8 Data for Good for All: Enabling All Communities to Track Progress Toward SDG Implementation

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8.1 Introduction

In this chapter, we explore how Community Indicator Systems (CISs), online platforms that communities use to share and visualize data to inform policies and decisions at the local level, can facilitate and drive localization of the Sustainable Development Goals (SDGs). Using our decade-long experience with *Peg*,[1] as a case study, we explore the conditions under which CISs can succeed in stimulating local action for SDG implementation and support measuring progress toward the SDGs. A key principle of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals is that implementation should take place from the bottom-up. Within the global framework of 17 Goals and 169 targets that the international community adopted in September 2015, actors at all levels are encouraged to develop their path to making progress on global challenges. Provinces, regions, cities, communities, and other sub-national entities are encouraged to "localize" the SDGs, that is, to define local challenges and priorities within the context of the SDGs and to develop locally appropriate strategies for SDG implementation. This principle is both an opportunity and a major challenge for communities. The SDGs can act as a powerful driver of positive local change; however, unlocking this potential requires translating the SDGs into the local context and establishing monitoring systems that are meaningful to local users, while allowing reporting that contributes to assessments of progress at the international level.

8.2 A Bottom-Up World

Although a global effort, the ability for nations to tailor their approach is a trademark feature of the SDGs. Several years after the adoption of the SDGs, the bottom-up approach is starting to gain traction. Many UN member states have developed and submitted a Voluntary National Review (VNR) to the UN High-level Political Forum on Sustainable Development (HLPF).[2] VNRs are the national plans through which governments detail their national priorities, targets, strategies, and metrics to assess progress. At the sub-national level, several cities, including New York City and three Japanese cities, have developed VNRs

[1] Peg is a CIS for the City of Winnipeg, in Manitoba, Canada.

[2] The main body for reviewing progress toward the SDGs.

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D. B. Abraham, S. D. Iyer (eds.), *Promoting the Sustainable Development Goals in North American Cities*, Sustainable Development Goals Series, https://doi.org/10.1007/978-3-030-59173-1_8

(IGES 2018). Communities, in various countries, are also localizing the SDGs through the development of community dashboards (Hawaii, USA; San Jose, USA; British Columbia, Canada) and local data hubs (New York, USA; Cambridge, Canada; and Winnipeg, Canada). These efforts are demonstrating that localizing the SDGs through measurement and reporting is a promising way to engage local actors and community members in action for SDG implementation.

While the reports of successful SDG localization are encouraging, they also reveal a fundamental challenge in measuring and reporting progress at the local level. The UN SDG indicator framework, a collection of 232 indicators that countries can use to report national progress on the 169 SDG targets, is not suitable to monitor progress in a local context. Many of the UN SDG indicators require data that is not available at the local level or is difficult to collect. Other SDG indicators may not resonate with local communities in all global regions, and risk ignoring important areas for action. Homelessness, for example, is a key issue that affects community well-being in North America, and many communities are beginning to track the number of homeless people to inform decisions on investments in housing, social support programs, and emergency shelters. Under the SDGs, however, homelessness is combined with other forms of inadequate housing into one indicator on a target referring to inadequate housing, access to services, and conditions in slums. Reductions in homelessness alone, while vital for many communities, are not well reflected in the context of the UN SDG indicator framework. The UN SDG indicator framework is a highly efficient system for measuring global progress, but it does not capture progress on the specific issues that are vital for community well-being in the eyes of community members.

How then can communities track progress on their own initiatives for SDG implementation in a way that links local conditions and priorities to the shared global aspirations and targets represented in the SDGs? One solution is to leverage existing local community-driven indicator systems that link data on local progress to national targets. Over the past decade, many communities around the world have developed Community Indicator Systems (CIS), online platforms that communities can use to share and visualize data to inform policies and decisions at the local level. CISs have evolved into an important tool for citizens to access, understand, and share information about their communities and stimulate action on key issues of community well-being. While CISs have helped facilitate positive change in many communities to date, their high cost has made them inaccessible for smaller communities or communities in poor countries.

