The role of comparative city policy data in assessing progress toward the urban SDG targets

Rozhenkova, Veronika; Allmang, Skye; Ly, Stephanie; Franken, Daniel; Heymann, Jody

Published in:
Cities

DOI:
10.1016/j.cities.2019.05.026

Publication date:
2019

Cities 95 (2019) 102357

Contents lists available at ScienceDirect

Cities

journal homepage: www.elsevier.com/locate/cities

The role of comparative city policy data in assessing progress toward the urban SDG targets

Veronika Rozhenkova[a,*], Skye Allmang[a], Stephanie Ly[a,b,c], Daniel Franken[a], Jody Heymann[a]

[a] WORLD Policy Analysis Center, Fielding School of Public Health, UCLA, 621 Charles E. Young Drive S, 2213-LSB, Los Angeles, CA 90095, United States
[b] Community Health Sciences Department, UCLA Fielding School of Public Health, United States
[c] California Center for Population Research, University of California, Los Angeles, 4284 Public Affairs Building, Los Angeles, CA 90095, United States

ARTICLE INFO

Keywords:
Sustainable Development Goals
Urban SDG
SDG 11 targets
Urban policy
City policy
Policy database

ABSTRACT

As part of the UN Sustainable Development Goals, all countries have agreed to "make cities and human settlements inclusive, safe, resilient and sustainable". We argue that there is a critical need for large-scale comparative city policy data that, when linked with outcome data, could be used to identify where policies are working and where they could be improved. In an assessment of the landscape of existing city policy data, based on a comprehensive scoping review, we find that existing databases are insufficient for the purposes of comparative analysis. We then describe what an "ideal" city policy database would look like, where it could be housed, and how it could be developed. Such a database could be a key tool for achieving SDG 11, the urban Sustainable Development Goal.

1. Introduction

In 2015, all 193 United Nations (UN) member states unanimously adopted the Sustainable Development Goals (SDGs), a comprehensive set of 17 goals and 169 targets aimed at reducing poverty and advancing health and well-being for all (UN, 2015). While the SDGs built on many of the core commitments established by the Millennium Development Goals, which preceded them, they also expanded their scope to other critical areas, including urban planning and development. SDG 11, "Make cities and human settlements inclusive, safe, resilient and sustainable," calls on countries to improve inclusive access to safe housing, transportation, and green space, among many other targets.

With over half of the world's population residing in cities, SDG 11 represents a key opportunity to improve the daily living conditions of billions of people (UN Department of Economic and Social Affairs, 2014). As with other SDGs, however, realizing the potential of SDG 11 requires identifying and implementing effective approaches to achieve its targets. The formal SDG monitoring process focuses primarily on tracking changes in outcomes. SDG indicator 11.1.1, for instance, will track the "proportion of urban population living in slums, informal settlements or inadequate housing" between 2015 and 2030. Yet while improved outcomes are the ultimate goal, understanding the policy levers that lead to change—and monitoring their global adoption—is essential for accelerating progress. For example, at the city level, what works to increase access to safe, adequate, and affordable housing?

Quantitative, globally comparative city-level policy data would facilitate efforts to answer such questions. While case studies of individual cities and comparative policy research synthesizing lessons provide valuable information (see, e.g., Brakarz & Jaitman, 2013; Gonzalez-Navarro & Quintana-Domeque, 2016; Nijman, 2008; Tibaijuka, 2005), globally comparative policy indicators offer several unique strengths. First, when urban leaders can easily observe approaches among other cities of similar size and resources to solving common urban problems, they can better understand what policies are feasible within their own cities. Second, with both quantitative data on city policies and data on individual or household outcomes, researchers could rigorously analyze policy impact, enabling urban leaders and other stakeholders to make decisions guided by robust evidence about which policy approaches are most effective. Finally, in areas of city policy where there is already strong evidence about what works, quantitative policy data would provide a tool for quickly identifying gaps in both policies and their implementation.

The New Urban Agenda (NUA), adopted at a UN Conference on Housing and Sustainable Urban Development in 2016, represents a shared vision of the international community for cities' sustainable development, and builds on SDG 11. It underlines the strong connections between good urbanization and job creation, livelihood opportunities, and improved quality of life, which should ideally be included

* Corresponding author.
E-mail addresses: veronika14@ucla.edu (V. Rozhenkova), sallmang@ph.ucla.edu (S. Allmang), stephaniely@ucla.edu (S. Ly), dfranken@ph.ucla.edu (D. Franken), jody.heymann@ph.ucla.edu (J. Heymann).

https://doi.org/10.1016/j.cities.2019.05.026
Received 27 April 2018; Received in revised form 19 March 2019; Accepted 24 May 2019
Available online 27 June 2019

