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Implementation of Sustainable Development Goal 12 in Cities: Best Practices

Wdrażanie 12. Celu Zrównoważonego Rozwoju w miastach: dobre praktyki

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Abstract: Although urban areas do not occupy much of the Earth's surface, their inhabitants account for more than half of the global population. Moreover, cities consume most of the world's energy while emitting the bulk of carbon compounds. For that reason, metropolises should seek to implement the concept of sustainable development, as is practically embodied in the 17 Sustainable Development Goals (SDGs). Although SDG 11, addresses cities directly, all the others contain an "urban" aspect, too. One of the SDGs which is rising in importance due to the global problem of over-consumption and, consequently, over-production of waste is SDG 12 concerning responsible production and consumption. The purpose of this article is to present the actions that cities can take to achieve SDG 12. The study is based on a critical analysis of the literature on the subject, as well as on web research and case studies. Attainment of SDG 12 requires the pursuit of the concept of a circular economy (CE), namely, one where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimised. The review of best practices from Polish and other cities, demonstrates their efforts to work towards a CE through diverse and comprehensive initiatives, beyond their tasks and competencies. Moreover, metropolises encourage their stakeholders: (i) entrepreneurs, to join them in following the CE path by creating conditions that are conducive to implementing responsible production; and (ii) residents and city users, by promoting sustainable consumption.

Keywords: sustainable development, responsible production and consumption, Sustainable Development Goal 12, sustainable cities, best practices

Streszczenie: Mimo, że miasta zajmują niewielki odsetek powierzchni Ziemi, to zamieszkuje je ponad połowa ludności świata i zużywają one większość energii, emitując przy tym większość związków węgla. Miasta powinny zatem wdrażać koncepcję zrównoważonego rozwoju, zoperacjonalizowaną w 17 Celach Zrównoważonego Rozwoju ONZ (SDGs). Chociaż bezpośrednio miastom poświęcony jest 11. SDG, to „miejski” wymiar mają wszystkie pozostałe. Jednym z SDGs, których znaczenie w miastach wzrasta w związku z globalnym problemem nadkonsumpcji i nadprodukcji odpadów, jest 12. SDG dotyczący odpowiedzialnej produkcji i konsumpcji. Celem artykułu jest przedstawienie działań jakie mogą podejmować miasta na rzecz realizacji 12. SDG. W opracowaniu wykorzystano krytyczną analizę literatury przedmiotu, w tym web research, oraz studia przypadków. Realizacja 12. SDG oznacza wdrażanie koncepcji gospodarki o obiegu zamkniętym, czyli utrzymywanie w gospodarce wartości produktów, materiałów i zasobów tak długo, jak to możliwe oraz ograniczenie do minimum wytwarzania odpadów. Przegląd dobrych praktyk miast, zagranicznych i polskich dowodzi, że miasta podejmują wiele różnorodnych i kompleksowych działań na rzecz CE nie tylko w ramach swoich kompetencji i zadań, lecz także zachęcają do podążania cyrkularną ścieżką swoich interesariuszy: przedsiębiorców poprzez tworzenie korzystnych warunków

dla rozwoju odpowiedzialnej produkcji oraz mieszkańców i użytkowników miasta poprzez wspieranie rozwoju zrównoważonej konsumpcji.

Słowa kluczowe: zrównoważony rozwój, odpowiedzialna produkcja i konsumpcja, 12. Cel Zrównoważonego Rozwoju ONZ, zrównoważone miasta, dobre praktyki

Introduction

Cities occupy 3% of the Earth's surface and accommodate over 50% of the global population. At the same time, they consume 60-80% of energy and generate 75% of carbon emissions. By 2030, almost 60% of the world's population will have concentrated in urban areas, and 95% of extra urban space in the coming decades will be created in developing countries (UNGC 2016, 6-7). As large population hubs, cities are also where development challenges and barriers arise more than anywhere else. Therefore, they should strive for embracing the concept of sustainable development, i.e., a development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987, 43). This new paradigm is currently pursued in the Agenda 2030 global action plan, and out of the 17 Sustainable Development Goals (SDGs) that the plan identifies, goal no. 11 (Sustainable Cities and Communities) pertains to urban areas directly. Now, since SDGs embrace all the most burning global problems across five dimensions (people, planet, prosperity, peace, partnership), there are non-linear links among them, and virtually every SDG has some "urban" elements. Therefore, cities facing global threats, such as climate change, loss of biodiversity, over-production of waste, poor air quality, or freshwater shortage should also take account of other SDGs.