In the following sections, we report on our experiences in "retrofitting" an existing CIS to allow users to interpret local data in the context of the global SDGs and to reduce the cost and other barriers that may prevent more widespread use of CIS to track community well-being and SDG implementation at the local level.

In 2013, the International Institute for Sustainable Development (IISD) in partnership with the United Way of Winnipeg (UWW) developed *Peg*, an online CIS for the citizens of Winnipeg, the largest city of the province of Manitoba, Canada. The data, indicators, and themes used to populate *Peg* were developed during a 2-year process of consultations and co-creation with community partners to ensure that the platform captures the issues that Winnipeggers care about most and that are important to track the city's vitality and well-being. In 2018, after winning multiple awards and gaining widespread recognition in Winnipeg and beyond, *Peg* was redesigned in a more user-friendly platform that links the existing indicator system to the SDGs. At the same time, IISD began exploring how the experience with *Peg* could be replicated in other communities in Canada and in other countries such as Peterborough Ontario, Cape Breton Nova Scotia, Trinidad and Tobago, and El Salvador.

We use *Peg* as a case study to explore how, and under what conditions, CISs can support localizing the SDGs. In this work, localizing is a process of

creating linkages, through data and other information, between local concerns and priorities and national goals, so that the SDGs can assist in driving local change and serve as a framing reference against which to report and compare local progress.

This chapter begins by reviewing recent research on the role of community well-being and how measuring community well-being can support localizing the SDGs. The subsequent sections tell the story of *Peg* in three parts: (1) preliminary work and development of an indicator framework that measures what matters to Winnipeggers (2009–2012); (2) the development and use of the initial *Peg* platform (2013–2018); and (3) the redesign of *Peg*, to link the existing indicators to the SDGs, and the process of developing a software tool that facilitates the development and maintenance of other CIS portals.

We assert that, because CIS have long supported data-informed decision-making to drive community well-being, they are a well-suited tool to assist communities in tracking local SDG progress. Likewise, the SDGs, as a global movement to spur action on sustainable development concerns, provide a lens by which to reinvigorate interest in data and action on local priorities in communities around the world.

8.3 Measuring Community Well-being to Localize the SDGs

8.3.1 Community Well-being

Community well-being is a concept connected to locally shared culture, norms, and values. Indigenous communities around the world identify with "The Good Life" as an essential element of their cosmovision. Andean groups call it "Sumak Kawsay" or "Buen Vivir" perceiving well-being as a way to live in harmony with oneself, others, and with nature (Altmann 2013). In Canada, the Cree people call the good life "Minopimatisiwin." This concept similarly encompasses the notion of harmony, respect, growth, and healing by all. Here, relationships are a key value, underlining the importance of community (Deer and Falkenberg 2016). Western cultures tend to view community well-being as a balance between individual and community prosperity, under a backdrop of social, economic, environmental, spiritual, and cultural lenses (Lee and Kim 2015). Considering the broad nature of the definition of community well-being, there is little surprise that measurement is equally as complex.

8.3.2 Measuring Community Well-being

Community indicator frameworks have grown out of an understanding that national-level indicators of the economy or GDP alone are insufficient measures of community health and vitality (Kim 2016). Quantitative definitions of community well-being most commonly include themes of social vitality and public engagement, employment, education, housing affordability, the natural environment, physical and mental health, sport and cultural activities, time use, and basic needs (Frankish et al. 2002; CIW 2016). There are as many interpretations of community well-being as there are communities to define it. At its most basic, measuring well-being is the "process of measuring the status of the community as it pertains to the goals for the community" (Perry and Temple 2015, p. 6). Every community has unique issues, values, and goals, and thus, the indicators used to measure well-being often vary from place to place (Ibid.).

