes the case for a de facto equitable, inclusive and sustainable education, from the
510 perspective of social transformation of the teaching-learning process.

511 **5. Looking forward: Avenues for further research and policy**

512 Given the limited progress in the implementation of the SDGs, disappointment and frustration among
513 researchers and policy-makers are ubiquitous. While the 2030 Agenda with the 17 SDGs constitutes an
514 unprecedented global vision to attain sustainable development, they do not drive political processes forward
515 on a larger scale. With the rather broad 2030 Agenda and mostly qualitative nature of the global goals and
516 targets, the danger is that most actors and institutions continue business-as-usual and use the SDGs to further
517 their own interests. In some governance areas, however, we observe some initial political changes as a result of
518 the adoption of the 2030 Agenda and the SDGs. This article delved deeper into five areas, namely global
519 governance, national policy integration, subnational initiatives, private governance, as well as education and
520 learning for sustainable development.

521 Overall, we see a quite patchy and often primarily symbolic uptake of the SDGs in key governance areas. While
522 some studies have pointed to pioneering initiatives of SDG implementation and instances of meaningful
523 collaboration between different actors and institutions from global to local levels, no clear pathway towards
524 sustainable development has yet emerged in any of these areas. The individual success stories of some actors
525 and institutions at different governance levels to implement the SDGs discussed in the literature are
526 encouraging and inspiring. Yet, it remains unclear how such cases can be upscaled and develop a broader
527 political impact to accelerate the global endeavour to achieve sustainable development. Fragmentation and
528 limited integration constitute major obstacles for the SDGs to unfold wider effects. To render a large-scale
529 political impact, the SDGs need to be incorporated at all governance levels and societal scales. Taking stock of
530 global governance through goals in its current shape – the larger question that one may pose is whether goal-
531 based governance is effective at all. While acknowledging their limitations, we still believe that the SDGs
532 remain important globally agreed guidelines to generate sustainable development. We hence ask more
533 pragmatically and proactively how can we make this mode of governance more effective until 2030 and
534 reinvigorate efforts to achieve the SDGs by bringing more actors and institutions on board for the crucial
535 phase of goal implementation? In this context, the role of science and scientists is critical in identifying leverage
536 points (e.g., Malekpour et al. 2023) and governance reforms (Biermann et al. 2023) to strengthen the SDGs
537 and their impact as a mode of sustainable development governance across levels and scales.

538 Our review has pointed to several blind spots in our knowledge about the implementation of the SDGs across
539 different governance areas. Looking ahead, three research areas deserve our attention. First, given the diversity
540 and complexity of the 17 SDGs and their 169 targets, we urgently need to advance our understanding on the
541 interlinkages between goals, including their synergies and trade-offs. Research in this field can use mixed
542 methods to collect quantitative and qualitative evidence. Knowledge on SDG interlinkages will ultimately
543 inform policy-makers across governance levels about the potential of synergetic actions in the implementation
544 of the 2030 Agenda with limited resources. Second, sustainability researchers should further investigate the

545 factors explaining significant variation in the outcomes of SDG implementation across various contexts. This
546 will require fine-grained, transdisciplinary analysis to compare successful with less successful cases and identify
547 institutional arrangements needed for effective implementation at all governance levels. Third, researchers
548 need to examine the forces prompting changes in SDG implementation to understand opportunities and
549 barriers for driving sustainability transformations. To date, research has largely taken a static view to assess
550 SDG implementation and focused less on engines of change and potential feedback effects in the
551 implementation processes. Yet, transformations in socio-technical systems often take place through non-linear
552 changes. Hence, identifying critical junctures for change is crucial to develop and pursue effective policies
553 supporting SDG implementation.

554 After all, this ambitious yet challenging research agenda will be possible only through collective action of
555 researchers across disciplines and between scholars and practitioners. We therefore call for more global
556 research collaboration to support the implementation of the SDGs until 2030 and beyond.

557

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563 *across different governance areas.*

564

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566 *The authors acknowledge that they have no competing or conflicting interests and that they have no material*
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