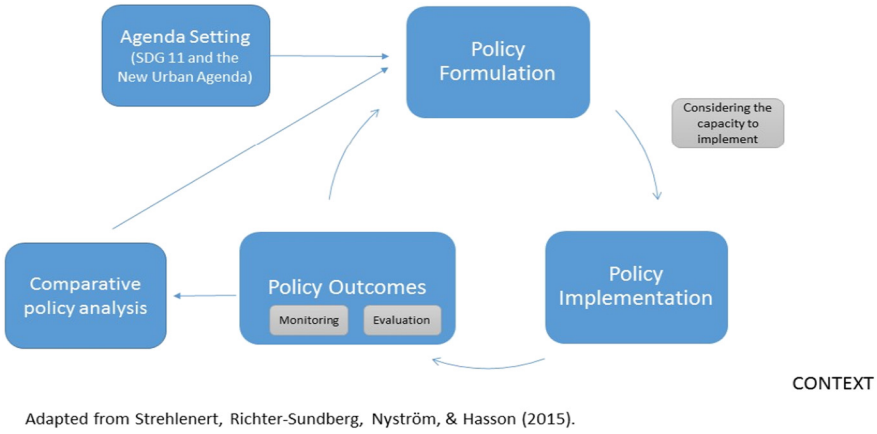

Fig. 1. Role of comparative policy analysis in evidence-based policymaking.

in every urban policy and strategy (Habitat 3, 2018). The NUA stresses the importance for various stakeholders to improve coordination of their urban and rural development strategies to achieve sustainable urbanization. It further states that there is no one single solution to ensuring sustainable urbanization; it calls for commitments from the decision-makers - national and local governments, to rethinking the way the urban spaces are planned, built and managed. The NUA sets out a series of principles including the importance of international co-operation for cities' development efforts, sharing best practices, policies, and programs (Habitat 3, 2018). The NUA does not, however, provide either a policy roadmap for action or a data or policy monitoring system—a fact that further underscores the necessity of creating a global city policy database to accelerate the achievement of SDG 11.

At the national level, the WORLD Policy Analysis Center and others have developed globally comparative policy data in a range of areas affecting health, equity, and economic well-being. These databases have enabled efforts to illustrate what policy choices have been feasible across national contexts (Heymann & Earle, 2009; Heymann, Raub, & Earle, 2011; Heymann, Raub, & Earle, 2013; Heymann, Rho, Schmitt, & Earle, 2009); to monitor governments' compliance with international human rights treaties, the MDGs, and the SDGs (Heymann, McNeill, & Raub, 2014; Heymann, McNeill, & Raub, 2015); and to rigorously analyze the impacts of a wide range of social policies on health outcomes across countries in different income groups (Daku, Raub, & Heymann, 2012; Hajizadeh, Heymann, Strumpf, Harper, & Nandi, 2015; Nandi et al., 2016; Ponce et al., 2017). Yet, to accelerate change at the municipal level, the same type of globally comparative, in-depth data is needed for city-level policies in such key areas as housing, transportation, and sanitation.

In this paper, we argue that city-level policy data is needed in order to evaluate progress toward achieving SDG 11. We assess the availability of comparative, city-level policy data in regional and global databases, focusing on key policy areas relevant to the urban SDG targets. To describe the landscape of existing city policy data and identify any significant gaps, this paper provides the first comprehensive scoping review of the relevant academic and grey literature. Such reviews are typically conducted when an area of interest "is complex or has not been reviewed comprehensively before" (Arksey & O'Malley, 2005).

In order to maximize the benefits to researchers, planners, and policymakers, we sought to identify city policy databases that compiled primary policy data and covered multiple countries and SDG 11 targets, in addition to being regularly updated, available online, related to a range of topics, and searchable by topic. Our review was guided by the following two questions: first, do any such city policy databases exist? Second, if so, does one such database or do several in combination provide the data needed for comparative policy analyses that enable assessments of progress toward SDG 11?

This paper begins by making the case for why a city policy database will be essential for assessing progress toward the urban Sustainable Development Goal. We then suggest five key attributes that such a database would need to enable comparative analysis. We detail our approach to conducting a comprehensive scoping review for existing databases. The paper concludes with a discussion of data gaps and how these can be addressed.

2. Background

2.1. Using comparative policy data for assessing progress in cities

City governments are increasingly using data to inform policymaking. Recent research has called attention to some of the ways in which cities may use indicator data, whether from their own cities, from similar cities, or from "model" cities (Lim, Kim, & Maglio, 2018). However, we argue that in order to obtain a broader picture of which policies work, and in which contexts, we need large-scale city policy data that can be linked with outcomes. The main objective of a comparative city policy database is to enable policymakers to learn from others and design evidence-based policies. Fig. 1, below, outlines the process through which a desired outcome or objective is translated into an actionable policy or law.

In the initial stage, policymakers set an agenda and identify the desired outcomes of a policy. In the case of the SDGs, an international organization, the UN, has established particular goals that nations must strive to achieve. The New Urban Agenda also sets several standards by which municipal governments must abide. Once a policy goal is identified, policymakers enter the policy formulation stage and consider options for the policy's design. The capacity to adopt and effectively implement a policy must be considered at this stage. Once a policy is designed and then adopted, the means by which it may be implemented can be identified. An evaluation of the policy's effects on related outcome variables can shed light on the policy's effectiveness and inform further discussion and refinements. Comparative policy analysis can play a large role in the agenda setting and policy formulation stages, allowing local governments to see what works and what does not across differing contexts.

