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Review of the implementation of the programme of work 2018-2019**Evidence-based policies for sustainable housing and urban development****Guidelines on evidence-based policies and decision-making for sustainable housing and urban development****Note by the Secretariat***Summary*

In October 2018, at its seventy-ninth session, the Committee took note of the preparation of the Guidelines on evidence-based policies and decision-making for sustainable housing and urban development and invited the Bureau to present the Guidelines for the Committee's endorsement at its eightieth session.

The Guidelines were prepared as part of the United Nations Development Account (UNDA) 10th tranche project "Evidence-based policies for sustainable housing and urban development in selected countries with economies in transition", which is being implemented in 2016-2020 by the ECE Housing and Land Management Unit, UN-Habitat and reviewed by the University of Geneva. This document presents the draft guidelines. Summary and conclusions of the guidelines are also available in the Committee session official document ECE/HBP/2019/2.

The Committee is invited to take note of the implementation of activities of the UNDA project, to endorse the Guidelines and related recommendations, as contained in ECE/HBP/2019/2 and in this document. The Guidelines will be published and will be made available to member States for their use.

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Guidelines on evidence-based policies and decision-making for sustainable housing and urban development

UNECE and UN-Habitat

(Draft Version)

20 September 2019

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EXECUTIVE SUMMARY

Countries in the UNECE region face diverse urban development challenges: lack of access to urban infrastructure, urban sprawl, migration, informal development, homelessness, environmental pollution, low resilience to climate change, and most importantly, limited access to adequate and affordable housing.

There is a common understanding among policy-makers and experts that the lack of reliable data and evidence as well as an insufficient capacity of the governments to use this data (to develop and monitor the implementation of the housing and urban development policies) bring about a range of negative effects. It is one of the key reasons why many policy objectives have yet to be achieved so far and why there remains slow progress towards achieving the Sustainable Development Goals (SDG), especially SDG 11.

Therefore, establishing better standards for the production, management and use of data and evidence in policy-making is one of priority tasks under the *2030 Agenda for Sustainable Development* to ensure its timely implementation. Governments in the UNECE countries have already implemented various measures to promote sustainable housing and urban development, including improving access to affordable decent housing and urban infrastructure; however, multiple challenges remain.

The discussions that took place during the national workshops conducted within the United Nations Development Account (UNDA) project: “Evidence-based policies for sustainable housing and urban development in selected countries with economies in transition” demonstrated that national, regional and local governments in addition to other stakeholders in the UNECE region: (i) require further support to develop national and local sets of indicators for monitoring and implementing sustainable housing and urban development policies and the Sustainable Development Goals; and (ii) need to improve production, management and use of evidence in the policy processes and decision-making for sustainable urban development. These Guidelines are aimed at supporting efforts of the national governments in the UNECE region to improve approaches to evidence-based policy-making on sustainable urban development and housing.

In a view to improve implementation and review of the 2030 Agenda at all levels as well as achievement of Sustainable Development Goals, especially SDG 11; the implementation of *Geneva UN Charter on Sustainable Housing* (and other international agreements), the guidelines have the following objectives:

- 1) To provide information on the requirements for the review and implementation of the *2030 Agenda for Sustainable Development* in UNECE countries, with a focus on achieving SDG 11, as well as other urban-related SDGs.
- 2) To explain the benefits of applying evidence-based approach(es) to policy-making on sustainable urban development and housing.
- 3) To provide examples of policy instruments that can be used to collect and use data and evidence for policy and decision-making.

The Guidelines were developed for the UNECE region where the UNDA project “Evidence-based policies for sustainable housing and urban development in selected countries with economies in transition” was implemented. However, they are also relevant to countries outside the UNECE region. The Guidelines are expected to serve as a practical reference document for policy-makers and experts involved in development, review and implementation of policies for sustainable urban development and housing. The Guidelines can be used at all stages of the policy development – from agenda setting and policy formulation to the implementation/review and evaluation.

Summary of content of the Chapters

Implementation of the *2030 Agenda for Sustainable Development*, requires taking a broad view of housing and urban issues and applying a strategic approach to addressing them in relation to production of data, developing evidence and decision-making.

In recognition of the growing importance of data in policy-making and with a view to improving the review and implementation of the 2030 Agenda in the UNECE region, the guidelines (i) outlined selected challenges and opportunities for evidence-based policy-making in the UNECE region, (ii) provided examples of the ongoing activities to inform the review and implementation of the Agenda in the UNECE region; and (iii) demonstrated benefits applying selected approaches to evidence-based policy-making.

The Guidelines introduction pointed out that the 2030 Agenda envisages a new, more rigorous approach to policy development and implementation insofar as it focuses on embracing opportunities stemming from ‘data revolution’ and ensures that ‘no one is left behind’. However, it also stated that corresponding efforts are hindered by a range of factors, including insufficient capacity of the agencies responsible for the policy development and implementation (especially statistical offices) for timely collection and analysis of data, and insufficient coordination between these agencies. Lastly, the chapter emphasized that a range of indicators can be used for evidence-based policy-making for sustainable urban development with a focus on housing at all levels (overview of the indicators can be found in Appendix 5).

Chapter One considers the role of data in evidence-based policy-making. It points to how to acquire high quality data for sustainable urban policies with a focus on housing and mapped key data providers and mainstream sources of data, especially the Housing and Population Census and household surveys. It emphasizes the importance of ‘data revolution’, including the raising of ‘big data’, ‘geospatial information’, ‘citizen data’ and the private sector in policy context. Apart from describing how this data can be generated, collected and analysed, the chapter also discusses key risks and challenges involved in these processes. Finally, the chapter emphasizes the value of ‘data collaboratives’ in the context of SDG 11 and stressed that in light of shrinking public budgets, ‘data collaboratives’ play an important role in bringing stakeholders together to ensure that evidence used is credible and relevant to housing and urban challenges ‘on the ground’.

Chapter Two describes how data becomes evidence and explored issues relating to crafting evidence and data analysis. It highlights the importance of disaggregating data and achieving a high level of data granularity, especially at the city level. It points to several key categories that need to be considered at all levels when disaggregating data and crafting evidence: gender, age, ethnicity, income, disability and migratory status. The chapter stresses that quality assurance is one of preconditions for crafting reliable evidence and designing an indicator set.

Chapter Three: ‘Informing Housing and Urban Development Policy and Decision-making’ explores opportunities and challenges in evidence-based decision-making. It stresses the importance of ‘going beyond’ policy evaluation methods to produce reliable data for timely, SDG 11 aligned policies. It flags the role of ‘in-advance’ approaches, especially foresight, integrated sustainability assessment and regulatory impact assessments in structuring policy process and guiding decision-making. The ‘universality’ of housing as policy domains and collaborative nature of evidence-based policy-making in contemporary democracies is discussed. The chapter concludes with the observation that evidence-based policy-making for sustainable urban development with a focus on housing takes place in an increasingly globalized context, one in which policy transfer dynamics play increasing prominent roles in informing housing policies and decision-making.

Conclusions and recommendations

Developing evidence-based policies that support measurement of progress on the SDGs now and in the future will depend on three key processes: (1) Developing a robust set of national monitoring

indicators, (2) Strengthening statistical capacity (3), Capitalizing on the data revolution, harnessing new technologies and new sources of data. Achieving better quality, high frequency data in support of the SDGs will require a step-change in the way governments and National Statistical Offices (NSOs) do business¹. On this basis, and accounting on the analysis in the guidelines, the following recommendations were formulated implementation of which will support improving evidence-based policy-making for sustainable urban development with a focus on housing:

A. Ensure an integrated and coordinated approach to the review of the implementation of the 2030 Agenda

Successful implementation of the 2030 Agenda requires the participation of all relevant stakeholders, at the global, regional, national, subnational, subregional, and local levels. Therefore, the guidelines stress the importance of ensuring an integrated and coordinated approach to the review of the implementation of the 2030 Agenda, achieving SDG 11 and other housing and urban-related SDGs.

It is recommended to:

- 1) Increase awareness about the requirements for review of policy implementation. Policy-makers at all levels should be aware of the reporting requirements emerging as a result of the implementation of the 2030 Agenda in their country and promote this awareness across the institutional spectrum. It is the role of the government to clearly communicate approach(es) to the realization of housing and urban-related Goals of the Agenda, to various stakeholders, especially municipalities and National Statistical Offices.
- 2) Align Policies and Monitoring Frameworks. As countries are responsible for mainstreaming SDG 11 into the National Sustainable Development Strategies, development policies on housing and urban development; they are encouraged to improve convergence between existing housing and urban policy monitoring frameworks processes and the processes of review of the 2030 Agenda objectives and targets.
- 3) Streamline national efforts of data collection and analysis. Governments should streamline efforts of the review of the implementation of SDG 11 by developing roadmaps on statistics for SDGs and the National Reporting Platforms, which allow for better coordination of national and international processes of data collection and the data storage in one place.
- 4) Ensure regular monitoring of policy implementation. With a view to enhance the SDG 11 quality of review and to improve accountability of agencies involved, governments need to ensure that reporting on SDGs takes place regularly and accounts on interlinkages between SDG 11 and other SDGs.
- 5) Connect Data Producers. The National Statistical Offices need to better cooperate with other organizations and agencies of the National Statistical System and the Ministries in charge of review of SDG 11 and other agencies in charge of policy development and implementation in relation to housing and urban development.
- 6) Ensure Data Quality. National Statistical Offices need to make sure that the review of the implementation of the 2030 Agenda and achievement of SDG 11 and other housing and urban-related Goals are based on high-quality data, a reliable indicator set, and are encouraged to use international standards for data collection in order to improve the quality of the review process.
- 7) Explore Opportunities for the Use of Alternative Data Sources. In the context of limited access to data, National Statistical Offices should ensure that “proxy indicators” closely correspond to global indicators and should explore opportunities to use non-statistical indicators and administrative data, to inform the indicators.

¹ 'Getting Started with the Sustainable Development Goals' (2015)

B. Support openness of the data collection processes

The guidelines emphasize that evidence-based policy-making requires improving the capacities of organizations and agencies responsible for the production of data and promotion of the openness of the use of the data as a precondition to the production of a high-quality data for housing and urban development policies and for reporting on SDGs.

To promote the capacity building of the organizations producing the data, it is recommended to:

- 1) Strengthen the capacity and the role of the National Statistical Offices in data collection and analysis. Systematic measures should be taken to improve capacities of the National Statistical Offices and other organizations and agencies of the National Statistical Systems in ECE countries, especially in countries with economies in transition.
- 2) Stimulate Local Data Production. Building capacity of local actors, especially of the local and regional authorities and statistics offices, to source and produce data requires special attention of governments and international organizations.
- 3) Consider wider use of Open Data. Policy-makers at all levels should consider making various types of data publicly available. Opening data for public use has beneficial impacts on the quality of data and the production of evidence used in policy process and decision-making; also, opening data tends to improve accountability of data producers by multiplying quality checks by different stakeholders.
- 4) Engage Private Sector. Policy-makers and other stakeholders, especially private sector organizations, should work together to improve the openness of data, especially in relation to housing market data and housing construction data as it strongly influences on housing affordability.
- 5) Engage Third Parties, including the private sector, in data production. Policy-makers are encouraged to engage in partnerships with municipalities, National Statistical Offices and their agencies, private sector organizations and NGOs in order to increase their capacities to timely produce data on housing and urban development. Successful models of such partnerships should be scaled up, when possible.
- 6) Ensure data privacy and security. While developing partnerships with private sector organizations, data privacy and anonymity should be ensured. Government and private sector organizations should be kept accountable for how they handle the data.

C. Promote comprehensive and integrated approaches to the organization of data.

The Guidelines highlight that policy-makers need to develop comprehensive and integrated approaches to evidence-based policy-making, in relation to data collection and development of evidence, in order to maximise the potential of data in the policy process and improve quality and reliability of data and evidence circulating in the policy process. Specifically, it is recommended to:

- 1) Break the Siloes. Policy-makers at all level need to make efforts to break the “silo mentality” in relation to housing policies by better recognising “externalities” of policy interventions, e.g. positive and negative “effects” of housing policies and programmes in relation to various policy domains: social policy, economic policy and others.
- 2) Think Big, Think Forward. Policy-makers need to produce data and evidence on immediate, medium and long-term outcomes and effects of policy interventions, in relation to various aspects of urban life – society, economy, environment and others; and at various scales – local, regional, national and supra-national, when necessary.

- 3) Apply Integrated Methods for Data Production and Analysis. In this vein, the organizations involved in data production are encouraged to use integrated and comprehensive methodologies and frameworks for production and analysis of data for policy, e.g. the integrated sustainability assessment and territorial assessment tools, to better recognize and effectively address complex housing and urban development challenges.
- 4) Ensure Data Quality. Policy-makers need to recognize that quality of assessments and evaluation of policy implementation varies and there is a need to improve relevant procedures and better invest in quality assurance tools.
- 5) Engage Academia to Promote Evidence-based Policy-making. It is essential that policy-makers use the best available academic studies, evidence stemming from policy analysis and scientific evaluation as the basis for their policies.
- 6) Undertake Peer Review. Policy-makers at all levels need to use internal and external peer-review procedures to ensure the highest reliability and clarity of evidence used in the policy process.
- 7) Combine Data Sources for Better Analysis. Policy-makers at all levels need to combine various sources of data to develop reliable and grounded evidence, from public sector data (e.g. the national statistics) to big data, and better recognize various roles of in policy-making and effectively.
- 8) Go Circular. Policy-makers need to better recognize the value of the “circular approach” to evidence-based policy-making on sustainable housing and urban development that avoids fragmentation in use of evidence in policy-making and ensures that evidence derived during policy evaluation is used for policy-development, also across various policy initiatives.

D. Reduce Bias

The guidelines stress the need to ensure that the processes of informing policies on sustainable housing and urban development are impartial and unbiased vis-à-vis data collection, development of evidence and decision-making, in order to address effectively housing challenges in the UNECE countries. Specifically, the guidelines recommend to:

- 1) Structure the decision-making process i.e. establish clear institutional structures for data collection, analysis and use. Policy-makers should use institutionally derived, structured approaches to decision-making.
- 2) Give priority to the use of integrated tools. Especially, the decision-makers should use primarily policy tools and instruments that allow connecting the processes of data sourcing, data analysis and decision-making (such as integrated sustainability assessment tools) as they limit opportunities for exercising personal and other biases.
- 3) Mind the time dimension in the policy-making. Policy-makers need to particularly consider the role of timing in decision-making, across stages of the policy process. Timing affects the quality of data and whether (and how) data and evidence enter the policy process. For instance, evidence emerging at the latter stages of decision-making can be excluded from the policy process.
- 4) Anticipate risks. The decision-makers should also use foresight more effectively, as well as impact assessments and integrated sustainability assessments in order to make decision-making more forward-looking and improve management of risks relating to adverse effects of policy initiatives.
- 5) Provide training in data analysis. Policy-makers at all levels need to better invest in skills development and training for policy analysts as it translates into better reliability and objectivity of evidence produced.
- 6) Adopt collaborative tools for data production. Policy transfer should explore the use of collaborative tools for evidence-based decision-making especially during data production, evidence development

and definition of policy priorities. They ensure that policy proposals are grounded and based on reliable evidence.

- 7) Share knowledge and promote exchange of best practices. Policy-makers and stakeholders at all levels should also further invest in sharing knowledge and “good practices” regarding available policy instruments and policy tools for review of SDG 11 and other housing and urban-related targets at all levels.
- 8) Communicate policies. Policy-makers at all levels are required to communicate policy initiatives to the general public in a clear, transparent manner, making use of the best available tools, removing as much as possible technical, cultural and economic access barriers.
- 9) Disseminate evidence to public. Policy-makers should make deliberate efforts to compile and present data and evidence used in decision-making in a clear, and easy-to-read format, in statistical and non-statistical form.