One of the SDGs whose urban relevance has grown in recent years is SDG 12 concerning responsible production and consumption. On the one hand, because we have become consumer societies ruled by materialism and disposable items, which leads to over-exploitation of resources and

over-production of waste. For example, 8.3 billion tonnes of plastics have been produced since the 1950s and 79% of them have become waste because 95% of plastic packaging is used only once and only 5% of plastics is re-used (Ellen MacArthur Foundation 2017, 12, 18-19). On the other hand, because non-financial ratings of enterprises (e.g., WIG-ESG of the Warsaw Stock Exchange Company) are based on the increasingly popular ESG concept (Environmental, Social, and Governance) and CSR concept (Corporate Social Responsibility) (Feng et al. 2022; Velte 2022), businesses are expected to assume responsibility for the external costs of their activities and build relationships with stakeholders (Freeman 1984), including the natural environment as a silent stakeholder (Driscoll and Starik 2004). According to KPMG Survey 2020, 96% of the world's 250 largest companies by revenue and 80% of the top 100 companies by revenue in each of the 52 analysed countries now report on sustainability (KPMG 2020, 10). Therefore, cities can not only be consumers, users, or even generators of resources that are utilised in a sustainable and responsible manner, but they can also create a favourable legal and organisational setting to encourage their stakeholders (Beck and Storopoli 2021), i.e., residents and entrepreneurs, to follow a similar path.

The purpose of this article is to present the actions that cities can take to achieve SDG 12. The study is based on a critical analysis of the literature on the subject, as well as on web research and case studies. The article draws on the author's expert experience as the subject-matter supervisor of SDG 12 in the programme Action Plan for Cities. Model Locality (PDM) (<https://pdm.irmir>).

pl/), implemented at the Institute of Urban and Regional Development.¹

1. Responsible production and consumption and the role of cities

Responsible production can be defined from the viewpoint of corporate social responsibility understood as the responsibility of organisations for the impacts of their decisions on society (Communication 2011/0681, 7) and the environment. This, in turn, requires transparent and ethical behaviour that respects the expectations of stakeholders, is in compliance with the law and international norms of behaviour and is integrated within and practised in the relationships of the organisation (PN-ISO26000 2012, 7). From this perspective, the overarching goal of CSR/ESG is for an organisation to maximise its contribution to sustainable development (PN-ISO26000 2012, 21). On the other hand, responsible consumption should be understood as sustainability in the context of consumption (Dąbrowska et al. 2015, 93). In other words, it is about “the use of goods and services that respond to basic needs and bring a better quality of life, while minimising the use of natural resources, toxic materials and emissions of waste and pollutants over the lifecycle, so as not to jeopardise the needs of future generations” (Oslo Roundtable on Sustainable Production and Consumption 1995). Sustainable consumption and production seek to “doing more and better with less” (UN 2022). The two concepts converge in the concept of circular economy (CE). It is an economy in which the value of products, materials and resources is maintained

for as long as possible, and the generation of waste is kept to a minimum (Communication 2015/0614, 2). In its widely known butterfly diagram, the Ellen MacArthur Foundation (2015, 5-8) highlights the need to distinguish between technical (non-renewables) and biological (renewables) cycles by allowing for product’s lifespan, reuse, repair, and recycling in its design. Therefore, given the perspective of sustainable development, the CE can be considered an economy relying on production and consumption systems that maximise services created in the linear flow of resources and raw materials between the environment and society (Korhonen, Honkasalo and Seppälä 2018, 39, 41). The CE is not a novelty but rather an umbrella concept that embraces many prior and well-established concepts, just to mention from cradle to cradle, life cycle analysis, eco-efficiency, industrial symbiosis, cleaner production, 9Rs, green economy, blue economy, regenerative economy, carbon footprint, or sharing economy (Korhonen, Honkasalo and Seppälä 2018). As follows from the definition of the Ellen MacArthur Foundation, the new model of CE is based on user (in technical cycles) and consumer (in biological cycles) and is viewed primarily in terms of innovative business models (Ferasso et al. 2020).