The literature points to five predominant thematic indicator measurement movements that have influenced the field of community well-being measurement. These are Quality of Life, Healthy Communities, Sustainability, Government Performance and Benchmarking and "Subjective Well-being," which incorporates Public Happiness and Life Satisfaction. CIS systems have attempted to collect data for indicators based on these themes (Warner 2014; Cummins et al. 2002). Localizing the SDGs can connect these five thematic measurement movements to the Global Goals.

8.3.3 The Sustainable Development Goals

The 2030 Agenda for Sustainable Development, which includes the Sustainable Development Goals (SDGs), was adopted by all UN member states in September 2015. The SDGs are an ambitious framework with 17 goals, 169 targets, and 232 accompanying indicators. The framework is holistic, integrated, and universal in nature. Unlike their predecessor, the Millennium Development Goals (MDGs), the SDGs address changes and challenges that all countries should address. They express aspirations for humanity as a whole and provide concrete, measurable targets, with a target date of 2030 to put the world on a pathway toward achieving these aspirations. Implementing the SDGs is thus the collective responsibility of all countries and all communities within them, irrespective of their social, economic, or environmental situations (UN-DESA 2018).

8.3.4 Localizing the SDGs

While the 2030 Agenda is a global effort, its success hinges on local commitments, investments, actions and cooperation, and engagement by actors across multiple stakeholder groups. SDG localization is key to achieving the 2030 Agenda and is particularly strategic as regional and local governments play a large role in service provision, education, health care, and ensuring a good quality of life for citizens (UCLG 2017).

SDG localization is a process whereby the SDGs are adapted, implemented, and measured at the sub-national or local level (UNDP 2018; UN-Habitat and Global Task Force 2018). The Global Taskforce of Local and Regional Governments has stressed that SDG localization is essential for achieving the 2030 Agenda and that local and regional governments can accelerate this process (UCLG 2018). A recent review of sub-national and regional governments' role in SDG implementation highlighted the role of local governments in developing pro-poor policies, raising awareness, and increasing availability of and access to local data. The review also highlighted that bottom-up approaches are more effective than implementation from the top-down (UCLG 2017). The countries who presented Voluntary National Reviews (VNRs) in 2016 and 2017 comprised approximately 400,000 sub-national governments representing over 5.2 billion citizens. These local actors play a strategic and important role in realizing the objectives of the 2030 Agenda, including monitoring indicator progress against realistic targets for each locality (UCLG 2017). At the HLPF in 2018, New York City formally presented the first Voluntary Local Review (VLR) (New York City Mayor's Office for International Affairs n.d.).

Around the world, variations of SDG localization processes are taking place. Of the 63 countries who submitted VNRs in 2016 and 2017, 38 countries reported on local government participation (UCLG 2017). On the African continent, countries such as Somalia and Tunisia are taking on SDG localization activities through research, policy and strategy development, public education, and community-based projects (SIDRA and UNDP Somalia 2018; UNDP Tunisia 2018). In Latin America, Colombia is considered a leader in monitoring regional SDG implementation through the SDG Colombia Platform (Government of Colombia 2018).

In Europe, regional programs from 15 local authorities in Germany's North Rhine-Westphalia area have developed sustainability strategies based on the SDG framework (European Union 2018).The City of Amsterdam, Netherlands has committed to SDG localization by supporting social innovators to raise awareness about the SDGs and track both existing and emerging initiatives across the city. City-led programs such as "the Action Program on Social Entrepreneurship" and "Amsterdam Impact" create opportunities for idea exchange, promotion, and access to funding (Social Challenges EU Innovation Platform n.d.).