2.2. Current SDG monitoring efforts

In an effort to capture countries' progress toward achieving the SDGs, the UN has compiled a Global SDG Indicators Database. The development of this database is ongoing, and its data are updated regularly. However, the data are available only at the country/area level, not the city level. Moreover, the number of indicators represented

in the database is limited. For example, the portion of the database related to SDG 11 lacks indicators on providing access to an accessible transport system, ensuring inclusive and sustainable urbanization, protecting cultural and natural heritage, providing access to green and public spaces, creating links between urban and rural areas, and supporting less developed countries. Moreover, this database contains outcome data rather than policies. Additionally, in a lot of cases data and metadata for measuring the progress toward achieving the SDGs is missing.

The World Bank has developed another SDG monitoring system, through the World Development Indicators. This system allows users to explore all the targets and selected indicators, as well as compare two economies side-by-side for a number of indicators. Again, however, only country-level data are provided. Finally, like the UN monitoring system, the World Bank approach contains only outcome data, rather than information on policies and legislation.

While these efforts represent an important start, the limited availability of policy data in general, and absence of city-level policy data in particular, will impede progress toward identifying what works best and monitoring the adoption of effective approaches to realizing the urban SDG. A number of social policies central to the fulfillment of SDG 11 are legislated at the city level. For example, the details of housing policy, transportation policy, and sanitation policy are often decided and implemented by municipalities. Consequently, the availability of city-level policy data is critical for monitoring progress toward SDG 11, and would provide an essential complement to national policy data in broader efforts to realize the SDGs.

2.3. Features of a city policy database

A comprehensive, publicly accessible database on city policies would enable diverse stakeholders to adopt, analyze, or read various pieces of legislation and policies in comparative context, and provide an action-oriented resource to supplement the formal SDG monitoring process focused primarily on national-level outcomes. However, the details of this database's construction matter for its utility as a comparative tool and data source for rigorous analysis. We began our scoping review by specifying important attributes to ensure open access and multidisciplinary use. We specifically prioritized five attributes that would be essential in a city database: it should (1) cover multiple policy areas, (2) provide primary sources, (3) be regularly updated, (4) have broad geographic scope, and (5) be searchable by topic.

First, a city database adequate to fully address the SDGs should include measures of the full range of relevant policies. A broad scope would expand on current urban databases focused on single areas, capturing the full range of topics needed to meet all the needs of the SDGs.

The second attribute addresses the issues of data quality. Primary sources are necessary in a comprehensive database to fact-check, ensure accuracy, and use as a basis for comparison. We define primary sources as original legislation, bills, policies, and similar documents. The International Labour Organization's NATLEX database is an example of a public and comprehensive database that provides access to original legislation on labor (International Labour Organization, 2017). We sought similar sources on urban policy. These primary sources are created by governments and may include policies as well as reports or actions. A city database could embed these primary source documents as attachments or provide direct links to electronically accessible sources. Primary sources increase the accountability of databases and mitigate potential differences in policy interpretation.

Third, the city policy database should contain consistently updated information. Databases that are recently and regularly updated will be critical for advancing the SDGs. Furthermore, regular updates will ensure effective monitoring and evaluation of the policy efforts. Policies change over time, sometimes over short periods, as political leaders and national priorities shift. We suggest an annual or bi-annual (if resources are constrained) update to capture shifts in political leadership or city priorities, which affect legislation. A database with frequent updates better incentivizes city action and, when linked to outcomes, accelerates learning.

The fourth aspect of our model city policy database is a global geographic scope, which is necessary for comparing the effects of policies across contexts. Since we argue that such database will help achieve SDGs, it should by definition cover all countries or as many as possible. Moreover, an ideal database would include multiple cities within one country but maintain the ability to compare and standardize against cities around the world. This attribute would allow stakeholders to assess city-level policies both nationally and globally. Comprehensive city databases sometimes exist for single countries, but a compilation of cities across multiple countries would better facilitate progress toward SDG 11. For example, the Integrated City Sustainability Database is a nation-wide dataset of U.S. municipal governments' sustainability programs and policies, which can serve as a valuable resource for researchers investigating local environmental and energy sustainability. However, given that this database is national, it does not allow for global comparison and analysis. A global city policy database would encourage broader discussion among local government officials as well as researchers and members of intergovernmental and civil society organizations.

Finally, our model database would enable users to search by topic. This attribute complements the first one: the coverage of multiple topics. While searchability is a design feature of a database and not a methodological aspect, its importance lies in enhancing usability. The ideal database should be easy to use, if stakeholders are unable to search and make full use of a city database, its primary goal of dissemination will be undermined.

