



The UN Sustainable Development Goals as innovation drivers for local sustainability governance? Examples from Germany

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Abstract

Local governments are highly relevant for the just-starting socio-ecological transformation. Living up to this role requires new or adapted forms of governance. The German case provides a vivid example of how the UN Sustainable Development Goals (SDGs) provide a useful framework for this transformation. In our policy-oriented contribution, we focus on the question whether the SDGs themselves are innovation drivers in local sustainability governance. We motivate this idea with the theoretical framework of public sector innovation and provide comprehensive examples of the most prevalent current approaches to SDG-related innovations at the German local government level, covering local government sustainability reporting, strategies, budgets, and financing. Our central finding is that a small group of early-innovating German local governments has already begun to govern sustainability with the help of SDG-driven innovations and that this became possible because of publicly funded support projects and accessible pre-defined localised SDGs.

Keywords: sustainable development goals, local governments, public sector innovation, Germany

1 INTRODUCTION

The ongoing rise of temperature due to anthropogenic greenhouse gas emissions is one of the most fundamental threats to fragile eco and social systems. By 2017, human activities had led to global warming of approximately 1.0°C above pre-industrial levels (IPCC, 2018). Since the climate reacts sluggishly to the accumulation of greenhouse gases in the atmosphere, it is likely that the 1.5°C threshold will be crossed within the next twenty years and – with it – there will be increased climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth. Evolving knowledge about these consequences as well as an increasingly obvious degradation of the biosphere have made the preservation of ecology an essential part of our current understanding of sustainability (Fiorino, 2010). Combined with rising concerns that income and wealth disparities will be exacerbated (Piketty, 2014), it has also an imperative of modern western politics on all levels of government (Duit, Feindt and Meadowcroft, 2016)¹, famously framed as the great socio-ecological transformation (Blühdorn, 2020) that is lying ahead of us.

Today, limiting emissions to avoid an entirely dystopian future seems more important than ever (Reimer and Staud, 2021). However, since climate mitigation as part of broader sustainable development is complex and not a spontaneous social product, it needs strategic governance efforts from legislatures and executive institutions (Meadowcroft, 2007). The academic discussion about what effective governance of this transition may look like is at least three decades old and

¹ See, for example, the “European Green Deal” (Fetting, 2020) or the US “Green New Deal” (White House, 2020).

intrinsically linked to the question of which level of the state is best equipped to administer it (Evans et al., 2006). Although the relevance of national climate policies is unquestionable, there are plenty of good arguments in favour of local government involvement as well. Most straightforwardly, it is urban areas that are responsible for more than 70 percent of global energy-related carbon emissions (Otto et al., 2021; Rosenzweig et al., 2010). Taking the opposite perspective, cities are often built on riverbanks or coasts and are particularly vulnerable to climate change effects. A third argument is related to William E. Oates' idea of local governments' profound knowledge of citizen preferences (Oates, 1972). Local politicians take account of citizen demands and local governments can channel them (Evans et al., 2006). Hence, the local level should have a vital interest in climate mitigation and adaptation. At least since the 1992 UN "Conference on Environment and Development (Earth Summit)" in Rio de Janeiro, cities and local communities have been part of the sustainability discourse. Strategic and successful governance of complex issues such as sustainability, however, is a different story (Otto et al., 2021), revealing a broad spectrum of structural, cultural and attitudinal barriers in local governments. For instance, besides fundamental progress, rigid administrative structures and adequate and successful citizen participation were already a challenge in the Local Agenda 21 (LA21) processes (see, e.g. Schnepf and Groeben, 2019). Not least, complexity issues often become visible in large-scale construction projects like Stuttgart 21 or Berlin airport (see, e.g. Römmele and Schober, 2013).

Although public administration has a lot of experience in steering such processes (Meadowcroft, 2007), there is doubt that traditional local government structures are appropriately designed to handle complex and even wicked problems like climate mitigation characterised by disagreements concerning how to address them and difficulties in evaluating outcomes (Sørensen, 2012). The departmental organisation and processing of tasks with the typical segmented thinking are often considered dysfunctional with regards to the integrative problem and goal structure of sustainability issues and a traditional barrier to structural transformation (Bornemann and Christen, 2019; Fiorino, 2010). This critical perspective applies especially to states in the Weberian Rechtsstaat tradition (like Germany) where strict regulatory regimes dominate (Sørensen, 2012). This does not mean that in these countries no early-moving and adaptable local governments exist (see, e.g. Bulkeley and Kern, 2006). However, across the board, local government administration of the socio-ecological transformation requires a prior transformation of (local) public administration; this would consist of the adoption of new, and the change of the established, structures, procedures, cultures, and practices of internal governance (Bornemann and Christen, 2019).

An appropriate theoretical frame for this change is the concept of public sector innovation, which often proceeds by experimental trial and error – a process that usually is not very appreciated in traditionally risk-averse public administrations fearing media and opposition criticism of failures (Borins, 2001). Nevertheless, for

the last few years and in the face of the first perceptible climate change effects (local) governments' openness to move and to adopt new ideas and practices in their internal mode of working have become perceptible (see, for example, Bornemann and Christen, 2019). As a side note, this openness to internal structural and process innovation may be one of the most important differences compared to the Local Agenda 21 (LA21), which also led to intense local government thinking about sustainability following the Rio Conference in 1992, but was mainly based on external citizen participation and failed to provide long-term oriented outcomes (Xavier, Jacobi and Turra, 2019) or even an assessment of the success or failure of the many local initiatives (Graute, 2016). This leads to a situation in which even today there is still relatively little knowledge about concrete public sector innovation that addresses internal modes of sustainability governance (Bornemann and Christen, 2019). With this contribution, we target this research gap.

