URBACT

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Interreg

INTEGRATED ACTION PLAN

Name of city: City of Munich

December 2025

Munich is a growing, dynamic, and economically strong metropolis. Precisely for this reason, we bear a particular responsibility: our current economic model – characterized by "take, make, dispose" – is reaching its planetary and economic limits. Global crises, geopolitical tensions, and disrupted supply chains have made it clear that we must realign our approach. The safeguarding of resources and the strengthening of local value chains are no longer merely ecological concerns, but decisive location factors for Munich's future. At the same time, it is evident that only through a consistent circular economy will we be able to achieve our ambitious climate targets and attain climate neutrality by 2035.

The Integrated Action Plan (IAP) represents our response to these challenges. It sets out a vision of a city that protects its resources, secures its economic strength, and upholds social justice for its citizens. In this city, waste is regarded as a valuable resource. Buildings function as urban material depots, where renovation takes precedence over demolition. Enterprises develop innovative business models based on durability, reuse, and collaboration. And all residents benefit from a high quality of life within a resilient and future-proof urban society.

With the IAP, we now possess a concrete and actionable roadmap. The strategy is grounded in a detailed analysis of our key material flows and identifies the most significant levers – from the construction sector and bioeconomy to products, trade, and sustainable procurement. It is the outcome of an extensive dialogue involving more than 100 experts from public administration, business, academia, and civil society. Moreover, it is measurable: 85 actions – 15 of which are prioritized – demonstrate how Munich's material footprint can be reduced by 30 percent by 2035.

At the same time, it is clear that implementing this strategy is a collective responsibility:

- The city administration must lead by example, particularly through consistent sustainable and circular procurement practices.
- Munich's business community has the opportunity to safeguard its competitiveness, foster innovation, and reduce its dependence on global supply chains.
- The City Council, through its resolutions, has already laid the foundation for this transformation. With the IAP and the Circular Economy Strategy, we are continuing this course and embedding the circular economy as a permanent element of urban development.
- Finally, I would like to invite all citizens to play an active role through conscious consumption, repair, and reuse.

My sincere gratitude goes to all those who contributed to the development of this strategy – in particular to the more than 100 experts and to the Circular Economy Coordination Office (CEKS) within the Department for Climate and Environmental Protection, which has driven this process forward with great commitment and dedication.

Christine Kugler

Head of Climate and Environmental Protection Department

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PART I: City context and definition of the policy challenge

1. Local context and policy challenge

1.1 Local context

Key generic data

In 2021, Munich population numbered more than 1.5 million. The demographic with the highest representation was adults from 18 to 44 years of age, accounting for 41.9% (654,301 people), followed by the 45 to 64-year-old age bracket making up 25.5%. Simultaneously, people under 18 years and over 65 years amounted to nearly a third of the population, at 32.6%. As of January 1st, 2018, the city spans 310.7 square kilometers, incorporating buildings and open spaces (44%), recreation spaces (16%), roads and transportation areas (17%), farms (15%), and wooded areas (4%).

As outlined in the 2022 Munich City Sustainability Report, numerous impactful sustainability practices are already in place. Yet, an explicit circular public procurement program or policy is not yet in place, but a respective measure is in the early stages of development. Nevertheless, some public procurement protocols aim to boost overall sustainability, indirectly promoting the city's circularity following the principles of the 10-R Framework. Munich is part of various initiatives including CCRI, and is involved in projects and initiatives, apart from the Let’s Co Circular Paving the way for circular cities URBACT network, such as DEFINITE-CCRI, CircularInvest, Green Assist etc., CCD, 100 CNSC Mission, EIT Raw Materials, the Eurocities Working group on Waste Management, Hubs4Circularity and others.

The local challenge, existing strategies and local development plans

The city is one of Europe’s wealthiest cities and has the highest per-capita average income of all cities in Germany. Hence, the material footprint with an estimate of 31t per capita, according to a material flow analysis (MFA) conducted by the city in cooperation with Circle Economy and Deloitte, is rather large. The MFA indicated that the sectors construction, bioeconomy as well as products and retail are of special significance to the city. Especially the building and construction sector has a major material footprint with nearly 60% of the total footprint (Figure 1).

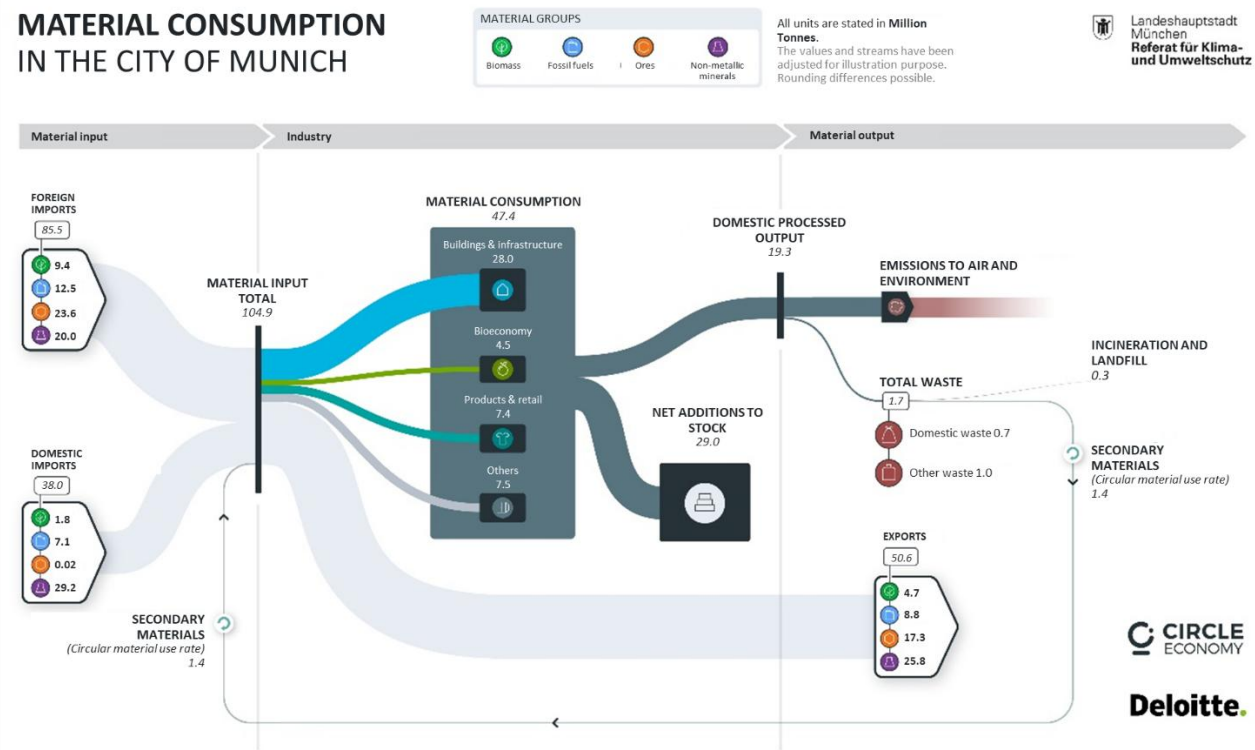


Figure 1 Material flow of Munich

A behavioural shift on the consumer side with this comparably large material footprint is therefore more challenging than in other major cities of Europe. The city is also a vibrant business hub with multiple large companies and some industrial production, however, most productive capacity of Munich's major businesses lies outside the city boundaries or even outside of Germany. Therefore, improving the circularity of productive industries is difficult, even for major companies headquartered in Munich. Lastly, there is an immense pressure of public land and space, with land and housing prices in Munich being extremely high and second only to Paris in all of Europe. The housing market is extremely tense and there is a large need to increase (affordable) housing stock, while construction also is responsible for the largest material footprint across all value major resource streams.

At national level and in the area of circular economy, the fundamental legislation in Germany is the Kreislaufwirtschaftsgesetz (Circular Economy Law) from 2012 (a revision of the original Circular Economy and Waste Management Law from 1996). It translates the 2008 EU-Waste Management Directive into German law and sets the basis for the German dual responsibility system: producers and private companies are responsible for the management of their end-of-pipe products and resources, while cities are responsible for the management of household resources and waste. A Circular Economy Strategy for Germany has recently been published in December 2024 from the Ministry for Environment, Nature Protection, Nuclear Safety and Consumer Protection.

On the state level in Bavaria, the development of a regional circular economy strategy has been announced by Bavarian Environmental Minister Thorsten Glauber. Currently, the main framework there is the Bavarian Resource Strategy with its 7-Items Plan.

At local level, there are four separate action plans of the City of Munich identified that are relevant to enhance circularity:

1) The Action Plan Climate Neutral Munich (Grundsatzbeschluss II)
2) The Zero Waste Concept (handled by the Zero Waste Coordination Unit)
3) BNE Vision 2030 (Action Concept on Education for Sustainable Development)
4) The URGE Integrated Action Plan from the previous URBACT Network

With respect to the URBACT Integrated Action Plan, the Circular Economy Strategy developed by the special unity, the Circular Economy Coordination Unit (CEKS), supported by the responsible department head at the Department for Climate- and Environmental Protection, serves as foundation. Within this larger strategy process, undertaken by the CEKS with the support of a consulting consortium from Deloitte and Circle Economy, a wider and deeper range of stakeholders, analytical exercises and the in-depth development of a circular economy strategy and action plan is being covered. This Circular Economy Strategy process of CEKS draws conclusions for the Integrated Action Plan and, in turn, the IAP becomes an adaption of the content of the strategy process. At the same time, the URBACT LET'S GO CIRCULAR! Network, its meetings and methodology, serve as input and guideline to define Munich's broader Circular Economy Strategy.

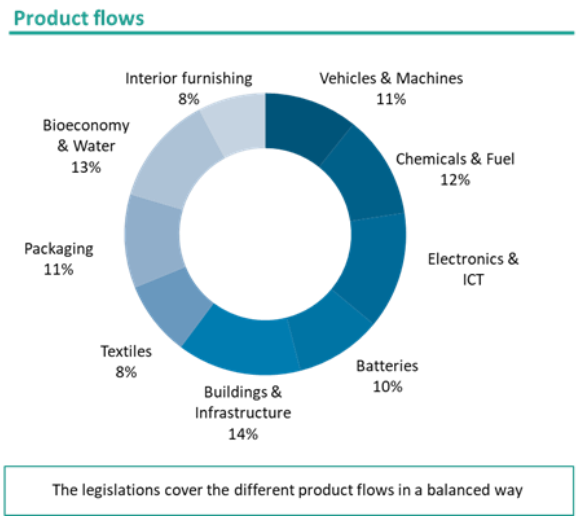
1.2 The policy challenge

The policy landscape consists of a broad number of existing regulations, directives, and strategies resulting in a challenging environment. The following section dives deeper into the existing policies to layout this challenge.

In order to steer the strategic efforts in the best possible way, an analysis of the policy landscape / framework was initiated. The aim of the analysis was to gain an insight into the upcoming, existing and pending policy framework conditions/aspirations and thus to derive relevant priorities for the city of Munich. The analysis was methodologically divided into three dimensions: EU level, national level and regional level.