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GUIDELINES ON EVIDENCE-BASED POLICIES AND DECISION-MAKING FOR SUSTAINABLE HOUSING AND URBAN DEVELOPMENT

INTRODUCTION

Policy context

Countries in the UNECE region face diverse and ever-growing urban development challenges: access to urban infrastructure, migration, informal development, environmental pollution, low resilience to climate change, and most importantly, a lack of access to decent quality and affordable housing. Policy-makers at all levels have made considerable efforts to generate adequate responses, however they still struggle to ensure that the responses are based on the best available data, most reliable evidence and that the responses are produced in a timely manner. In the light of limited capacities and problems with inter- and intra-institutional coordination, the implementation of evidence-based sustainable housing and urban development policies remains challenging. Developing conditions and approach which will help to overcome these problems is of outmost importance to all policy-makers in the UNECE region.

Over the last decade, housing has become an increasingly more important subject of public debates. As policy-makers in the UNECE countries have continued facing such issues as the existence of slums, gated communities, low quality housing, urban sprawl, fuel poverty, homelessness and empty homes, housing market dynamics triggered the global financial crisis, legacy of which many still live. Growing social and economic inequalities in cities, and increasing social, environmental and financial costs of urban development have demanded further action from policy-makers at all levels. A response of global community to these calls was introduction of *the Right to Adequate Housing*, in the context of the *Habitat Agenda* (1996) and placing housing at the centre of *the 2030 Agenda on Sustainable Development*, the *New Urban Agendas* and other relevant initiatives.

The Right to Adequate Housing and stemming from it, the *Geneva Charter for Sustainable Housing*, aim to ensure access to decent quality and affordable housing for all. *The 2030 Agenda* offers an opportunity for the global community to address global urban challenges, such as affordable housing, uncontrolled urban sprawl, the growing urban slum populations, and to create smart, safe and efficient urban transport systems, and improve urban environments. It places urgency on countries to commit to improving access to decent quality, affordable housing in the context of SDG 11. The recently enacted *New Urban Agenda* focuses on enabling cities to further take up these responsibilities and supports them in putting the evidence-based sustainable urban development policies with a focus on housing into action.

Commitment to realisation of the *2030 Agenda for Sustainable Development* is apparent also in the EU subregion and it follows the introduction of sustainable development as a fundamental objective of the European Union in the Treaty of Amsterdam in 1997. Despite not having any specific mandate regarding housing, land management and urban planning, the EU institutions influence on evidence-based policy-making in the EU member states by providing input into such areas as society, economy and environment, urban and regional development, neighbourhood relations and international cooperation and international aid

Policy-makers in the UNECE region have recognised that implementation of the 2030 Agenda is limited by availability of reliable data, inefficient and badly-targeted data processing. Establishing better standards for production/collection and use of data and evidence was first discussed under the United Nations Millennium Development Goals (MDGs), then after the United Nations Sustainable

Development Goals (SDGs)² of the 2030 Agenda were adopted. The MDGs emphasized the importance of gathering and monitoring data in order to achieve those Goals and put forward objectives to strengthen the use of data in decision-making in order to generate more targeted responses.³ However, the MDGs focused only on developing countries and therefore, they were not of an inherent interest to more developed countries; centred data collection at the national level, while housing and urban development are in many countries managed by local authorities ; and did not specifically focus on gender and indigenous groups in relation to data collection and analysis. This data was not collected by some national statistical offices, while these groups of population frequently lagged far in benefitting from development progress.

Adoption of the *2030 Agenda for Sustainable Development* (2016) with its 17 Sustainable Development Goals (SDGs) addresses these shortcomings. It puts forward a range of urban-related Goals and targets which serve as milestones for developing evidence-based policies so that ‘no one is left behind’ (a list of housing-related targets and indicators in the global SDG framework can be found in Appendix 2). It envisages a new, more rigorous approach to policy development and implementation. It defines tangible ways to include data collection in the national planning processes, policies and strategies and demands ‘data revolution’⁴: putting into use innovative tools (such as Information and Communication Technologies), creating partnerships to meet monitoring requirements of the 2030 Agenda (also in less developed countries); and focusing on data generation for and at the local level.

An important aspect of the development of the 2030 Agenda, especially SDG 11 and other urban related SDGs, is bringing innovative approaches and technologies to less developed countries which are lacking capacities for data gathering. Goal 17 on capacity building seeks to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts⁵. However, further efforts are to be made internationally to ensure equitable data gathering and reduce the gaps between the information-poor and information-rich countries and to support the countries that still do not have sufficient capacities or tools for producing the needed data.

Responsibilities to deliver on Sustainable Development Goals and to develop evidence-based policies to support review of the 2030 Agenda implementation in a timely manner lay primarily with national governments. Since 2016, many countries have developed national sustainable development strategies and action plans. The 2018 round of Voluntary National Reviews on the implementation of the 2030 Agenda demonstrates that some policy-makers made efforts to mainstream SDGs across various policy areas including into the statistics and established SDG implementation platforms, have in order to analyse the implementation progress in relation to housing and urban development⁶. Equally, cities in the UNECE region continue demonstrating determination to develop data-driven, and evidence-based policies and produce tools and guidelines that enable better implementation of the 2030 Agenda, especially SDG11, allow to serve their citizens in the most efficient and effective way possible⁷.

² United Nations. ‘The Millennium Development Goals Report’ (2015), available at <https://www.un.org/millenniumgoals/>

³ Ibid.

⁴ ‘Secretary-General Calls for ‘Data Revolution’, Stronger Capacity, in Message for World Statistics Day’ United Nations, (2015), available at <https://www.un.org/press/en/2015/sgsm17245.doc.htm>.

⁵ ‘SDG Indicators’ United Nations (2018), available at <https://unstats.un.org/sdgs/metadata/?Text=&Goal=17&Target=17.18>.

⁶ ‘Voluntary National Reviews Database’ United Nations, available at <https://sustainabledevelopment.un.org/vnrs/>.

⁷ United Nations Economic Commission for Europe. ‘In-Depth Review of Statistics and Data on Cities’ (2018).

However, despite these wide-spread efforts, there is a need to take further actions towards more effective governance and evidence-based policymaking for sustainable housing and urban development in the UNECE region.

The set of indicators adopted by the United Nations Statistical Commission in 2016 are being constantly refined to ensure they are more easily translated into the national contexts of the UNECE countries. Policy-makers at all levels are actively involved in harmonisation of approaches to review of implementation of the 2030 Agenda and policy-making processes at national and local levels; and invest in better collection/production of data, development and use evidence policy processes. Policy research, analyses, appraisals or evaluations should be more rigorous and better tailored to the needs of decision-makers in policy-circles in the UNECE countries.

Last, but not least the realisation of the Right to Adequate Housing warrants further attention in the light of estimations that the struggle to obtain adequate and affordable housing could affect at least 1.6 billion people globally within a decade.; and in the year 2019, the period of implementation of the *2030 Agenda for Sustainable Development* is only eleven years in length.

About the Guidelines

These guidelines were prepared within the UNDA tenth tranche project: ‘Strengthening national capacities for the development of evidence-based policies and accountability mechanisms for sustainable urban development in the UNECE region’, which has been implemented by UNECE Housing and Land Management Unit and UN-Habitat Housing Unit since 2017; since 2018, University of Geneva provided additional expertise to the project implementation. The UNDA project objective is to strengthen national capacities for the development of evidence-based policies and accountability mechanisms for inclusive and sustainable urban development in the UNECE region.

The aim of the guidelines is to support development, review and implementation of evidence-based policies on sustainable urban development with a focus on housing at local and national levels, with a view to improve review and implementation of SDG 11 and other urban-related SDGs in the UNECE region.

The guidelines have three objectives:

- to capture diversity of ongoing activities of policy-makers at national and local levels and other stakeholders in the UNECE region to develop evidence-based policies on sustainable urban development with a focus on housing
- to present benefits of deploying evidence-based approach(es) to policy-making in relation to production/collection of data, development of evidence and decision-making, in the context of national, regional and local development agendas
- to demonstrate the application of various policy approaches (frameworks, methodologies, and other tools) into practice, in order to improve the review and to reinforce the implementation of SDG 11 and other urban related targets in the UNECE region.

Approach, definitions and scope of the guidelines

The Guidelines address sustainable urban development as per the definition in SDG 11. A special focus of these guidelines is on housing. The definition of housing refers to adequate and affordable housing, energy efficient housing as well as the linkages between land, housing and urban

development (i.e. themes related to climate change, informal settlements, urbanisation and territorial planning, among others).^{8 9}

In the guidelines it is recognised that (affordable) housing as a critical component of sustainable urban development. In line with the UN Charter on Sustainable Housing, the following four principles and related rationales form the basis of sustainable housing: a) Environmental protection; b) Economic effectiveness; c) Social inclusion and participation; d) Cultural adequacy¹⁰.

In the guidelines, evidence-based policy-making is¹¹ considered as an approach which: 'helps people make well-informed decisions about policies, programmes and projects by putting the best available evidence at the heart of policy development and implementation' (Davies 1999)¹². Evidence-based policy-making is a cyclical and an iterative process which 'does not progress neatly from agenda-setting to evaluation'; it consists of many stages.¹³ Although data is mainly collected at early stages of the policy process, there is no one single entry point for data in the process. As new data emerges, it is included in policy processes within which it 'circulates' and enriches the stock of knowledge about a policy issue and ways of addressing it.

In the guidelines, data is defined as 'facts and figures which relay something specific, but which are not organized in any way and which provide no further information regarding patterns, context, etc' (Thierauf 1999)¹⁴. Essence of the 'evidence' is that it emerges as a result of data analysis and that it is used in relation to a particular policy option – it creates: 'the case for a specific policy response'¹⁵, an argument for and/or against it¹⁶.

Evidence-based policy-making comes in many forms: (i) production of data and evidence, which is relevant to current policy challenges; (ii) using data and evidence to define new policies/programmes and redefine existing ones; (iii) supporting systems of production and management of data and information; all of which are discussed in the guidelines.

Development and use of the guidelines

The Guidelines were developed based on primary and secondary (mainly documentary) data. Primary data collection entailed semi-structure interviews with decision-makers at national level in selected UNECE countries. Material for the guidelines was also collected based on consultations with selected

⁸ Office of the United States High Commissioner for Human Rights, UN-Habitat. *The right to adequate housing*. Office of the United Nations High Commissioner for Human Rights, (2014), available at http://www.ohchr.org/Documents/Publications/FS21_rev_1_Housing_en.pdf.

Using UN Habitat methodology, housing is considered adequate if it fulfils the following criteria: (1) security of tenure, (2) availability of services, materials, facilities and infrastructure, (3) affordability, (4) habitability, (5) accessibility, (6) location and (7) cultural adequacy

⁹ 'Sustainable Housing and Real Estate Markets' United Nations Economic Commission for Europe, available at <https://www.unece.org/housing/sustainablehousing.html>.

¹⁰ United Nations Economic Commission for Europe. 'The Geneva UN Charter on Sustainable Housing' (2015), available at <https://www.unece.org/housing/charter.html>

¹¹ The concept that is difficult to define. There is a variety of ways to discuss the role of evidence in policy development and decision-making; it includes e.g. 'evidence-informed policy-making' (Oxman et al., 2009); or 'evidence-based practice'. More on the subject in: Cairney, P. *The Politics of Evidence-based Policy Making*. London/New York: Palgrave MacMillan, (2016).

¹² Davies, P. 'What is evidence-based education?', *British Journal of Educational Studies*, 47, 2, (1999), pp. 108-121.

¹³ Malawi Ministry of Health. 'Guidelines for Evidence Use in Decision-Making in the Health Sector in Malawi', (2016), available at https://www.afidep.org/?wpfb_dl=173.

¹⁴ "unstructured facts and figures that have the least impact on the typical manager"

¹⁵ Gluckman, Peter. 'The role of evidence in policy formation and implementation: A report from the Prime Minister's Chief Science Advisor' Office of the prime Minister's Science Advisory Committee. (2013), available at <https://www.pmsa.org.nz/wp-content/uploads/The-role-of-evidence-in-policy-formation-and-implementation-report.pdf>

¹⁶ Informing housing and urban development policies is described in the following chapter.

representatives of the Committee of the Regions, the Directorate General for Regional and Urban Policy (DG Regio), EUROSTAT, the Directorate General Joint Research Centre (DG JRC), and the EU Parliament.

Documentary data was collected through desk review between July 2018 and February 2019 and includes e.g. the UN official documents, reports, publications, including most notably the *Habitat III Regional Report on Sustainable Housing and Urban Development in the UNECE Region*, policy documents, laws, reports produced by the EU institutions, international organizations and the UNECE countries.

The UNECE, UN-Habitat and University of Geneva Guidelines on evidence-based policies and decision-making for sustainable housing and urban development serve as a practical reference point, a go-to resource for policy officials and technical staff involved in development, review and implementation of sustainable housing and urban development policies, and other professionals in the fields. The guidelines can be used at various stages of policy development – agenda-setting, policy formulation, implementation/review and evaluation¹⁷.

The Guidelines are complementary to *International Guidelines on Urban and Territorial Planning*¹⁸, *Road Map on Statistics for Sustainable Development Goals*¹⁹, *Guidelines on the use of registers and administrative data for population and housing censuses*²⁰, *Measuring population and housing practices of UNECE countries in the 2010 round of consensus* (2013)²¹ and many others²². Alike other guidelines, this publication features a greater focus on (i) production, management and use of data and evidence in the policy process; and (ii) identifies practical ways to improve decision-making at all levels.

In these guidelines, complexities of urban development and housing and evidence-based policy-making ‘on the ground’ are acknowledged. However, given the wealth of theoretical approaches to evidence-based policy-making and approaches to the review and implementation of the 2030 Agenda in the UNECE countries, the guidelines do not constitute as exhaustive resource on the subject. These guidelines relate to the UNECE region²³, however they are also relevant to other countries, outside the UNECE region.

¹⁷ PA Sabatier ed. *Theories of the policy process*, Westview Press, (2007).

¹⁸ UN-Habitat. *International Guidelines on Urban and Territorial Planning*. (2015), available at <https://unhabitat.org/books/international-guidelines-on-urban-and-territorial-planning/>.

¹⁹ United Nations Economic Commission for Europe. *Conference of European Statisticians: Road Map on Statistics for Sustainable Development Goals*. United Nations, Sales No. E.17.II.E.22, (2017), available at <https://www.unece.org/index.php?id=47510>.

²⁰ United Nations Economic Commission for Europe. *Guidelines on the Use of Registers and Administrative Data for Populations and Housing Censuses*. United Nations, Sales No.: E.19.II.E.4, (2018), available at <http://www.unece.org/fileadmin/DAM/stats/publications/2018/ECECESSTAT20184.pdf>.

²¹ United Nations Economic Commission for Europe. *Measuring population and housing: Practices of UNECE countries in the 2010 round of censuses*. United Nations, (2014), available at https://www.unece.org/publications/publication_on_2010_censuses.html

²² Full list of the UNECE publications can be found at <https://www.unece.org/publications/oes/welcome.html> and the UN-Habitat publications at <https://unhabitat.org/urban-knowledge/publications/>

²³ Available at www.unece.org

CHAPTER 1. PRODUCING DATA FOR SUSTAINABLE HOUSING AND URBAN DEVELOPMENT POLICIES

Production and collection of data lay in the centre of evidence-based policy-making for sustainable housing and urban development.

Following Thierauf (1999)²⁴, data can be referred to as ‘facts and figures which relay something specific, but which are not organized in any way and which provide no further information regarding patterns, context, etc’. Data can be expressed in numerical and non-numerical language (often textual or visual)²⁵ (Please see Box 1 and Box 2). Although data exists without context, only contextualised and analysed data can be used for developing evidence and to inform policies²⁶. Production and collection of data allows understanding a specific problem, reasons why it requires action; and solutions to this problem.