We understand innovation as an idea, practice, or object that is perceived as new by the unit of adoption, irrespective whether the organisation itself invented or just copies it (Rogers, 2003). Whenever public administration implements new policies and services, it is justified to speak of public sector innovation (Sørensen, 2012). In this context, the public-sector-innovation types of administrative process innovation, product or service innovation, governance innovation, and conceptual innovation are particularly relevant (de Vries, Bekkers and Tummers, 2016). Whereas administrative process innovation covers improvement in the quality and efficiency of internal and external processes (Walker, 2014), the creation of new public services and products is product and service innovation (Damanpour and Schneider, 2009). Governance innovation entails the development of new forms and processes to address societal problems like climate change (Moore and Hartley, 2008). Finally, conceptual innovation describes the introduction of new concepts and frames of reference (Bekkers, 2011). We argue that the diffusion of any public sector innovation depends on the applicability of these new but existing policy ideas and concepts, as well as upon public pressure and support from local decision makers. From this perspective, we hypothesise that comprehensible supranational standards which are easily translatable to the local government level work as innovation drivers. We further investigate the hypothesis that the United Nations Sustainable Development Goals (SDG), formulated in 2015, can be transferred to local governments and provide an all-encompassing concept with which to think about and to operationalise sustainable development.

In this article, we provide examples of the most prevalent current SDG-related public sector innovations in German local governments, covering topics like SDG-related budgeting, sustainability controlling and reporting, the formulation and implementation of indicator-based sustainability strategies, and local government financing. Our regional focus is on Germany since its highly regulated, fragmented and risk-averse administration is a good example for innovation scepticism in the public sector (see, for example, the below-average German performance in public service digitalisation: European Commission, 2021). Insights

regarding successful public sector innovation in such an environment are transferable to other countries with more innovation-friendly local governments. The central result of our analysis is that publicly financed support programmes for municipalities and the provision of easily accessible localised SDGs can facilitate local sustainability governance and therefore support the implementation of public sector innovation in this field.

We structure this article as follows: in section two, we introduce the concept of SDGs for local governments followed by the theoretical basis and a summary of existing research about local government transition to sustainable development in section three. Section four takes a short detour on the institutional setup regarding German municipalities and discusses their openness towards innovation. Section five provides four examples of SDG-related public sector innovation in German local governments and in section six we summarise and discuss these innovations and draw policy lessons. Chapter seven concludes.

2 SDGs AND THEIR RELEVANCE FOR LOCAL GOVERNMENTS

The Agenda 2030 is the UN's first comprehensive set of political goals, identifying social, environmental and economic aspects of sustainable development in a balanced manner and targeting industrialised nations, emerging economies and developing countries equally. The 17 SDGs have been translated into 169 targets or sub-targets (Colglazier, 2015). They refer to substantive goals or address possible implementation paths including financial or structural measures and were formulated with the help of diverse stakeholder groups all over the world (Klopp and Petretta, 2017).

The Agenda 2030 is primarily a treaty among states. It was adopted in 2015 as key element of the United Nations' post-2015 development agenda; the SDGs are successors to the eight Millennium Development Goals which were the frame of reference from 2000 to 2015 (Colglazier, 2015). Although the SDGs focus on the central level, they also address municipalities. On the one hand, the local level is important for implementation: at least 105 of the 169 SDG targets will not be achieved without proper engagement of and coordination with local and regional governments (OECD, 2020). On the other hand, SDG 11 specifically addresses cities and municipalities (SDG 11: Sustainable cities and settlements – making cities and settlements inclusive, safe, resilient and sustainable). In general, SDGs provide a framework for the local level of government to align its priorities with the national and global levels.

Local implementation of the 2030 Agenda requires comprehensive municipal sustainability and transformation management (see, e.g. Gustafsson and Ivner, 2018; Tremblay et al., 2021). This includes, among other things, transferring the global goals to the local level, concretising them individually and mapping them by means of indicators (Fox and Macleod, 2021). However, the translation of the global goals and indicators to lower governmental levels with their very

heterogeneous structures and preconditions is a complex venture. There is often lack of support when it comes to concretising the SDGs with their, sometimes considerable, scope for interpretation. No less complicated is finding or developing suitable indicators and small-scale data sets. Another challenge is that many local governments lack the resources to administer the transformation.

However, numerous municipalities in Germany and beyond have already been dealing with local sustainability processes for some time. One central starting point was the Agenda 21, which was adopted by the United Nations' Rio conference in 1992. It found its way into the cities, municipalities and counties as Local Agenda 21 (LA21) under the motto "Think globally – act locally" (Evans et al., 2006; Xavier, Jacobi and Turra, 2019). Further milestones for a stronger involvement of German municipalities in sustainability management were the Aalborg Charter (Zilans and Abolina, 2009), the adoption of the UN Millennium Development Goals (UN, 2015) and the first German Sustainability Strategy in 2002 (Bundesregierung, 2002). In addition, many municipal sustainability processes in Germany originated from the initiative of citizens and were mainly driven by their voluntary commitment.

For some years now, a growing number of municipalities has channelled existing commitment into municipal sustainability strategies and concepts (see section 5.3.). However, the depth of development varies considerably: while some municipalities focus on exemplary sustainability measures, others also define comprehensive mission statements and goals, or goal systems, and regularly review the degree of goal achievement. One important contribution is made by the so-called "Club of Agenda 2030 Municipalities". This club comprises cities, municipalities and districts that have signed the model resolution "2030 – Agenda for Sustainable Development: Shaping Sustainability at the Municipal Level" of the German Association of Cities and Towns and the Council of European Municipalities and Regions (Lange et al., 2020). By signing the resolution, municipalities commit themselves to supporting the SDGs on the local level in one way or another. Moreover, they become members of a network with many options for capacity building by interaction. Participating municipalities can engage in three focus areas: raising awareness, networking, and transferring the Agenda 2030 to the municipal level. As of September 2021, 190 German cities have signed this resolution.

While the Club of Agenda 2030 Municipalities is the only explicit German network dedicated to the implementation of the SDGs at the municipal level, there are numerous other networks and programs supporting municipal sustainable development in Germany. For example, the German Council for Sustainable Development (RNE) has launched the "Sustainable City" dialogue between the mayors of over 30 German cities, which publishes statements, joint position papers or more detailed "roadmaps" on municipal sustainability policy.

All of this shows that there are local governments in Germany that do actively support the implementation of SDGs. However, these numbers need to be put into

perspective. Overall, there are about 10,796 German municipalities (31 December 2020) and 294 districts: 190 committed Club of Agenda 2030 cities, municipalities, and districts make a rather small share. From survey research we know that in 2018 decision-makers in most German local governments considered the SDGs hardly important for their administration and even in large cities with more than 100,000 inhabitants (of which there were 80 in 2020) only a quarter called the SDGs “important” (Haubner et al., 2018). Although this may have changed since 2018, the implementation of the SDGs on the local level in no way constitutes a mass movement. Therefore, highly relevant questions are how SDGs trigger innovative public sector processes that support the socio-ecological transformation and what factors support and hinder their diffusion.