In absolute terms, more than 90 strategies, action plans, funding programs, guidelines or laws were considered and evaluated. In particular, it was made sure that the current state of discussion was also taken into account and that possible future effects could be considered. In addition to the classification of the entry into force, a technical assessment was carried out along the target vision of the Circular Economy Coordination Unit (CEKS).

A summary can be found in Figure 2.



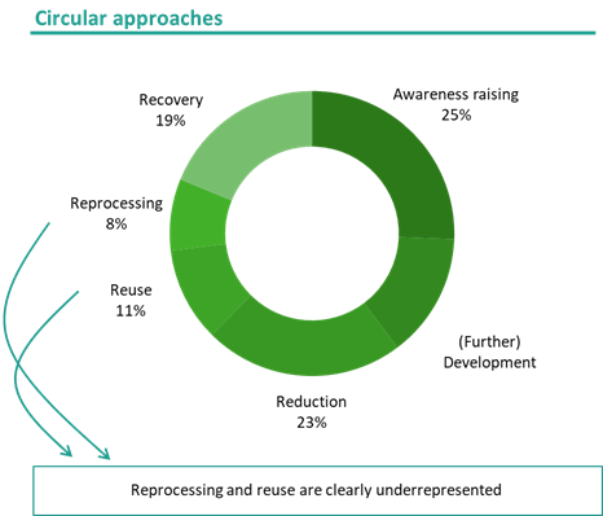


Figure 2

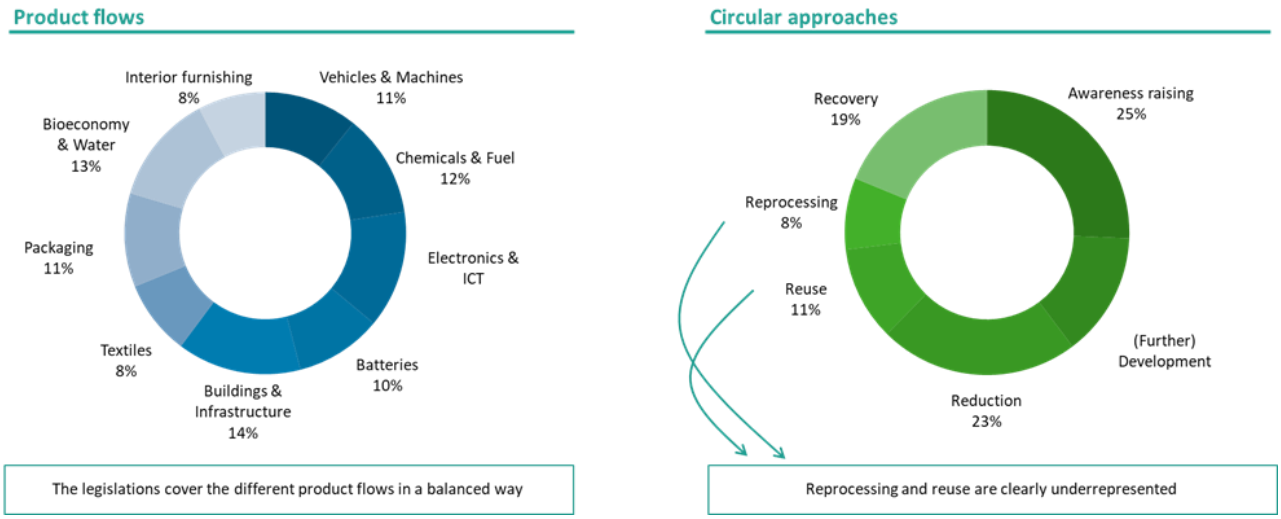


Figure 2 Overview of the policy framework for product flows and circular approaches

The following framework conditions are highly relevant and reflect an excerpt (Table 1):

EU level	
Already in force: • Circular Economy Action Plan II • European Green Deal • Waste framework directive • Regulation for batteries and waste batteries • Corporate Sustainability Reporting Policy (CSRD) • Ecodesign Regulation for sustainable products • Corporate Due Diligence Directive (CSDDD) • Right to repair • Revision of the Construction Products Regulation	**Planned:** • Regulation on Circular Economy Requirements for Vehicle Design and Management of End-of-Life Vehicles
National level	
Already in force: • Amendment to the Circular Economy Act • Federal Soil Protection and Contaminated Sites Ordinance • Packaging Act • Amendment of the Commercial Waste Ordinance • Amendment of the Biowaste Ordinance • National Circular Economy Strategy • Further development of the German sustainability strategy • Amendment to the Climate Protection Act	**Planned:** • Revision of the Federal Procurement Act • Right to repair

Regional level:	
Already in force: • ESD Vision 2030 & ESD Vision 2030 II • Circular Munich - a new circular economy for a sustainable Munich • Fundamental Decision II: Implementation of Munich Climate Targets • Fundamental Decision II: Climate-Neutral Munich 2023 and Climate-Neutral City Administration 2030 • E-waste strategy for Munich	**Planned:** • Bavarian Circular Economy Strategy

Table 1 Policy landscape

With the help of this analysis, a comprehensive picture of the policy framework could be created. In essence, it became clear that the circular economy model and its benefits and necessities are becoming more and more present. It was also noted that the focus of the framework conditions is strongly on the topics of awareness raising and reduction. A consideration of the recycling strategies for reuse or reprocessing is less pronounced. If the circular economy is to be established as an economic model without alternative in the city of Munich, policies should also be integrated – especially in the target groups of reuse and reprocessing. Although there are basic framework conditions in the field of construction and in the "Fundamental Decision II: Climate-Neutral Munich" which provide an impetus, these two target areas remain underrepresented in the overall picture.

A summary of the first two levels (EU, national) clearly shows that the foundations have been laid with the update of the circular economy strategy (EU, national and regional) – the focus is on driving industries such as construction, chemicals and plastics, ICT and vehicle construction. The analysis also showed that these national priorities are also being updated at the regional level in Bavaria.

Concerning the current situation and implementation of a circular economy, there is a vast range of additional challenges:

- *Data and analytical knowledge on the state of circularity and how to measure it for a city:* The previous lack of data which prevents to derive the status-quo and to have a monitoring foundation, emphasizes the need for circularity data. As part of the strategy process, we carry out MFA (Material Flow Analysis) analyses with deep dives for the most important material flows. These are merely first steps to really understanding and monitoring resource streams adequately.
- *Distributed responsibilities and political complexity*: The key actors of the municipality needed for circular economy activities are spread out in terms of responsibilities across different departments, often with different political affiliations in leadership. Also, there are overlapping structures in different departments. Including all relevant actors is difficult, as there is no single leadership figure that can act as umbrella for all stakeholder engagement across the city government. The different responsibilities and departments need to be integrated in the process of aligning actions to avoid overlaps, but create synergies.
- *Including business:* Including businesses is another challenge. Many businesses either have a proactive interest in circular economy, have a clear business case to get involved

or are at least subject to increased regulation (e.g. ESRS). Creating the right mechanisms for all of them to engage, providing them with services and not overstepping competencies towards other city department is a major challenge. To include businesses in the implementation of a circular economy, there is a need to target them through actions that raise awareness and create incentives specifically for businesses.

- *Including citizens and supporting civil society*. Raising awareness with demographics reluctant to engage on “green” topics remains an issue, while empowering already active and engaged civil society actors is also an issue at the other end of the spectrum. Munich needs to include and involve citizens and NGOs depending on their very diverse and specific needs, which demands a wide range of engagement offers, tools, narratives and concrete support.

2. Vision and Mission

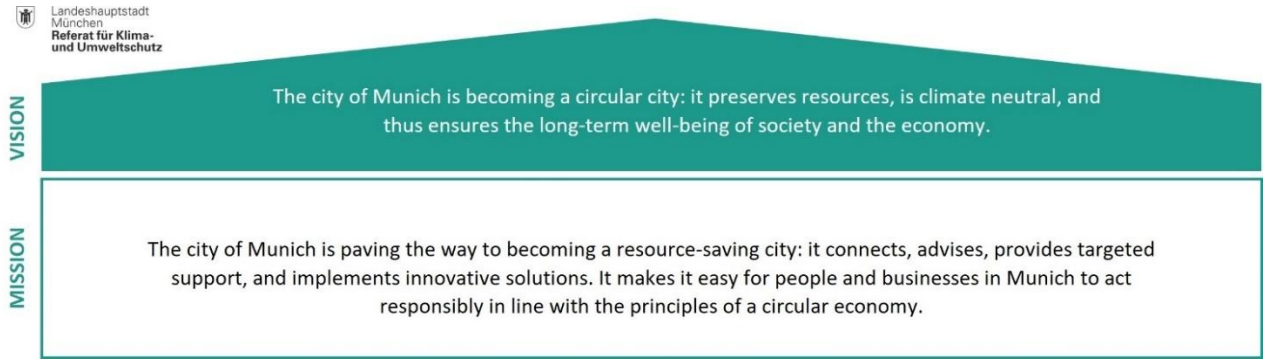


Figure 3 Vision and mission of Munich

Within the target image of the Munich Circular Economy Strategy, the city pursues a clear vision with an overarching vision and mission. The vision reflects a vision of the future for the city, whereas the mission describes in more detail "how" the vision is to be achieved.

The vision of the City of Munich (Landeshauptstadt München, LHM) is to become a climate-neutral, resource-saving circular city that ensures quality assurance for Munich's society and economy. To achieve this, LHM pursues the mission of networking, advising, implementing solutions and making circular action easy for people and companies (Figure 3).

The Integrated Action Plan and Munich's vision is particularly focused on three major value chains, which are: buildings and infrastructure, bioeconomy, and products and retail. These major value chains have been identified through a strategy process undertaken by the Circular Economy Coordination Unit under consultation of ULG members as described in the next chapter.

3. Short reference to the methodological framework

To develop the IAP and achieve its objectives, an iterative process was defined. In selecting the methodology, particular attention was paid to ensuring that relevant key stakeholders were actively involved from the outset and that the analytical approach remained qualitative.

1) Stakeholder-Mapping and Integration

Analysis of relevant player and groups of interest along the sectors under consideration and the types of integration according to the URBACT guidelines, in order to integrate respected stakeholder into the ULG and into the process of identifying actions. By integrating a broad

spectrum of stakeholder into the process, the city of Munich targets the in section 1.2 named challenge of distributed responsibilities, including business, and including citizens (Figure 4).