It is the role of policy-makers at all levels to ensure access to data and to design and evaluate their data handling practices. At early stages of policy process, they need to assess data gaps and data needs – (i) whether there is enough data on this issue or does additional data need to be collected; (ii) what new data have already existing policies brought and how do you use that new data in crafting new policies; (iii) what new data is needed to address this particular issue, who produces it and how is it sourced. Additionally, they need to ensure that data used in policy processes is (i) relevant, (ii) high-quality, (iii) of sufficient detail; and (iv) produced in a timely manner.

In line with the Geneva UN Charter on Sustainable Housing, policy-makers at all levels should recognise that data comes in various ‘types’ and ‘formats’ and that they can play equally important role in evidence-based policy process. For instance, produced and/or collected should reflect various dimensions of sustainability and relate to such issues as urban fabric and various spheres of urban life: society (and social relations), economy, environment.

Box 1. Data for Sustainable Housing policies	
<p>‘Economic data’ – data referring to economic dimension of housing: Housing supply (e.g. occupied housing, empty dwellings) Housing demand Investment in housing Public spending on housing House prices Level of rents Housing cost</p>	<p>‘Social data’ – data referring to social dimension of housing: Gender Age Ethnicity Income Disability Social status Economic status Migratory status</p>
<p>‘Governance data’ – data referring to institutional, administrative aspect of housing: Types of housing providers Types of tenure Types of public support on housing (subsidies for housebuilding or renovation) type of public support for housing (supply driven and/or demand drive; or mix)- data on e.g. housing allowances; grants (subsidies for housebuilding, renovation)</p>	<p>‘Environmental data’ – data referring to social dimension of housing: Quality of housing (e.g. access to basic facilities, overcrowding, energy efficiency, empty dwellings) Type of dwelling Redistribution of dwelling in space Energy efficiency Air quality</p>

²⁴ "unstructured facts and figures that have the least impact on the typical manager"

²⁵ ‘Data in the social sciences’ Cessda Training, available at <https://www.cessda.eu/Training/Training-Resources/Library/Data-Management-Expert-Guide/1.-Plan/Data-in-the-social-sciences>.

²⁶ ‘What’s the difference between data and evidence? Evidence-based practice’, The Oxford Review, available at <https://www.oxford-review.com/data-v-evidence/>.

Policy-makers should also ensure that the data is represented in numerical and non-numerical form²⁷.

Box 2. Use of qualitative and quantitative data

- Quantitative data can be used to depict scale and/or extent: projected population/household growth, demand for new housing, number of homeless persons, density of persons per residential unit, the average number of rooms per family, the average number of adapted flats for persons with disability, public spending for affordable housing, level of rent, housing cost etc.
- Qualitative data can be useful to describe household residential satisfaction, quality and resilience of buildings, barriers in accessing housing finance, perception of crime in a neighbourhood, housing satisfaction, type of public support for housing, what home means to individuals and households.

To these ends, the following chapter presents main sources of data for policies on sustainable housing and urban development, including the National Censuses for Population and Housing, household surveys, and global and regional databases, and the ‘new data’ sources for policy, namely ‘big data’, ‘geospatial information’ and ‘citizen generated data’. Accounting on complex, multi-stakeholder ‘realities’ of production and management of data for policy ‘on the ground’, the sections further demonstrates benefits of collaborative production (or sourcing) of data in the context of multi-stakeholder, intersectoral partnerships.

Main data producers and sources

Acquiring access to good quality data (of a sufficient detail, granularity) is a precondition for developing (adequate) policy responses to housing and urban development problems in the UNECE countries and to fulfilling the obligations stemming from *the 2030 Agenda for Sustainable Development*. In the UNECE region, primary responsibilities regarding production and/or collection lay with governments and National Statistical Offices. National Statistical Offices. National Statistical Organisations produce and/or collect a majority of numerical data²⁸ used for developing evidence and for review of implementation of the 2030 Agenda. One of the main tools of data collection used by the National Statistical Office is the Housing and Population Census.

Housing and Population Census

The purpose of conducting the Housing and Population Census is to provide a comprehensive source of statistical data²⁹ for economic and social development planning, administration, assessing conditions in human settlements, research and commercial uses³⁰.

The Statistics Division of the UN Department of Economic and Social Affairs (UN DESA) defines a housing census as ‘the total process of collecting, compiling, evaluating, analysing and publishing or otherwise disseminating statistical data pertaining, at a specified time, to all living quarters and occupants thereof in a country or in a well delimited part of a country’.³¹ The housing census also provides an assessment of the living conditions of vulnerable populations and allows gaining details on spatial characteristics of shelter quality, costs, facilities, surroundings and how they may affect

²⁷ Paul J. Maginn, Susan Thompson and Matthew Tonts. ‘Chapter 1 Qualitative housing analysis: A meta-framework for systematising qualitative research’ in *Qualitative Housing Analysis: An International Perspective*. SQM, (2008), available at https://api.research-repository.uwa.edu.au/portalfiles/portal/1510998/5229_PID5229.pdf.

²⁸ In the guidelines, the terms ‘statistical data’, ‘numerical data’ or ‘quantitative data’ are used interchangeably.

²⁹ Information is understood as an analyzed data.

³⁰ United Nations Department of Economic and Social Affairs. *Principles and Recommendations for Population and Housing Censuses*. United Nations, Sales No. E.15.XVII.10, (2017), p. 4, available at https://unstats.un.org/unsd/publication/seriesM/Series_M67rev3en.pdf.

³¹ *Ibid*, p. 8.

people's: 'economic activity, health, social intercourse and general outlook'.³² Whereas a population census gathers data on household characteristics in terms of demography, a housing census gathers data on the physical characteristics of housing units

Data collected using censuses can be used to inform policy in the following areas: development of a basis for planning housing and human settlement programmes and policies, land-use planning, assessment for housing maintenance and new housing, number of units to be built, to determine housing needs in terms of disaster risk reduction and estimate vulnerability of populations and housing to natural disasters.³³

The principles of any Housing and Population Census entail (1) individual enumeration, (2) universality within a defined territory, (3) simultaneity, (4) defined periodicity and (5) capacity to produce small-area statistics.³⁴

For the 2020 round of censuses, the Censuses of Housing and Population should include focus on:

- Type of living quarters
- Housing arrangements
- Occupancy status of conventional dwellings
- Type of ownership
- Number of occupants
- Useful floor space and/or number of rooms of housing units
- Density Standard (Derived)
- Water supply system
- Toilet facilities
- Bathing facilities
- Type of heating
- Dwellings by type of building
- Dwellings by period of construction of building³⁵

Policy-makers at all levels can benefit from the wealth of information on the Housing and Population Census. Overview of standards and methods to conduct a census and in planning and organizing the census, can be found at: https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Principles_and_Recommendations/Population-and-Housing-Censuses/Series_M67rev3-E.pdf More information about collection of data in the context of the 2020 Housing and Population Census can be found at <https://unstats.un.org/unsd/demographic/sources/census/census3.htm>.

Census is not a sufficient tool in itself to create a comprehensive image of the housing and urban development problems in cities. It is run every ten years³⁶, hence does not capture rapidly emerging dynamics or changes that occur on a more recurrent, which can be particularly problematic in the countries that experiences quick demographic or housing changes. In these contexts, data collection

³² Ibid, p.158

³³ Ibid, p. 14

³⁴ Ibid, p. 8. (1) Data must be disaggregated at the individual and living quarters level, (2) data should be exhaustive in scope within the delineated territory, (3) collection should refer to a well-defined time period whether done with a small gap or through a rolling census method (4) data should be taken at regular intervals and (5) census should produce data on the lowest appropriate level.

³⁵ United Nations Economic Commission for Europe. 'Conference of European Statisticians: Recommendations for the 2020 Censuses of Population and Housing' (2015), p. 214, available at https://www.unece.org/fileadmin/DAM/stats/publications/2015/ECECES41_EN.pdf.

³⁶ In terms of regularity, for most countries, UN DESA recommends 'that a national census be taken at least every 10 years'. United Nations Department of Economic and Social Affairs. *Principles and Recommendations for Population and Housing Censuses: Revision 3*. United Nations, Sales No. E.15.XVII.10, (2017), available at https://unstats.un.org/unsd/publication/seriesM/Series_M67Rev3en.pdf.

using census should take place at more regular intervals and other tools should be used to produce/collect data for policy, such as Household surveys³⁷.

Household surveys

Household surveys constitute another source of data for housing and urban development policies. Household surveys can be launched by the National Statistical Offices, governments (national/regional/local³⁸), and other public sector organizations and agencies. The surveys are used: ‘to provide reliable data on a range of demographic and socio-economic characteristics’ of various populations of interest.³⁹ They should be carried out alongside population censuses in order to link data on household demographics and socioeconomic conditions with data on physical characteristics of housing.

Censuses’ and surveys differ in their scope since a census is a complete enumeration (i.e. a study of every unit, everyone or everything, in a population) while a survey constitutes a partial enumeration (i.e. a subset of units in a population, selected to represent all units in a population of interest).⁴⁰ Often they constitute a cheaper and more feasible method of gathering data than e.g. census.

Household surveys can be used to measure the socio-economic characteristics of a given population at a specific point in time, therefore they are particularly relevant to targeted urban policies. They can be used to assess e.g. the volume of population living in inadequate housing (including e.g. slums), also in a disaggregated manner (by geographic area, gender, age, income and ethnic group). Household surveys carried out in many countries at a similar time allow comparison of housing and urban development dynamics in various countries.⁴¹

Household surveys are conducted on a sample taken from a certain population, which requires employing appropriate sampling technique (for the target population). Sampling methods include probability sampling and non-probability sampling. The former is more accurate since the results reflect the characteristics of the population from which they are selected. More information on conducting household surveys can be found at <https://www.unece.org/stats/ces/in-depth-reviews/hsm.html>

Although Housing and Population Censuses have proven to be the most comprehensive source of data for policies on sustainable housing and urban development, and that household surveys that allow generating supplementary insights to housing and urban development problem, decision-makers often reach to global and regional databases, when developing evidence-based policies.

Municipal data and global and regional databases

Municipalities have in-depth knowledge about local urban development challenges – homeless persons, access to affordable housing, condition of housing stock, and technical expertise present to carry out data sourcing. They are the arms of the government closest to citizens. In UNECE countries with devolved power and administrative structures, they also hold competencies regarding housing and urban planning, they play a critical role in the implementation of all 17 SDGs and should be

³⁷ Hence, census data can be further used as a reference point while conducting specialized housing surveys and housing assessments analyses, when comparing certain geographic areas or the housing conditions of certain groups to national norms as established by the housing census and others.

³⁸ Many cities directly collect data at the local level through household surveys. For instance, New York City has an Open Data portal in which one can find information about a variety of topics ranging from City Government to Education and Health among others.

³⁹ United Nations Department of Economic and Social Affairs. *Household sample surveys in developing and transition countries*. United Nations, Sales No. E.05.XVII.6, (2005), p. 4.

⁴⁰ ‘Statistical Language - Census and Sample’ Australian Bureau of Statistics, (2013), available at <http://www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language+-+census+and+sample>.

⁴¹ *Principles and Recommendations for Population and Housing Censuses*. (2017), p. 16.

supported in their efforts to produce high quality data and developing reliable evidence in policy process.

Also, international databases play important role in developing evidence-based policies and decision-making on sustainable urban development with a focus on housing. The databases are produced by public, private and/or third sector organizations as stand-alone initiatives, or in the context of joint projects or programmes. The databases provide rich comparative and contextual data that aid formulation of urban policies, city-visions, and long-term action plans and enable policy-makers to position themselves in relation to others. In some countries, they can be one of very few sources of reliable data about housing and urban development.

They can include data resulting from evaluation of policies or programmes. Also, they are a go-to resource tracking review of implementation of SDG 11 targets and monitoring of the effects of housing and urban policies and SDGs objectives in the UNECE countries. The databases outlined in Appendix 3 can be accessed easily, free of charge.

Other data producers and 'New data'

Although in the UNECE region, the primary producers of data for sustainable housing and urban development policies are National Statistical Office, other organisations comprising the National Statistical Systems in the UNECE countries also play important roles in the process.

Box 3. Digitalization as an opportunity and challenge for housing policy

Over the past few years, digital transformation has risen in the agenda across Europe for a range of reasons, including that strategically applied and proficiently used information technologies can deliver savings to citizens, housing providers, local authorities and governments and bring about a new quality in policy and practice for sustainable urban development.

Digital transformation has changed housing policy and practice. It affected the ways in which buildings and infrastructure are designed, constructed and managed. For instance, Building Information Modelling (BIM), an intelligent 3D model-based gives architects, engineers the tools to plan, design and construct buildings with previously unprecedented efficiency and insight.

On the other hand, digitalization brings serious challenges to the housing sector. Home-sharing platforms have been shown to have a negative impact on housing affordability and communal cohesion. Indeed, the ongoing debates about the importance of introducing tighter regulation of such platforms testify to the seriousness of this issue in some cities. Finally, as this data becomes important resource for housing policy, the ethical questions associated with data privacy continue to loom large.

It redefined production of data in the UNECE countries insofar as currently many companies collect data 'passively', through daily transactions, via the use of mobile phones. The use and widespread diffusion of Information and Communication Technologies (ICTs) has led to increases in collected data volumes with estimates suggesting that: '90% of the data in the world has been created in the last two years and is projected to increase by 40% annually'.⁴²

The use of Information and Communication Technologies offers for data production and collection brought about a range of benefits:

⁴² 'Big Data for Sustainable Development' United Nations, available at <http://www.un.org/en/sections/issues-depth/big-data-sustainable-development/index.html>.

- (1) An extended breadth – e.g. telecoms, social media platforms, financial institutions and high-tech corporations allow gathering data on population trends, everyday behaviour of households, in relation to expenditure, transport and other behavioural trends⁴³
- (2) An improved quality – e.g. companies instantaneously collect data of a , high-level granularity, in a timely manner. The private sector has also developed specific indexes in some domains of which the Zillow US House Value Index is an interesting example since its value and the associated forecast may influence the decision of housing investment in a complementary way to other indicators that are in the purview of local authorities (e.g. national statistics and those produced by local authorities).

Development of the ICT companies and technologies supported the rise of ‘big data’, which plays increasingly important role in evidence-based policy process.

Big data

‘Big data’ reflects changes in production of data brought about by the ‘data revolution’, characterised by high volume, high velocity and high variety of data. Big data refers to data generated automatically at a quick pace as a result of ‘data exhaust’ which consists of ‘passively collected data’ that is generated instantaneously as a result of daily usage of digital services such as financial services, communication services or information services: for example: data about banking transactions, mobile phone use or social media interactions.⁴⁴

Big data consist of several types of data including electronic transactions, social media, automatic sensors, satellite images, text, audio, video and phone and can contain both open-source and privately held types of data; this can make aggregation of different data types complex.⁴⁵

One of the advantages of big data is its capacity to collect extremely granular data thereby allowing more detailed disaggregation further down the line.⁴⁶ However, the complexity and size of such datasets (Please see Box 4) warrants the use of large and powerful storage and delivery technologies, for instance big data ‘cannot be analysed using conventional data analysis systems’.⁴⁷

Urban-based big data can be applied to classical urban models including: ‘models of housing dynamics and residential location theory’ for instance.⁴⁸ In addition, big data analytics could explore other linkages key to urban policy such as the linkages existing between: ‘disparities relating to social justice and distributional aspects of transportation, housing, land-use’ and the environment.⁴⁹ That being said, the role of policy-makers at all levels is to ensure that appropriate measures are taken to mitigate risks relating to handling big data, including data privacy.

Box 4. Challenges in the use of ‘big data’

Production and use of ‘big data’ can pose a range of challenges relating to: ‘acquisition, storage, retention, use and presentation’ of data⁵⁰. One issue is data privacy. Individuals have limited understanding about data they release and are often unaware of how data they release, is used.

⁴³ ‘Leveraging data successfully for development: A lack of adequate data quality can undermine efforts to use data analytics for social and economic development’ The Economist, (2017), available at <https://expectexceptional.economist.com/leveraging-data-successfully-for-development.html>.