3 THEORETICAL FOUNDATION AND LITERATURE

Each transformation is a fundamental form of societal, systemic, or organisational change (Heyen and Brohmann, 2017; Polanyi, 1944). Whereas the notion of socio-ecological transformation refers to a large-scale societal and technical change, sustainable urban transformation focuses on structural processes that can effectively direct urban development towards sustainability goals (McCormick et al., 2013). Similarly, local government (sustainability) transformation as we understand it is more a story of organisational change (Fernandez and Rainey, 2006) and public sector innovation (Sørensen, 2012) that enable public organisations to manage the socio-ecological transformation. As soon as a (local) government implements an idea or practice, concept or policy that is perceived as being new, we speak of public sector innovation, irrespective of whether the organisation itself invented or just copies it (Rogers, 2003; Sørensen, 2012; de Vries, Bekkers and Tummers, 2016).

Currently, cities and municipalities face numerous complex challenges which require new and innovative modes of strategy-formulation, internal structures, processes, and controlling (Bornemann and Christen, 2019; Miller, 2005). These innovations are always accompanied by institutional learning and capacity-building efforts (Evans et al., 2006; de Vries, Bekkers and Tummers, 2016). To name just a few of these challenges: decarbonisation, energy efficiency, urban climate mitigation/adaptation, mobility and transport, as well as urban planning – all under the consideration of social equality and public health (Rink and Kabisch, 2017; McCormick et al., 2013, and others).

Linking sustainability-induced public sector innovation with the widely discussed framework of governance implies that the topic not only requires multi-level governance (Fenton and Gustafsson, 2017; Krellenberg et al., 2019) but also that governance itself has to be adaptive. Since governance for sustainable development covers policy formation and implementation, as well as stakeholder interaction, and since – at the same time – the modes of these processes have to change, the governance system itself is also under transformation. This is what Meadowcroft (2007) and others call “reflexive governance”. Many authors explored the concepts of governance and sustainability and tried to identify interactions and key themes

(Meulemann, 2018; Jordan, 2008; Kemp, Parto and Gibson, 2005; Meuleman and Niestroy, 2019; van Zeijl-Rozema et al., 2008). Whereas Meadowcroft (2007) has put a special focus on the management of change in systems of fragmented power, Bartle and Leuenberger (2006) as well as Fiorino (2010) concentrated on the applicability of sustainable development for public administration.

In a similar vein, another strand of literature covers the strategic and management perspective of sustainable development strategies on the national level in the aftermath of Rio 1992 (Lafferty and Meadowcroft, 2000; Steurer and Hametner, 2013; Steurer and Martinuzzi, 2005; Volkery et al., 2006). Bruyninckx, Happaerts and van den Brande (2012) focus on intermediate level governments in federal countries. From the very beginning, there was also an increased research interest in the implications of sustainable development for local governments, especially in terms of the LA21 implementation but also of the more specific local action fields of climate mitigation and adaptation. Since the 1990s, researchers have worked on local government climate mitigation activities, mostly based on case studies (for an overview, see Bulkeley, 2010). In terms of local sustainable development, Evans et al. (2006) analysed institutional and social preconditions. Among other things, the authors stress the importance of civil society activity and the need for a strategic long-term vision of a sustainable future. Feichtinger and Pregernig (2005) analysed local LA21 implementation and drew conclusions in terms of normative tensions between democratic participation and sustainability goals. Although even today this discussion provides meaningful insights into local government sustainability governance, authors like Graute (2016) or Xavier, Jacobi and Turra (2019) conclude that the LA21 process has failed to provide long-term results and has not been followed by appropriate efforts at evaluation.

After three decades of local sustainability governance, the phenomenon seems to have finally reached a certain proliferation. For the last few years, it has been possible to observe more and more empirical research that investigates local climate mitigation and adaptation from an even international perspective. Whereas Otto et al. (2021) rank large cities in Germany according to the quality of mitigation and adaptation strategies, Araos et al. (2016) take a global perspective and find that only 15 percent of 401 cities with more than one million inhabitants have formulated adaptation plans. The most ambitious cities are concentrated in high-income countries. Grafakos et al. (2020) focus on the interaction between mitigation and adaptation strategies in 885 European cities. This more recent literature shifts the perspective to the quality of action plans and the interplay of mitigation and adaptation.

Irrespective of the level of government, the use of indicator-based governance has always been a core topic. In their early volume “In Search of Indicators of Sustainable Development”, Kuik (1991) and Verbruggen stated that “unless there is some clear measure or at least some indicator of sustainable development, the effectiveness of environmental or other policy towards this goal cannot be assessed” (p. 1), which reflects a timeless truth. Going beyond the huge literature

on the technicalities of indicator building and indicator sets (see, e.g. Bell and Morse, 2008; Ameen and Mourshed, 2019; Böhringer and Jochem, 2007 and many others), authors like Holman (2009) and Miller (2005) analysed the role of indicators for local sustainability governance and Holden (2011) asks about the relevance of citizen participation in choosing appropriate sets.

Closely related to the question of indicator-based monitoring is local government application of SDGs. Although the UN published the SDGs only seven years ago, academic discussion about their potential for local governments is still new and in many cases conceptual (see, e.g. Fenton and Gustafsson, 2017; Graute, 2016; Kharrazi, Qin and Zhang, 2016; Klopp and Petretta, 2017; Zinkernagel, Evans and Neij, 2018) or based upon case studies (Fox and Macleod, 2021; Hansson, Arfvidsson and Simon, 2019; Krellenberg et al., 2019; Tremblay et al., 2021; Villeneuve et al., 2017). An exemption is the study by Kawakubo et al. (2018) who apply an SDG-based tool to assess the sustainability level of 79 cities worldwide. Not very surprisingly, the authors find that general SDG-based sustainability as well as greenhouse-gas emissions are higher in developed countries.