3. Methods

To ensure the discovery of any and all relevant databases, we conducted a comprehensive scoping review. We followed Arksey and O'Malley's (2005) description of scoping review methods in order to assess the relevance of databases that were uncovered. Scoping reviews aim to rapidly gather and map existing information on a particular topic. They are often useful for areas where comprehensive reviews have not been previously undertaken (Arksey & O'Malley, 2005), in that they can contribute broad overviews of the state of existing research.

Based on our research questions, we identified sources that would enable our search to be as comprehensive as possible: academic databases, civil society organization websites, and Google search. We began with a search of academic literature related to city policies. For this, we consulted the following platforms: ProQuest, EbscoHost, JSTOR, Sage, and Google Scholar. Queries relied on a series of keywords using Boolean strings, giving priority to primary sources related to city-level policies. The keyword searches included the terms: “cities,” “city-level,” “urban,” “urban-level,” “regional,” “provincial,” “municipal,” “municipal-level,” “legislation,” “law,” “policies,” “ordinance,” and “decree.” These were combined with terms restricting the searches to articles referencing databases (such as “database,” “data,” “lex,” and “repository”). Searches were first carried out in English and then re-conducted in Spanish, French, German, and Russian, using translations of the keywords. We sought to keep the review as broad as possible, and thus did not set search constraints by date or database format (Excel spreadsheet, website, or so forth).

In addition to the queries described above, we carried out topic-driven searches of the academic literature. Based on previous research, we selected policy areas that are interdisciplinary, generally regulated at the city level, and related to infrastructure or services. Additionally, these policy areas would have an impact on the SDGs and the overall goal of alleviating poverty. The keywords included in these specific queries were “early childhood development/education,” “water,” and “housing.”

Table 1
Results of city database search strategy.

Database	Owner	Countries/territories	Database description	Last update
UrbanLex	UN HABITAT	72 countries	Database of urban laws, policies, decisions, and practices Areas of focus include: urban planning, land management, and urban development financing	2018
Open Government Partnership	Multi-national partnership	81 countries	Commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance Launched pilot program of 15 subnational governments	2018
Local Governments for Sustainability	ICLEI	124 countries	Global network of cities, towns, and regions with a focus on sustainable development Publishes newsletters, regional updates on activities, case studies, training guides, and fact sheets	2018
Knowledge Centre	Cities Alliance	242 countries and territories	Contains information about city slum improvement, city development, strategies, and national urban development policies Reports on themes including housing, infrastructure, and economics	2018
United Cities and Local Governments (UCLG) E-library	UCLG	140 countries	Collection of publications, policy statements, and an e-library with guidance for cities Focuses on democratic local governance in areas including urbanization, climate change, disaster risk, development, water, and sanitation	2018
OECD Urban Policy and Metropolitan Reviews	OECD	36 member countries	Reviews of city and metropolitan policies covering various aspects of urbanization in collaboration with local governments Focuses on enhancing economic potential, environmental sustainability, and sustainable development of cities	2018
Connective Cities	Federal Ministry for Economic Cooperation and Development	Various global cities	Collaboration between German agencies and implementing partners in African, Asian, American, and European cities Publications on topics related to city sustainable development	2018

We eliminated results that were: (1) not based on city-level policies or (2) not globally comparative. For example, we excluded the UN-HABITAT Urban Data website because its data, while focused on outcomes, do not refer to city legislation or policy. Broadly, our concern is with city-level policies and not with international groups that enact special initiatives at the regional or city level.

4. Results

We identified 23 eligible databases that met our initial criteria. Of these databases, we assessed whether each met our full eligibility criteria of a comparable and global city policy database. Ineligible databases included outcomes-focused or single-country policy databases. After this review, 11 databases met our eligibility criteria. We then explored each database in more detail to determine whether they met at least one of the five desired attributes. Seven city databases cover public policies, in multiple countries, and meet at least one key attribute. These seven databases contain information on a wide range of social policies, include geographic ranges from 36 to 242 countries and territories, and were updated this year (Table 1).

In Table 2, we matched each database with the 10 targets from SDG 11. If information could be found for at least one country or source in the database, the SDG 11 target was noted. Targets 11.1 and 11.2 focus on adequate and affordable housing and transport, especially for vulnerable populations, and all databases cover some aspect of these indicators. Target 11.3 is based on inclusive urban planning; this theme is found in all seven databases as well. Target 11.4 protects cultural and natural heritage, which is addressed in the majority of the databases. Target 11.5, related to the reduction of deaths and economic losses caused by disasters, thematically appears in four of the final databases. Target 11.6 focuses on air quality and waste management and is found in all but one database. Target 11.7, access to green public spaces, is similarly found in all databases except one. Targets 11.A, 11.B, and 11.C relate to positive economic growth through regional planning, climate and disaster adaptation strategies, and financial assistance in resilient building, respectively. All seven databases have some aspect of the last three targets. Overall, all SDG 11 targets are well represented in many of our final databases. UrbanLex, the Cities Alliance Knowledge Centre, and the United Cities and Local Governments E-library contain policies and/or legislation on all SDG 11 targets.