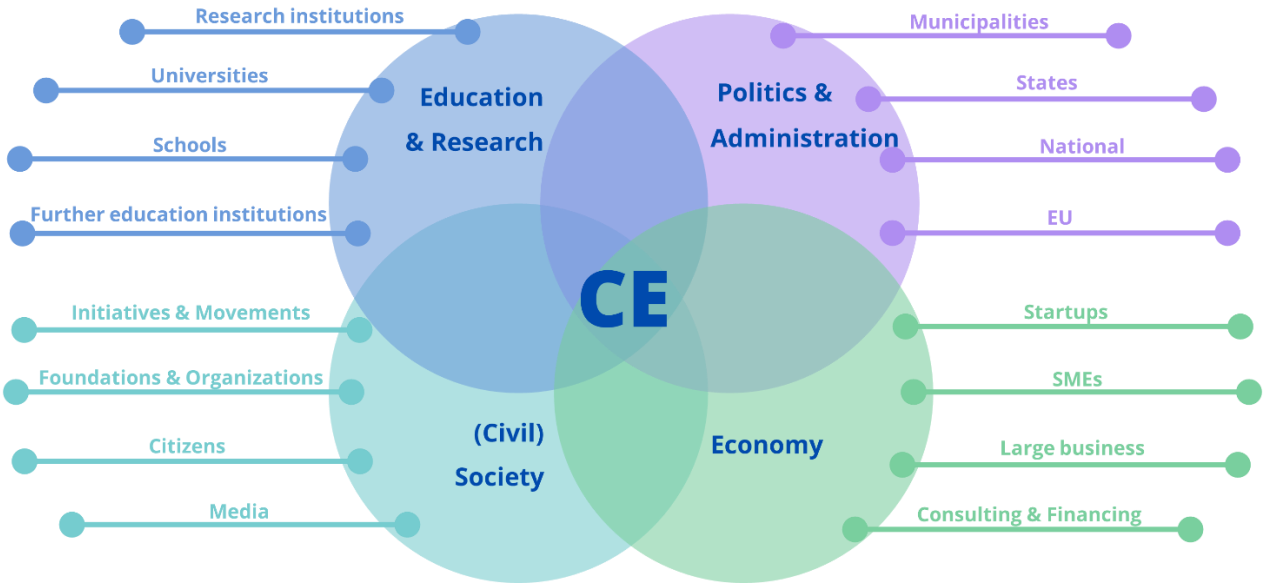


Figure 4 Overview of integrated stakeholder

2) Analysis of the Status Quo

The aim of the first work phase was to define the baseline and the main focus areas for the MCES. To this end, the political framework conditions and the current state of circularity within the City of Munich (LHM) were assessed, and a material flow analysis was conducted to quantify the current resource use within the city area.

3) Development of Measures

The objective of this project phase was to develop concrete and actionable measures to promote the circular economy within the city administration and the wider urban context. The development of these measures was based on the previously identified focus areas: construction and infrastructure, bioeconomy, and products and trade. In order to address the goal of a climate-neutral city administration more specifically, sustainable procurement was added as an additional focus area.

Ideation and collection of actions within ULG stakeholder workshops for each of the four major value chains under consideration of the target framework's six circular approaches as well as the lines of intervention according to the URBACT LET'S GO CIRCULAR methodology (Figure 5). For this purpose, a participatory process involving more than 100 experts and a Europe-wide best-practice analysis were carried out, resulting in a total of 85 measures, which were subsequently prioritized. From those actions, 26 actions have been adapted for the IAP. The identified 26 actions were mapped with the lines of intervention to ensure the coherent representation of the

intervention themes. The alignment of the actions with the intervention lines is laid out in chapter 5.

1. Governance	2. Awareness raising for circular consumption patterns	3. Development of methodologies and tools	4. Fostering of innovation and entrepreneurship	5. Infrastructure
1.1 Integrated policies	2.1 Awareness/ information campaigns/ events	3.1 Mapping of flows	4.1 Support of companies to adopt CSS	5.1 Means for enabling CE
1.2 Regulations/ recommendations / guidelines	2.2 Trainings	3.2 Measure to know and decide	4.2 Support of symbiotic clusters	5.2 Operationalisationof relevant projects
1.3 Incentives	2.3 Education	3.3 Digital Tools	4.3 Support of R&D activities and programmes	
1.4 Administration		3.4 Waste collection and management schemes		
1.5 Procurements				
1.6 Enforcement model				
1.7 Fostering sectorial integration				

Figure 5 Lines of intervention as described in the baseline study

4) Evaluation of Measure Potential and Final Prioritization

In the final step of measure development, the highest-priority measures were evaluated in terms of their potential impact on the material footprint. The objective was to ensure that these measures contribute significantly to the goals of climate neutrality and the reduction of the material footprint. To conduct this analysis, the measures were grouped into leverage areas according to their spheres of influence and subsequently assessed through scenario modelling (multi-regional input-output analysis, EE-MRIOA).

Finally, 10 actions were selected according to the following criteria:

- ***Timely feasibility***: The actions can be launched promptly under the current legal, organizational, and financial conditions.
- ***Maximum effectiveness***: The actions have visible effects – whether through CO_2 savings, resource conservation, or as a positive signal to the urban community.
- ***Synergies and closing gaps***: The actions build on existing structures and projects, avoid duplication, and specifically close gaps for a holistic circular economy.
- ***Eligibility for funding and co-financing***: The projects can be easily financed through existing structures, external funding, or internal resources.

To select the prioritized actions, an alignment meeting with the different departments of Munich city served as foundation. In this way, the feedback of the departments concerning the longlist of actions was considered for the final prioritization of actions under the mentioned criteria.

5) Monitoring and Evaluation

Further detailing of the prioritized actions, identification of risks, mitigation plan and establishment of monitoring framework.

To define the monitoring framework, SMART strategic and operational objective were defined as a first step. The city has set its strategic objectives along five cross-sectoral indicators: Raw Material Consumption (RMC), Total Raw Material Productivity, Circular Ecosystem, Circular Material Use (CMU), and Total Waste Generation. These five indicators are considered to be particularly relevant for measuring a circular ecosystem and are already being taken up in some cases at the European or national level. In addition, these are strategically tracked and measured by other European cities – which is another reason to choose them in order to track for Munich's strategic objectives. In a workshop within the core-ULG group, the strategic objectives were defined along these five indicators under consideration of the cities status quo (material footprint analysis), the estimated reduction potential for the material footprint (RMC) and while taking national and European reference targets (incl. NKWS, CEAP, etc.) into account.

Concerning the operational objectives, the estimated reduction potential concerning the material footprint per value chain according to the conducted impact evaluation serves as base.

In a next step, the monitoring framework was defined. For this, the strategic objectives are being taken over as monitoring KPIs. In addition to this, outcome indicators that were defined for each action build the monitoring frame on operational level.

The defined monitoring KPIs will be tracked in time intervals to ensure that the implementation of the actions is effective concerning its impact and moreover to evaluate the actions in order to update and adjust the action plan, incl. potential follow-up actions, if required to meet the objectives until 2035.

PART II: Overall logic and integrated approach

The individual elements of the IAP and how they interplay are visualized in the graphic below and further described in the following chapters.

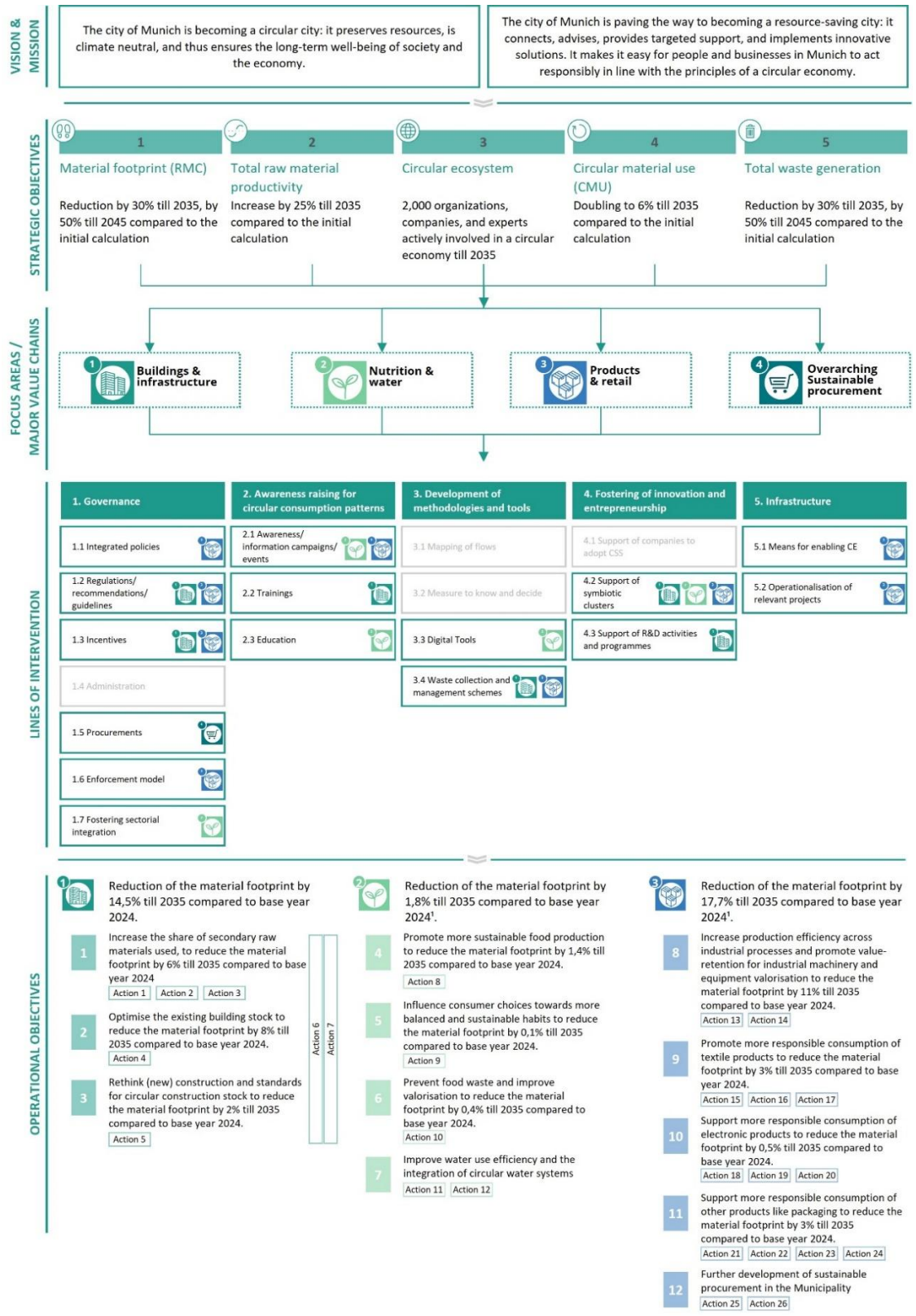


Figure 6 Overall logic and integrated approach mirroring the URBACT and LET'S GO CIRCULAR! methodology and tools

4. Strategic objectives of the IAP

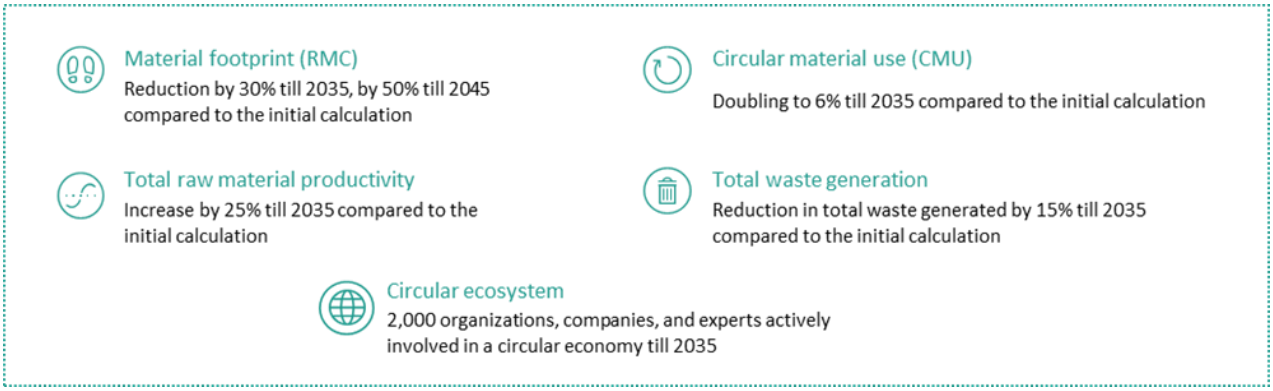


Figure 7 Strategic objectives

To pursue its vision, the city has set key goals along five cross-sectoral indicators: Raw Material Consumption (RMC), Total Raw Material Productivity, Circular Ecosystem, Circular Material Use (CMU), and Total Waste Generation. These five indicators are considered to be particularly relevant for measuring a circular ecosystem and are already being taken up in some cases at the European or national level, as well as being strategically tracked and measured by other European cities – which is why these indicators were chosen as the basis for Munich's objectives (Figure 7).