In sum, the literature presented in this section, which covers local governance of sustainable development and climate mitigation/adaptation, provides many valuable and detailed insights into how to administer the upcoming socio-ecological transformation. Just a few rough and by no means comprehensive brush strokes: additional to effective citizen participation and multi-stakeholder engagement, a strategic plan with adequate targets as well as appropriate local government structures and interdepartmental processes seem to be crucial. Monitoring success and enabling local governments to steer the transition require data-based indicators of sustainable development. It is not only indicators and targets (like the SDGs) that have become a “key site of innovation”, as Miller (2005) puts it. In the face of these changes, the entire socio-ecological transformation opens a wide field for public sector innovation.

4 INSTITUTIONAL BACKGROUND: LOCAL GOVERNMENTS IN GERMANY AND THEIR OPENNESS TOWARDS INNOVATION

Germany has 10,796 municipalities (31 December 2020), including 1,210 joint municipalities (“*Gemeindeverbände*”) which pool the public services of 7,608 smaller municipalities (Destatis, 2022). Around 51 percent of all Germans live in 2,254 small and medium-sized towns (from 5,000 up to 19,999 inhabitants). Another 681 cities have a population between 20,000 and 499,999 people, and only 14 cities have more than 500,000 inhabitants (Statista, 2022). Municipalities and joint municipalities in Germany are usually part of one of the 294 counties (“*Landkreise*”). Only 107 cities are autonomous in the sense that they do not belong to a county.

German administration is regarded bureaucratic, bound to the administrative tradition, and fragmented (Jann, 1983). Its historical tradition reaches back to the Prussian state reforms between 1807 and 1815, which established the central structural

features. These exist even today and were systematically described by Max Weber in his analysis of the “bureaucratic administration” (Weber, 1972). According to Weber, administration may act only on a legal basis in form of positive administrative law (“Weberian Rechtsstaat”). The strong departmental principle ensures that administration is based on the division of labour among various specialised branches. Despite their firm integration into a hierarchy, these departments have clearly defined competences. Another cornerstone is the regularity of records and the written documentation of decision-making processes. Even today, the rule of law is the central guiding principle: the general contestability of administrative decisions makes it necessary for administrative law and corresponding administrative practice to be as court-proof as possible (Jann and Wegrich, 2008: 51).

These characteristics point to possible challenges that administration faces when multidimensional/wicked problems are to be solved since these often affect various departments simultaneously and therefore require horizontal collaboration (Scharpf, Reissert and Schnabel, 1976). Thus, the departmental principle tends to be an obstacle to collaborative, process-oriented and agile problem solving. Not without reason, the introduction of New Public Management (NPM) has been implemented only partially in many German municipalities (Holtkamp, 2009). Since NPM was a global wave of public sector innovation this shows nicely that not only collaborative solutions but also the implementation of innovations is limited by the risk-averse and rule-of-law focused German administration. Implementing the SDGs requires two major steps that could reinforce those barriers: integrating the SDGs in a sustainability management system (operationalisation), which includes strategy, measures and monitoring development, as well as translating the SDGs into the local context (localisation) (see, e.g. Krantz and Gustafsson, 2021). The latter means adapting targets and monitoring to local conditions, such as access to the sea, and local specifics, such as connectivity to metropolitan areas.

Since municipalities in Germany are not an independent jurisdictional level of government but assume administrative tasks from higher levels of government, they are in a cliff-hanging situation between policy-making and administrative enforcement obligations. Municipalities have two types of tasks: voluntary self-governing tasks (culture, sports, economic development, and climate protection) and compulsory tasks. The latter can be grouped into compulsory self-government tasks, compulsory tasks according to instructions, and contract matters (Dreier, 2006). Obligatory self-government tasks include wastewater disposal, school transportation, fire protection, construction and maintenance of school and administrative buildings, and municipal roads. Although municipalities are obliged to perform these tasks, they are free to decide how to do so. Mandatory tasks according to instructions include security and public order as well as reimbursement of the costs of housing and heating as part of the social welfare system. These are subject to legal and technical supervision of the Länder – similar to commissioned matters, which include, for example, passport and registration services, registry, health, and veterinary offices. Here, municipalities act as decentralised administrative bodies of the federal and state governments.

Following the Basic Law, municipal self-government includes basic financial autonomy. For example, local governments have the right to levy certain taxes like business or property tax. Since the number of non-voluntary tasks has risen steadily over the past decades, voluntary tasks are always subject to funding – especially in financially weak municipalities. Since climate protection and sustainability activities are voluntary, financial restrictions often limit municipalities’ ability to govern sustainability. Another obstacle is the complex corporate structure of many local governments. Over the past decades, cities and municipalities have corporatised many cost and emission intensive public services related to infrastructure (public transport, wastewater management, energy supply, etc.). These fragmented corporate structures can also complicate integrated and cross-city climate and sustainability programs.

5 EXAMPLES OF SDG-RELATED PUBLIC SECTOR INNOVATION IN GERMANY

5.1 THE GERMAN LOCAL GOVERNMENT SDG PORTAL AND SDG-RELATED SUSTAINABILITY REPORTING

As more and more local governments in Germany think about sustainability governance and an appropriate formulation of targets, the localisation of SDGs is an increasingly relevant topic among practitioners and scholars. A central German institution for this discussion is the working group “SDG Indicators for Municipalities”, founded in 2017 (Bertelsmann Stiftung, 2022). It brings together research institutes, the three German local government associations, federal government and NGO representatives as well as representatives from the Council of European Municipalities and Regions (CEMR). Thus far, this working group has published two reports which specify SDGs for local governments (Bertelsmann Stiftung, 2018, 2020). The latest report assigns 120 indicators to the 17 SDGs. Fifty-six of these are of type I, meaning that they are of high reliability and data on the district and/or municipal level are available for the whole of Germany. For type II indicators, data availability is not as comprehensive. The set of indicators is meant to be a toolkit for municipal application.

For the more than 3,000 German cities, towns and districts with more than 5,000 inhabitants, data for type I indicators are available in different data portals. One of these is the “SDG portal”² that was developed by the above-mentioned working group “SDG indicators for municipalities”. It aims at facilitating SDG monitoring at the municipal level. The portal was awarded the UN SDG Action Award (Top 3) at the SDG Global Festival of Action of the United Nations in Bonn in 2018 and transferred to Italy in 2020³. Currently, the working group is planning further scaling to other European or Non-European countries with the long-term aim of enabling cross-national comparisons.