In Table 3, we provide information related to our second research question: whether the data allow for comparative policy analysis. We group databases into three categories: (A) contains the most relevant policy information and enables multiple comparisons, (B) contains relevant policy information and enables some comparisons, and (C) contains some relevant policy information and enables limited comparisons. Attribute 1, “Covers multiple policy areas,” is selected if the database covers more than one topic area. Attribute 2, “Provides primary sources,” is selected only for databases that refer to city-level legislation or other primary source documents. Attribute 3, “Regularly updated,” describes databases that have been updated in 2016 or later. Attribute 4, “Broad geographic scope,” is selected if databases contain relevant information for multiple cities in more than one country. Attribute 5, “Searchable by topic,” refers to those that contain a topical search capability.

The first category (Group A) contains UrbanLex, the city policy database that has all five attributes: covering multiple policy areas, providing primary sources, regularly updated, broad geographic scope, and searchable by topic. UrbanLex covers topics ranging from urban planning to finance, contains original legislation, is consistently updated, encompasses 72 countries, and is fully searchable by topic. Additionally, it contains legislation from 2018, suggesting regular and timely updates by database administrators. However, the process of updating UrbanLex is not clearly described on the site, so more widely available information is needed regarding the methods and consistency of updates. Another limitation of UrbanLex is that policies cover a

Table 2
SDG 11 targets covered by each data source.

Name of database/SDG 11 targets by 2030	UrbanLex	Open Government Partnership	ICLEI Local Governments For Sustainability	Cities Alliance Knowledge Centre	Connective cities	OECD Thematic Work on Cities	United Cities and Local Governments (UCLG) E-library
11.1 Ensure access for all to adequate, safe and affordable housing	X	X		X	X		X
11.2 Provide access to safe, affordable, accessible and sustainable transport system	X	X	X	X	X	X	X
11.3 Enhance inclusive and sustainable urbanization	X	X	X	X	X	X	X
11.4 Strengthen protection of the world's cultural and natural heritage	X	X		X	X		X
11.5 Reduce the number of deaths and the number of people affected, as well as decreasing economic losses caused by disasters	X		X	X			X
11.6 Reduce the adverse per capita environmental impact of cities, especially air and waste management	X	X	X	X	X		X
11.7 Provide universal access to safe, inclusive and accessible, green and public spaces	X	X	X	X		X	X
11.A Support positive economic, social and environmental links between urban, per-urban and rural areas	X		X	X	X	X	X
11.B Increase the number of cities and adopting integrated policies and plans toward inclusion, resource efficiency, mitigation and adaptation to climate change, and resilience to disasters	X		X	X	X	X	X
11.C Support least developed countries in building sustainable and resilient buildings utilizing local materials	X	X	X	X		X	X

Table 3
Features of selected data sources.

Grouping by relevance	Name of database	Attribute 1: Covers multiple policy areas	Attribute 2: Provides primary sources	Attribute 3: Regularly updated	Attribute 4: Broad geographic scope	Attribute 5: Searchable by topic
A. Most relevant policy information and enables multiple comparisons	■ UrbanLex	X	X	X	X	X
B. Relevant policy information and enables some comparisons	■ Open Government Partnership	X		X	X	X
	■ ICLEI Local Governments for Sustainability	X		X	X	
	■ Cities Alliance Knowledge Centre	X		X		X
C. Some relevant policy information and enables limited comparisons	■ Connective Cities	X		X		X
	■ OECD Thematic Work on Cities	X		X		
	■ United Cities and Local Governments (UCLG) E-library	X			X	X

limited number of cities and legislation. In summary, we believe that UrbanLex is relevant for comparative policy analysis because it demonstrates all five attributes, but opportunities remain for further development.

The second group (Group B) includes relevant data sources that enable some comparisons and generally cover three or four attributes. The specific sources in Group B are: the Open Government Partnership, ICLEI Local Governments for Sustainability, and the Cities Alliance Knowledge Centre. All cover multiple policy areas and are regularly updated. The Open Government Partnership is globally focused and searchable by topic, but it lacks direct links to primary sources. The Local Governments for Sustainability database has a broad geographic scope but lacks primary source links and search by topic options. The Cities Alliance Knowledge Centre can be searched by topic but lacks broader geographic scope and direct links to primary sources. Group B databases have many desirable comparative policy attributes, but could be strengthened with primary source links.

The third group (Group C) contains databases and data sources with some relevant policy data, which allow for limited comparisons, typically based on two or three attributes. These promising databases contain important policy information but could be further expanded. The three data sources in this group all cover multiple policy areas. They are: Connective Cities, OECD Thematic Work on Cities, and the United Cities and Local Governments (UCLG) E-library. Connective Cities is regularly updated and searchable by topic but lacks primary source links, broader geographic scope, and the ability to analyze data directly from publications or a data library. Though regularly updated, the OECD Thematic Work on Cities is not searchable by topic and lacks primary source links and broad geographic scope. The OECD database provides rankings and comparisons of specific cities, demonstrating potential for more global applications. The UCLG database has a broad geographic scope and topic search functionality but lacks primary source links and regular updates. Group C databases contain some elements of comparable global city policy databases but lack key attributes, leaving open opportunities for enhancement.