Consequently, in their attempts to attain SDG 12, cities (the city authorities and municipal entities) should implement the CE concept within the realm of their own tasks and powers when striving for sustainability in urban metabolism. Additionally, they should create favourable legal and organisational conditions furthering responsible production, including by promoting new business models and sustainable business practices. They should also advocate the development of sustainable consumption and sustainable lifestyle by facilitating how residents and city users experience the urban environment. Table 1 collects examples of best practice for urban managers from foreign and Polish cities with regard to implementation of SDG 12 in each of the named areas. The best practices presented here

¹ Action Plan for Cities. Model Locality is a companion initiative to the 11th session of the World Urban Forum, an international conference organized by UN-Habitat from June 26-30, 2022 in Katowice, Poland. The idea behind the program is to popularize and implement trends in contemporary urban planning thought from a local perspective. The Action Plan for Cities, developed jointly with cities, is also an implementation instrument provided for in the emerging new National Urban Policy 2030 in Poland.

relate to cities of different sizes, with different administrative functions, with varying prior experience in implementing sustainable development.

2. Case study: cities participating in the PDM project

Polish cities which spearhead model sustainability initiatives were selected for the PDM programme accompanying the 11th World Urban Forum in Katowice, Poland, following three selection paths. In the case of SDG 12, Warsaw and Rybnik were selected in an open submission procedure; Kraków was selected by experts.² Some of the cities' initiatives related to SDG 12, falling within the three target areas shown in the table, are discussed below. The following case studies based on the analysis of documents prepared as part of the PDM project, analysis of documents and city websites as well as web research.

2.1. Implementation of the CE idea in the domain of city's tasks and competences

Warsaw's initiatives related to SDG 12 are aligned with the adopted #Warszawa2030 Strategy. It promotes the vision of future Warsaw including three different dimensions: Active Residents; Friendly Space; Open Metropolis. The strategy, in turn, pursues four strategic objectives: Responsible Community; Convenient Locality; Functional Space; Creative Environment; the challenges of responsible production and consumption are included in several operational objectives of the strategy and in their relevant implementation schemes (City of Warsaw 2018), for example, in the Environmental Protection Scheme for the Capital City of Warsaw 2021-2024, one of its priority areas being Waste Reduction: Urban Closed-loop Metabolism (IRMiR 2022d). Under the Circular Cities Programme of the Innovo and Metabolic Institute, Kraków has become one of the three Polish cities

to develop a circular economy strategy. It addresses four areas: a city with a circular urban metabolism; a connected city with an economy of creativity and innovation; a sustainable, diverse and inclusive built environment that fosters resilient communities; a city with a healthy ecosystem for all species. Within these areas, 24 "actions to kickstart" were identified (City of Kraków 2021). Similarly, the development strategy of Rybnik sets action priorities aligned with two strategic goals (Sustainable City; Leading City) related to the implementation of SDG 12, namely higher residents' environmental awareness; support for the circular economy in the urban economy; promotion of pro-environmental attitudes in residents; promotion of the circular economy (Urząd miasta Rybnika 2021).

As a member of the C40 Cities network of almost 100 largest global metropolises involved in combating climate change, Warsaw is implementing the Green Vision of Warsaw project, which is expected to help the city achieve climate neutrality no later than in 2050 (IRMiR 2022d). Working towards climate neutrality, as the only city in Central and Eastern Europe Kraków has joined the EU project, Climate-neutral Cities by 2030 (IRMiR 2022a). The city has chosen the climate transformation path under EIT Climate-KIC's Deep Demonstrations Healthy & Clean Cities (Cire.pl. 2021).

Warsaw is Poland's first city to draw up a municipal food policy (the document was subject to public consultation in June 2022), thus fulfilling its obligation as the signatory of the Milan Urban Food Policy Pact (Oficjalny Portal Miasta Warszawa 2020). Rybnik has joined the project, StratKIT – Innovative Strategies for Public Catering (Interreg BSR), aimed at implementing the idea of sustainability in public procurement of food supply and catering services. One of the project outcomes was the adoption of the Principles of Sustainable Public Meals, i.e., eight sustainability rules to be followed by institutions and enterprises operating in the public procurement and catering services

² The analysis omits to include cities selected on the basis of participation in one of the two urban educational networks (IRMiR 2022c).