The Material footprint, broadly referred to as RMC, refers to the total of all materials used in the manufacturing of products and services with the inclusion of raw material equivalents for imports. Based on an evaluation of the impact potential, the city of Munich (LHM) has set itself the interim target of reducing the material footprint by 30% by 2035 compared to the reference year 2024[1]. By 2045, Munich aims for a reduction of 50%, in line with the goal of the German National Circular Economy Strategy (Nationale Kreislaufwirtschaftsstrategie, NKWS), which aims to reduce the footprint to 6-8t/capita by 2045, and thus by ~50% compared to the German status quo. On level of the three major value-chains, based on the conducted impact potential evaluation, the following reduction potentials exist: buildings and infrastructure -14.5%, bioeconomy -1.8% as well as products and retail -17.7%.

The goal of material footprint reduction is considered to be particularly central, as it describes the consumption and (resource-saving) handling of materials in a holistic view of the economic system. This is ultimately an important indicator of the effectiveness of resource use and circulatory systems, which can be used via e.g. recycling practices, but also includes aspects such as material reduction, avoidance, or reuse. In addition, the RMC is widely measured in a standardized way in Europe, so this indicator provides an insightful basis for comparison. Due to the importance of the RMC indicator, the City of Munich has set itself two targets for it, as described above, compared to only one target for the other four indicators.

Total raw material productivity refers to the sum of gross domestic product and imports in relation to the use of primary raw materials. At the German level, the aim is to achieve an annual increase of 1.6% by 2030 in accordance with the German Sustainable Development Strategy. Munich takes

[1] The reference year is the year of calculation of the indicator. The calculation is based on several data sources with varying starting years between 2018-2022. See annex I

up this goal, but adapts it to the LHM target date of 2035, in accordance with the Action Plan Climate Neutral Munich (Grundsatzbeschluss II) "Climate-neutral Munich 2035", so that there is a corresponding increase of 25% by 2035 compared to the reference year 2021[2] .

The circular ecosystem indicator describes the number of institutions, companies and other economic and scientific actors that are actively engaged in the field of circular economy in Munich. This metric represents the degree of commitment and also collaboration driven by the circular economy measures. Taking into account the organisations and experts already active in the circular sector as well as the fundamentally broad economic landscape in Munich, the city has set itself the goal of further increasing this number: 2000 organisations, companies and experts in Munich will be actively involved in a circular economy by 2035.

The Circular Material Use Rate, CMU, sets the proportion of recycled materials in relation to the total material use. This makes it possible to measure so-called urban mining, i.e. how much materials or waste are recovered from the urban environment. The EU's Circular Economy Action Plan sets the goal of doubling the CMU rate to 22.4% by 2030 (compared to 11.8% in 2023). The German National Circular Economy Strategy joins the EU target and thus plans to double to 25.4% by 2030 (compared to 12.7% in 2021). With reference to this, the City of Munich is also pursuing the goal of doubling the CMU rate, but by 2035 (reference year 2024[3]). The reason for the later target date, compared to the European and German targets, is a uniform target year with regard to the Munich goal of "Climate-neutral Munich 2035".

Total Waste generation, measures the total amount of waste generated (from households, municipal facilities, businesses) and provides information on the effectiveness of measures aimed at recycling and avoiding waste. According to the Zero Waste Office, Munich already has the goal of reducing municipal waste by 15% by 2035. According to this, the CEKS considers a reduction in total waste by 15% by 2035 to be realistic, compared to the reference year 2024[4]. This also goes hand in hand with the goal of the NKWS to reduce municipal waste per capita by 10% by 2030 and by 20% by 2045.

[2] The reference year is based on the GDP data source as the basis for calculation. See annex I

[3] The reference year is the year of calculation of the indicator. The calculation is based on several data sources with varying starting years between 2018-2022. See annex I

[4] The reference year is the year of calculation of the indicator. The calculation is based on several data sources with varying starting years between 2018-2022. See annex I

5. Themes and lines of intervention of focus

Figure 8 Major value chains and overarching focus area

The actions pursued with the Integrated Action Plan are focusing on the identified main material flows Buildings and Infrastructure, Bioeconomy (Nutrition and Water), Product and Retail (Textile, Electronics, Packaging) and procurement in order to fulfil the regulatory requirements and strategies highlighted in section 1.2 (Figure 8). In the context of the particular focus on the highlighted intervention lines, the LET'S GO CIRCULAR! baseline study and roadmap, the measures and focus areas were assigned to the intervention lines (Figure 9). The alignment is found in the summary of the actions.

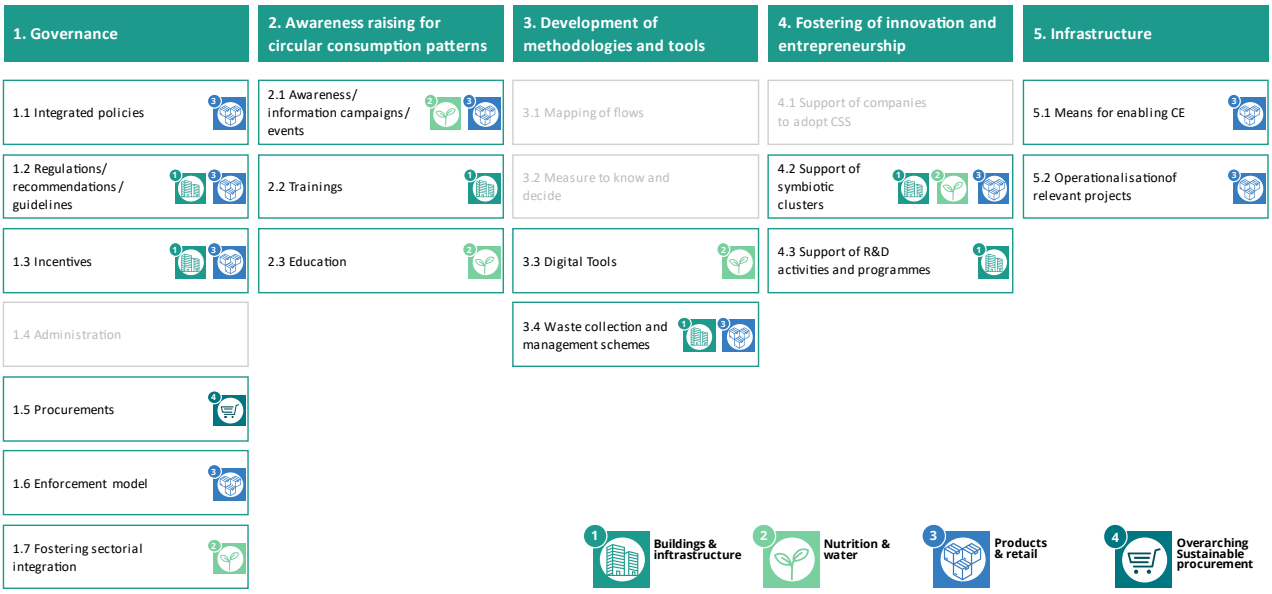


Figure 9 Lines of intervention of focus

5.1 Specific (operational objectives)

For each material flow specific operational objectives were aligned as followed. For each material flow, the city of Munich estimated the reduction potential concerning the material footprint (raw material consumption, RMC) and the overall material footprint reduction potential when implementing circularity measures. This material footprint reduction potential provides the base for the objectives per material flow as listed in Table 2.

Material flow/Themes	Operational Objective	Actions
Buildings and Infrastructure Reduction of the material footprint by 14,5% till 2035 compared to base year 2024[5].	Increase the share of secondary raw materials used, to reduce the material footprint by 6% till 2035 compared to base year 2024.	• Urban Mining for secondary building materials • Promotion of take-back and reprocessing by manufacturers • Development of a circular construction hub in the CirCoFin project
	Optimise the existing building stock to reduce the material footprint by 8% till 2035 compared to base year 2024.	• Simplification, advice and interest work for reconstruction projects
	Rethink (new) construction and standards for circular construction stock to reduce the material footprint by 2% till 2035 compared to base year 2024.	• Modular and circular serial construction for new buildings and renovations
	Cross-cutting initiatives aiming to promote all the above objectives	• Munich's network and platform "Circular Building" • Setting up research projects and clusters in the field of circular construction
Bioeconomy Reduction of the material footprint by 1,8% till 2035 compared to base year 2024[5].	Promote more sustainable food production to reduce the material footprint by 1,4% till 2035 compared to base year 2024.	• Digital platform for the marketing & procurement of regional food
	Influence consumer choices towards more balanced and sustainable habits to reduce the material footprint by 0,1% till 2035 compared to base year 2024.	• Establishment of a "world field" with the inclusion of the circular economy
	Prevent food waste and improve valorisation to reduce the material footprint by 0,4% till 2035 compared to base year 2024.	• Cooperation with food rescue and mediation platforms
	Improve water use efficiency and the integration of circular water systems	• Campaign for the appreciation of water as a resource in Munich • Optimized water management in urban green spaces and green spaces at public buildings
Product and Retail Reduction of the material footprint by 17,7% till 2035	Increase production efficiency across industrial processes and promote value-retention for industrial machinery and equipment valorisation	• Creation of better recycling opportunities • Industrial Symbioses / Eco Park

[5] Base year is the year of calculation of the RMC indicator. The calculation is based on several data sources ranging between the years 2018-2022. See annex I

compared to base year 2024[5].	to reduce the material footprint by 11% till 2035 compared to base year 2024.	
	Promote more responsible consumption of textile products to reduce the material footprint by 3% till 2035 compared to base year 2024.	• Promotion of sustainable textile brands in public spaces • Promotion of repair and upcycling workshops • Raising awareness in textile procurement
	Support more responsible consumption of electronic products to reduce the material footprint by 0,5% till 2035 compared to base year 2024.	• Collection campaigns for small electrical appliances • Product Take-Back Program in Retail • Establishment of a repair network
	Support more responsible consumption of other products like packaging to reduce the material footprint by 3% till 2035 compared to base year 2024.	• Development and implementation of a communication concept for reusable packaging • Introduction of a packaging tax • Introduction of a take-back concept for reusable tableware • Notice systems for reporting violations of the reusable packaging obligation
	further development of sustainable procurement in the Municipality	• Carrying out market surveys / market dialogues for sustainability market identification • Establishment of a digital competence centre for sustainable procurement
Total combined	Reduction of the material footprint by 30% till 2035 compared to base year 2024[5].	