Overall, each of the seven data sources identified through our comprehensive scoping review of academic sources and grey literature has unique strengths and limitations. In this section, we have highlighted the attributes relevant to policy analysis and decision-making. Our review highlights a significant gap, in that only one of the sources fully encompasses the attributes needed for comparative analysis. All of the identified databases would benefit from increased methodological transparency, larger geographic and policy coverage.

5. Discussion

With this review, we aimed to identify city policy databases that cover multiple policy areas, provide access to primary sources, are regularly updated, have a broad geographic scope, and are searchable by topic. This scoping review found seven city policy databases that meet at least two of these criteria and cover multiple SDG 11 targets. The one database that meets all the criteria covers only a limited range of topics relevant to the SDGs for a limited range of cities and countries. This finding reinforces other researchers' previous assertions regarding the lack of sufficient data to accelerate action (Klopp & Petretta, 2017, p. 96).

Given time constraints, we limited our search to city policy databases and did not include information about city budgets. We recognize that policy data will not on its own lead to policy change; however, we believe that having these data available would be a critical first step toward identifying actionable policies that can significantly contribute to progress toward the SDGs.

A database with primary city-level policy data, containing information on a large number of countries and data on multiple targets, would be critical for developing the knowledge base needed to reach the urban SDG targets. Such a database will not only provide an important foundation for achieving SDG 11, but will also enable the further creation and improvement of urban sustainable development policies. Comparative local policy data is necessary to understand what action steps are available to cities (in contrast to national level options), provide examples to decision makers of steps taken by other cities, and enable monitoring of spread of effective policies as well as gap areas where cities are not taking.

The seven databases from our search results are not sufficient to address current policy and indicator measurement needs, particularly with regard to SDG 11, the urban Sustainable Development Goal. They lack several important features. First, several databases do not allow for large-scale comparisons across cities. Only three out of seven cover all SDG 11 targets, while the rest cover them only partially. Even these three do not cover all SDG-relevant topics for the majority of cities.

As our findings indicate, there is no database in existence that would allow for comprehensive comparative city policy analysis with a global scope. In some cases, policies contained in existing databases are country-level rather than city-specific. Even the database with the most relevant policy information, UrbanLex, has the downside of covering a limited number of cities, thus prohibiting an exhaustive analysis. Further, current monitoring efforts by UN bodies such as UN Habitat do provide some useful resources in terms of outcomes data, but a comprehensive repository of city policies is lacking. While existing data are insufficient to meet the need, they can provide an invaluable foundation for building one or more global city policy databases that have a broad geographic scope, cover a range of topics, and provide access to primary sources, in addition to being regularly updated, easily available online, and searchable by topic. The city policy database we envision would build on existing databases by documenting existing policies in a vast cross-section of the cities of the world.

Planners and policymakers may wish to think about methods of capturing data in a systematic way across cities, to allow for comparison. This database should be open access, allowing multiple stakeholders and the public to engage in the policy process.

An ideal comparative city policy database would enhance each step of the policy formulation, implementation, and evaluation phases. The use of comparative city policy database is shown in Fig. 2. During the agenda setting and policy formulation, city policymakers could utilize the database to search for existing and relevant policies from other cities similar in demographics, size, or goals. As a policy is implemented and monitored, stakeholders could use the database to determine appropriate indicators to report outputs, make contact with similar cities, compare outcomes with other cities, and monitor progress toward the policy goals. Finally, city policymakers could assess the regulatory quality and output in the final stage by contributing their lessons, improvements, and quantifiable achievements. As an example, a city interested in developing environmental protection policies could begin a search on the comparative policy database, identify comparable policy scope, adapt language and objectives, connect with an experienced city, develop measurable indicators for outcomes, track their progress, iterate on the policies, and report long-term outcomes. This proposed database would be comprehensive but we anticipate gaps in policy knowledge, which could be ameliorated by having city policy stakeholders outreach to similar cities in jointly developing new policies. Alternatively, a pioneering city with a new policy could document their policymaking steps, share iterations of legislation, and act as a policy mentor.