Across North America, SDG localization is occurring at different rates using a variety of methods. Early adopters of the data dashboard process include Baltimore, New York City, San José and the State of Hawaii in the United States, and Winnipeg, Manitoba, and Kelowna, British

Columbia in Canada (Temmer 2018; Nixon and Ruckstuhl 2016; Victoria Foundation 2018; New York City Mayor's Office for International Affairs n.d.; SDSN et al. 2016; Stanford University 2017). Local authorities and civil society groups have adopted numerous methods to measure the implementation of the SDGs across the continent. According to the Taskforce of Regional and Global Governments, despite progress being made globally, local SDG initiatives are still limited. More support is needed in the form of capacity and knowledge sharing, policy guidance, and financial resources to gain momentum for the SDGs at the local level (UCLG 2018).

8.3.5 SDG Localization Methods

While there are few documented "best practices" to follow when implementing the SDGs at the community level, local governments have identified a few generic guidelines that cities can pursue. Increased participation and engagement with citizens; coordination between all levels of government; and the adoption of a rights-based approach and alternative policy development can help local and regional governments play a larger role developing more resilient and sustainable communities and can increase momentum for achieving the SDGs (UCLG 2018). SDG localization implementation toolkits refer to the need for public participation and awareness raising, development of and advocacy for a local SDG agenda, a clear implementation plan, and mechanisms for tracking progress (SDSN 2016; GTLRG et al. 2016).

Community Indicator Systems as a Tool for SDG Localization

Community indicator initiatives took root in the 1960s and 1970s and have been at the forefront of using local data to generate knowledge and action around community sustainability and well-being since that time (Wray et al. 2017). Web-based Community Indicator Systems (CISs) have developed as a logical progression in the information age. In the context of this research, CISs are defined as online platforms that curate, and make publicly available, data for indicators representing key aspects of well-being in a specific geographic location. Existing CISs are well-suited for SDG localization efforts as they provide an existing base of local, verified data that can be aligned with the SDG framework and have been adopted by local stakeholders. Likewise, adoption of a localized SDG framework can provide a new lens through which to promote local action (Iyer 2017).

By providing easy access to local-level data, CISs help improve local government transparency and accountability; they encourage public engagement, educate citizens, and inform decision-making (Holman 2009). CISs also act as a shared measurement system for collective impact efforts. "Collecting data and measuring results consistently on a short list of indicators at the community level and across all participating organizations not only ensures that all efforts remain aligned, it also enables the participants to hold each other accountable and learn from each other's successes and failures" (Kania and Kramer 2011, p. 40).

There are three primary elements needed to develop and maintain a CIS over time: access to data, a data visualization website, and public engagement and convening of stakeholders to drive action. Each of these elements requires computer hardware and software, data, human resources, technical skill, and funds to support the project (Iyer 2017; Kingsley 1999). While technology advancements such as the development of APIs can help to reduce overall maintenance costs, CIS still require significant resources to maintain the website, update data, deliver an effective communication plan, and monitor impacts.

8.4 Case Study

8.4.1 Overview

This section illustrates how a community indicator system can be used to localize the SDGs, based on the experience with *Peg* (www.mypeg.

ca). *Peg* is a community indicator system for Winnipeg, Canada, led by the International Institute for Sustainable Development (IISD) and United Way Winnipeg (UWW). *Peg*'s mission is to "track progress on key community indicators and inspire action for lasting and positive change." *Peg* was officially launched in 2013, after 2 years of community engagement to determine the indicator framework, and has acted as a sign post for measuring well-being and sustainability across the community since that time. In 2018, *Peg* was relaunched with the new Tracking-Progress CIS platform and became the first Canadian city to track local progress on the SDGs. Currently, *Peg* collects and posts data for over 60 indicators within 8 theme areas, highlights linkages between the indicators and the SDGs, and provides data that supports local decision-making and action.

8.4.2 Peg: 2009–2012 Determining What to Measure

Peg's indicator framework was developed between 2009 and 2011 through an extensive engagement process with a diverse range of stakeholder experts and community members. This process served to explore the concept of well-being and determine which measures to implement. The indicator selection process was aided by various thematic indicator working groups. Meetings were held with each group to introduce the concept of a CIS, review background research for each theme, and determine the final set of indicators. The original framework consisted of 8 theme areas with 64 indicators.