² Available at: www.sdg-portal.de.

³ Available at: <https://sdg-portal.it/it>.

The provision of this easily accessible tool aims at enabling local governments to embed SDGs into their sustainability governance, which often comprises sustainability strategies, projects, structural and financial resources as well as monitoring and reporting systems. These localised SDGs are proposed to be of special use for sustainability reporting (Bertelsmann Stiftung, 2020). Following internal numbers of the Bertelsmann Stiftung, which is the central institution behind the portal, 75 municipalities from a population of 271 highly ambitious model communities⁴ published sustainability reports between 2017 and 2021. Of these 75 municipalities, 40 have integrated sustainability indicators in their reporting and 33 out of these 40 municipalities used localised SDGs. On the one hand, this indicates that even among a group of highly ambitious German cities and municipalities only a minority offers (up-to-date) sustainability reports. On the other hand, however, it also indicates that cities or municipalities in Germany, which published indicator-based sustainability reports in the recent past, most often use localised SDGs.

Several cases indicate that the SDG portal facilitates localised SDG reporting. One example is the city of Freiburg in Baden-Württemberg (Freiburg, 2020). So far, the city has published four sustainability reports. The latest report in 2020 listed 59 sustainability targets monitored with 78 indicators; 28 came directly from the SDG portal. The city of Stuttgart follows a similar approach (Stuttgart, 2021) and Mannheim (both in Baden-Württemberg) published information regarding its own SDG performance in 2018 using the very data (Mannheim, 2018). Other cities/municipalities provide direct links to the SDG portal on their webpage to communicate their current sustainability level to interested citizens. Examples are the city of Eltville in Hesse (Eltville, 2017) and the city of Lahr in Baden-Württemberg (Lahr, 2021). This indicates that the online portal allows localised SDG reporting even for smaller cities, which may not have the resources to publish and update comprehensive sustainability reports.

One further prominent feature of the SDG portal is the option to benchmark. Although there is currently no information about how many local governments apply SDG-related sustainability benchmarking, recently two online market places for local government finance have integrated the portal to provide investors with the opportunity to evaluate sustainability levels of local governments (see section 5.4). This indicates that the potential use of this tool goes beyond mere local government sustainability reporting, which is already an innovation on its own for most local governments, and opens a new field for public sector innovations.

⁴ A model community is a city or a municipality which has shown a high level of ambition in terms of sustainability by being affiliated to one of the following initiatives: Club Agenda 2030 (see section 2), Global Nachhaltige Kommune (see section 5.3), finalists of the German sustainability prize for cities and municipalities, award-winning municipalities at the “Zeitzeichen N” award, model municipalities of the competence centre “Education – Sustainability – Municipality”, in the national development report of the New Urban Agenda, and in the Bertelsmann Foundation project “Monitor Nachhaltige Kommune” and the follow-up project “Agenda 2030 – Nachhaltige Entwicklung vor Ort”.

5.2 SDGs AND LOCAL GOVERNMENT BUDGETS

In the light of limited financial resources, the question of how local governments can link their budgets to sustainability governance is becoming increasingly relevant. This is why the instrument of “sustainability budgets” was developed (LAG, 2021) and – so far – tested in a group of municipalities in North Rhine-Westphalia, Germany’s most populous state. This group comprises Cologne (Stasiowski, 2018), Bonn, Lüdenscheid, Jüchen, and the county of Unna (LAG, 2021; Schuster, 2019). The first city to experiment with sustainability-related budgeting was Freiburg.

The purpose of sustainability budgets is to align the allocation of municipal financial resources with sustainability objectives, which in turn may refer to localised SDGs. This is different to most known attempts to link national budgets to the SDGs, which do usually not use the goals as management tool for resource allocation (Hege, Brimont and Pagnon, 2019). From the German local government perspective it is an attempt to institutionalise the role of sustainability governance, which too often is just an “add-on” to day-to-day operations, and to limit the rivalry of sustainable and non-sustainable municipal tasks for financing. Accrual accounting, which most German municipalities implemented as a central part of New Public Management, provides the framework. It structures a local government budget in various product areas, product groups and single products to which a municipality could assign specific objectives. The sustainability budget uses this mechanism and follows the idea that financial decisions become subject to sustainability-related targets.

What we learn from the above-mentioned example cities is that usually an interdisciplinary dialog accompanies the development of local sustainability budgets. A common starting point is the implementation of a steering committee consisting of several administrative departments and the city’s sustainability management (LAG, 2021). This interdepartmental approach aims at overcoming the silo structure of German public administration. The committee sets up a schedule including all relevant steps, tasks and regular exchange about the progress. Since municipal budgets are complex, a sustainability budget often starts with certain pilot products covering suitable departments. Depending on the size of these selected products, mixed teams can take the lead for individual sub-budgets. In each case, structure and essential elements of the sub-budgets as well as existing target systems are analysed.

Often, cities already have certain strategies (climate strategy, sustainability strategy, mobility strategy, etc.; see section 5.3), which may include appropriate targets for the sustainability budget. Also, municipalities can take EU, federal, or state level sustainability strategies into account, which in Germany often refer to the SDGs (Rautenstrauch and Riedel, 2019; Reuter, 2021; Schuster, 2019). This ensures a consistent cascade of sustainability goals. Finally, localised SDGs or other sustainability-related goals are assigned to the budget’s product areas,

product groups, and products. This ensures that sustainability goals cover the entire budget hierarchy. The approach is open for reviewing, reconsidering, and adapting objectives in order to keep them internally and externally consistent.

The city of Cologne, for example, started its sustainability budget in 2019 with linking existing impact-oriented targets to the SDGs within the sub-budgets for the departments of landscape preservation and sports as well as the fire department (Stadt Köln, 2020). In 2020, the sub-budgets for the public health department and the city library followed. In terms of the sub-budget for the fire department, the existing target “ensuring rapid help” was linked to SDG 3 (Good Health and Wellbeing). Within the sub-budget of the department of landscape preservation, the product “parks” was linked to SDG 11.7 (Provision of Green and Public Spaces) (Schuster, 2019). Potential indicators for Cologne are “area of park per inhabitant”, “investment in parks” or “number of playgrounds”. The city aligned its sustainability targets with the sustainability strategies of the federal level and of North Rhine-Westphalia (Stadt Köln, 2020).