Despite the current movement toward individual “smart cities,” there appears to be a lack of investment in the creation of repositories that would capture information across cities, thus allowing for learning across contexts. Building such a database would require financial investments by governments and incentives for cities to participate. Municipalities could contribute in-kind resources such as staff personnel time to upload and update policies, website server hosting, or publicity surrounding the repository. Metadata on each policy contribution should state the upload date, policy passage date,

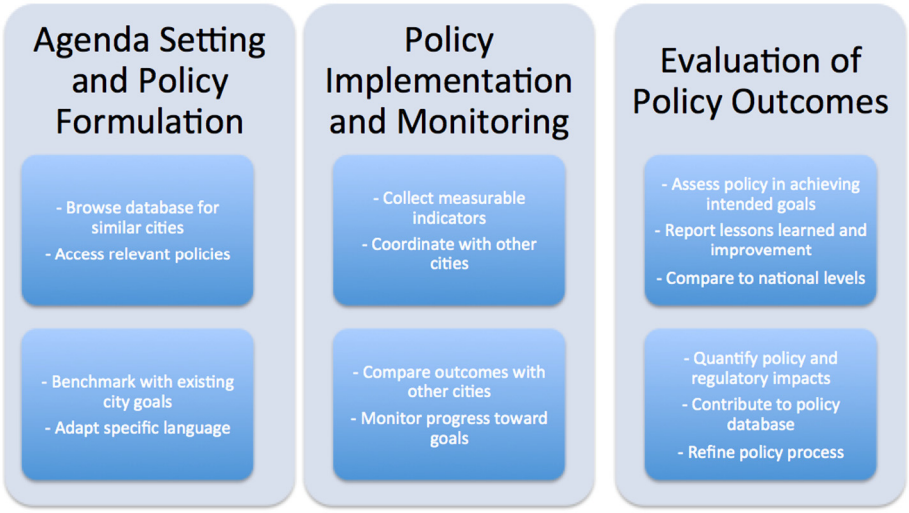

Fig. 2. Use of comparative city policy database.

contributor's name, affiliations, file type, and similar information.

Given its predominant role in monitoring progress toward the SDGs, the UN would be the most appropriate entity to house a comparative city policy database. The city policy database we envision would be well suited for inclusion alongside an existing database such as the UN SDG Global Indicators Database. As noted, however, most existing data related to SDG 11 are country- rather than city-level. The existing reporting structure could be strengthened by engaging national governments to solicit local laws and policies from all major cities. Policymakers from around the world should convene to determine how best to obtain municipal policies and legislation. By combining city policies with data on outcomes, other policymakers can learn valuable lessons that will inform local policy debates. UN agencies such as UN-Habitat would also be strong bases for the database. The New Urban Agenda has consistently emphasized the importance of UN-Habitat as a focal point on sustainable urbanization in collaboration with other United Nations system entities. The NUA calls for UN-Habitat to strengthen its normative knowledge and provide tools to all governmental levels in designing, planning, and managing sustainable urban development (Habitat 3, 2018).

While the UN is the most appropriate institution to house the proposed city policy database, we also emphasize the need for city-level action and support. However, it's critical that the process for developing the database engage and be informed by city policymakers. We would encourage coalitions of cities and localities to envision the scope, scale, and practicality of a comparative database. A call to action from mayoral coalitions like the C40 Cities and United Cities and Local Governments (UCLG) would spur action toward a database. This initiation could coincide with a global meeting such as the biennial C40 Mayors Summit, C40 workshops, or UCLG World Summit.

How analysts approach the database and how decision makers use the findings will depend on their objectives and local contexts.

One may wish, for example, to analyze the role of city health systems in post-conflict areas. In this case, it will be important for the database to contain a sufficient number of post-conflict cities to serve as a comparison group. Examining the full range of challenges cities face from informal settlements in low income countries to pollution in rapidly industrializing settings to high crime rates etc., we can see the importance of the database including a large number of cities from all regions and countries. In order to conduct rigorous analyses, multi-level modelling methods will be crucial and these require a sufficient sample size of comparator cities.

In an effort to sketch out a sample data application and illustrate how such a city policy database could be used, we provide one example related to educational policies. Imagine that decision-makers in a lower-income country are formulating policies with the objective to improve secondary school completion rates of female students. The next step would be to search for policies related to gender and education, with a particular emphasis on cities with similar budgets or similar along other social and economic dimensions that the policymakers find relevant. Data on policies and practices in other cities will provide examples of possible approaches. Where data on a sufficient number of cities and length of time is available linking policies and outcomes, this data may also provide strong evidence on which policies/practices are most/least effective and under what conditions. This could fill critical information gaps city level decision makers currently face.

Limitations of this study include the fact that, while we attempted to be comprehensive, a relevant database may have gone undetected if the query failed to use search engine optimization, or if the search terms included were ill-defined. Databases may exist on single topics that are often addressed by city policies (such as transportation), but these may not necessarily have appeared in our search if other topics were not addressed. This paper does not explore issues related to power dynamics, including access to policies and policymaking, the capacity for enforcement, knowledge circulation, funder priorities, or the comprehensibility of a policy database to the general public.

6. Conclusion

Amid tremendous urban growth in recent decades, urban sustainable development has become a priority for many countries across the globe. In this paper, we argue that in order to achieve the urban Sustainable Development Goal 11, there is a need not only for city-level outcome data, but for policy data as well. Ideally, a comparative city policy database would be similar to existing databases with country-level policies. Such a database would be regularly updated and available online, have a broad geographic scope, cover a range of topics, be searchable by topic, provide access to primary sources, and cover the SDG 11 targets. This would allow researchers, planners, and policymakers to see which cities might provide lessons and ideas regarding “best practices” for other cities.