⁴⁴ UN Global Pulse. *Integrating Big Data into the monitoring and evaluation of development programmes*. (2016), available at http://unglobalpulse.org/sites/default/files/IntegratingBigData_intoMEDP_web_UNGP.pdf.

⁴⁵ Ibid, p. 39.

⁴⁶ Ibid, p. 35.

⁴⁷ Ibid, p. 35.

⁴⁸ Piyushumita Thakuria, Nebiyu Tilahun and Moira Zellner. ‘*Proceedings of NSF Workshop on Big Data and Urban Informatics*, (2015), p. 11.

⁴⁹ Ibid, p. 13.

⁵⁰ UN Global Pulse. ‘Big Data for Development: Challenges and Opportunities’ (2012), p. 25, available at <http://www.unglobalpulse.org/sites/default/files/BigDataforDevelopment-UNGlobalPulseMay2012.pdf>

Research shows that it is possible to ‘de-anonymise’ previously anonymised data sets⁵¹. Also, security of data storage can be challenged by data breaches.⁵² Private corporations, who hold data, who are often reluctant to share their data for analysis that informs policy decisions.⁵³

Secondly, analysing ‘big data’ can cause the following challenges: ‘(1) getting the picture right, i.e. summarising the data (2) interpreting, or making sense of the data through inferences, and (3) defining and detecting anomalies.’⁵⁴ Also, there are: ‘particular challenges to using big data in low- and middle-income cities’ due to the introduction of potential sources of bias that can arise due to unrepresentative data especially at the lower end of the income distribution.⁵⁵ This may then lead to policy analysis which is not catered to certain groups at the lower end of the income spectrum.

Geospatial data

Geospatial data is the data that is gathered in relation to a spatial attribute (longitude and latitude or an address). As such, it allows to accurately overlay data on maps, enabling easier comparisons across regions and display of trends and correlations that would be difficult to interpret from statistical tables alone. Geospatial data is used to analyse service provision, disaster risk reduction, and population distribution⁵⁶ and has seen an explosion in the context of the adoption of technologies with GPS tracking and internet access.

In other forms of statistics, the centralised national statistics office plays a leading role, due to the decentralised nature of geospatial data collection it is likely that new and innovative partnerships will be required for public bodies to make effective use of available data. Due to the widespread offering of geospatial information tools by private companies like Microsoft and Google (particularly in the forms of mapping and navigation services), the expectation of the public is that geospatial data, tools and APIs will be available openly and at no cost. Increased engagement with open data along with free and open source software tools by public bodies will be required in order to make use of the large amounts of crowdsourced geospatial data available.⁵⁷

This individual level of data is also not particularly important for data gathering, as the value of this crowdsourced “big” geospatial data lies primarily in aggregated data that displays trends and concentrations of activity. The “hard” data of individuals data is much less valuable than the “fuzzy” data of generally observed trends and correlations.⁵⁸

While this “fuzzy” data gathered passively is of immense value, in order for it to be usable it requires some type of standard categorisation and order for analysis. Due to the wide range of users of geospatial data, “open” standards are encouraged to be used, meaning standards which are publicly available, and usable by anyone without any restrictions.⁵⁹ This data will then have the added value of being transferable across different operating systems and devices, and will be universally usable in data analysis and programme development.

⁵¹ Ibid.

⁵² Rachna Khaira. ‘Data Breach: Aadhar details up for grabs for just Rs 500’, The Wire (2018)

<https://thewire.in/210497/data-breach-aadhaar-details-grabs-just-rs-500/>

⁵³ ‘Big Data for Development: Challenges and Opportunities’ (2012), p. 25.

⁵⁴ Ibid, p. 26.

⁵⁵ World Bank. *Big Data and Thriving Cities: innovations in analytics to build sustainable, resilient, equitable and livable urban spaces* (2017), p. 3.

⁵⁶ Eurostat. *Geographic Information System of the Commission*, European Union, p. 2, available at <http://ec.europa.eu/eurostat/documents/4031688/6917606/KS-04-14-908-EN-N.pdf/>

⁵⁶ Ibid⁵⁷ Ibid⁵⁹ Ibid, p. 7.

⁵⁷ Ibid⁵⁹ Ibid, p. 7.

⁵⁹ Ibid, p. 7.

People generated data

Historically, considerable amounts of data have been produced by statisticians. However, in the light of development of Information and Communication Technologies, more and more data are generated outside these systems, ‘on the ground’, in the context of citizens’ everyday lives. The process is prompted by the use of smart devices, CCTVs, shopping transactions and many others⁶⁰. This can be observed to in relation to environmental monitoring⁶¹.

People generated data can play various roles in policy. It has a potential to (i) empower individuals to better manage their situations and take informed decisions; (ii) bring about new stocks of data, information and knowledge to policy process by enabling people science (that is, people-driven data collection and/or analysis)⁶².

It also enables achieving the SDGs by creating: ‘new spaces for people and government to engage and include citizens in public decision-making. It can also help ensure responsive and inclusive decision-making at different levels of government’⁶³. People-generated data can play a particularly important complementary role in relation to institutional data as it: ‘can complement and enhance official data supporting policies, programmes, and projects to achieve the SDGs, and efforts to monitor progress’. However due to a range of barriers of using it as a primary research tool, it should not be treated as a replacement for official statistics and analyses⁶⁴.

Partnerships for better data

Multi-stakeholder collaboration is essential for delivery the 2030 Agenda for Sustainable Development. It also allows extending capacities of the National Statistical Systems in the UNECE countries, hence improving the processes of production and collection of data for evidence-based policies on sustainable housing and urban development.

As capacities of public budgets decrease, cities and governments in the UNECE countries restructure their activities to improve efficiency and effectiveness of their operations. They collaborate with each other, representatives of private and third sector organizations, universities, and the statistical offices to leverage a large array of data for policy. Often in tandem with National Statistical Office, they create ‘data partnerships’, or so called ‘data collaboratives’⁶⁵. The partnerships allow extending capacities of individual organizations to produce and analyse data in an effective and timely manner, especially to gain access to (high quality) data and to develop evidence. They enable sharing various kinds of risks and responsibilities between parties involved in the processes.

A range of successful partnerships between public, private and/or third sector organization can be recalled (Please see an example of a successful partnership in Box 5).

⁶⁰ Ibid.

⁶¹ L. Davies and others “Open Air Laboratories (OPAL): A community-driven research programme,” *Environmental Pollution*, Vol. 159, No. 8–9, (2011), pp. 2,203–2,210.

⁶² ‘What is citizen generated data?’ University of Cambridge. (2018), available at <https://www.phgfoundation.org/briefing/what-is-citizen-generated-data>.

⁶³ ‘Citizen-Generated Data Task Team’ Global partnership for Sustainable Development Data, available at <http://www.data4sdgs.org/initiatives/citizen-generated-data-task-team>.

⁶⁴ Ibid.

⁶⁵ The concept of data collaboratives aims to go beyond the more limited aims of public private partnerships to use the power of data to solve some public policy issues through the establishment of collaboratives with participants from different sectors - including private companies, research institutions, and government agencies. Stefaan G. Verhulst, ‘Data Collaboratives: Exchanging Data to Improve People’s Lives’ (2015).

Box 5. CBS Development Urban & Regional Data Centres⁶⁶

CBS Urban Data Centres (UDCs) are tailor-made data centres that emerged as results of collaboration between the Statistics Netherlands (CBS), which produces 100 per cent of official national statistics in the Netherlands⁶⁷, and municipalities in the Netherlands. Objectives of the centres are: ‘to broaden, deepen and improve data at local level by combining the knowledge, data and expertise of CBS and a municipality’⁶⁸.

In order to intensify its interaction with society and adapt its services to users’ needs, Statistics Netherlands took the initiative to transform national system of data production and collection towards better focus on data for policy-making at regional and local levels and to create Urban Data Centres. The underlying idea is that this will result in a broader and better basis for decision-making at municipal level and provide a solid basis for municipal forecasts. Since the start in 2016, the Urban Data Centres have proven to lead to: a better understanding of a city; better (facts based and data driven) city decisions; better city finances and to harmonized, standardized and benchmarked local, regional, national and international data.

In many UNECE countries a go-to data and evidence producers and collectors are also universities, research centres and NGOs. Traditionally, universities produce data and evidence for housing and urban development policies in the form of case studies, programmes, evaluations, and other types of research projects. They inform and facilitate the implementation of housing policies and derive “best practices” in the field⁶⁹. Policy-makers in the UNECE region also work closely with NGOs to develop better evidence-based policies. The non-governmental organizations supplement governments in the areas of development and welfare and provide shelter and care-related service to low income earners and disadvantaged groups. They have a good, practical understanding of challenges and needs ‘on the ground’, therefore are in a good position to support the activities of the national and local statistical institutes and organizations by providing inputs and comments to policy initiatives and statistical and research reports and gather relevant, often difficult to access data (An example of data collection by non-state actors is in Box 6).

Box 6. Data about rough sleepers in the city of Barcelona

Acquiring reliable and accurate data on the number of persons sleeping rough on the streets is critical from the point of view of development of evidence-based housing and homelessness policies and allocation of resources to address homelessness issues at the city level. In 2015,

⁶⁶ ‘CBS Urban data centers: substance and added value’ Statistics Netherlands, available at <https://www.cbs.nl/en-gb/dossier/regional-statistics/cbs-urban-data-centres-substance-and-added-value>.

⁶⁷ It uses three major data sources. First source: around 20 national surveys. Second source: 200 national administrative (register) data sources coming from (semi-)governmental organizations. Under the Dutch statistics law all these organizations are obliged to provide Statistics Netherlands with their administrative data (register) data sources. Third source, and of fast-growing importance, is ‘big data’.

⁶⁸ Ibid.

⁶⁹ For example, researchers at the University of Bern, through the “ResiDENSE: Governance of Densification for Sustainable Housing Development in Swiss Municipalities under increasing Densification Pressure” project, are actively involved in analyzing local governance mechanisms relating to housing densification at the municipal level through case study analyses. Using the case study approach the study collects qualitative data on mechanisms of inner-city densification initiatives and whether they are promoting or preventing socially-sustainable neighborhood development in cities. Public authorities are strongly dependent on private property owners realizing their urban development plans (on the national, cantonal, regional or local level), and aim to improve policy mechanisms that lead to the development of socially-sustainable urban neighborhoods.

Debrunner, Gabriela. ‘ResiDENSE – Governance of densification for the socially sustainable development of the housing resource in urban neighborhoods’ *International Academic Association on Planning, Law, and Property Rights*. (2018), available at http://www.plpr2018.uns.ac.rs/images/doc/workshop/PLPR_Gabriela_Debrunner.pdf.

working closely with the municipality of Barcelona, ‘Fundació Arrels’ (Arrels Foundation) together with Network for Attention to the Homeless; XAPSL⁷⁰ undertook an initiative to count number of homeless persons sleeping rough, on the streets in the city.

The NGO used 700 volunteers – in groups of three or four – to comb 160 areas of the city during the night. This approach has been deployed internationally and acknowledged a particularly useful to assess scale of the phenomenon periodically⁷¹. The Barcelona-based NGO registered minimum 892 persons sleeping on the streets on 27 May 2015. Having repeated the initiative, in the last count, in May 2018, 966 people were counted as sleeping on the street⁷².

Some for-profit companies in the UNECE region engage in ‘data philanthropy’. They share data for public benefit, on a voluntary basis, hence support production of better evidence-based policies⁷³. Creating partnerships with private, for-profit organisations, can however be complex and requires mitigating various risks. Within such partnerships, there is a need to addressing ethical issues regarding data privacy, data quality and anonymity, including protection of sensitive personal data (e.g. through the process of de-identification). In some cases, companies may not be willing to share data: ‘due to concerns about their competitiveness and their customers’ privacy’.⁷⁴

In order to mitigate these issues two potential solutions can be applied⁷⁵:

- (1) Creation of a ‘data commons’, where some kinds of data are shared publicly after adequate anonymization and aggregation. Data commons can empower a variety of public and private actors to innovate by developing new tools and solutions around the disclosed datasets, some of which then benefit the entire community. An example would be the London Datastore, releasing open data regarding the city of London, which powers such projects as the London School Atlas, helping citizens select suitable schools for their children in relation to their place of residency.⁷⁶
- (2) Creation of an ‘alerting network’, where sensitive data is analysed by companies for specific signals that can alert them to potential alerts to their business or to an element that is sensitive to international development policy.

This chapter provided information on sources of the data and knowledge for evidence-based policies. The next chapter discusses key issues related to the data analysis and use.

⁷⁰ Available at <http://sensellarisme.cat/es/>.

⁷¹ ‘Almost 900 homeless sleeping on Barcelona’s streets, according to the Fundació Arrels’ Catalan News, (2015), available at <http://www.catalannews.com/society-science/item/almost-900-homeless-sleeping-on-barcelona-s-streets-according-to-the-fundacio-arrels>.

⁷² ‘The problem’ Arrels Fundació, (2018), available at <https://www.arrelsfundacio.org/en/homeless-people/the-problem/>.

⁷³ This data is for use within the international development landscape. For instance, the Global System for Mobile Applications (GSMA) launched the ‘Big Data for Social Good’ initiative which will leverage data from 16 mobile operators which collectively account for ‘over two billion connections across more than 100 countries’ to address development issues such as humanitarian crises, epidemics and natural disasters.

⁷⁴ UN Global Pulse, *Big Data for Development: A Primer*. (2013), p. 6.

⁷⁵ Robert Kirkpatrick. ‘Data Philanthropy: Public & Private Sector Data Sharing for Global Resilience’ UN Global Pulse, (2011), available at <https://www.unglobalpulse.org/blog/data-philanthropy-public-private-sector-data-sharing-global-resilience>.

⁷⁶ Available at <https://maps.london.gov.uk/schools/>.

CHAPTER 2. DEVELOPING EVIDENCE FOR SUSTAINABLE HOUSING AND URBAN DEVELOPMENT POLICIES

Essence of the 'evidence' is that it emerges as a result of data analysis and that it is used in relation to a particular policy option; it creates 'the case for a specific policy response'⁷⁷, an argument for and/or against it⁷⁸. There is no one approach to data analysis and developing evidence in policy cycle, essence of the process is however is to ensure that 'no one is left behind' and sufficiently accounting on localisation of SGDs and taking stock of urban and housing dynamics at the city level.

Development of evidence in relation to housing and urban development is complex – non-linear and iterative process that requires disaggregation and aggregation of data in a way that it corresponds to policy objectives and values of the 2030 Agenda and the SDG 11. It usually commences with 'ordering' of different types of data and disregarding data that is of a low quality and/or irrelevant to policy (effectively managing oversupply of data).

To these ends, this chapter (a) reiterates a need to carry out analyse data and produce evidence about how various groups of people are affected by unsustainable urban growth and lack of access to decent quality and affordable housing, especially at the city level; and (b) presents how data should be disaggregated and aggregated in order to construct a high-quality indicators and indicators set.

Leaving no one behind

Sustainable development requires a comprehensive approach to data gathering and analysis to ensure that urbanization continues in a sustainable manner, to the benefit of all and with no one 'left behind'.

Developing evidence-based housing and urban development policies under the 2030 Agenda for Sustainable Development entails collecting detailed, disaggregated data in categories such as gender, age, ethnicity, socio-economic group, disability and location. Analysing data through these categories allows:

- Comparison of vulnerable groups to national averages
- Identification of the groups lagging behind and the extent of a related problem.

This, in turn, becomes a basis for developing and understanding of why certain groups lag and allows for evidence-based policies to target measures to improve the well-being and livelihoods of vulnerable and disadvantaged groups.

Gender

One of the key issues of the *2030 Agenda for Sustainable Development* is sustainable and inclusive urbanization and how urban development dynamics relate to gender.