While the project team considered the indicator set to be representative of overall well-being, there were data gaps across the theme areas. These gaps existed because either the data did not exist; there was a reluctance from data holders to share information; there was concern that sharing the data may result in potential harm; the data was not collected at regular intervals; there were changes in data collection methodology; or the data required complex calculations. Over time, *Peg* has taken an incremental approach to the indicators by annually reviewing existing indicators to ensure data quality and consistency and filling potential data gaps where possible.

8.4.3 Peg 1.0 (2013–2018) Measuring What Matters

Between 2013 and 2018, *Peg* has highlighted the importance of using local data to improve community well-being in Winnipeg. Throughout *Peg*'s first iteration, maintaining technology and updating data consumed a large portion of the team's resources, placing a limited focus on communications. Despite this challenge, through regular media connections, education-based programming, and partnerships to develop annual reports, the CIS has developed a reputation as a trustworthy source for local data and a tool for decision-making.

Resources

The resources necessary to maintain *Peg* over the course of a year include staff time, financial resources, and technical expertise. The *Peg* project team consists of six core staff with varying amounts of time committed to the project. There are three project staff from each partner organization (IISD and UWW) with input and support from both organizations' leadership. Primary responsibilities include indicator updates and technology, communications, and community engagement.

Technical expertise was needed to navigate *Peg* 1.0 software for updating indicators and interpreting data trends. One challenge for the team was balancing resource allocations for data updates and technology maintenance relative to communications activities. As many resources went to data updating and system maintenance, fewer resources and staff time were available to engage with Winnipeggers around trends in the data.

Technology

The initial technology, innovative for its time, was a custom-built, ontology-based system running on a Drupal platform with indicator updates

done using protégé, an open-source platform developed by Stanford University. Because of the complicated nature of the system, *Peg*'s infrastructure was stored and maintained on servers hosted by the web developer, and regular troubleshooting was needed to keep the CIS online.

Looking back, while appropriate for its time, the overall system was expensive and time-consuming to develop. The complexity of the technology increased overall annual project costs with expenses related to maintenance, troubleshooting, and technology updates.

By 2016, the technology used to run several key elements of the site became obsolete to the point that the website's front end became unusable. This required an update to the front-end design. As a result, the original indicator *wheel* (Fig. 8.1) was replaced by an updated *tile* format (Fig. 8.2) in 2017. This temporarily resolved issues posed by the obsolete Flash plugin. Further technology upgrades became necessary when the Flash-based platform used to develop the graphs was no longer accessible, thereby making data updates impossible.

Impact-Inspiring Action

Peg's tagline, "Tracking Progress, Inspiring Action," speaks to the team's ambition to implement positive change in the community through data. *Peg* aims to inspire action by informing, educating, engaging, and collaborating with organizations, decision-makers, and community members.

Peg has been used as a tool to support the work of a number of initiatives within various sectors including: community development, health, education, and government. For example, three key indicators were used to develop the case for support for the *For Every Family* initiative. This is a government and community partnership to enhance accessibility and programming at 24 family resource centers throughout Winnipeg. Secondly, the 2016 *Peg Our City* report on health equity (a collaboration between *Peg* and the Winnipeg Regional Health Authority (WRHA)) has provided the WRHA with educational materials to discuss issues of poverty, inequity, and the social determinants of health with local health staff, in order to promote better