Based on the findings from our scoping review, it appears that there is a significant gap in policy data that would allow us to compare cities and understand which policies are working and which policies need to be improved across SDG 11. We argue that more work is needed to create such a database, either by an organization such as the United Nations or by a civil society organization, or potentially, both. Only with the systematic compilation of data that allows us to learn what

policies are most effective at scale can we accelerate progress toward the SDG goals so that cities may truly provide opportunities for all.

Declaration of Competing Interest

None.

References

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19–32.

Brakarz, J., & Jaitman, L. (2013). *Evaluation of slum upgrading programs: Literature review and methodological approaches.* Inter-American Development Bank. Retrieved from: https://publications.iadb.org/bitstream/handle/11319/6021/Evaluation%20of%20Slum%20Upgrading%20Programs.pdf?sequence=1&isAllowed=y.

Daku, M., Raub, A., & Heymann, S. J. (2012). Maternal leave policies and vaccination coverage: A global analysis. *Social Science & Medicine, 74*(2), 120–124.

Gonzalez-Navarro, M., & Quintana-Domeque, C. (2016). Paving streets for the poor: Experimental analysis of infrastructure effects. *Review of Economics and Statistics, 98*(2), 254–267.

Habitat 3 (2018). New Urban Agenda. Retrieved from http://habitat3.org/wp-content/uploads/NUA-English.pdf.

Hajizadeh, M., Heymann, J., Strumpf, E., Harper, S., & Nandi, A. (2015). Paid maternity leave and childhood vaccination uptake: Longitudinal evidence from 20 low-and-middle-income countries. *Social Science & Medicine, 140*, 104–117.

Heymann, J., & Earle, A. (2009). *Raising the global floor: Dismantling the myth that we can't afford good working conditions for everyone.* Stanford University Press.

Heymann, J., McNeill, K., & Raub, A. (2015). Rights monitoring and assessment using quantitative indicators of law and policy: International covenant on economic, social and cultural rights. *Human Rights Quarterly, 37*(4), 1071–1100.

Heymann, J., Raub, A., & Earle, A. (2011). Creating and using new data sources to analyze the relationship between social policy and global health: The case of maternal leave. *Public Health Reports, 126*, 127–134.

Heymann, J., Raub, A., & Earle, A. (2013). Breastfeeding policy: A globally comparative analysis. *Bulletin of the World Health Organization, 91*(6), 398–406.

Heymann, S. J., McNeill, K., & Raub, A. (2014). Assessing compliance with the CRC: Indicators of law and policy in 191 countries. *The International Journal of Children's Rights, 22*(3), 425–445.

Heymann, S. J., Rho, H. J., Schmitt, J., & Earle, A. (2009). *Contagion nation: A comparison of paid sick day policies in 22 countries.* Center for Economic and Policy Research.

International Labour Organization (2017). NATLEX Database. Retrieved from www.ilo.org/dyn/natlex/.

Klopp, J. M., & Petretta, D. L. (2017). The urban sustainable development goal: Indicators, complexity and the politics of measuring cities. *Cities, 63*, 92–97.

Lim, C., Kim, K. J., & Maglio, P. P. (2018). Smart cities with big data: Reference models, challenges, and considerations. *Cities, 82*, 86–99.

Nandi, A., Hajizadeh, M., Harper, S., Koski, A., Strumpf, E. C., & Heymann, J. (2016). Increased duration of paid maternity leave lowers infant mortality in low-and middle-income countries: A quasi-experimental study. *PLoS Medicine, 13*(3), e1001985.

Nijman, J. (2008). Against the odds: Slum rehabilitation in neoliberal Mumbai. *Cities, 25*(2), 73–85.

Ponce, N., Shimkhada, R., Raub, A., Daoud, A., Nandi, A., Richter, L., & Heymann, J. (2017). The association of minimum wage change on child nutritional status in LMICs: A quasi-experimental multi-country study. *Global Public Health,* 1–15.

Tibaijuka, A. K. (2005). Report of the fact-finding mission to Zimbabwe to assess the scope and impact of operation Murambatsvina. Retrieved from: http://www.un.org/News/dh/infocus/zimbabwe/zimbabwe_rpt.pdf.

United Nations (2015). Historic new sustainable development agenda unanimously adopted by 193 UN members. 25 sept. 2015. Retrieved from: http://www.un.org/sustainabledevelopment/blog/2015/09/historic-new-sustainable-development-agenda-unanimously-adopted-by-193-un-members/.

United Nations, Department of Economic and Social Affairs, Population Division (2014). World urbanization prospects: The 2014 revision, highlights. Retrieved from: https://esa.un.org/unpd/wup/publications/files/wup2014-highlights.pdf.