SDG 5 specifically addresses gender equality, while all other SDGs also possess a gender dimension. In regard, to SDG 11 and sustainable cities, SDG 11.1, 11.2 and 11.7 explicitly take gender considerations into account when defining indicators. These indicators call for equitable access to adequate housing, transportation and safe open spaces for all. The highlighting of gender-based access to these key urban amenities means that for policy to be effective it must be informed by a data-based analysis of what barriers exist to women enjoying these basic rights.

In many countries women's access to land and housing is dictated by relationships to men.⁷⁹ This lack of formal recognition of women's rights to land can lead to increased tenure insecurity, frequency of

⁷⁷ 'The role of evidence in policy formation and implementation: A report from the Prime Minister's Chief Science Advisor' (2013).

⁷⁸ Informing housing and urban development policies is described in the following chapter.

⁷⁹ UN-Habitat. *Gender equality for smarter cities: challenges and progress*. United Nations Human Settlements Programme, (2010), p. 4.

forced eviction, and reliance on the informal sector for housing. Even in countries where women have well-established legal land rights and housing independent to relationships to men, they still face challenges in social acceptance of their rights.

In some countries of the UNECE region, there is a large gender data gap. Issues such as time use, poverty and domestic violence, tending to affect women more than men, are not well measured in official statistics. Data gathering failures also occur in household surveys which: ‘currently capture 75 per cent of men’s economic activities but no more than 30 per cent of women’s activities.’⁸⁰ This results in the fact: ‘only 13 per cent of countries have a dedicated budget for collecting and analysing gender statistics.’⁸¹

Inclusion of gender-specific statistics in data collection at country-level and in budgeting practices has begun with the Evidence and Data for Gender Equality project with five pilot projects including one in Georgia.⁸²

Age

In the light of youth unemployment, ageing population which is reaching the retirement age and are economically inactive, there is an increasing need to measure the welfare of different age groups and how different age groups are affected by housing and urban development processes.

Disaggregation of entire populations by age, (i) sheds light on how urban growth and access to quality, affordable housing affects different age groups; and (ii) facilitates comparative analysis. The UNECE Recommendations on Ageing-related Statistics suggest that the older population be defined as those aged 55 and over, this definition being based on typical needs for extra care from younger generations. This produces a wide variety of ages which require different policy responses. For example, those aged 55-60 have different needs than those 75 and over. The guidelines therefore recommend that age-related statistics be disaggregated in five-year increments for those over 55.⁸³ However, those younger than this may still face age-related discrimination, as in the case of Georgia where those in their late forties face difficulties finding employment due to concerns about their age affecting their performance.⁸⁴

This is especially relevant in transition economies, since young people in these countries find themselves caught in the transition from a state that was duty-bound to provide housing for all, and a market economy with a private construction sector lacking the capacity to provide adequate housing for all. This emerging generational housing gap requires targeted responses based on evidence of young people's housing conditions and opportunities.⁸⁵

⁸⁰ Bill and Melinda Gates Foundation. ‘Closing the Gender Data Gap: How Efforts to Collect Data about Women and Girls Drive Global Economic and Social Progress’, New York Times, (2018), available at <https://paidpost.nytimes.com/gates-foundation/closing-the-gender-data-gap.html>.

⁸¹ ‘Gender Data and the Sustainable Development Goals: Political Action Toward 2030’ Data 2x, (2017), available at http://www.data2x.org/wp-content/uploads/2017/07/GenderDataSDGs_PoliticalAction2030.pdf

⁸² ‘Overview’ Evidence and Data for Gender Equality, (2019), available at <https://unstats.un.org/edge/pilot/overview/>.

⁸³ United Nations Economic Commission for Europe. *Recommendations on Ageing-related Statistics*. United Nations, Sales No.: E.16.II.E.22, (2016), available at https://www.unece.org/fileadmin/DAM/stats/publications/2016/ECECESSTAT20164_ENG_web.pdf.

⁸⁴ United Nations Economic Commission for Europe. *Road map for Mainstreaming Ageing: Georgia*. United Nations, (2015), available at https://www.unece.org/fileadmin/DAM/pau/age/Capacity_building/Road_Maps/Georgia/Publication/ECE-WG.1-22_12-15.pdf.

⁸⁵ UN-Habitat. *Land, Tenure and Housing Issues for Conflict-Displaced Populations in Georgia: Analysis and Proposals for Post-Conflict Recovery*. United Nations Human Settlements Programme, (2008), p. 44, available at <https://unhabitat.org/books/land-tenure-and-housing-issues-for-conflict-displaced-populations-in-georgia>.

The different challenges faced by elderly and young people highlight the flaws of using national averages as a basis for policy making. Different groups require targeted responses based on specific problems, which can be highlighted through the use of disaggregated data.

Income

Evidence-based policy-making on sustainable housing and urban development benefits also from disaggregation of income data. Differentials of income can be measured using the Gini coefficient at the country level; and using the GDP per capita at international level (e.g. GDP per capita country-level comparisons).

Improving data to measuring income may be particularly appropriate as many social development policies are means-tested, with qualification occurring based on a certain threshold. For example, qualification for the public distribution system in India - which distributes staple food grains as well as kerosene - is fixed according to daily expenditures of Rs: forty-seven in urban areas.⁸⁶ Obtaining data disaggregated by income may also allow statisticians to understand patterns in individual behaviour that occur as a result of income differences. Often countries use the headcount ratio, which measures the percentage of the population living below the poverty line, as a measurement tool to better target anti-poverty policies.⁸⁷

For example, it is estimated that in Kyrgyzstan 70 per cent of the labour force is employed informally, making it harder to accurately record household income. This also means that census survey data relies on people accurately reporting their incomes.⁸⁸

Finally, income is important for understanding behavioural patterns of low-income individuals. Poverty cannot be understood as solely referring to individuals with low-incomes but it is true that having a low-income would change one's behaviour especially in a developing country. For instance, low-income individuals in poor countries tend to adopt risk mitigation behaviours by diversifying income-generating activities, with many families adopting strategies such as temporary migration, 'holding multiple plots in different villages' or being conservative in the running of farms or businesses.⁸⁹ Measuring income and further data analysis to identify behavioural patterns among low-income individuals is key in generate evidence-informed anti-poverty measures.

Disability

Analysis of data in terms of disability status is essential at all levels to develop policies that improve access to affordable, decent housing and for inclusive human settlements.

According to the World Health Organization, approximately 15 per cent of the world's population has some type of disability: understood as any impairments, activity limitations or participation restrictions that may plague an individual.⁹⁰ Most of these individuals reside in the developing world and are at greater risk of experiencing adverse socioeconomic outcomes such as: 'less education, poorer health outcomes, lower levels of employment, and higher poverty rates'.⁹¹

⁸⁶ Mahendra Kumar Singh, 'New poverty line: Rs 32 in villages, Rs 47 in cities' *The Times of India*, (2014), available at <https://timesofindia.indiatimes.com/india/New-poverty-line-Rs-32-in-villages-Rs-47-in-cities/articleshow/37920441.cms>.

⁸⁷ The poverty line is defined at the country-level according to a minimum level of income deemed adequate with measurement criteria varying depending on the country. For instance, the World Bank defines the poverty line at \$1.90 in PPP-adjustable terms.

⁸⁸ People might not accurately report their income due to the inexistence of any accounting/ bookkeeping mechanisms and important variation in income levels on a monthly basis.

⁸⁹ Esther Duflo and Abhijit Banerjee, *Poor economics*. (2011), p. 141-142.

⁹⁰ 'Disability and health' World Health Organization, (2018), available at <https://www.who.int/news-room/factsheets/detail/disability-and-health>.

⁹¹ 'Disability Inclusion Overview' World Bank, (2019), available at <http://www.worldbank.org/en/topic/disability>.

That being said, disaggregation of data per disability status and obtaining accurate disability data is a difficult task. Given the stigma associated with disability, persons with disabilities often underreport their condition in household surveys and census exercises.

In order to address this, the UNDESA Population and Housing Census guidelines recommend including questions with the following four categories to determine disability status: (1) walking, (2) seeing, (3) hearing and (4) cognition.⁹² Other data tools include the joint World Health Organization-World Bank model disability survey which is a general population survey that is sensitive to the needs of persons with disabilities.

Alternatively, they can use the Washington Group set of questions to better identify and target individuals with disabilities. A number of countries have already incorporated the set of questions, including Albania in its 2011 census. The Washington Group on Disability Statistics is a UN city group that seeks to: ‘address the urgent need for cross-nationally comparable population-based measures of disability’.⁹³ They have developed both short and long question sets that better measure disability among a sampled population. For instance, the 2011 India census reported 2.21 per cent of the population as possessing disabilities, whereas the prevalence rate was 16.7 per cent when using the Washington Group Short Set of Questions on a sample of 24,518 patients.⁹⁴

Collecting data on disability enhances the possibility of conducting international comparisons, allowing progress on frameworks such as the *Convention of the Rights of Persons with Disabilities* to be monitored and allowing disability friendly policies in urban development once the needs of persons with disabilities have been identified.

Migratory status

Analysis of data as per migratory status becomes ever more important. Migrants⁹⁵ often face challenges in attaining equality of opportunity in host countries/cities. Barriers such as language, cultural attitudes, and weak social ties mean that many migrants are far behind national averages in terms of well-being. This is also recognized at the normative level; the *New Urban Agenda* commits to: ‘ensure the full respect for human rights and humane treatment of refugees, internally displaced persons, and migrants, regardless of migration status.’⁹⁶ Many of the SDGs directly address various aspects of the topic of migration including targets 5.2, 8.7, 8.8, 10.7, and 16.2.⁹⁷

Obtaining data on migration is key to addressing issues of urban development since accessing to adequate and affordable housing is often more difficult for migrants. This may be explained by both formal barriers (e.g. of a legal nature) and informal barriers (e.g. discrimination). Migrants, and

⁹² United Nations Department of Economic and Social Affairs. *Principles and Recommendations for Population and Housing Censuses*. United Nations, Sales No. E.07.XVII.8, (2008), available at https://unstats.un.org/unsd/publication/seriesM/seriesm_67Rev2e.pdf. These categories are also useful in that they allow international comparisons to be conducted.

⁹³ More information about it can be found at: ‘Washing Group on Disability Statistics’ (2019), available at <http://www.washingtongroup-disability.com/>; and Sightsavers International Share Learning, ‘Our experience of using disability disaggregated data’, Medium (2015), available at https://medium.com/@DFID_Inclusive/in-september-2015-world-leaders-adopted-the-global-goals-which-frame-development-for-the-next-c7556b87e2e0

⁹⁴ Sightsavers. ‘Our experience of Using Disability Dissaggregated Data’ Medium, (2016), available at https://medium.com/@DFID_Inclusive/in-september-2015-world-leaders-adopted-the-global-goals-which-frame-development-for-the-next-c7556b87e2e0.

⁹⁵ According to the International Organization for Migration a migrant can be defined as a person: ‘who is moving or has moved across an international border or within a State away from his/her habitual place of residence, regardless of (1) the person’s legal status; (2) whether the movement is voluntary or involuntary; (3) what the causes for the movement are; or (4) what the length of the stay is.’ ‘Who is a migrant?’ International Organization for Migration, (2019), available at <https://www.iom.int/who-is-a-migrant>.

⁹⁶ United Nations. *New Urban Agenda*. (2017). Paragraph 28.

⁹⁷ These three sets of targets address respectively the issue of labour rights for migrants, the process of migration and the issue of human trafficking.

refugees, as well as internally displaced persons (IDPs), face particular challenges when integrating in their new urban settings and are often forced to live in informal settlements.

In addition, the UN-DESA *Principles and Recommendations for Population and Housing Censuses* recommends inclusion of the following three characteristics to facilitate the recognition of international migrants in national censuses:⁹⁸

- (1) Country of birth
- (2) Country of citizenship
- (3) Year or period of arrival.

Adoption of the criteria above should facilitate obtaining data regarding migration. However, criteria (3) was only included by 50.3 per cent of countries during the 2010 household census round. Finally, encouraging additional tabulation and dissemination of international migration data as recommended in the report of the Secretary-General on International migration and development⁹⁹ will enhance the exchange of statistical information between countries, facilitate the identification of factors contributing to human vulnerability, and help to inform public policies that will: ‘endeavour to reach the furthest behind first’.¹⁰⁰

Last but not least policy-makers at all levels should recognise that the analysis of data with regard to ethnicity is also of crucial importance for developing evidence-based policies.

(Re)focusing on cities

In line with the *2030 Agenda for Sustainable Development*, delivery of sustainable urban development is bound with embracing dynamics taking place at the city level and analysing data with this regard to data. Localisation of SDGs is in the centre of the 2030 Agenda and the Urban Agendas, the UN Charter on Sustainable Housing and holds a particular meaning in relation to crafting evidence-based policies.

At the same time, the ‘city-dimension’ of housing and development problems in general and in relation to data poses challenges. Measuring at ‘the city scale’ for an inclusive assessment of the state of urban areas requires defining administrative boundaries and functional areas of cities (Please see Box 7). Indeed, cities often have a functional area that is much wider than the administrative boundary defined by governments. Peripheral or lower density settlements still affect and are affected by the process of urbanisation. Functional areas of cities can be defined based on transportation infrastructure, commuting patterns, and ensuring urban plans are not limited to administrative boundaries, but consider “soft” boundaries where cities’ influence reach those beyond official borders.¹⁰¹

Box 7. Recognizing spatial dimension of data in relation to housing and urban development

Data gathering under SDG 11 for inclusive, safe, resilient and sustainable cities requires defining the meaning and the scope of various spatial entities. A range of scales can be defined: ‘city proper’, ‘metropolitan area’, ‘urban agglomeration’ and ‘human settlements’:

- 1) City proper: single political jurisdiction containing the historic city centre

⁹⁸ *Principles and Recommendations for Population and Housing Censuses*. (2008), p. 108.

⁹⁹ A/73/286

¹⁰⁰ United Nations. ‘Transforming Our World: The 2030 Agenda for Sustainable Development’ (2015), available at <https://sustainabledevelopment.un.org/post2015/transformingourworld/publication>.

¹⁰¹ Andreas Faludi, ‘Territorial cohesion, territorialism, territoriality and soft planning: A critical review’ *Environment and Planning*, Vol. 45, (2013), p.1309, available at https://www.researchgate.net/profile/Andreas_Faludi/publication/275320285_Territorial_cohesion_territorialism_territoriality_and_soft_planning_A_critical_review/links/555601ec08ae980ca60c7fba.pdf.

- 2) Metropolitan area: the set of formal local government areas which comprise the urban area and its primary commuter areas
- 3) Urban agglomeration: the built up or densely populated area containing the city proper, suburbs, and continuously settled commuter areas
- 4) Human settlements: the distinct population cluster in which the inhabitants live in neighbourhood sets of living quarters.¹⁰²

Disaggregation and aggregation of data

In line with the previous section, developing evidence that ensures that 'no one is left behind' and that sufficiently reflects on housing and urban development problems at the city level relies on aggregation and disaggregation of data.

On the normative level, data disaggregation is supported by SDG Target 17.18 which seeks: 'to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts'.¹⁰³ In addition, many SDG targets and indicators have disaggregated data requirements - e.g. SDG indicator 11.2.1: 'Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities'.¹⁰⁴

Disaggregation can be defined as: 'the breakdown of observations, usually within a common branch of a hierarchy, to a more detailed level to that at which detailed observations are taken'.¹⁰⁵ It is a second key aspect of the 'data revolution' demanded in the context of the 2030 Agenda. Objective of disaggregation of data is to acquire timely and reliable data (e.g. data of a high granularity¹⁰⁶). In line with the 2030 Agenda, all indicators of SDG11 are used in a disaggregated way – at the city scale.