Table 1. Examples of best practices for urban managers in cities related to the implementation of SDG 12

Target Area	Examples of Actions For SDG 12
Implementation of the CE idea in the domain of city's tasks and competencies (city authorities or municipal entities)	<ul style="list-style-type: none"> • developing a sustainable development strategy (e.g., Tampere, Finland) (Tampere City Board 2020) or a CE strategy (e.g., Gdańsk, Poland) (Miasto Gdańsk 2021) • implementing a holistic programme of counteracting food waste (Milan; the city was awarded the Earthshot Prize for its work) (Borejza 2021) • transition to renewable energy sources (e.g., installing micro-renewable installations on the roofs of public buildings) • upgrading community facilities to increase energy efficiency; certification for sustainable construction (e.g., BREEM-certified Marshal's Hall in Kraków, Poland (Gramzielone.pl 2015); high school in Piastów, Poland) (INFOR 2021) • including energy efficiency in regulations for new investment schemes in community facilities • creating local closed water systems by rainwater harvesting, e.g., for watering of public green spaces (e.g., a rainwater harvesting device for the Municipal Office in Wrocław, Poland) (Dubec 2022) or washing buses (e.g., Guelph from Canada) (ICLEI Circulars, Circle economy, Metabolic, and Ellen MacArthur Foundation 2021, 11) • product as a service for lighting community facilities (Bollnäs, Sweden) (OECD 2020) • virtualisation through the development of public e-services • reducing waste production through their re-use and recovery of raw materials (e.g., joining the Zero Waste Europe programme (Zero Waste Europe 2022), such as zero-waste Capannori, Italy) (Szekalska 2015) • implementing the zero waste concept in public institutions and schools (e.g., schools in Palo Alto, California (Palo Alto Unified School District 2022); the Zero Waste Programme in Łódź, Poland) (Fundacja Veolia 2021) • collecting organic waste from households and catering facilities for use in composting plants located in municipal gardens supplying fresh vegetables and fruit to residents or for energy generation (e.g., municipal composting facilities processing green waste from parks in Warsaw, Poland) (Oficjalny Portal Miasta Warszawa 2018) • transforming vacant office buildings into flats (e.g., Great Britain as a pioneer) (Jones 2018) • developing clean, zero-emission mobility systems (e.g., hybrid-electric and electric buses or EV vehicle rental, e.g., Milan, Italy) (The Circular City Funding Guide 2022d) • designing incentives to use public transport (e.g., free public transport in Giżycko, Poland) (Dziennik Elbląski 2020) • developing cycling infrastructure, also to be used by cargo bicycles (e.g., Cargonomia in Budapest, Hungary) (Cargonomia.hu 2022) • carpooling for employees of community facilities within municipality limits • participatory budget covering CE projects (e.g., Green Budget in Mikołów, Poland) (Oficjalny Portal Gminy Mikołów 2022)
Creating conditions furthering the development of responsible production, including by promoting new business models (for entrepreneurs)	<ul style="list-style-type: none"> • public procurement sensitive to the CE criteria (e.g., circularity criteria in Rotterdam, the Netherlands (OECD 2020); sustainability in Nantes, France (European Commission 2017); promotion of plastics recycling in Helsinki, Finland (OECD 2020); supporting positive-impact start-ups in Antwerp, Belgium) (OECD 2020) • implementing CE projects in public-private partnerships (e.g., Radzionków, Silesia Province, Poland) (MFIPR 2022) • tax reliefs (Milan, Italy), grants (Valladolid, Spain) (The Circular City Funding Guide 2022b) or funds (e.g., BruCircle in Brussels, Belgium) (The Circular City Funding Guide 2022a) for entrepreneurs working within the CE • setting up entrepreneurial incubators supporting positive-impact start-ups (e.g., Circular Economy Hub in Groningen, the Netherlands (OECD 2022); Paris, France) (Paris&Co 2022) • consultancy and training for entrepreneurs who seek to make their business models more circular (e.g., Resilience Coaching in Brussels, Belgium) (The Circular City Funding Guide 2022a) • introducing the "pay-as-you-throw" policy in industry and enterprises (e.g., San Jose, USA (EPA 1997); Treviso, Italy) (The Circular City Funding Guide 2022c)