In the course of the local government accrual accounting reform starting in the early 2000s, many municipalities in Germany have already integrated targets into their budgets (Raffer, 2021). These targets may or may not relate to sustainability governance. However, to date, most municipal financial departments hardly ever review these targets or have formulated them so vaguely that they are not suitable for sustainability monitoring in the sense of the SMART approach.⁵ Further reasons for this lack of interest in existing targets is the absence of stakeholder engagement in their formulation as well as their failure to be integrated into broadly supported strategies. From this perspective, sustainability budgets with their systematic anchoring of sustainability goals may be a chance to revive impact-oriented steering via the budget. Active involvement of internal stakeholders, increased public interest in sustainability issues, and a focus on monitoring and controlling may create a more favourable environment than in the past. At any rate, the systematic inclusion of sustainability goals in the regular budget sends a clear message not only to local stakeholders, but also to the administration itself since administrative activities and their financing are subject to a sustainability proviso. If budget preparation and financial reporting are aligned accordingly, sustainability effects may be achieved in the medium and long term.

This illustrates that localised SDGs are driving public sector innovation with regard to municipal finance and budget policy despite a restrictive legal framework and a large number of standard processes. However, the development has just begun. In addition, the instrument of sustainability budgets – notwithstanding its comprehensive claim – has so far mostly been used for re-labelling the existing budget with its product groups and products according to their contribution to the

⁵ SMART is short for “Specific, Measurable, Achievable, Reasonable, Time-bound” and refers to a project management approach that focuses on measuring project activities in these dimensions.

SDGs or comparable (local) sustainability objectives. Although this creates transparency for public and administration, a systematic review of the extent to which sustainability budgets effectively redirect expenditures and revenues towards sustainability goals is still missing. To measure the impact of SDG target achievement in the medium and long term, sustainability budgets must therefore be flanked by appropriate sustainability monitoring.

5.3 SDG-RELATED LOCAL GOVERNMENT SUSTAINABILITY STRATEGIES

Although the local government sustainability discourse is already in its thirties, it can be assumed that most local governments in Germany still haven't implemented a distinct sustainability strategy. In the absence of concrete figures about the status quo, the relevant memberships, grants and awards described below as well as project outcomes serve as a proxy, ranging from a few dozen to a few hundred municipalities (see, e.g. LAG 21, SKEW). Sustainability strategies are supposed to link long-term visions with medium-term targets and short-term activities. They integrate different local sectors horizontally and link municipal endeavors to national and global strategies vertically (Bass and Dalal-Clayton, 2002; Lange et al., 2020). Local sustainability strategies comprise projects which are managed by the administration and support sustainability in some or all its dimensions, embed them into the municipal framework of sustainability targets and, ideally, link these activities to a system of measurable indicators. Instead of a sustainability strategy, many local governments in Germany use sector-related strategies which also may cover sustainability issues (see, e.g. mobility and transport strategies or integrated city development concepts (ISEK), Rautenstrauch and Riedel, 2019). Often, these have a more narrow, sector-related focus.

Formulating a local sustainability strategy is complex. It requires a clear vision, concrete projects, prioritisation of targets and appropriate indicators. Naturally, many actors and issues have to be involved (see, e.g. Krellenberg et al., 2019). Having such a strategy is certainly a public sector innovation for German local governments and so for most of them is the comprehensive and participatory process of its formulation. In 2018, only a minority used indicator-based sustainability monitoring (Haubner, Riedel and Vollmer, 2018), which is one condition for successful sustainability strategies. The existence of localised SDGs can provide a useful concept for target formulation and indicator definition/prioritisation. The German federal level sustainability strategy as well as the corresponding strategies of many Länder use SDGs as orientation (Rautenstrauch and Riedel, 2019). On the local level, however, only a few governments employ them systematically in their everyday work. Referring to Rogers' (2003) concept of the diffusion of innovation, one can think of a small group of early-adopting local governments and a large majority of late adopters or even laggards.

From survey research we know that the larger a municipality/city is, the better are the odds for administrative and governmental awareness of SDGs (Haubner, Riedel and Vollmer, 2018). In terms of strategic application, we differentiate between

the integration in already existing, often sector-related strategies and overarching sustainability strategies. Since there is no Germany-wide monitoring of local governments' strategic approaches to sustainability, information on the adaptation of existing strategies towards the SDGs is based on case-studies. Rautenstrauch and Riedel (2019) provide a detailed report about the city of Neumünster in Schleswig Holstein, which actively supports the local SDG implementation and linked the core projects of their existing ISEK to the SDGs. Prorok and Rucker (2018) provide further examples of Ludwigsburg and Freiburg (Baden-Wuerttemberg) as well as Hannover (Lower Saxony) which also adapted existing city development strategies as well as sustainability strategies to the SDGs.

The records are better when it comes to the initial formulation of SDG-related local sustainability strategies. The reason for this is the existence of a publicly funded project "Global Nachhaltige Kommune (Globally sustainable municipality)", which is administered by the so called "Servicestelle Kommunen in der einen Welt (SKEW) (Service Agency Communities in the One World)" and actively supports local governments in this process. In 2019, SKEW reported on 70 local governments in Lower Saxony, North Rhine-Westphalia, Saarland, Schleswig Holstein and Thuringia, which were formulating SDG-related sustainability strategies (SKEW, 2019). According to SKEW, their approach helps to break down the global SDGs to the local level and to embed them in integrated sustainability strategies. It enables local governments to evaluate and provide evidence about their active support of the Agenda 2030 and sustainable development in general (Lange et al., 2020). The number of German local governments adopting this innovation is constantly growing. However, considering all the 10,796 German municipalities and 294 counties, their share is still negligible. Nevertheless, the SDG framework seems to be a guiding concept and is as such becoming increasingly popular. Although cross-sectional research to this topic is still missing, similar examples exist for other European countries (Gustafsson and Ivner, 2018; Sánchez Gassen, Penje and Slätmo, 2018; SKEW, 2019).

Beyond SDG-related sustainability strategies there are many individual local government projects supporting Agenda 2030 goals (see, e.g. Peters et al., 2021). As long as these are not part of a strategy, however, they are often short-term oriented and do not yield the hoped for visibility and effect (SKEW, 2019). Moreover, these projects usually do not use SDGs as a tool. This is why we do not consider single local government projects in our contribution.