Table 2 Objective per material flow

It needs to be highlighted that the potential does not solely result from the actions described in section but more from a broader approach of the city. It is important to mention that the CE city strategy contains more than 80 different measures that are to be implemented in the coming years. The missing actions are described in the german version of the IAP. Moreover, in the end the reduction in the material footprint depends on the final implementation level and depth during the realisation of actions.

6. Summary of actions

Note: The mentioned timescales refer to an approximate timeframe as follows: short-term <3 years, midterm 3-5 years, long-term >5 years.

6.1 Buildings & Infrastructure

Operational Objective 1: Increase the share of secondary raw materials used, to reduce the material footprint by 6% till 2035 compared to base year 2024.

Title of action #1	Urban Mining for secondary building materials			
Line of intervention	3. Methodologies and Tools – 3.4 Waste collection and management schemes			
Addressed value chain	Buildings & Infrastructure			
Short description	What: Within the framework of UMMI, areas are identified that are suitable for the storage and processing of construction waste Why: Reuse, reprocessing and recovery of sec. Building materials, recycling rate of 30%			
Target group	Politics & administration			
Status of the action	Ongoing			
Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Low*	*Medium*

Table 3 Action #1

Title of action #2	Promotion of take-back and reprocessing by manufacturers			
Line of intervention	1. Governance – 1.2 Regulations / Recommendations / Guidelines			
Addressed value chain	Buildings & Infrastructure			
Short description	What: Establishment of a catalogue of solutions for the various regional manufacturers to promote material recovery Why: To promote material recovery and thus increase the recycling rate in the construction industry			
Target group	Economic sector			
Status of the action	New action			
Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Medium*

Table 4 Action #2

Title of action #3	Development of a circular construction hub in the CirCoFin project			
Line of intervention	1. Governance – 1.3. Incentives			
Addressed value chain	Buildings & Infrastructure			
Short description	What: Develop a comprehensive technical, operational and financial concept for a circular construction hub for reused components Why: To enable the reuse of components			
Target group	Politics & administration			
Status of the action	Ongoing			
Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*High*	*Medium*	*Low*

Table 5 Action #3

Operational Objective 2: Optimise the existing building stock to reduce the material footprint by 8% till 2035 compared to base year 2024.

Title of action #4	Simplification, advice and interest work for reconstruction projects			
Line of intervention	2. Awareness – 2.2. Trainings			
Addressed value chain	Buildings & Infrastructure			
Short description	What: Establishment of various individual measures to promote circular remodelling projects Why: Promotion of the preservation and circular remodelling of existing properties and reduction of primary materials			
Target group	Economic sector			
Status of the action	New action			
Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Low*	*Low*

Table 6 Action #4

Operational Objective 3: Rethink (new) construction and standards for circular construction stock to reduce the material footprint by 2% till 2035 compared to base year 2024.

Title of action #5	Modular and circular serial construction for new buildings and renovations
Line of intervention	2. Awareness – 2.2. Trainings
Addressed value chain	Buildings & Infrastructure
Short description	What: Establishment of circular planning, design, and construction methods through consultation, networking, framework conditions, and pilot projects Why: Creating incentives for circular construction projects and promoting minimum standards
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Medium*

Table 7 Action #5

Cross-cutting initiatives aiming to promote all the above objectives

Title of action #6	Munich's network and platform "Circular Building"
Line of intervention	4. Fostering of innovation and entrepreneurship – 4.2 Support of symbiotic clusters
Addressed value chain	Buildings & Infrastructure
Short description	What: Promoting networking and knowledge exchange by setting up a Munich network of circular construction Why: Promoting awareness raising and cross-sectoral exchange
Target group	Politics & administration, Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Low*

Table 8 Action #6

Title of action #7	Setting up research projects and clusters in the field of circular construction
Line of intervention	4. Fostering of innovation and entrepreneurship – 4.3 Support of R&D activities and programmes
Addressed value chain	Buildings & Infrastructure
Short description	What: Setting up value chain-derived projects and long-term research projects Why: Evolving construction towards a circular economy
Target group	Economic sector, Education & Research
Status of the action	New action (partial intersection with planned/ongoing action existing)

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Low*	*Medium*	*Medium*

Table 9 Action #7

6.2 Nutrition & Water

6.2.1 Nutrition

Operational Objective 4: Promote more sustainable food production to reduce the material footprint by 1,4% till 2035 compared to base year 2024.

Title of action #8	Digital platform for the marketing & procurement of regional food
Line of intervention	3. Methodologies and Tools – 3.3 Digital Tools
Addressed value chain	Nutrition & Water (Nutrition)
Short description	What: Development of an online platform with accompanying events to promote cooperation between regional businesses along the value chain through transparent supply and demand visibility and simple handling processes. Why: Reduction of production waste and promotion of 'crooked' vegetables
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Medium*

Table 10 Action #8

Operational Objective 5: Influence consumer choices towards more balanced and sustainable habits to reduce the material footprint by 0,1% till 2035 compared to base year 2024.

Title of action #9	Establishment of a "world field" with the inclusion of the circular economy
Line of intervention	4. Fostering of innovation and entrepreneurship – 4.2 Support of symbiotic clusters
Addressed value chain	Nutrition & Water (Nutrition)
Short description	What: Inclusion of dimensions of the circular economy in the establishment of a global field Why: Promoting awareness of circular principles in food production
Target group	Politics & Administration
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Low*	*Medium*	*Low*

Table 11 Action #9

Operational Objective 6: Prevent food waste and improve valorisation to reduce the material footprint by 0,4% till 2035 compared to base year 2024.

Title of action #10	Cooperation with food rescue and mediation platforms
Line of intervention	1. Governance – 1.7 Fostering sectorial integration
Addressed value chain	Nutrition & Water (Nutrition)
Short description	What: Expansion of cooperation between food rescue and community catering and municipal canteens Why: Promoting the reuse of food and raising awareness
Target group	Politics & Administration
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Short-term*	*Low*	*Low*	*Low*

Table 12 Action #10

6.2.2 Water

Operational Objective 7: Improve water use efficiency and the integration of circular water systems

Title of action #11	Campaign for the appreciation of water as a resource in Munich			
Line of intervention	2. Awareness raising for circular consumption patterns – 2.1 Awareness/ information campaigns/ events			
Addressed value chain	Nutrition & Water (Water)			
Short description	What: Implementation of information campaigns on the appreciation of drinking water use Why: Promoting awareness of the prudent use of drinking water			
Target group	(Civil) society			
Status of the action	New action			
Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Short-term*	*Low*	*Low*	*Medium*

Table 13 Action #11

Title of action #12	Optimized water management in urban green spaces and green spaces at public buildings			
Line of intervention	2. Awareness raising for circular consumption patterns – 2.3 Education			
Addressed value chain	Nutrition & Water (Water)			
Short description	What: Development and provision of information for the city administration on optimized water management Why: Promoting awareness to reduce water consumption			
Target group	Politics & Administration			
Status of the action	New action			
Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Short-term*	*Low*	*Medium*	*Medium*

Table 14 Action #12

6.3 Product & Retail

6.3.1 Products & Retail – Overarching

Operational Objective 8: Increase production efficiency across industrial processes and promote value-retention for industrial machinery and equipment valorisation to reduce the material footprint by 11% till 2035 compared to base year 2024.

Title of action #13	Creation of better recycling opportunities
Line of intervention	3. Development of methodologies and tools – 3.4 Waste collection and management schemes
Addressed value chain	Products & Retail (Overarching)
Short description	What: Improving the recycling and recyclability of textiles through technical solutions Why: Reduction of unsustainable textile fibres and promotion of sustainable textile production
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Long-term*	*High*	*High*	*High*

Table 15 Action #13

Title of action #14	Industrial Symbioses / Eco Park
Line of intervention	4. Fostering of innovation and entrepreneurship – 4.2 Support of symbiotic clusters
Addressed value chain	Products & Retail (Overarching)
Short description	What: Establishment of an eco-park with a focus on the circular economy Why: Reduction of primary resource consumption and promotion of economic symbiosis
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Long-term*	*High*	*High*	*High*

Table 16 Action #14

6.3.2 Products & Retail – Textiles

Operational Objective 9: Promote more responsible consumption of textile products to reduce the material footprint by 3% till 2035 compared to base year 2024.

Title of action #15	Promotion of sustainable textile brands in public spaces
Line of intervention	1. Governance – 1.2 Regulations/ recommendations/ guidelines
Addressed value chain	Products & Retail (Textiles)
Short description	What: Limiting the promotion of fast fashion in public spaces and exchanging it with local and sustainable alternatives Why: Raising awareness and increasing the visibility of local and sustainable brands to reduce fast fashion and textile waste
Target group	Politics & Administration
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Low*	*Low*	*Medium*

Table 17 Action #15

Title of action #16	Promotion of repair and upcycling workshops
Line of intervention	1. Governance – 1.3 Incentives
Addressed value chain	Products & Retail (Textiles)
Short description	What: Promoting repair and upcycling workshops as well as circular business models Why: Rethinking existing business models and remanufacturing textiles
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Long-term*	*Medium*	*High*	*Low*

Table 18 Action #16

Title of action #17	Raising awareness in textile procurement
Line of intervention	2. Awareness raising for circular consumption patterns – 2.1 Awareness/ information campaigns/ events
Addressed value chain	Products & Retail (Textiles)
Short description	What: Providing educational work for the commercial purchase of textiles Why: Promoting awareness when purchasing textiles in the commercial sector
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Short-term*	*Low*	*Medium*	*Medium*

Table 19 Action #17

6.3.3 Products & Retail – Electronics

Operational Objective 10: Support more responsible consumption of electronic products to reduce the material footprint by 0,5% till 2035 compared to base year 2024.

Title of action #18	Collection campaigns for small electrical appliances
Line of intervention	2. Awareness raising for circular consumption patterns – 2.1 Awareness/ information campaigns/ events
Addressed value chain	Product & Retail (Electronics)
Short description	What: Collection of waste electrical and electronic equipment at schools, including awareness-raising measures and provision of information material as well as ensuring a collection and collection structure Why: Raising awareness about the recycling and recovery of electrical appliances
Target group	(Civil) society
Status of the action	On going

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Short-term impact	*Short-term*	*Medium*	*Low*	*Low*

Table 20 Action #18

Title of action #19	Product Take-Back Program in Retail
Line of intervention	3. Development of methodologies and tools – 3.4 Waste collection and management schemes
Addressed value chain	Product & Retail (Electronics)
Short description	What: Conception and establishment of a product take-back program in the retail sector Why: Promote material recovery and reprocessing by increasing take-back
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Low*	*Low*	*High*

Table 21 Action #19

Title of action #20	Establishment of a repair network
Line of intervention	5. Infrastructure – 5.1 Means for enabling CE
Addressed value chain	Product & Retail (Electronics)
Short description	What: Bringing together commercial and civil society actors Why: Such a network strengthens the visibility of repair providers in the city, can offer participants exchange and help, and ensures the quality and future of repair
Target group	Economic sector
Status of the action	Planned for 2024

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Low*	*High*

Table 22 Action #20

6.3.4 Products & Retail – Packaging

Operational Objective 11: Support more responsible consumption of other products like packaging to reduce the material footprint by 3% till 2035 compared to base year 2024.