Target Area	Examples of Actions For SDG 12
	<ul style="list-style-type: none"> • creating industrial parks or technology clusters promoting industrial symbiosis (e.g., industrial eco-parks in Kalundborg, Denmark (Kalundborg Symbiosis 2022), in Kitakyushu, Japan (City of Kitakyushu 2018), or in Rizhao, China) (ICLEI and Circulars 2021b) • promoting entrepreneurs who reduce the use of plastics in their supply chain (e.g., the Plastic Free initiative in Milan, Italy) (The Circular City Funding Guide 2022d) • giving a second life to waste through the cooperation of local governments with companies and organisations (e.g., Cais Recicla in Lisbon, Portugal (Goodwin Brown 2020); upcycling by Dekoeko.com)
Supporting the development of sustainable consumption (for residents and city users)	<ul style="list-style-type: none"> • extending product lifecycle by supporting repair facilities (e.g., by providing premises and financial and technical support for repair points, such as, e.g., Repair Café in Piła, Poland, or making maps of active craftsmen, such as the Map of Dying Professions in Łódź, Poland) (Fundacja Kolorowo 2022) • developing the sharing economy, e.g., city bike systems (e.g., Veturilo in Warsaw, Poland) • promoting the idea of zero waste by setting up re-use points (e.g., the sharing point (Podzielnia) in Poznań or bookcrossing in Warsaw, Poland; closing the textile value chain in London, UK) (OECD 2020), dedicated online platforms (Austin in the USA) (OECD 2020), or facilities offering only recycled products (e.g., ReTuna in Sweden) (The Circular City Funding Guide 2022e) • counteracting food waste by supporting the development of food sharing facilities, e.g., by offering premises (e.g., the food sharing point (Jadłodzielnia) at the Żoliborz District Office, Warsaw, Poland) • promoting a healthy and varied diet low on animal products in mass catering facilities, based on local and seasonal products (e.g., products from sustainable, responsible farms in school canteens in Paris, France) (OECD 2020) • supporting the local culture of food production (urban gardening) by encouraging the setting up urban gardens (e.g., Rosario in Argentina) (ICLEI and Circulars 2021a) • departure from plastics by removing plastic disposable packaging at community events and introducing a reusable municipal cup (e.g., a deposit system for using ReCup reusable cups/bowls in Germany) (Recup.de 2022) • raising social awareness in sustainable consumption through public initiatives and campaigns (e.g., the Kranowianka campaign by the Kraków water and sewage company, Poland) (Wodociągi Miasta Krakowa 2022)

Source: own study (web research) for (Wygnańska et al. 2022, 175-179).

sector, supporting sustainable development including SDG 12 (StratKIT 2022). Under the project, Rybnik also audited meals served in educational institutions and at the Municipal Social Welfare Facility with a view to shifting towards more balanced diets. Besides, a series of nutrition training sessions was conducted for personnel responsible for preparing meals, and food waste was reduced by a few percentage points (IRMiR 2022b).

Warsaw is working of the so-called Green Building Standard. It is a set of guidelines and recommendations for new and retrofitted community facilities that are envisaged to help the city achieve its climate goals in the construction sector. First, the standard will apply to buildings managed by the city, but prospectively, the guidelines will also be

promoted among private investors. Finally, the Mayor of Warsaw issued an ordinance prohibiting the use of disposable, plastic items during events organised by the city (both by the municipal office and its organisational units) (IRMiR 2022d).

The Municipal Cleansing Service (MPO) in Kraków is distributing “compost for flowerbeds” produced from green waste processed in the municipal composting plant. In addition, the MPO’s own carpentry shop makes bird boxes and feeders of good-quality wood sourced from collected bulky waste. The boxes and feeders are handed out to the residents; in addition, part of the collected wood is ground and transferred to furniture companies to become furniture panels and chipboards. On the other hand, the MPO uses process water recovered in the

sewage treatment plant for street washing in Kraków (IRMiR 2022a). The city also uses coffee grounds to neutralise icing on pavements. This aim is to reduce the use of salt and enrich municipal parks with natural fertiliser (Zakład Zieleni Miejskiej w Krakowie 2021).

2.2. Creating conditions furthering the development of responsible production

To realise the idea of CE and sharing economy, Warsaw has launched a cross-sectoral project search engine, WawaShare. The search base lists public and private entities that wish to reach a wider audience with information about their initiatives. The engine can be browsed by a catalogue containing the following categories: mobility (e.g., free bicycle repair spots), commodities (e.g., places where you can swap, borrow, or collect tools, clothing, books, small household appliances), circular economy (e.g., candle sharing points (zniczodzielnie) or recycling points). Today, over 100 initiatives can be found on the platform (Oficjalny Portal Miasta Warszawa 2022).

In Rybnik, a municipal reusable, deposit utensil has been introduced for take-away meals. The pilot project was held in a social economy enterprise, Bistro z Ikrą. Next, commercial catering businesses were also invited to enter the scheme. Currently, Rybnik is working on a system of reusable utensils for take-away food in a cross-deposit system. In other words, a consumer will be able to order a take-away meal in a reusable dish at one catering facility and pay the deposit at another restaurant that has joined the scheme (or order another meal there) (IRMiR 2022b).