5.4 SDGs AND SUSTAINABLE FINANCE

SDGs are one reference point for another process that will have a significant impact on financial and budgetary management of municipalities and public companies in the years to come: Sustainable Finance (Kemfert and Schmalz, 2019; Marini, 2019). In its Sustainable Finance Strategy, the German federal government states: "Since states, municipalities, and, in particular, public finance companies are of great importance in the German financial system, they are also important in achieving the

goal of becoming a leading sustainable finance location” (Bundesministerium der Finanzen, 2021a). For that purpose, there are plans to develop indicators “to better measure and analyse developments at the Sustainable Finance location”. SDGs in general and the “SDG indicator catalogue for municipalities” (Bertelsmann Stiftung, 2018) could therefore provide a useful framework.

Starting point of the sustainable finance process in the EU was the report “Financing a sustainable European Economy”, prepared by the High-Level Expert Group on Sustainable Finance in 2017 on behalf of the EU Commission (Claringbould, Koch and Owen, 2019). The related taxonomy, which was adopted in June 2020 (Regulation EU 2020/852), contains a comprehensive classification system for currently two environmental targets. It serves the purpose “of establishing the degree to which an investment is environmentally sustainable”. For this purpose, selected economic activities are evaluated as to whether they exceed specific thresholds (Art. 3 Regulation EU 2020/852). Many of these thresholds refer to relevant SDG indicator systems.

The Sustainable Finance Taxonomy is thus intended to serve as a lever for a fundamental realignment of the capital markets. Six environmental objectives (Art. 9 Regulation EU 2020/852) are decisive: climate change mitigation and adaptation; the sustainable use and protection of water and marine resources; the transition to a circular economy; pollution prevention and control and the protection and restoration of biodiversity and ecosystems. Redirected capital flows are supposed to support sustainable adaptation and transformation measures to meet the environmental, social, and economic challenges (Bundesministerium der Finanzen 2021a; Larsen and Henderson, 2020). The central idea is that new reporting and verification requirements, which are in effect as of 2022, allow market participants to identify green investments (Schoenmaker and Schramade, 2019). This also affects the public sector and municipalities including the corresponding utilities. The transmission channel for sustainability-oriented capital flows runs from central banks and (institutional) investors via financial market intermediaries (public and private banks, insurance companies, investment funds, etc.) to borrowers, which include municipalities and public enterprises. Currently, German local governments and public enterprises use sustainable financial market products such as green promissory note loans or green bonds only to a small extent (Heinbach et al., 2020; Ortolano and Angelini, 2021; Wendt, 2020).

While institutional investors’ interest in sustainable investment products is high and banks currently find it easy to provide capital for sustainable goals, borrowers such as municipalities and companies face the challenge of proving the suitability of investment projects for the available capital (Brand and Steinbrecher, 2019; Kemfert and Schmalz, 2019; Krahen et al., 2021; Bundesministerium der Finanzen, 2021b). Although the EU taxonomy provides initial guidance, any practicable, cost-effective, and sufficiently tested processes capable of allowing municipalities, public enterprises, and banks alike to channel sustainable investment

financing are still in their infancy. Initial experience with corresponding verification requirements is being gathered in individual pilot programs (C40, 2020).

In the same direction goes a current research project for the development of an SDG-based “sustainability return on investment” for local government budgets (Difu, 2021). In collaboration with eight North Rhine-Westphalian cities, the German Institute for Urban Affairs (Deutsches Institut für Urbanistik) is currently developing a tool to determine not only the economic and budgetary, but also the ecological and social sustainability impacts of municipal investment projects. The qualitative evaluation uses the 17 SDGs and their 169 sub-goals as well as corresponding indicators. Similarly, the “KDZ – Center for Public Administration Research” has developed an “SDG Municipal Check” together with the Institute for Environment, Peace, and Development (IUFÉ) and the Ecosocial Forum Vienna. It enables cities and municipalities to plan and implement their investment projects along the 17 SDGs (KDZ, 2021).

Recently, online marketplaces for municipal financing such as “Loanboox” or “komuno” started to use localised SDG benchmarking in order to enable potential customers (banks, investors, municipalities) to evaluate a single municipality’s sustainability status. Both provide a link to the above-mentioned SDG portal for municipalities (see section 5.1). This shows that for municipalities, market participants, and intermediaries, the role of SDG compliance in municipal finance is becoming increasingly important (Loanboox, 2021). Similarly, the KfW group (“Kreditanstalt für Wiederaufbau”), the largest development bank of the German federal government, is also using the SDGs to assess its own portfolio vis-à-vis third parties (Dangelmaier, 2019).

This shows that the process of realigning credit markets towards sustainable finance is just starting and that SDGs as normative framework can be of implicit importance. An increasing relevance of sustainable finance for municipalities will require reliable reporting mechanisms to confirm that financial means are channelled towards sustainable investments (Brand and Steinbrecher, 2021). For municipal finance departments this means that public sector innovations are about to come and will depend on frameworks like the EU taxonomy or the SDGs.

6 DISCUSSION

In section five we showed that several German municipalities use the SDG portal for indicator-based sustainability reporting. For municipalities that lack the resources to set up a full process with comprehensive and regularly updated reports, embedding a simple link to the data portal with its predefined localised SDGs into their own website allows for a reduced form of sustainability reporting. Understanding public sector innovation as idea, practice, or object that is perceived as new by the adopting organisation following Rogers (2003), the implementation of sustainability reporting is itself innovative. In terms of innovation types as listed by deVries, Bekkers and Tummens (2016), it is a public service innovation, which allows interested

stakeholders and local decision-makers to evaluate sustainability developments within their municipality. Linking this reporting to localised SDGs in the German SDG portal is more an administrative process innovation since it facilitates and therefore increases the efficiency of the reporting process. From a wider perspective, the implementation of SDG-based monitoring in local sustainability governance is a process innovation as well and makes a valid example for reflexive governance in the sense of Meadowcroft (2007). The example shows the importance of technical accessibility. Since the SDG portal provides comparable SDG-related data, municipalities using the portal for their sustainability reporting do not have to research, clean, and compile appropriate small-scale datasets. Hence, the existence of the portal eliminates a resource-related obstacle.