Title of action #21	Development and implementation of a communication concept for reusable packaging
Line of intervention	2. Awareness raising for circular consumption patterns – 2.1 Awareness/ information campaigns/ events
Addressed value chain	Products & Retail (Packaging)
Short description	What: Expansion of the target group-oriented communication campaign to show the added value of reusable packaging Why: Raising awareness and promoting the use of reusable packaging
Target group	(Civil) society
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Short-term*	*Medium*	*Low*	*Medium*

Table 23 Action #21

Title of action #22	Introduction of a packaging tax
Line of intervention	1. Governance – 1.1 Integrated policies
Addressed value chain	Products & Retail (Packaging)
Short description	What: A packaging tax to reduce single-use packaging in Munich Why: Reduction of single-use packaging and waste
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Medium*

Table 24 Action #22

Title of action #23	Introduction of a take-back concept for reusable tableware
Line of intervention	5. Infrastructure – 5.2. Operationalisation of relevant project
Addressed value chain	Products & Retail (Packaging)
Short description	What: Introduction of a concept to promote reusable packaging in Munich by implementing a take-back system Why: Reduction of single-use packaging through the use of reusable packaging
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Low*

Table 25 Action #23

Title of action #24	Notice systems for reporting violations of the reusable packaging obligation
Line of intervention	1. Governance – 1.6 Enforcement model
Addressed value chain	Products & Retail (Packaging)
Short description	What: Improved notification systems for violations of the reusable supply obligation Why: Making inspections by the lower waste authority more efficient
Target group	Politics & Administration
Status of the action	New Action in combination of an ongoing service

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Low*	*Low*	*Low*	*Low*

Table 26 Action #24

6.4 Overarching Procurement

Operational Objective 12: Establishment of sustainable procurement in the Municipality.

Title of action #25	Carrying out market surveys / market dialogues for sustainability market identification			
Line of intervention	1. Governance – 1.5 Procurements			
Addressed value chain	Overarching/Procurement			
Short description	What: Implementation of market dialogues. Identification of sustainable companies prior to a tender so that requirement profiles fulfil the market situation. Why: To increase market knowledge and market participants and promote dialogue with companies			
Target group	Politics & Administration			
Status of the action	New action			
Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Long-term*	*Medium*	*High*	*Medium*

Table 27 Action #25

Title of action #26	Establishment of a digital competence center for sustainable procurement			
Line of intervention	1. Governance – 1.5 Procurements			
Addressed value chain	Overarching/Procurement			
Short description	What: The establishment of a digital competence center that serves as a central contact point for municipal departments. The center provides practical support for preparing and carrying out sustainability-oriented tenders. Why: Bundling and providing expertise in sustainable procurement to provide targeted support to municipal procurement bodies. Promoting the implementation of sustainable criteria in procurement processes, strengthening internal knowledge transfer and strategically developing sustainable procurement practices			
Target group	Politics & Administration			
Status of the action	New action			
Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Medium*

Table 28 Action #26

7. Prioritised list of actions

The following actions have been identified as priorities for further assessment. The method to select these prioritised actions is described in Part I, chapter 3. Short reference to the methodological framework.

1. Urban Mining for secondary building materials
2. Development of a circular construction hub in the CirCoFin project
3. Digital platform for the marketing & procurement of regional food
4. Cooperation with food rescue and mediation platforms
5. Industrial Symbioses / Eco Park
6. Raising awareness in textile procurement
7. Introduction of a take-back concept for reusable tableware
8. Notice systems for reporting violations of the reusable packaging obligation
9. Carrying out market surveys / market dialogues for sustainability market identification
10. Establishment of a digital competence center for sustainable procurement

8. Testing actions

To collect first experiences and gain insights for further implementations, Munich decided to implement a testing action in the focus area of procurement (Table 29). The results and lesson-learnt through this testing action provides input and a knowledge base for the procurement-related action “Establishment of a digital competence center for sustainable procurement”, concerning the knowledge about the process of circular procurement, criteria, and respective procurement guidelines as well as lifecycle cost.

Development of a procurement guideline for a circular canteen/restaurant using the example of Villa Stuck	
Hypothesis We believe that…	**Research questions** We investigated…
The development of a procurement guideline for a circular canteen/restaurant using the example of Villa Stuck will ensure that aspects such as furnishings, kitchen equipment, supply chains and logistics are also taken into account when leasing out municipal restaurants. The guidelines will help awarding authorities to make the most of the potential when leasing canteens or sustainably procuring furniture and formulate criteria to improve circular use in the catering sector.	• Which circular criteria are offered by market participants • What are the components that make up a circular canteen/restaurant? • What are the long-term cost savings of a circular canteen/restaurant compared to a conventional one for the city of Munich? • How to develop a practicable procurement guideline for goods
Test To verify this, we …	**Indicators** To confirm or disprove the hypothesis we measured…
• Together with the Circular Munich association, we identified the needs of Villa Stuck. • We analysed which processes in the catering industry can be made circular • We developed a tender that is comprehensible, realisable and circular • Together with Circular Munich, we accompanied the entire tendering process and summarise the findings in a guideline. • At the end, we measured the success of a circular tender.	• We asked the suppliers how comprehensible and fulfillable the requirements of the invitation to tender are. • We measured not only the number of suppliers in the tender but also which suppliers best fulfil our requirements • We recorded the feedback on the developed guideline
Results of the Test We can confirm or disprove the hypothesis because...	**Insights** We learned that…
Our analysis shows that demand units often need support in assessing their needs beyond traditional approaches. The needs assessment is crucial, as it sets the course for the procurement process and determines the level of sustainability and circularity that can be achieved. Since many demand units lack awareness of available market solutions, conventional, consumption-driven practices prevail. A simple criteria catalogue with text modules is not sufficient. Longer-term guidance and structured consultation are needed to help demand units critically evaluate their requirements and consider alternative purchasing models or ways of meeting their needs. A comprehensive guideline can provide initial orientation, introduce the principles of the Circular Economy, and translate them into concrete requirements — creating transparency and helping to break with traditional purchasing habits. Sustainable procurement ultimately requires continuous support, active dialogue, and tailored advice to embed circular practices in everyday decision-making.	We have learned that demand units shows interest in acting sustainably and in line with circular principles. At the same time, it becomes clear that they need compact, easily accessible support and advice – and that unconventional questions are often necessary to help them break out of established patterns of thinking. A coordinating entity proves particularly valuable, as it can provide an overview of market conditions, existing resources within the city, and opportunities for networking and synergy. Equally important is not to overwhelm demand units with overly comprehensive changes, but rather to present practical solutions and guide the transition step by step, focusing on targeted adjustments instead of attempting to transform the entire system at once.

Table 29 Testing action

PART III: Action planning details

9. Detailed presentation of the actions and activities

9.1 Urban Mining for secondary building materials

Title of action #1	Urban Mining for secondary building materials
Line of intervention	3. Methodologies and Tools – 3.4 Waste collection and management schemes
Addressed value chain	Buildings & Infrastructure
Short description	What: Within the framework of UMMI, areas are identified that are suitable for the storage and processing of construction waste Why: Reuse, reprocessing and recovery of sec. Building materials, recycling rate of 30%
Target group	Politics & administration
Status of the action	Ongoing

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Low*	*Medium*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Development of evaluation criteria for suitable areas and establishment of supra-regional/inter-municipal cooperation frameworks to enable coordinated planning and resource use across administrative boundaries.	Set of standardized evaluation criteria finalized	None	Internal capacity	Lack of alignment or conflicting priorities between municipalities.
Activity #2				
Identification of appropriate Area taking into account environmental, logistical, and infrastructural factors. Listing and categorization of areas suitable for temporary interim use, such as short-term storage, mobile processing units, or pilot-scale testing facilities.	Number of identified and documented potential sites. Number of interim use sites listed and categorized	None	Internal capacity	Environmental or zoning restrictions may limit
Activity #3				
Coordination and management of available spatial capacities to ensure efficient allocation of land and prevent conflicts between competing uses.	Number of coordinated spatial plans or usage agreements	None	Internal capacity	Outdated data on land use and availability may lead to inefficient allocation.
Total funds and assets needed	Public None, Private Investments			

Table 30 Action table "Urban Mining for secondary building materials"

9.2 Development of a circular construction hub in the CirCoFin project

Title of action #3	Establishment of a component exchange in the CirCoFin project
Line of intervention	1. Governance – 1.3. Incentives
Addressed value chain	Buildings & Infrastructure
Short description	What: Develop a comprehensive technical, operational and financial concept for a component exchange Why: To enable the reuse of components
Target group	Politics & administration
Status of the action	Ongoing

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*High*	*Medium*	*Low*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Development and implementation of a comprehensive technical, operational, and financial concept for a reuse-oriented building components exchange ("Bauteilbörse") in Munich as part of the CirCoFin project.	Implementation roadmap with defined responsibilities and timeline	833.100 Euros	EU-funded CirCoFin project: Horizon Call	Regulatory barriers for reuse of structural components.
Activity #2				
Implementation and pilot operation of a physical and/or digital Bauteilbörse for reclaimed building components in Munich, based on the concept developed in Activity #1.	Initial stock of available components and active supplier/user network	To be determined	Use of results and investment plans from Activity #1	Delays in securing location or permits for physical site
Total funds and assets needed	833.100 Euros + additional amount to be determined			

Table 31 Action table "Establishment of a component exchange in the CirCoFin project"

9.3 Digital platform for the marketing & procurement of regional food

Title of action #8	Digital platform for the marketing & procurement of regional food
Line of intervention	3. Methodologies and Tools – 3.3 Digital Tools
Addressed value chain	Nutrition & Water (Nutrition)
Short description	What: Development of an online platform with accompanying events to promote cooperation between regional businesses along the value chain through transparent supply and demand visibility and simple handling processes. Why: Reduction of production waste and promotion of 'crooked' vegetables
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Medium*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Development or aquisition of a digital platform	Integrated supplier and buyer profiles (e.g. farms, restaurants, shops)	20.000 Euros	City Budget	Low digital adoption by small producers
Activity #2				
Establishment of local pickup and distribution hubs ("Quartiers-Ausgabestellen") and organization of physical product showcases in urban neighborhoods	# physical neighborhood pickup points established	None	Partnerships with existing community centers or retail spaces	Logistical complexity in regular distribution
Activity #3				
Planning and implementation of cooperative local food initiatives	Number of coordinated spatial plans or usage agreements	None	Internal capacity	Incomplete or outdated data on land use and availability may lead to inefficient allocation of space.
Total funds and assets needed	20.000 Euros			