When disaggregating data, policy-makers should note that geospatial data is particularly useful when analysing functional areas. The metadata for SDG 11 lists potential disaggregation by location, income group, sex, ethnicity, religion, migration status, age and disability as applicable to most indicators under SDG 11.¹⁰⁷ This disaggregation will serve to highlight disparities between national or city-wide averages, and disadvantaged groups, leading to increased capacity to target programmes to ensure equitable development.¹⁰⁸

Finally, while SDG 11 is an urban-centric SDG, many of the other SDGs are also related to achieving sustainable cities and communities. For instance, achieving SDG 13 on climate action will require climate change mitigation action in cities since urban areas are responsible for up to 70 per cent of worldwide greenhouse gas emissions.¹⁰⁹ Thus, achieving SDG 11 will be key to achieve other SDGs especially given the growing demographic profile of urban areas which are projected to reach two

¹⁰² United Nations. 'A guide to assist national and local governments to monitor and report on SDG Goals 11+ indicators' p. 11, available at <http://localizingthesdgs.org/library/60/SDG-Goal-11-Monitoring-Framework-A-guide-to-assist-national-and-local-governments-to-monitor-and-report-on-SDG-goal-11-indicators.pdf>.

¹⁰³ 'Sustainable Development Goal 17' United Nations, available at <https://sustainabledevelopment.un.org/sdg17>.

¹⁰⁴ 'Sustainable Development Goal 11' United Nations, available at <https://sustainabledevelopment.un.org/sdg11>.

¹⁰⁵ 'Glossary of Statistical Terms: Disaggregation' Organisation for Economic Co-operation and Development, (2002), available at <https://stats.oecd.org/glossary/detail.asp?ID=4337>.

¹⁰⁶ Granularity refers to the level of detail found within any dataset, with high granularity associated with finer detail. In essence, high granularity levels for any data means that there is also high disaggregation present within that data.

¹⁰⁷ Ibid, p. 22.

¹⁰⁸ United Nations. 'The Sustainable Development Goals Report: 2017' (2017), p. 14, available at <https://unstats.un.org/sdgs/files/report/2017/TheSustainableDevelopmentGoalsReport2017.pdf>.

¹⁰⁹ UN Habitat. 'Hot cities: battle-ground for climate change' (2011), available at http://mirror.unhabitat.org/downloads/docs/E_Hot_Cities.pdf.

thirds of the world population by 2050.¹¹⁰ Therefore, data collected from other SDGs is relevant to SDG 11 and needs to be considered in a holistic manner to inform decision-making.

Having disaggregated datasets, policy-makers carry out aggregation of data. Data can be aggregated in various ways, depending on policy needs. Outcomes of aggregation of data are indicators and indicator set. Indicators are the backbone for evidence-based policies on sustainable urban development with a focus on housing and are used in various stages of policy-making: policy development; monitoring and implementation. Well-designed set of indicators efficient review and implementation of SDG 11 and other urban-related targets at local, national and regional levels.

For indicators to be efficiently used to track performance of policy initiatives and programmes, and to serve as a benchmarking tool, they need to be reliable. They need to be based on a robust data (discussed in previous chapter). They also need to be ‘relevant’ – to be able to capture key policy issues and policy challenges as they unveil.

Policy-makers at all levels are encouraged to use a range of existing indicators for SDG 11 review and implementation included in the UN indicator set (presented in chapter 1), developed based on international standards.

In the light of growing social exclusion, homelessness, soaring housing prices in urban areas, unstable housing markets in UNECE countries, using indicators relating to housing affordability is ever more important. In relation to indicators of SDG 11, policy-makers at all levels are encouraged ‘11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing’. The indicator allows the defining of the extent of problem with access to affordable and adequate housing, with reference to a scale and it can be used for policy-making for sustainable urban development with a focus on housing, at all levels.

Housing affordability can be measured using ‘housing cost overburden rate’ (see Appendix 4). The indicator has been endorsed by and is commonly by international, governmental and governmental organisations, level to local. Eurostat measure ‘housing cost overburden rate’ in relation to the EU member states. That being said, policy-makers should also recognise that this indicator is often defined in ‘economic’ terms, using ‘cost’ and ‘income’ categories, policy makers are encouraged to further develop the indicator and e.g. to disaggregate the indicator per gender (there is evidence that women and children are at greater risk of housing exclusion), in relation to a particular spatial scale.

Policy-makers at all levels should so recognise the value of indicators that tie housing with quality of life, in relation to ‘space in the dwelling’ (overcrowding¹¹¹/underoccupation), ‘housing deprivation rate’; ‘severe housing deprivation rate’ ‘Satisfaction with accommodation’ (e.g. the indicators are included in the Quality of Life Survey, under the heading ‘material living conditions’, subtopic ‘housing conditions’¹¹²). More information about selected indicators for housing and urban development policies can be found in Appendix 4.

¹¹⁰ ‘World’s population increasingly urban with more than half living in urban areas’ United Nations, (2014), available at <http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html>.

¹¹¹ Eurostat emphasizes the importance of collecting data on material aspects of housing - overcrowding - the overcrowding indicator portrays (i) physical health related issues, in line with the WHO, assuming that space is a basic requirement for preventing health issues; (ii) broader well-being issues as, the lack of privacy is considered a source of stress; (iii) matters relating to space use as under occupation of dwelling is not considered as efficient and environmentally friendly use of space. Data to inform the Quality of life survey indicators is Data gathered within the EU-SILC.

¹¹² Eurostat. *Final Report of the expert group on quality of life indicators: 2017 edition*. European Union, (2017), available at <https://ec.europa.eu/eurostat/documents/7870049/7960327/KS-FT-17-004-EN-N.pdf/f29171db-e1a9-4af6-9e96-730e7e11e02f>.

Designing indicators' sets

Designing an indicator set that supports development, review and implementation of housing and urban development policies needs to be carried out in a rigorous manner. Policy-makers at all levels should take note on internationally derived standards for designing indicator sets that is used in relation to review of implementation of SDGs.

According to the experts from the National Statistical Offices, OECD, Eurostat and others, six indicators per Goal is considered as an upper limit for effective and harmonised reporting¹¹³ (for the UN stat to complete).

More information on the principles of construction of the SDG indicator according to the United Nations, can be found in at <http://unsdsn.org/wp-content/uploads/2015/12/151211-getting-started-guide-FINAL-PDF-.pdf>.¹¹⁴

Additional insights can be drawn from the EU institutions. The EU SDG indicator set includes goals specific and multipurpose indicators. Multipurpose indicators are: 'supplementary indicators of other goals which complement the monitoring of (a particular) Goal'. They are used to monitor more than one Goal hence the number of indicators per SDG ranges from 5 to 12¹¹⁵.

Improving data literacy

Data and information literacy are important factors that influence on the development of evidence for policy.

Information literacy can be defined as "a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information"¹¹⁶. Improving information literacy requires investing in human and material resources. Those that can effectively and efficiently make sense of (often complex) data, information and/or knowledge claims – especially to accurately and effectively interpret information gathered by the National Statistical Offices are the qualified analysts knowledgeable about policy-process and social science, economic science and environmental research methods and proficient in quantitative and qualitative data collection and management (statistician, econometrists).

Information literate people can:

1. Determine the extent of information needed
2. Access the needed information effectively and efficiently
3. Evaluate information and its sources critically
4. Incorporate selected information into one's knowledge base
5. Use information effectively to accomplish a specific purpose
6. Understand the economic, legal and social issues surrounding the use of information, and access and use information ethically and legally.

¹¹³ See Informal Note on Expert Group Meeting on the Indicator Framework for the Post-2015 Development Agenda, UNHQ, New York, 25-26 February 2015

¹¹⁴ More information about the design of indicator set can be found in the Appendix 2.

¹¹⁵ European Commission. 'EU SDG Indicator Set 2018: Result of the Review in Preparation of the 2018 Edition of the EU SDG Monitoring Report' (2018), available at <https://ec.europa.eu/eurostat/documents/276524/7736915/EU+SDG+indicator+set+2018+-+public+web+version+with+cover+note/c86cd681-a537-4f0c-9680-197f04888f12>.

¹¹⁶ 'Information Literacy Competency Standards for Higher Education' American Library Association, (2019), available at <http://www.ala.org/Template.cfm?Section=Home&template=/ContentManagement/ContentDisplay.cfm&ContentID=33553>.

Improving information literacy also relies on embracing challenges and opportunities brought about by digitalization of practices and processes in public sector (and private sector), as outlined in chapter three. Decision-makers and analysts in the UNECE countries can still improve their local data collection processes aiming to integrate them with these conducted at the national level as, for instance, 15 out of 27 local government units continue using a basic spreadsheet software (available commercially, at a fee) for data storage and analysis, in Georgia. This suggests that alternative and more professional software could be used in the future.

DRAFT

CHAPTER 3. INFORMING HOUSING AND URBAN DEVELOPMENT POLICIES AND DECISION-MAKING

Previous chapters of the guidelines focused on production and analysis of data and on developing evidence for policies on sustainable urban development and housing. This final chapter elaborates on multiple ways to tie the processes of: production data, development of evidence and decision-making.

Informing housing and urban development policies is a process that extends across various stages of the policy-makings. At the early stages of policy development, decisions about data collection entering policy processes are taken. The decision influence on the scope and character of evidence produced and ultimately define the character and scope of policy objectives.

The chapter presents tools that enable (i) an analysis of the past processes based on the best available historical data series; (ii) an appraisal of the present dynamics through a comprehensive, objective, high-resolution and up-to-date mapping of the phenomenon; and (iii) a calculation of future impacts based on the best available forecasting methods applied on the data collected for the previous two points; and that (iv) ensure regular monitoring of impacts through appropriate techniques which produce data feeding back into the process.

In the chapter, it is recognised that in evidence-based policy cycle, decision-making is determined by a range of factors and it has a particularly strong subjective and interactive dimension. However, in the light realisation of the 2030 Agenda, the chapter presents tools that allow reducing the role personal and other biases in decision-making at all levels. Finally, the chapter concludes with reiteration that development, review and implementation of evidence-based policies on sustainable housing and urban development requires embracing ‘universality’ of the subject of housing, collaboration and accounting and policy transfer, a need for better harmonisation of approaches to evidence-based policy-making at all levels and embracing interests in benchmarking sustainability performance of cities and countries.

Linking data production, analysis and decision-making

In a rigorous, Agenda 2030 Agenda -driven evidence-based policy process, production and/or collection of data, development evidence and decision-making are linked together for a more effective and timelier policy-making.

There are various tools and frameworks to link production and/or collection of data, development evidence and decision-making. They all promote (i) operationalisation of policy objectives into tangible goals, targets, achievement of which can be quantifiable or qualifiable; (ii) tracking and reporting on progress towards achieving certain policy objectives in a rigorous manner; and (iii) have strong legitimating function as they allow manifesting whether and to which extend policy goals were achieved. However, they differ with regard to their objective and to which stage of policy process they apply.

Ex post evaluation

Ex post evaluation is an inherent part of evidence-based policy cycle. It relies on assessing actual effects/outcomes of policy interventions and usually takes place after policy and program was implemented. It is used to understand how well a certain programme ‘works’ and what is a specific impact of a programme, hence it provides data and evidence for review of implementation of a policy/program to inform housing and urban development policies at all levels. There are various approaches to ex post evaluation and various tools can be used to evaluate ex-post outcomes of policies and programs e.g. pilot projects can be evaluated using e.g. the Randomized Control Trials¹¹⁷, however policy-makers at all levels should take note of several critical aspects of the ex post

¹¹⁷ Brett Theodos and others. Randomized Control Trials and Financial Capability: Why, When and How. Urban Institute, (2014), available at <https://www.urban.org/sites/default/files/publication/22736/413172-Randomized-Controlled-Trials-and-Financial-Capability.PDF>

evaluation in order to ensure closest possible alignment of housing and urban policies with the values of sustainable development and ensure high quality and relevance of policy proposals.

Many policy evaluation methodologies focus on the analysis of a short-term and immediate effects of policies; and whether and to which extent a policy objective was delivered (e.g. how many housing units were built as a result of a housing policy). Data and evidence emerging in the context of this evaluation often does not provide a comprehensive picture of changes that emerged as a result of implementation of a policy/programme, may not capture emerging new trends and others hence the should use such methodologies that allow assessing medium and long-term impacts/effects of policies and programs. They should also ensure that the information is used as a basis for review and development of policies, as often data and evidence emerging as a result of ex-post evaluation is not fed back into policy cycle. They should also complement ex post assessment with ex ante assessment, as indicated below.

Value of ex ante assessment

Drawing lessons from the past to forecast the future is important. Policy-makers and scientists agree that data, information and evidence about past events (processes and practices) can be used to build up intelligence about the future. They can use foresight¹¹⁸ approaches, tools, methodologies and frameworks that enable horizon scanning, visioning, scenario building, system analysis that not only address methodological shortcomings of ex post approaches to policy evaluation, but to ensure timely decision-making in evidence-based policies on sustainable urban development with a focus on housing.

Foresight uses qualitative logic, fruitfully combined with quantitative approaches, to overcome ‘tunnel thinking’ in production, collection, management and use of data in evidence-based policy processes. It brings about multiple perspectives and diversity of knowledge into policy-making, using lessons from the past and understanding of the present to make sense of the future, which is particularly useful from the point of view of minimizing risks today and charting a course towards the future in a volatile, uncertain, complex and often ambiguous world¹¹⁹. The strategy enriches strategic understanding of policy problems and relevant policy responses by drawing possible consequences of current trends and has been used for policy-makers in France, Ireland and the United Kingdom¹²⁰.

Selected Impact Assessment Tools

A range of impact assessment tools that tie data production or collection, development of evidence and decision-making on housing and urban development, is available for policy-makers at all levels, such as Strategic Environmental Impact assessment, Land Use-based Integrated Sustainability Assessment, and others.

Strategic Environmental Impact Assessment (SEA)¹²¹ is a forward-looking approach to evidence-based policy-making. The objective of SEA is to promote sound economic development choices that benefit human health and the environment alike, as well as the integration of green economy targets into strategic and project-related decision-making. Introduced early in decision-making processes, SEA

¹¹⁸ Objective of foresight is to build on inclusive and systematic participatory processes to create collective intelligence about the medium-to-long-term future, in order to build plausible rationales of possible alternative future developments

¹¹⁹ L Bontoux presentation, info at <http://www.esa-paris.fr/la-pedagogie/enseignants/Bontoux-Jean-Pierre?lang=fr>

¹²⁰ United Nations Interagency Task Team on Science, Technology and Innovation for the SDGs. ‘Science, Technology and Innovation for SDGs Roadmaps’ (2018), available at https://sustainabledevelopment.un.org/content/documents/19009STI_Roadmap_Background_Paper_pre_STI_Forum_Final_Draft.pdf.

¹²¹ United Nations. ‘Protocol on Strategic Environmental Assessment to the Convention of Environment Impact Assessment in a Transboundary Context’ available at <https://www.unece.org/fileadmin/DAM/env/eia/documents/legaltexts/protocolenglish.pdf>.

ensures consideration is given to the likely significant environment, including health, effects of projects, plans and programmes. entails collecting data on characteristics of the environment, and the potential local and transboundary environmental effects of the project. Based on this evidence, measures to prevent or mitigate adverse environmental effects are then proposed. Decision-making on projects involving a SEA is, therefore, drawn from evidence produced through logical, systematic processes. Guidelines on SEA can be found at: <https://www.unece.org/index.php?id=42853&L=0>.

LUIA (Land Use-based Integrated Sustainability Assessment) is a Territorial Modelling Platform that allows assessing policies with regard to their direct or indirect territorial impact¹²². LUIA stems from the concern over the effect of urbanization on the quality of life¹²³. LUIA allows understanding ‘dynamic land functions’ – relationships between land and population, services and activities – one of which being for instance, provision of housing. LUIA promotes scenario-based approaches to data collection and analysis. The model was used to assess how European cities could potentially evolve over the time period 2010-2050¹²⁴.