2.3. Supporting the development of sustainable consumption

Rybnik's reusable utensil perfectly complements the reusable cup introduced earlier at municipal events. The cup for cold and warm drinks is also planned to be included in the cross-deposit system mentioned earlier (IRMiR 2022b).

By taking actions aimed to prevent food waste, Warsaw is developing a network of food sharing facilities (40 are operating already); some of them were established under successive participatory budgets (IRMiR 2022d). Similarly, under Kraków's Fridge Full of Good project, three points have been set up where those in need can collect free foodstuffs (Oficjalny serwis miejski Krakowa 2021). Warsaw has held a pilot project of food collection at three municipal marketplaces. Three tons of goods were collected, mainly fruit and vegetables, and transferred to Warsaw-based organisations supporting persons in need, including those in a homeless crisis. An education campaign was held along with the project among sellers and the local community. For many years, Warsaw has also been running the I Know What I Eat social campaign (Wiem, co jem). It is aimed to instruct children and youth from Warsaw schools and kindergartens to eat healthy. Besides, nutrition programmes are designed for municipal institutions, next to menus for school and kindergarten canteens (IRMiR 2022d).

The Sharing Community Club (Współdzielnik) has been launched in Warsaw. It operates under the supervision of the District Culture Centre. The aim of the initiative is to share knowledge about sustainable consumption and how to reduce the volume of items thrown away. The club operates a "free shop" where residents can leave things that they no longer need and pick something for themselves for free. The facility also accommodates a food sharing point and a small repair shop where residents can use the tools on their own (IRMiR 2022d). To promote the idea of sharing economy, Kraków has been implementing a long-term programme of collection and management of garments. The 100% Benefits initiative (100% Korzyści) is carried out by the MPO in cooperation with the Polish Red Cross. Used and donated clothes are given out to people in need (Oficjalny serwis miejski Krakowa 2016). In addition, at the Lamusownia Municipal Waste Separate Collection Point operates the

Kraków Exchange Shop where residents can swap used books (Miejskie Przedsiębiorstwo Oczyszczania w Krakowie 2022). The same locality is home to the Kraków Furniture Shop (Krakowska Meblarnia) where the residents of Kraków can deliver old furniture for repair and re-use by new owners (Miejskie Przedsiębiorstwo Oczyszczania w Krakowie 2021). In addition, under Kraków' participatory budget, three recycling machines were installed where residents can dispose of used plastic bottles and beverage cans (Banasik 2020). Finally, Warsaw has launched a Quality Segregation search engine (Segreguj na 5) which instructs Warsawers (and not only) how to segregate waste properly (Urząd Miasta Stołecznego Warszawy 2022).

Conclusion

Cities should play a key role in implementing the idea of sustainable development as their inhabitants account for the majority of the world's population. Of all the 17 SDGs, only one refers directly to cities: no. 11 Sustainable Cities and Communities. However, SDGs are multidimensional; therefore, cities that want to ensure a high quality of life to their present and future residents must approach urban development holistically and pay attention to more aspects of their functioning than ever.

One of the most central topics of recent years is that conveyed in SDG 12 Responsible Production and Consumption. This is due to the fact that effort should be made to limit production and consumption in the face of the deepening environmental crisis. The concept of circular economy is hoped to meet these expectations. On the one hand, it is aimed at maintaining the value of resources as long as possible, and on the other, reducing the generation of waste.

Cities that wish to pursue the CE idea should take action primarily within the realm of their own tasks and powers, i.e., within the remit of the municipal office and its organisational units. However, they can encourage their stakeholders to join the CE journey. They can stimulate entrepreneurs

by creating favourable conditions for the development of responsible production, including new and sustainable business models, as well as encouraging local residents and city users by promoting sustainable consumption.

The review of examples of best practice of Polish and foreign cities, as well as the analysis of cities participating in the PDM, demonstrates that cities undertake very diverse and comprehensive initiatives to attain SDG 12: both at the strategic (documents, laws, standards) to the operational level (at the level of specific initiatives), and both by undertaking measures intended to reduce consumption and extend product lifecycles and minimising waste.

Starting from the presentation of a broad catalogue of actions that cities can take to achieve SDG 12, the author showed how the selected three cities deal with this challenge comprehensively. Certainly, focusing only on three cities, which are the leaders in sustainable development in Poland, is a limitation of this study, so in-depth and broad analyses of urban policies from the CE point of view should be continued.

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