Table 32 Action table "Digital platform for the marketing & procurement of regional food"

9.4 Cooperation with food rescue and mediation platforms

Title of action #10	Cooperation with food rescue and mediation platforms
Line of intervention	1. Governance – 1.7 Fostering sectorial integration
Addressed value chain	Nutrition & Water (Nutrition)
Short description	What: Expansion of cooperation between food rescue and community catering and municipal canteens Why: Promoting the reuse of food and raising awareness
Target group	Politics & Administration
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Short-term*	*Low*	*Low*	*Low*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Expansion of pilot projects involving rescued food in municipal canteens and school cafeterias,	Evaluation reports on acceptance, impact, and feasibility	10.000 Euros	Internal Budget	Low acceptance among users due to unfamiliarity or bias
Activity #2				
Pilot use of food redistribution platforms (e.g. Too Good To Go, Wilma) in municipal canteens and development of decentralized redistribution systems	Number of canteens integrated into digital food redistribution platforms	None	Partnerships with existing community	Low user participation due to perceived effort or timing
Activity #3				
Institutionalization of food-saving practices through mandatory food waste action plans	Standardized food waste action plan templates developed and adopted by tenants	None	Capacity-building and training budget	Resistance from caterers due to perceived additional workload
Total funds and assets needed	10.000 Euros			

Table 33 Action table "Cooperation with food rescue and mediation platforms"

9.5 Industrial Symbioses / Eco Park

Title of action #14	Industrial Symbioses / Eco Park
Line of intervention	4. Fostering of innovation and entrepreneurship – 4.2 Support of symbiotic clusters
Addressed value chain	Products & Retail (Overarching)
Short description	What: Establishment of an eco-park with a focus on the circular economy Why: Reduction of primary resource consumption and promotion of economic symbiosis
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Long-term*	*High*	*High*	*High*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Conduct a comprehensive potential analysis and site selection process	List of prioritized locations	100.000 Euros	Horizon Call or other external funding	• Lack of available or suitable land • Lack of funding
Activity #2				
Identification and development of land areas suitable	Outreach to potential anchor tenants	100.000 Euros	Horizon Call or other external funding	• Low interest from businesses due to unclear benefits • Lack of funding
Activity #3				
Establishment of cooperative structures, matchmaking platforms, and shared infrastructure	# cooperation agreements between businesses established	100.000 Euros	Horizon Call or other external funding	• Lack of participation or trust among companies • Lack of funding
Total funds and assets needed	300.000 Euros			

Table 34 Action table "Industrial Symbioses / Eco Park"

9.6 Raising awareness in textile procurement

Title of action #17	Raising awareness in textile procurement
Line of intervention	2. Awareness raising for circular consumption patterns – 2.1 Awareness/ information campaigns/ events
Addressed value chain	Products & Retail (Textiles)
Short description	What: Providing educational work for the commercial purchase of textiles Why: Promoting awareness when purchasing textiles in the commercial sector
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Short-term*	*Low*	*Medium*	*Medium*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Review of existing training and certification concepts for companies on sustainable textile use	Report summarizing best practices and recommendations	None	Internal Budget	Limited availability of local case studies
Activity #2				
Development of a training concept in cooperation with universities	Curriculum and materials for workshops and online modules	10.000 Euros	Internal Budget	Limited participation from target sectors
Activity #3				
Creation of a guide of ecological materials for sustainable and recyclable textiles	Downloads and engagement metrics	15.000 Euros	Internal Budget	Complexity in updating technical content over time
Total funds and assets needed	25.000 Euros			

Table 35 Action table "Raising awareness in textile procurement"

9.7 Introduction of a take-back concept for reusable tableware

Title of action #23	Introduction of a take-back concept for reusable tableware
Line of intervention	5. Infrastructure – 5.2. Operationalisation of relevant project
Addressed value chain	Products & Retail (Packaging)
Short description	What: Introduction of a concept to promote reusable packaging in Munich by implementing a take-back system Why: Reduction of single-use packaging through the use of reusable packaging
Target group	Economic sector
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Low*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Return system concept	Documented concept	50.000 Euros	Mehrweg Fund	Misalignment of expectations between public administration and private operators
Activity #2				
Pilot implementation	Mid-term evaluation report on user uptake	50.000 Euros	Mehrweg Fund	High setup costs (e.g. for automated return stations)
Activity #3				
Adjustment of the concept, and stepwise rollout	Expansion to at least two additional districts	100.000 Euros	Mehrweg Fund	Operational partners not scaling up due to economic or technical barriers
Total funds and assets needed	200.000 Euros			

Table 36 Action table "Introduction of a take-back concept for reusable tableware"

9.8 Notice systems for reporting violations of the reusable packaging obligation

Title of action #24	Notice systems for reporting violations of the reusable packaging obligation
Line of intervention	1. Governance – 1.6 Enforcement model
Addressed value chain	Products & Retail (Packaging)
Short description	What: Improved notification systems for violations of the reusable supply obligation Why: Making inspections by the lower waste authority more efficient
Target group	Politics & Administration
Status of the action	New Action in combination of an ongoing service

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Low*	*Low*	*Low*	*Low*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Creation and integration of a low-threshold, user-friendly online form	# forms submitted	None	IT integration	Underuse if citizens are unaware of the form
Activity #2				
Integration of the reporting tool into the broader Mehrweg awareness campaign	Performance metrics	10.000 Euros	Einwegkunststofffondgesetz	Citizens misunderstand form's purpose)
Total funds and assets needed	10.000 Euros			

Table 37 Action table "Notice systems for reporting violations of the reusable packaging obligation"

9.9 Carrying out market surveys / market dialogues for sustainability market identification

Title of action #25	Carrying out market surveys / market dialogues for sustainability market identification
Line of intervention	1. Governance – 1.5 Procurements
Addressed value chain	Overarching/Procurement
Short description	What: Implementation of market dialogues. Identification of sustainable companies prior to a tender so that requirement profiles fulfil the market situation. Why: To increase market knowledge and market participants and promote dialogue with companies
Target group	Politics & Administration
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Long-term*	*Medium*	*High*	*Medium*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Preparation of planning processes for various dialogue formats.	Internal matrix for evaluating market dialogue relevance by procurement topic	None	Internal budget	Limited capacity to support additional planning work
Activity #2				
Implementation of market and expert dialogues	Insight reports summarizing market readiness	To be determined	Internal budget	Lack of supplier engagement in some product groups
Total funds and assets needed	To be determined			

Table 38 Action table "Carrying out market surveys / market dialogues for sustainability market identification"

9.10 Establishment of a digital competence center for sustainable procurement

Title of action #26	Establishment of a digital competence center for sustainable procurement
Line of intervention	1. Governance – 1.5 Procurements
Addressed value chain	Overarching/Procurement
Short description	What: The establishment of a digital competence center that serves as a central contact point for municipal departments. The center provides practical support for preparing and carrying out sustainability-oriented tenders. Why: Bundling and providing expertise in sustainable procurement to provide targeted support to municipal procurement bodies. Promoting the implementation of sustainable criteria in procurement processes, strengthening internal knowledge transfer and strategically developing sustainable procurement practices
Target group	Politics & Administration
Status of the action	New action

Estimated impact on sustainability	Timescale	Rough cost estimation	Innovation	Complexity in technology / stakeholder landscape
Long-term impact	*Midterm*	*Medium*	*Medium*	*Medium*

List of activities per action	Outputs and indicators	Funds and other resources needed	Funding, financing and resource allocation programme	Risks
Activity #1				
Definition of the concept and structure of a digital competence center	Concept paper outlining	To be determined	Internal IT budget	Overload of static information instead of interactive tools
Activity #2				
Technical implementation and go-live	Fully functional and accessible web-based platform	To be determined	Internal IT budget	Technical delays in implementation
Total funds and assets needed	To be determined			

Table 39 Action table "Establishment of a digital competence center for sustainable procurement"

PART IV: Implementation framework

10. Financial plan

The financial plan displays as mentioned in the detailed action table the status as of September 2025 with proposals and budget plannings currently in progress.

Action	Missing funds	Funds' raising plan
Urban Mining for secondary building materials	Public None, Private Investements	Internal capacity, private investments
Development of a circular construction hub in the CirCoFin project	833.100 Euros + additional amount to be determined	EU-funded CirCoFin project: Horizon Call Use of results and investment plans from Activity #1
Digital platform for the marketing & procurement of regional food	20.000 Euros	Internal budget
Cooperation with food rescue and mediation platforms	10.000 Euros	Sustainability foundation Sparkasse Munich (pledge 10.000 €) Ongoing application to the foundation vbw Lebensgrundlagen
Industrial Symbioses / Eco Park	300.000 Euros	Horizon Call or other external funding Possibly & partially DATi-Pilot regap (federal funding)
Raising awareness in textile procurement	25.000 Euros	Internal Budget
Introduction of a take-back concept for reusable tableware	200.000 Euros	Mehrweg Fund Possibly DATIpilot MEHRCE (federal funding) Possibly HORIZON-CL6-2026-01-CIRCBIO-10/-02 (Consortium being founded)
Notice systems for reporting violations of the reusable packaging obligation	10.000 Euros	IT integration Einwegkunststofffondgesetz
Carrying out market surveys / market dialogues for sustainability market identification	To be determined	Internal budget
Establishment of a digital competence centre for sustainable procurement	To be determined	Internal IT budget

Table 40 Financial plan for the top 10 actions

11. Time plan

For some actions (Urban mining for secondary building materials, Development of a circular construction hub in the CirCoFin project) the implementation has started already. The implementation start of further actions depends on the upcoming city council to approve the broader Circular Economy Strategy for Munich. According to this resolution, and as soon as the funding proposals have been granted, the actions will be implemented.

12. Risk mitigation plan

In order to ensure a low-risk and smooth implementation of the actions, a risk probability assessment was carried out for each identified risk. Moreover, mitigation measures were defined to reduce the potential risk in the process.