Another type of impact assessment tool is a Regulatory Impact Assessment can be broadly referred to the assessment of policy proposals with regard to their impacts, in advance to decision-making about the scope and character of policy objectives. decision-making about the scope and character of policy intervention should be based on outcomes of these analyses. improve regulation because it allows (i) for the understanding of whether there is a need for a particular policy action; and (if so) (ii) the ability to carry out policy interventions in the most efficient and effective way¹²⁵, which can be applied at any level of government. Regulatory impact assessment, which is promoted at the international level, is used in various UNECE countries, and has been applied in the United Kingdom: in the form of the ‘Impact Assessment for Affordable Bill’ or the ‘Integrated Impact Assessment to the Homes for London: the London Housing Strategy’. Impact assessment is of interest of international organizations, including the EU and the OECD (e.g. *OECD Framework for Regulatory Policy Evaluation*, 2014; EU Smart and Better Regulation agendas 2010/2013/2015¹²⁶).

Bottom lines in evidence-based policy-making

Development of evidence-based policies in a complex social and political process, based on a mix of value judgements, cultural assumptions, and scientific evidence. It reflects political, organizational, social values and realities ‘on the ground’¹²⁷. However, it requires from policy makers in all countries in the UNECE region to embracing ‘universality’ of housing as a policy domain.

Both housing and urban development are policy fields that have an interdisciplinary, ‘universal’ character that brings about a range of opportunities and challenges for evidence-based policy-making. One of the challenges is institutional ‘silencing’ (Box 8).

¹²² Kompil Mert and others. ‘European cities: territorial analysis of characteristics and trends - An application of the LUIA Modelling Platform’ Publications Office of the European Union, (2015), available at <http://publications.jrc.ec.europa.eu/repository/handle/JRC100001>.

¹²³ Ibid.

¹²⁴ This was subject of an exercised carried out by the JRC: ‘European cities: territorial analysis of characteristics and trends - An application of the LUIA Modelling Platform’; see <http://publications.jrc.ec.europa.eu/repository/handle/JRC100001>.

¹²⁵ ‘Impact Assessments’ European Commission, available at https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/impact-assessments_en.

¹²⁶ Ibid.

¹²⁷ This can be referred to as ‘evidence-informed policy’. Marston, G, ‘Tampering with the evidence: a critical appraisal of evidence-based policy-making’ *The Drawing Board: an Australian Review of Public Affairs*, (2003) p.168

Box 8. ‘Institutional siloing’ as a challenge for evidence-based housing and urban development policies

In the public policy, one of the main challenges to multi-stakeholder cooperation for the purposes of evidence-based urban and housing policies is ‘institutional siloing’.

‘Institutional siloing’ entails sustaining agency-specific approach to a particular policy problem in spite of recognising that the problem is multi-faceted, cutting across various policy domains; hence nature of the problem and that it requires deploying various policy approaches. ‘Siloing’ unveils itself as e.g. agencies retain agency-specific datasets and do not share it with other organizations/agencies; or refuse collaboratively addressing a particular policy problem.

Costs of addressing ‘institutional siloing’ can be high. As agencies collect and keep their own data without consultation with other agencies (e.g. regarding methodological approach to data collection), they need to fix broken communication channels at latter stages of policy problems. At some point, these ‘partial’ datasets can become too costly to harmonize. Additionally, institutional siloing can mitigate positive effects of housing and urban development policies and programs.

It is the role of policy-makers to address ‘siloing’ issue in relation to data production, development of evidence and decision-making, in evidence-based policy cycle. They have various tools at hand to do so. ‘Institutional siloing’ can be addressed by collaborative development of data collection and sharing procedures (e.g. introduce better coordination/communication mechanisms, better harmonization procedures etc) at early stages of policy-making.

Also, policy-makers should ensure that the processes of production and collection of types of data are oriented at developing a cross-field databases, that include data that pertains (i) social, economic, environmental and other aspects of housing and urban development in equal manner; and (ii) data that portrays not only short-term, immediate as well as medium and long-term effects of policy interventions.

Integrated sustainability assessment methodologies, models, tools outlined in the previous chapter allow achieving just so. As they have a particularly comprehensive character and allow for defining and evaluating: ‘the relationships between environmental, social and economic processes in order to optimise socio-economic outcomes within the context of resource and environmental constraints’¹²⁸.

Finally, in evidence-based policy cycle, policy-makers should identify positive and negative ‘externalities’ of housing and urban development policies. Positive ‘externalities’ include for instance, increased in opportunities and challenges land value, reduction of drug use, crime and vandalism; while negative ‘externalities’ relate to an increased cost of health, loss of beautiful countryside and greater congestion and others¹²⁹. This allows further identification positive or negative ‘synergy effects’, when realisation of one objective supports or constraints realisation of another objectives. Decisions taken based on ‘positive’ synergy effects are more impactful, for instance spatial policy and land policy tools can support realization of housing policy objectives.

Evidence-based policy-making as a collective process

The 2030 Agenda emphasizes that the lack of decent quality, affordable housing, and uneven and unsustainable urban development are collective issues, and that there is a need to mobilise various groups of stakeholders, at local, national and international levels, to overcome them. These efforts can

¹²⁸ ‘Integrated sustainability assessments’ European Commission, (2016), available at <https://ec.europa.eu/jrc/en/research-topic/integrated-sustainability-assessments>.

¹²⁹ E Rossi-Hansberg and P-D Sarte. ‘Economics of Housing Externalities’ *International Encyclopedia of Housing and Home*. (2012) Vol. 2, p. 47-50, available at <https://www.princeton.edu/~erossi/EHE.pdf>.

be realised at all stages of evidence-based policy process and with regard to production and collection of data, development of evidence and decision-making.

main roles in producing data for housing and urban development policies and monitoring review of implementation of the 2030 Agenda in many UNECE countries are played by National Statistical Offices (NSOs). The offices work closely with ministries and engage in partnerships. However, in order to achieve better quality and frequency of data, it is essential to take further action to increase capacities of both National Statistical Offices (NSOs) and other organisations and agencies of National Statistical Systems.

The NSO themselves must commence an evolution from data producer to coordinator, managing the various data inputs from the broader ecosystem, ensuring data quality, comparability and harmonization. This will ensure that data streams are relevant and useful for national policy makers and other stakeholders looking to manage and monitor progress¹³⁰. They also need to embrace opportunities stemming from collaborative evidence-based policy-making and work closer with various stakeholders including local and regional governments, private companies, academia, civil society, and citizens¹³¹ (as outlined in chapter 2). This can be realised at various stages of evidence-based process.

In line with the previous chapter, it is also essential to strengthen communication within and between various institutions engaged in evidence-based policy-making – central, regional/federal and local governments and authorities, towards better inter-institutional learning in spite of the fact that competences for development to housing policy lay usually with one ministry. Communication about data needs and data collection and analysis efforts can be improved through periodic meetings and fora like the workshops we organized, and periodic bilateral meetings.

Policy transfer

In contemporary societies, policy-making on sustainable urban development and housing in contemporary societies is subjected to policy transfer. As analysts and decision-makers become more proficient in crafting policy responses based on data, information about evidence about localised phenomena, they are search for a source of inspirations across time and space and have much learn from practices elsewhere.

Policy transfer entails that data, information and evidence (data, information and knowledge) travels across the globe, locations. In an increasingly more globalized world, policy transfer is ‘a new reality’ that poses both opportunities and challenges for development and implementation of evidence-based housing and urban development policies.

Policy makers often look for successful examples of policies implemented in other countries and seek to replicate these policies in their own localities. The phenomenon of transfer of such ‘good practices’ can be classified in various ways, depending on the purpose and outlook of the process and can be referred to as: ‘policy transfer’, ‘policy diffusion’, or ‘institutional isomorphism’.

While there are valuable lessons to be learned from examining ‘best practice’ examples, it’s important to note that defining ‘best practices’ is a complex process. Also, what is considered as a desirable/good/best practice is guided by a preferences and experience of actors in particular context. Sometimes ‘good practice’ examples may lack external validity or applicability to a wider range of contexts.

Models of external validity suggest that these successful policies fail to work when applied to certain contexts due to local conditions affecting the theory of change, leading to a failure of the policy. In

¹³⁰ Ibid.

¹³¹ Sustainable Development Solutions Network. ‘Getting Started with the Sustainable Development Goals’ (2015), available at <http://unsdsn.org/wp-content/uploads/2015/12/151211-getting-started-guide-FINAL-PDF-.pdf>.

these cases, it is vital that the evidence of international ‘best practices’ be combined with local knowledge and experience to ensure that the policy will have the desired effect in that context. This process can also be referred to as ‘policy translation’. In the increasingly more globalized world, policy transfer dynamics also bring about the harmonisation of approaches to evidence-based policy-making as outlined below.

Harmonization and Benchmarking

Global governance for sustainable development entails harmonisation of selected approaches to evidence-based policy-making in the UNECE countries. This concerns various issues relating to policy development, review and implementation. In order to accurately understand progress made towards the review and implementation of the 2030 Agenda, especially in relation to Goal 11: ‘Sustainable cities and communities’, governments are encouraged to systematise approaches to the sourcing/production and management (e.g. analysis) of data and better align them with global standards. This concerns for instance sourcing data using the Population and Housing Census.

It is also important to recognize the value added of the European Statistical System (ESS). It is a partnership between Eurostat, the national statistical institutes (NSIs) and other national authorities responsible in each Member State of the European Union (and the European Economic Area and European Free Trade Association countries) and it is based on the European statistical legislation¹³². The partnership focuses on development, production and dissemination of European statistics and its main objective is to improve comparability of statistics in the EU¹³³. It ‘provides key statistical definitions and defines the data and metadata to be produced’¹³⁴.

More information about improving statistics for Sustainable Development Goals can be found in the *CES Road Map on Statistics for SDGs*. The Road Map was developed by the Conference on European Statisticians (CES) Steering Group on Statistics for SDGs that involves 17 countries, Eurostat, OECD and UNECE, and was approved in June 2017. It supports national statistical offices in producing statistics for SDGs, including establishing national mechanisms for collaboration, assessing data gaps, developing national indicators, providing data on global SDG indicators, statistical capacity building and communication¹³⁵.

¹³² ‘The European Statistical System’ Eurostat, available at <http://ec.europa.eu/eurostat/web/european-statistical-system/overview?locale=fr>.

¹³³ It is also important to note that the ESS is also responsible for coordinating its work with candidate countries and at European level with other Commission services, agencies and the ECB and international organizations such as OECD, the UN, the International Monetary Fund and the World Bank. See <http://ec.europa.eu/eurostat/web/european-statistical-system/overview?locale=fr>

¹³⁴ ‘Population: demography, population projections, census, asylum & migration – Overview’ Eurostat, available at <http://ec.europa.eu/eurostat/web/population-and-housing-census>.

¹³⁵ *Conference on European Statisticians: Road Map on Statistics for Sustainable Development Goals*. (2017)

SUMMARY AND CONCLUSIONS

Implementation of the *2030 Agenda for Sustainable Development*, requires taking a broad view of housing and urban issues and applying a strategic approach to addressing them in relation to production of data, developing evidence and decision-making.

In recognition of the growing importance of data in policy-making and with a view to improving the review and implementation of the 2030 Agenda in the UNECE region, the guidelines (i) outlined selected challenges and opportunities for evidence-based policy-making in the UNECE region, (ii) provided examples of the ongoing activities to inform the review and implementation of the Agenda in the UNECE region; and (iii) demonstrated benefits applying selected approaches to evidence-based policy-making.

The Guidelines introduction pointed out that the 2030 Agenda envisages a new, more rigorous approach to policy development and implementation insofar as it focuses on embracing opportunities stemming from ‘data revolution’ and ensures that ‘no one is left behind’. However, it also stated that corresponding efforts are hindered by a range of factors, including insufficient capacity of the agencies responsible for the policy development and implementation (especially statistical offices) for timely collection and analysis of data, and insufficient coordination between these agencies. Lastly, the chapter emphasized that a range of indicators can be used for evidence-based policy-making for sustainable urban development with a focus on housing at all levels (overview of the indicators can be found in Appendix 5).

Chapter One considered the role of data in evidence-based policy-making. It pointed to how to acquire high quality data for sustainable urban policies with a focus on housing and mapped key data providers and mainstream sources of data, especially the Housing and Population Census and household surveys. It emphasized the importance of ‘data revolution’, including the raising of ‘big data’, ‘geospatial information’, ‘citizen data’ and the private sector in policy context. Apart from describing how this data can be generated, collected and analysed, the chapter also discussed key risks and challenges involved in these processes. Finally, the chapter emphasized the value of ‘data collaboratives’ in the context of SDG 11 and stressed that in light of shrinking public budgets, ‘data collaboratives’ play an important role in bringing stakeholders together to ensure that evidence used is credible and relevant to housing and urban challenges ‘on the ground’.

Chapter Two described how data becomes evidence and explored issues relating to crafting evidence and data analysis. It highlighted the importance of disaggregating data and achieving a high level of data granularity, especially at the city level. It pointed to several key categories that need to be considered at all levels when disaggregating data and crafting evidence: gender, age, ethnicity, income, disability and migratory status. The chapter stressed that quality assurance is one of preconditions for crafting reliable evidence and designing an indicator set.

Chapter Three: ‘Informing Housing and Urban Development Policy and Decision-making’ explored opportunities and challenges in evidence-based decision-making. It stressed the importance of ‘going beyond’ policy evaluation methods to produce reliable data for timely, SDG 11 aligned policies. It flagged the role of ‘in-advance’ approaches, especially foresight, integrated sustainability assessment and regulatory impact assessments in structuring policy process and guiding decision-making. The ‘universality’ of housing as policy domains and collaborative nature of evidence-based policy-making in contemporary democracies were then discussed. The chapter concluded with the observation that evidence-based policy-making for sustainable urban development with a focus on housing takes place in an increasingly globalized context, one in which policy transfer dynamics play increasing prominent roles in informing housing policies and decision-making.

Conclusions and Recommendations

Developing evidence-based policies that support measurement of progress on the SDGs now and in the future will depend on three key processes: (1) Developing a robust set of national monitoring indicators, (2) Strengthening statistical capacity (3), Capitalizing on the data revolution, harnessing new technologies and new sources of data. Achieving better quality, high frequency data in support of the SDGs will require a step-change in the way governments and National Statistical Offices (NSOs) do business¹³⁶. On this basis, and accounting on undertaken in these guidelines' analyses, the following recommendations on improving evidence-based policy-making for sustainable urban development with a focus on housing can be put forward:

A. Ensure an integrated and coordinated approach to the review of the implementation of the 2030 Agenda

Successful implementation of the 2030 Agenda requires the participation of all relevant stakeholders, at the global, regional, national, subnational, subregional, and local levels. Therefore, the guidelines stress the importance of ensuring an integrated and coordinated approach to the review of the implementation of the 2030 Agenda, achieving SDG 11 and other housing and urban-related SDGs.

It is recommended to:

- 1) **Increase Awareness.** Policy-makers at all levels should be aware of the reporting requirements emerging as a result of the implementation of the 2030 Agenda in their country and promote this awareness across the institutional spectrum. It is the role of the government to clearly communicate approach(es) to the realization of housing and urban-related Goals of the Agenda, to various stakeholders, especially municipalities and National Statistical Offices.
- 2) **Align Policies and Monitoring Frameworks.** As countries are responsible for mainstreaming SDG 11 into the National Sustainable Development Strategies, development policies on housing and urban development; they are encouraged to improve convergence between existing housing and urban policy monitoring frameworks processes and the processes of review of the 2030 Agenda objectives and targets.
- 3) **Streamline national efforts of data collection and analysis.** Governments should streamline efforts of the review of the implementation of SDG 11 by developing roadmaps on statistics for SDGs and the National Reporting Platforms, which allow for better coordination of national and international processes of data collection and the data storage in one place.
- 4) **Ensure regular monitoring of policy implementation.** With a view to enhance the SDG 11 quality of review and to improve accountability of agencies involved, governments need to ensure that reporting on SDGs takes place regularly and accounts on interlinkages between SDG 11 and other SDGs.
- 5) **Connect Data Producers.** The National Statistical Offices need to better cooperate with other organizations and agencies of the National Statistical System and the Ministries in charge of review of SDG 11 and other agencies in charge of policy development and implementation in relation to housing and urban development.
- 6) **Ensure Data Quality.** National Statistical Offices need to make sure that the review of the implementation of the 2030 Agenda and achievement of SDG 11 and other housing and urban-related Goals are based on high-quality data, a reliable indicator set, and are encouraged to use international standards for data collection in order to improve the quality of the review process.
- 7) **Explore Opportunities for the Use of Alternative Data Sources.** In the context of limited access to data, National Statistical Offices should ensure that “proxy indicators” closely correspond to global

¹³⁶ 'Getting Started with the Sustainable Development Goals' (2015)

indicators and should explore opportunities to use non-statistical indicators and administrative data, to inform the indicators.