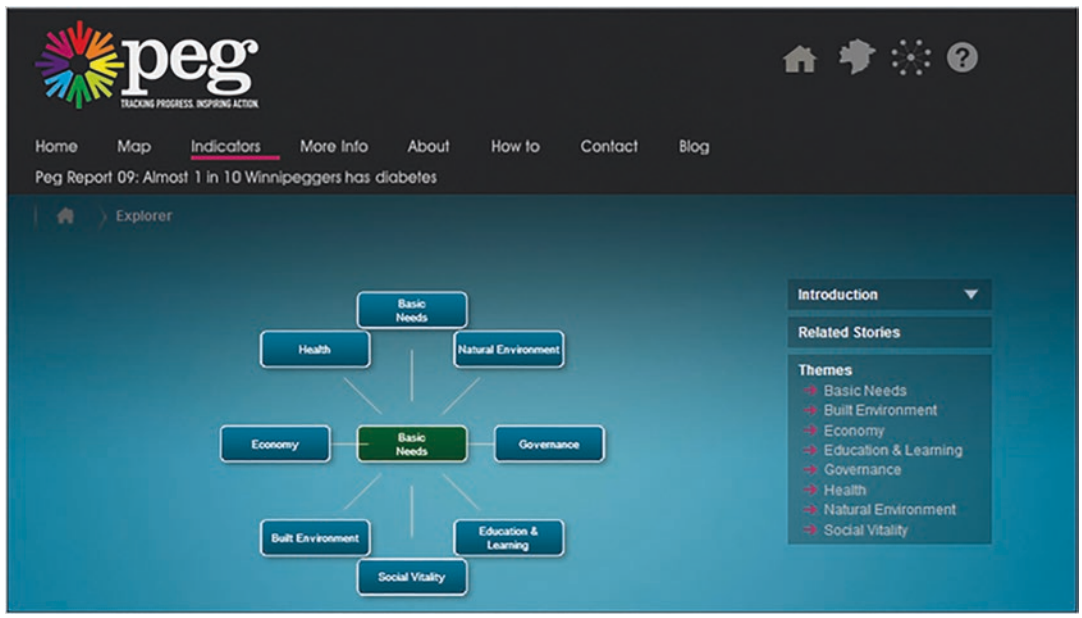

Fig. 8.1 Front end of Peg 1.0 version 1

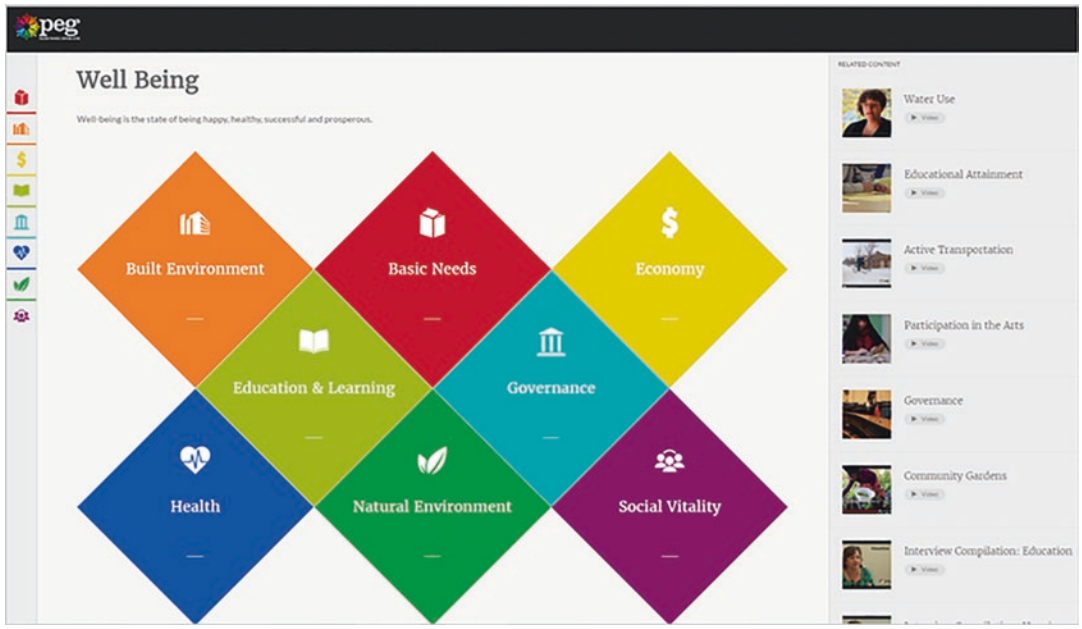

Fig. 8.2 Front end of Peg 1.0 version 2

understanding and empathy for patients. In addition, *Peg*'s work in the Winnipeg district school board has provided social studies teachers with resource materials and tools to assist students in learning about their neighborhoods through data and carrying out local action projects in their communities. Finally, over the years, the City of Winnipeg has used *Peg*'s data as a source of information when developing plans and policies that impact local citizens, such as in the development of the current long-range official plan, *Our Winnipeg*.

8.4.4 Peg 2.0 and Tracking-Progress: 2018–Present

While *Peg* has been considered a model CIS with a well-structured indicator framework and user interface, it was recognized that improvements were needed for *Peg* to continue to be relevant and sustainable. In 2018, IISD and UWW saw the SDGs as an opportunity to both update the system and integrate SDG localization. IISD therefore developed a new CIS platform technology and began a process to include and localize the SDGs.

Technology

Building upon lessons from the original *Peg* website, the IISD technical team built the new *Tracking-Progress* CIS platform. In June 2018, *Peg* was the first CIS launched on the new *Tracking-Progress* platform.

Similar to the original *Peg* technology, *Tracking-Progress* is based on an open-source software platform – WordPress content management software. The ability to customize themes and indicators was designed specifically for *Tracking-Progress*; however, most features are standard WordPress plugins. Selecting open-source software reduced platform development costs and the time and technical skill needed to manage CIS content. The system is designed to develop a dataset template based on predetermined geographical boundaries. Once an indicator has been developed, updating data is a simple three-step process of (1) downloading the archived dataset, (2) updating and reuploading the new data points, and (3) performing quality control.