Both reporting on and the formulation of SDG-related sustainability strategies require complex internal and external processes. This may be one reason why currently only a minority of German municipalities pursue such an indicator-driven strategic approach to sustainability governance. The interpretation in terms of its innovative nature is different compared to SDG-based sustainability reporting. Since a new strategy provides a frame of reference for local government decision making, we understand it as conceptual innovation (Bekkers, 2011). Compared to that, the adaptation of already existing sustainability or sector-related strategies to localised SDGs is rather a process innovation since it alters the quality of existing sustainability governance. In addition, the examples in section five indicate that external support, e.g., from the SKEW, plays a crucial role.

As we have seen in section five, German municipal financial departments are already familiar with impact-oriented targets as part of the budget. This was one of the major public sector innovations that came with New Public Management and the corresponding accrual accounting reform in the early 2000s. However, currently most municipalities do not use these product-related targets for steering. The reasons are manifold and a lack of support by local decision-makers as well as vague target formulations are just two of them (see, e.g. Raffer, 2021). The concept of the sustainability budget gives target-oriented steering via municipal budgets another try and therefore uses a mechanism, which, in many municipalities, has already failed once. However, linking new sustainability or SDG-related targets to sub-budgets means taking advantage of what we call “generation two targets”. These try to overcome the central shortcomings of their predecessors as they are selected in the course of an interdepartmental process and are the subject of increased public and political interest in sustainability issues. Moreover, using localised SDGs puts the focus on appropriate indicators and measurability. In general, this aims at improving the quality of product-oriented steering with the municipal budget and therefore is an administrative process innovation. It will be interesting to see whether this approach will effectively lead to redirected financial flows.

In Germany, potential SDG-related innovations regarding sustainable finance for (local) governments are still in their infancy. The central question for investors,

financial intermediaries and public borrowers like municipalities is how to channel money that is supposed to enable sustainable development into investment projects that effectively support sustainability. The main interest lies in the verification of the sustainability share of public investments. SDGs may be a reference framework, which would make them a conceptual public sector innovation. However, the first projects are still in the research phase. Interestingly, private sector market participants like German online marketplaces for local government loans use localised SDGs for municipal benchmarking and therefore indicate the relevance of the goal set. At this point, it seems likely that local financial departments will face a wave of public sector innovation in this field. Currently, several options for those innovations seem possible. The first one is a consistent purpose test for lending based on SDGs or EU taxonomy criteria. Counties, cities, and municipalities as well as public enterprises would be obliged to disclose the sustainability purposes for which they require loans. A second option is an ESG⁶ rating of entire municipalities: the more a municipality takes these standards into account, the better its general rating and the better its access to sustainable loans. A third option is the requirement of a taxonomy-compliant preparation of the municipal budget as access criterion for sustainability loans. This could increase the relevance of sustainability budgets and, implicitly, of the SDGs. Since all approaches require standardised sustainability reporting based on appropriate indicators, SDGs for municipalities could become particularly important for future public sector innovation in this field (Dangelmeier, 2019).

In sum, this shows that there is a continuum of local government application of the UN sustainable development goals in Germany. While, on the one hand, several innovations in the fields of reporting and strategy formulation are on their way into municipal practice and small but already considerable numbers of local governments apply them, on the other hand SDG-related innovations in budgeting and financing are still in the development stage. In each case, the standardised character of the goal set facilitates their application in innovative processes. This brings us to the conclusion that SDGs drive public sector innovations in the field of sustainability governance. Whereas external support by publicly funded projects and easy access to predefined localised SDGs seem to support this role, the complexity of the goal set as well as conflicting objectives within the set are obstacles.

Obviously, our study is subject to some limitations. Since there is no empirical research in this field, we provide only cursory insights and draw conclusions from a limited number of cases and examples, which, however, represent the current status quo in Germany. Moreover, the absolute number of German local governments that have already integrated SDGs in day-to-day sustainability governance is still small. It is not yet clear whether these innovations will spread. The structure and traditional characteristics of German public administration with its fragmentation, departmental thinking and focus on the rule of law conflicts with the

⁶ ESG criteria: Environmental, Social and Governance (see, e.g. Friede, Busch and Bassen, 2015).

holistic nature of sustainable development, which is an obstacle and complicates the implementation of public innovations in local sustainability governance. We suggest the empirical investigation of SDGs' driving nature for public sector innovation as field for future research.

7 CONCLUSION

In times of climate change and rising social inequality, local governments experience increasing pressure to set up effective sustainability governance in order to master the upcoming socio-ecological transformation. Scholars and practitioners agree that this requires a reorientation of existing structures and administrative processes towards strategic, interdepartmental thinking and indicator-based monitoring. The UN Sustainable Development Goals provide a useful frame of reference. In this article, we show that the theoretical concept of public sector innovation helps us a lot to grasp this development. Moreover, we provide several examples which demonstrate how local governments in Germany are already applying SDG-related public sector innovations for sustainability governance. We conclude that the formalised system of SDGs drives these innovations.

We deduce several policy lessons. Implementing localised SDGs for sustainability governance is complex and requires resources, which many local governments in the wake of the pandemic do not possess. Hence, approaches to limit this need for resources can support the diffusion of related innovations. The German case indicates the relevance of publicly funded support projects for local governments. In addition, easy access to predefined localised SDGs seems to be supportive. From past reform processes (LA21, implementation of accrual accounting, etc.) we can learn a lot about potential obstacles. To make local sustainability governance a successful endeavour it is crucial to ensure broad internal and external support for all innovations in the field of sustainability governance. Moreover, they must focus on impact-orientation and reliable monitoring of sustainable development, which underpins the relevance of consistent goal and indicator sets. The current sustainability discourse provides an opportunity for overdue administrative reforms globally, as the SDGs that dominate this discourse have created a consensus on sustainable development in most countries for the first time. Alongside this common policy framework, increasing physical risks, such as the changing climate and its specific local impacts, will even more drive the demand and the overall need for effective public sector innovation.

Disclosure statement

All three authors work for the German Institute of Urban Affairs. Two of the presented examples (SDG portal, SDG-based sustainability return on investment) are parts of ongoing research projects of the Institute.

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