C. Support openness of the data collection processes

The guidelines emphasize that evidence-based policy-making requires improving the capacities of organizations and agencies responsible for the production of data and promotion of the openness of the use of the data as a precondition to the production of a high-quality data for housing and urban development policies and for reporting on SDGs. To promote the capacity building of the organizations producing the data, it is recommended to:

- 1) Strengthen the capacity and the role of the National Statistical Offices in data collection and analysis. Systematic measures should be taken to improve capacities of the National Statistical Offices and other organizations and agencies of the National Statistical Systems in ECE countries, especially in countries with economies in transition.
- 2) Stimulate Local Data Production. Building capacity of local actors, especially of the local and regional authorities and statistics offices, to source and produce data requires special attention of governments and international organizations.
- 3) Consider wider use of Open Data. Policy-makers at all levels should consider making various types of data publicly available. Opening data for public use has beneficial impacts on the quality of data and the production of evidence used in policy process and decision-making; also, opening data tends to improve accountability of data producers by multiplying quality checks by different stakeholders.
- 4) Engage Private Sector. Policy-makers and other stakeholders, especially private sector organizations, should work together to improve the openness of data, especially in relation to housing market data and housing construction data as it strongly influences on housing affordability.
- 5) Engage Third Parties, including the private sector, in data production. Policy-makers are encouraged to engage in partnerships with municipalities, National Statistical Offices and their agencies, private sector organizations and NGOs in order to increase their capacities to timely produce data on housing and urban development. Successful models of such partnerships should be scaled up, when possible.
- 6) Ensure data privacy and security. While developing partnerships with private sector organizations, data privacy and anonymity should be ensured. Government and private sector organizations should be kept accountable for how they handle the data.

C. Promote comprehensive and integrated approaches to the organization of data.

The Guidelines highlight that policy-makers need to develop comprehensive and integrated approaches to evidence-based policy-making, in relation to data collection and development of evidence, in order to maximise the potential of data in the policy process and improve quality and reliability of data and evidence circulating in the policy process. Specifically, it is recommended to:

- 1) Break the Siloes. Policy-makers at all level need to make efforts to break the “silo mentality” in relation to housing policies by better recognising “externalities” of policy interventions, e.g. positive and negative “effects” of housing policies and programmes in relation to various policy domains: social policy, economic policy and others.
- 2) Think Big, Think Forward. Policy-makers need to produce data and evidence on immediate, medium and long-term outcomes and effects of policy interventions, in relation to various aspects

of urban life – society, economy, environment and others; and at various scales – local, regional, national and supra-national, when necessary.

- 3) **Apply Integrated Methods for Data Production and Analysis.** In this vein, the organizations involved in data production are encouraged to use integrated and comprehensive methodologies and frameworks for production and analysis of data for policy, e.g. the integrated sustainability assessment and territorial assessment tools, to better recognize and effectively address complex housing and urban development challenges.
- 4) **Ensure Data Quality.** Policy-makers need to recognize that quality of assessments and evaluation of policy implementation varies and there is a need to improve relevant procedures and better invest in quality assurance tools.
- 5) **Engage Academia to Promote Evidence-based Policy-making.** It is essential that policy-makers use the best available academic studies, evidence stemming from policy analysis and scientific evaluation as the basis for their policies.
- 6) **Undertake Peer Review.** Policy-makers at all levels need to use internal and external peer-review procedures to ensure the highest reliability and clarity of evidence used in the policy process.
- 7) **Combine Data Sources for Better Analysis.** Policy-makers at all levels need to combine various sources of data to develop reliable and grounded evidence, from public sector data (e.g. the national statistics) to big data, and better recognize various roles of in policy-making and effectively.
- 8) **Go Circular.** Policy-makers need to better recognize the value of the “circular approach” to evidence-based policy-making on sustainable housing and urban development that avoids fragmentation in use of evidence in policy-making and ensures that evidence derived during policy evaluation is used for policy-development, also across various policy initiatives.

D Reduce Bias

The guidelines stress the need to ensure that the processes of informing policies on sustainable housing and urban development are impartial and unbiased vis-à-vis data collection, development of evidence and decision-making, in order to address effectively housing challenges in the UNECE countries. Specifically, it is recommended to:

- 1) **Structure the Decision-making Process.** Policy-makers should use institutionally derived, structured approaches to decision-making.
- 2) **Give Priority to the Use of Integrated Tools.** Especially, the decision-makers should use primarily policy tools and instruments that allow connecting the processes of data sourcing, data analysis and decision-making (such as integrated sustainability assessment tools) as they limit opportunities for exercising personal and other biases.
- 3) **Mind the Time.** Policy-makers need to particularly consider the role of timing in decision-making, across stages of the policy process. Timing affects the quality of data and whether (and how) data and evidence enter the policy process. For instance, evidence emerging at the latter stages of decision-making can be excluded from the policy process.
- 4) **Anticipate Risks.** The decision-makers should also use foresight more effectively, as well as impact assessments and integrated sustainability assessments in order to make decision-making more forward-looking and improve management of risks relating to adverse effects of policy initiatives.
- 5) **Provide training in Data Analysis.** Policy-makers at all levels need to better invest in skills development and training for policy analysts as it translates into better reliability and objectivity of evidence produced.

- 6) **Adopt Collaborative Tools for Data Production.** Policy transfer should explore the use of collaborative tools for evidence-based decision-making especially during data production, evidence development and definition of policy priorities. They ensure that policy proposals are grounded and based on reliable evidence.
- 7) **Share Knowledge and Promote Exchange of Best Practices.** Policy-makers and stakeholders at all levels should also further invest in sharing knowledge and “good practices” regarding available policy instruments and policy tools for review of SDG 11 and other housing and urban-related targets at all levels.
- 8) **Communicate Policies.** Policy-makers at all levels are required to communicate policy initiatives to the general public in a clear, transparent manner, making use of the best available tools, removing as much as possible technical, cultural and economic access barriers.
- 9) **Disseminate Evidence to Public.** Policy-Makers should make deliberate efforts to compile and present data and evidence used in decision-making in a clear, and easy-to-read format, in statistical and non-statistical form.

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Annex 1. SDG 11 Targets and Indicators

SDG 11 Targets and Indicators	
Targets	Indicators
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate
	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people
	11.5.2 Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying	11.6.1 Proportion of urban solid waste regularly collected and with adequate final

special attention to air quality and municipal and other waste management	discharge out of total urban solid waste generated, by cities
	11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
	11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous twelve months
11.A Support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening national and regional development planning	11.A.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city
11.B By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the <i>Sendai Framework for Disaster Risk Reduction 2015-2030</i> , holistic disaster risk management at all levels	11.B.1 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the <i>Sendai Framework for Disaster Risk Reduction 2015-2030</i>
	11.B.2 Number of countries with national and local disaster risk reduction strategies

Annex 2. Housing-related targets and indicators in the global SDG framework

Housing-related targets and indicators in the context of selected SDGs	
Targets	Indicators
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity 7.1.2 Proportion of population with primary reliance on clean fuels and technology
17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries.	17.19.2 Proportion of countries that (a) have conducted at least one population and housing census in the last ten years; and (b) have achieved 100 per cent birth registration and 80 per cent death registration.

Annex 3. Selected Global and Regional Databases

Selected global and regional databases and their strengths		
Database(s)	Strength of the database	Link
The UN Statistics Division (databases)	<ul style="list-style-type: none"> • The database is organized per SDGs and corresponding targets • Easy for decision-makers and analysts to navigate 	http://unstats.un.org/sdgs/indicators/database/
The UN Statistics Division metadata repository	<ul style="list-style-type: none"> • Reflecting latest reference metadata information provided by the UN System and other international organizations on data and statistics for the Tier I and II indicators in the global indicator framework 	http://unstats.un.org/sdgs/metadata/ (as of January 2019)
The City Prosperity Initiative (CPI) database	<ul style="list-style-type: none"> • Obtaining detailed disaggregated data at city level • Comparing performance of cities 	http://cpi.unhabitat.org/download-raw-data (global CPI database for 2016)
Affordable Housing Database (AHD) of the OECD	<ul style="list-style-type: none"> • Richness of data (indicators grouped along three main dimensions: housing market context, housing conditions, and public policies towards affordable housing) • Each indicator presents data on a particular issue, relevant definitions and methodology. • Indicators also discuss comparability, data and source issues, and where relevant, include the raw data or descriptive information across countries.¹³⁷ 	http://www.oecd.org/social/affordable-housing-database
Eurostat statistics	<ul style="list-style-type: none"> • Easy to read format • Data on: (i) types of dwelling (detached; semi-detached; flat other)¹³⁸; (ii) tenure status (tenant – reduced price or free; tenant – market price; owner copied, with mortgage or loan; owner occupied, no outstanding mortgage or housing loan), (iii) housing quality (material/housing conditions); (iv) housing affordability. 	https://ec.europa.eu/eurostat/statistics-explained/index.php/Housing_statistics
The EU SILC (the European Union Statistics on Income and Living Conditions) ¹³⁹	<ul style="list-style-type: none"> • Statistics relating to income and living conditions¹⁴⁰ in the EU countries, including housing, in the EU Member States and the EU region as a whole: 	https://ec.europa.eu/eurostat/web/income-and-living-conditions/data/database
Urban Data Platform	<ul style="list-style-type: none"> • Gathering and managing data on housing and urban development. 	http://urban.jrc.ec.europa.eu/?ind=popden&ru=f

¹³⁷ 'Affordable Housing Database' Organization for Economic Co-operation and Development, (2016), available at <http://www.oecd.org/social/affordable-housing-database.htm>.

¹³⁸ 'Housing statistics' Eurostat, (2019), available at https://ec.europa.eu/eurostat/statistics-explained/index.php/Housing_statistics#undefined.

¹³⁹ The EU-SILC is a framework 'aiming at collecting timely and comparable cross-sectional and longitudinal multidimensional microdata on income, poverty, social exclusion and living conditions. 'European Union Statistics on Income and Living Conditions (EU-SILC)' Eurostat, available at <http://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions>.; More information about EU SILC can be found at [http://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_statistics_on_income_and_living_conditions_\(EU-SILC\)_methodology_-_introduction](http://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_statistics_on_income_and_living_conditions_(EU-SILC)_methodology_-_introduction)

¹⁴⁰ income, poverty, social exclusion, housing, labour, education, health

	<ul style="list-style-type: none"> • Status and trends of European cities and regions. • Monitoring/analysing cities and urban areas in certain thematic fields, • Achieving robust analyses with quick tables, graphs and maps, • Reaching/acquiring data for a large set of cities.¹⁴¹ 	ua&s=0&c=1&m=0&f=1&p=0&swLat=32.39851580247402&swLng=-59.4140625&neLat=61.77312286453146&neLng=81.2109375
DG Regio	<ul style="list-style-type: none"> • Allocations of the EU fund on urban development and housing investments in the EU member states • Comparison between the EU Member States 	https://cohesiondata.ec.europa.eu/browse

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¹⁴¹ 'Urban Data Platform' European Commission, (2016), available at <https://ec.europa.eu/jrc/en/scientific-tool/urban-data-platform>.

Definitions of selected indicators
<p>‘Housing cost overburden rate’ is the ‘percentage of the population living in a household where total housing costs (net of housing allowances) represent more than 40% of the total disposable household income (net of housing allowances)’¹⁴².</p>
<p>‘Housing deprivation rate’ is ‘the percentage of the population deprived of each available housing deprivation items’ (Leaking roof, damp walls/floors/foundation, or rot in window frames or floor; Lack of bath or shower in the dwelling; Lack of indoor flushing toilet for sole use of the household; Problems with the dwelling: too dark, not enough light’)¹⁴³.</p>
<p>‘In-work at-risk-of-poverty rate’ signifies ‘the percentage of persons in the total population who declared to be at work (employed or self-employed) who are at-risk-of-poverty (i.e. with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income (after social transfers)’¹⁴⁴.</p>
<p>The House Price Index (HPI) ‘measures the changes in the transaction prices of residential properties, both newly built and existing, purchased by households. Methodological background information is given in the Handbook on Residential Property Prices Indices and in the Technical Manual on Owner-Occupied Housing (OOH) and House Price Indices (HPI)’¹⁴⁵.</p>

¹⁴² Data is collected annually; variance: by sex, by tenure status, household type, degree of Urbanization, income quintile, by poverty status; ‘Housing cost overburden rate’ Eurostat, available at <http://ec.europa.eu/eurostat/web/products-datasets/-/tespm140>.

¹⁴³ ‘Housing deprivation rate by number of item – EU-SILC survey’ Eurostat, available at <https://ec.europa.eu/eurostat/web/products-datasets/product?code=tessi291>.

¹⁴⁴ ‘EU statistics on income and living conditions (EU-SILC)’ Eurostat, (2018), available at [http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_statistics_on_income_and_living_conditions_\(EU-SILC\)_methodology_-_in-work_poverty](http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_statistics_on_income_and_living_conditions_(EU-SILC)_methodology_-_in-work_poverty).

¹⁴⁵ ‘Housing prices – overview’ Eurostat, available at <http://ec.europa.eu/eurostat/web/housing-price-statistics/overview>.

Annex 5. Selected Housing Indicators Included in Global and Regional Development Frameworks and Agendas

Selected housing indicators included in global and regional development frameworks and agendas		
Name of the policy framework	Goal/target	Name of the indicator (sub-indicator), if any
UN SDG indicator set 2018	SDG 11	UN SDG 11 target 11.1: ‘Proportion of urban population living in slums, informal settlements or inadequate housing’.
UN SDG indicator set 2018	SDG 1	UN SDG 1 target 1.4.1 Proportion of population living in households with access to basic services;
UN SDG indicator set 2018	SDG 7	UN SDG 7 targets 7.1.1 Proportion of population with access to electricity 7.1.2 Proportion of population with primary reliance on clean fuels and technology;
UN SDG indicator set 2018	SDG 3	UN SDG 3 target 3.9.1 Mortality rate attributed to household and ambient air pollution;
UN SDG indicator set 2018	SDG 17	SDG 17 target 17.19.2 Proportion of countries that (a) have conducted at least one population and housing census in the last ten years; and (b) have achieved 100 per cent birth registration and 80 per cent death registration.
EU SDG indicator set 2019	SDG 11	Primary indicators: ‘Overcrowding rate’ and ‘Population living in households considering that they suffer from noise’; Multipurpose indicator: ‘Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor’.
EU SDG indicator set 2019	SDG 1 and 8	Multipurpose indicator: ‘in work at-risk of-poverty rate’
City Prosperity Initiative	‘Infrastructure Development’ prosperity dimension; ‘1. Housing Infrastructure’ sub index	1.1 Improved Shelter 1.2 Access to Improved Water 1.3 Access to Improved Sanitation 1.4 Access to Electricity

		1.5 Sufficient Living Area 1.6 Population Density.
United for Smart and Sustainable Cities	'Environment' section	Residential thermal energy consumption; Public buildings energy consumption
United for Smart and Sustainable Cities	'Safety, Housing and Social Inclusion' subdimension	Housing expenditure; Informal settlements
United for Smart and Sustainable Cities	'Economy/Infrastructure'	Household sanitation; Basic Water Supply; Potable Water Supply; Access to electricity; Public Building Sustainability; Integrated Building Management Systems in Public Buildings. Household access to ICT

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