An important element of the *Tracking-Progress* platform is its network structure. All CIS sites are situated and maintained within one connected system. This allows for innovations and new features added at one site to be accessible to every CIS on the network. This means that as new features are developed, the entire network benefits.

Resources

While implementation of *Peg* on *Tracking-Progress* is relatively new, the *Peg* team has observed that the new CIS platform has helped to substantially reduce the time and technical expertise required to complete the indicator update process and the resources needed for system updates. The *Peg* team is also now able to update and make changes to the general website design – a task that previously required contracting a web designer. This simplification has enabled the team to allocate a larger portion of staff time and resources to communication and community outreach. Moreover, the Tracking-Progress tool reduces the initial cost of building new CIS portals by a factor of ten or more, making online CIS portals affordable for smaller communities.

The new *Tracking-Progress* system will also bring additional benefits and cost reductions to *Peg* over time. The platform architecture is a networked system, whereby all CIS sites in the *Tracking-Progress* network are jointly maintained with security and platform updates, and all innovations can be made available for participating sites. By servicing all the sites collectively under one umbrella, costs are shared and, thus, incrementally reduced as more sites come online.

Peg's work to localize the SDGs has also brought access to new funding sources, including securing a new funder for communications activities dedicated to SDG education and implementation.

Localizing the SDGs to Peg's Indicator Framework

As indicators are a core element of both SDGs and *Peg*, Winnipeg's SDG localization process began by comparing and aligning, or mapping together, the two indicator frameworks, thereby connecting the local indicators to the Global Goals. *Peg*'s existing indicators resulted from an extensive engagement process, so it was important to retain them. Embedding the SDGs within the *Peg* indicator framework enabled *Peg* to remain rooted in the community while helping to stimulate conversations and action in a new way.

Fifty-three of *Peg*'s 60 indicators are connected to 31 SDG targets. In some cases, the indicators were the same, while with others local interpretation was needed to account for available local data sources being used. An additional 13 *Peg* indicators are connected more broadly to the 17 SDGs. The SDGs to which there is most alignment are SDG 1 (no poverty); SDG 3 (good health and well-being); SDG 8 (decent work and economic growth); SDG 11 (sustainable cities and communities); and SDG 16 (peace, justice, and strong institutions). Gaps in alignment were present with most environmental SDGs including SDG 6 (clean water and sanitation); SDG 7 (affordable and clean energy), SDG 13 (climate action); SDG 14 (life below water); and SDG 15 (life on land). Other major gaps included SDG 5 (gender equality) and SDG 10 (reduced inequalities).

Inspiring Action on the SDGs

Since the launch of the new *Tracking-Progress* platform in June 2018, *Peg* has been at the forefront of SDG localization in North America. Outside of Winnipeg, the *Peg* team has shared their experience at various events, including a side event during the 2018 session of the UN High-Level Political Forum on Sustainable Development (HLPF) in New York and at international conferences and through webinars. In addition, the Canadian government highlighted *Peg* in its Voluntary National Review submission to the HLPF in 2018.

Locally, the *Peg* team has started an outreach and education strategy to showcase and explore how the SDGs are relevant to the local context. These linkages were highlighted in *Peg*'s 2018 *Our City* annual indicators report, which focused on the three pillars of sustainability, as well as at presentations to the Winnipeg Chamber of Commerce and local academic institutions. *Peg*'s

Our City report indicated positive progress on 11 of the 15 highlighted indicators, most notably in reduced individual and overall water consumption and reductions in waste going to the landfill. In addition, the *Peg* team has been working with the City of Winnipeg to align the SDGs and *Peg* indicators with the City's long-range official plan, *Our Winnipeg*. Inspired by this work, United Way Winnipeg has recently undergone a process to align its investments in the community with the SDGs. These discussions and activities have sparked new and exciting conversations about *Peg* and the SDGs with stakeholders and partners from all sectors, most notably the corporate and business community.

The development of the *Tracking-Progress* system and the integration of the SDGs are examples of how *Peg* is evolving to meet the needs of users and provide information to inspire action in the community. Going forward, the *Peg* team plans to continue its work to enhance the system and localize the SDGs. These activities will include an engagement process to review and revise *Peg*'s existing indicator set and implementation of a new, multi-stakeholder communications strategy that will showcase the alignment between *Peg* and the SDGs.

8.5 Conclusions

For over three decades, CISs have measured, informed, and inspired citizens to take action on local issues. However, the time and resources traditionally needed to maintain a CIS have limited their use in urban centers. The global push to achieve the SDGs, combined with the development of new, user-friendly technologies, the proliferation of social media, and an increased understanding of the power of data, has meant that data platforms are gaining popularity around the globe. CISs are a particularly effective type of data platform as they purposefully engage communities in developing indicator frameworks, thereby building local ownership over the community's well-being. When this bottom-up approach to community well-being measurement is paired with the SDG framework, CISs become a powerful tool for stimulating local SDG action. A CIS is most effective for tracking progress and inspiring local action when the system is designed to minimize technology and staffing costs, and it takes into consideration how local stakeholders interpret, use, and share the data. Tools such as IISD's *Tracking-Progress* platform make it easier for communities of all sizes to harness the power of data to encourage public participation and understanding of local issues.

Reflecting on *Peg*'s experience, we see that the introduction of an easy-to-use, low-cost technology for the CIS itself has been a positive element for the project's evolution. Another key element for success has been the involvement of community organizations in a position to undertake meaningful communications and outreach efforts. IISD has developed the *Tracking-Progress* platform to make CIS more widely accessible and reduce cost and efforts required to a level, allowing CIS platforms to be sustainable in the long term. The *Peg* example demonstrates why communities should invest in the technical and human resources needed to ensure that a CIS system can deliver the full benefits possible from data-driven decision-making and community ownership of efforts to track local well-being.

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