Action	Risk	Type	Probability	Mitigation plan
Urban Mining for secondary building materials	Lack of alignment or conflicting priorities between municipalities	Operational	Medium	Establish inter-municipality coordination meetings, set up a joint steering group, and develop a clear governance framework
	Environmental or zoning restrictions may limit	Legal	Medium	Conduct early legal and zoning assessments, engage with local planning authorities
	Incomplete or outdated data on land use and availability may lead to inefficient allocation of space	Technical	High	Build partnerships with data providers, establish regular updates, and validate data with on-site inspections and cross-checks
Development of a circular construction hub in the CirCoFin project	Regulatory barriers for reuse of structural components	Legal	High	Engage early with regulators, create pilot projects to demonstrate safety, and collaborate on guidelines or certification schemes.
	Delays in securing location or permits for physical site	Operational	Medium	Start permitting process early, maintain close communication with authorities, and prepare alternative site options.
Digital platform for the marketing & procurement of regional food	Low digital adoption by small producers	Operational	Medium	Offer training, provide low-barrier tools, and create incentives
	Logistical complexity in regular distribution	Operational	Low	Develop standardized logistics plans, collaborate with logistics partners, and pilot test before scaling.
	Coordination challenges across different sectors and schedules	Operational	Low	Implement a digital coordination platform, appoint a neutral coordinator
Cooperation with food rescue and	Low acceptance among users due to unfamiliarity or bias	Operational	Medium	Run awareness campaigns, highlight success stories, and use user feedback to adapt the service

mediation platforms	Low user participation due to perceived effort or timing	Operational	Medium	Simplify user processes, provide incentives (e.g., discounts, recognition), and align timing with user needs
	Resistance from caterers due to perceived additional workload	Operational	High	Co-design solutions with caterers, provide financial or logistical support, and streamline return/cleaning processes
Industrial Symbioses / Eco Park	Lack of available or suitable land	Operational	Medium	Conduct early site screening, negotiate with municipalities for priority access, and explore temporary or modular solutions.
	Low interest from businesses due to unclear benefits	Operational	Low	Develop clear business cases, showcase pilot results, and provide targeted communication on economic and sustainability benefits
	Lack of participation or trust among companies	Operational	Medium	Establish transparent governance, create neutral facilitation, and build trust through small-scale pilots and peer learning
	Lack of funding	Financial	High	Constant scouting of available funding programs and submission of application for suitable funds
Raising awareness in textile procurement	Limited availability of local case studies	Operational	Low	Establish partnerships with regional textile networks
	Limited participation from target sectors	Operational	Medium	Implement early stakeholder engagement and targeted communication
	Complexity in updating technical content over time	Technical	Low	Design the guide and digital materials as modular and updatable formats
Introduction of a take-back concept for reusable tableware	Misalignment of expectations between public administration and private operators	Operational	Medium	Set up regular dialogue formats, align goals in contracts, and include conflict resolution mechanisms
	High setup Costs (e.g. for automated return stations)	Financial	High	Explore co-financing models, apply for public funding, and pilot with low-cost alternatives before scaling
	Operational partners not scaling up due to economic or technical barriers	Financial, Technical	Medium	Provide technical assistance, offer financial incentives, and support scaling with phased growth models.
Notice systems for reporting violations of the reusable	Underuse if citizens are unaware of the form	Operational	Medium	Launch targeted communication campaigns, collaborate with community groups, and provide incentives for first-time use

packaging obligation	Citizens misunderstand form's purpose	Operational	Low	Provide clear instructions, use simple visual explanations, and gather user feedback to refine communication
Carrying out market surveys / market dialogues for sustainability market identification	Limited capacity to support additional planning work	Staffing	Medium	Allocate dedicated staff resources, outsource specific tasks, and integrate planning into existing workflows
	Lack of supplier engagement in some product groups	Operational	Medium	Conduct targeted outreach, highlight market potential, and provide incentives for early adopters
Establishment of a digital competence center for sustainable procurement	Overload of static information instead of interactive tools	Technical	Medium	Prioritize user-friendly interactive tools, test with target groups, and reduce unnecessary static content
	Technical delays in implementation	Technical	Medium	Use agile project management, build buffer time into project plans, and secure backup suppliers or developers

Table 41 Risk mitigation plan

13. Monitoring framework

To make the progress toward achieving the desired goals measurable, the city has set result indicators and target values for each strategic objective in comparison to the current baseline value. In addition, output indicators and target values were defined for each activity in order to track the implementation status of the individual actions and, if necessary, to be able to take early corrective action in the event of deviations. The currently defined output indicators and target values per activity, represent preliminary suggestions – they are to be evaluated as soon as the corresponding project is initiated.

Strategic Objective	Result Indicator	Calculation formula	Baseline value (Year)	Target value (Year)	Responsible
Reduction of material footprint	-30%	$D^i_{cba} = D^i_{pba} + D^i_{imp} - D^i_{exp}$	47 Mio. Tons (2024)	33 Mio. Tons (2035)	RKU
Increase of total raw material productivity	+25%	Raw material productivity = $\frac{GDP}{RMI}$	1,174€/t (2021)	1.468 €/t (2035)	RKU
Increase the circular ecosystem	2,000 organizations, companies, experts actively involved in circular economy	A number of organizations and people in this market have been compiled.	~155 organisations and start-ups (2024)	2,000 (2035)	RKU

Increase of Circular material use rate	Double to 6%	$CMUR = \frac{U}{M} = \frac{(RCV - R - IMP_w + EXP_w)}{DMC + (RCV - R - IMP_w + EXP_w)}$	2.89% (2024)	6% (2035)	RKU
Reduction of total waste generated	-15%	The information on waste generation corresponds to data on municipal solid waste (MSW), wastewater, separately collected recyclables, construction and demolition waste (C&DW), and industrial waste.	1699kt, 1.15t/person (2024)	1444kt, 1t/person (2035)	RKU

Table 42 Monitoring framework for the strategic objectives

Action	Activity	Output indicator	Calculation formula	Baseline value (Year)	Target value (Year)	Responsible
Urban Mining for secondary building materials	#1	1 Set of standardized evaluation criteria finalized	N/A	0 (2025)	1 set (2025)	RKU
	#2	1 document with a number of identified and documented potential sites. 1 document with a number of interim use sites listed and categorized	N/A	0 (2025)	2 documents (2025)	RKU
	#3	Number of coordinated spatial plans or usage agreements	N/A	0 (2025)	Min. 1 coordinated plan / usage agreement (2026)	RKU
Development of a circular construction hub in the CirCoFin project	#1	Implementation roadmap with defined responsibilities and timeline	N/A	0 (2025)	1 roadmap (2027)	RKU
	#2	Initial stock of available components and active supplier/user network	N/A	0 (2025)	1 stock (2029)	RKU
Digital platform for the marketing & procurement of regional food	#1	Integrated supplier and buyer profiles (e.g. farms, restaurants, shops)	N/A	0 (2025)	1 platform with integrated profiles (2027)	RKU
	#2	# physical neighborhood pickup points established	N/A	0 (2025)	Min. 1 pickup point (2028)	RKU
	#3	# pilot cooperation models developed and tested	N/A	0 (2025)	Min. 1 pilot cooperation model (2029)	RKU

Cooperation with food rescue and mediation platforms	#1	Evaluation reports on acceptance, impact, and feasibility	N/A	0 (2025)	1 report per pilot project (2026)	RKU
	#2	Number of canteens integrated into digital food redistribution platforms	N/A	0 (2025)	Min. 1 canteen (2027)	RKU
	#3	Standardized food waste action plan templates developed and adopted by tenants	N/A	0 (2025)	1 standardized action plan template (2028)	RKU
Industrial Symbioses / Eco Park	#1	List of prioritized locations	N/A	0 (2025)	1 list (2026)	RKU
	#2	Outreach to potential anchor tenants	N/A	0 (2025)	Min. 1 potential anchor tenant /2026)	RKU
	#3	# cooperation agreements between businesses established	N/A	0 (2025)	Min. 1 cooperation agreement (2028)	RKU
Product Take-Back Program in Retail	#1	# regular meeting schedule	N/A	0 (2025)	Min. 1 regular meeting (2025)	RKU
	#2	In-store materials (stickers, signage, info cards) distributed across participating locations	N/A	0 (2025)	All instore materials (2025)	RKU
	#3	Additional return points identified and integrated into the digital map	N/A	0 (2025)	Min. additional return point (2026)	RKU
Introduction of a take-back concept for reusable tableware	#1	Documented concept	N/A	0 (2025)	1 concept (2026)	RKU
	#2	Mid-term evaluation report on user uptake	N/A	0 (2025)	1 report (2028)	RKU
	#3	Expansion to at least two additional districts	N/A	0 (2025)	Min. 2 additional districts (2029)	RKU
Notice systems for reporting violations of the reusable packaging obligation	#1	# forms submitted	N/A	0 (2025)	Min. 1 form (2026)	RKU
	#2	Performance metrics	N/A	0 (2025)	1 set of performance metrics (2026)	RKU

Carrying out market surveys / market dialogues for sustainability market identification	#1	Internal matrix for evaluating market dialogue relevance by procurement topic	N/A	0 (2025)	1 evaluation matrix (2026)	RKU
	#2	Insight reports summarizing market readiness	N/A	0 (2025)	1 report per market/expert dialog	RKU

Table 43 Monitoring framework for the output indicators per action

Conclusions

The Integrated Action Plan for Munich, in connection with the more comprehensive Munich Circular Economy Strategy, which contains a total of 85 actions, reflects the city's commitment and determination to transition towards a circular economy. The local process demanded substantial effort in aligning various city departments and entities, reflecting the complexity and interdisciplinary nature necessary for effective circular solutions. Despite facing challenges, particularly concerning funding sources, the city has managed to craft a coherent plan which leverages synergies with existing concepts and initiatives within the city.

An integral component was the exchange within the URBACT network, providing a platform for learning and inspiration from other cities embracing circular initiatives. This network proved to be an effective conduit for sharing best practices, receiving feedback, and collaboratively addressing common challenges faced by cities pursuing circular economies.

The city's strategy, while robust, is recognized as a living document, subject to ongoing development based on practical implementation learnings and evaluation. This iterative nature ensures that Munich's strategy is not static but evolves as new challenges and opportunities arise. Key lessons learnt so far include the necessity for integrated policy measures that foster multi-sector collaborations, effective communication strategies to engage both business and civic fronts, and clear metrics for monitoring progress towards defined objectives. Munich plans to continuously refine and adapt its strategy based on lessons learnt from each action's implementation phase.

Moving forward, Munich's further development of its Circular Economy Strategy will hinge on effective monitoring frameworks to track progress and outcomes. This critical feedback loop not only informs stakeholders and decision-makers but also guides future iterations of the plan.

In conclusion, Munich's Integrated Action Plan represents a proactive step towards a sustainable and resilient city model. Through alignment, strategic prioritization, and collaborative learning via the LET’S GO CIRCULAR Network, Munich is pursuing a circular economy transition. Evaluations of the actions promise to inform future steps, ensuring the city remains adaptive and responsive to the evolving demands of genuine sustainability.

Acknowledgement message

As the city of Munich, we would like to express our appreciation to all stakeholders and cities in the LET'S GO CIRCULAR network. The exchange of ideas and stimulating input has enriched and advanced the progress towards circularity. We are motivated to continue on this path together and to sustain our successful advisory collaborations.

LET'S GO CIRCULAR!

The URBACT funded Action Planning Network LET'S GO CIRCULAR! is paving the way for a sustainable, just and productive transition of cities towards a functioning Circular Economy. Ten partner cities and their stakeholders develop integrated approaches for urban areas. LET'S GO CIRCULAR! addresses all issues relevant to a holistic strategy of circular city ecosystems, fostering innovative solutions. The concept of the 10 R Ladder (from REFUSE to RECOVER) serves as an underlying principle for the action planning.

LET'S GO CIRCULAR! partner cities: Lead Partner Munich (DE), Cluj-Napoca (RO), Corfu (GR), Granada (ES), Guimarães (PT), Lisbon (PT), Malmö (SE), Riga (LV), Oulu (FL) and Tirana (AL).

https://urbact.eu/networks/lets-go-circular

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ANNEX

Annex I - Main data sources for monitoring indicators

The following table summarizes the *data basis for the indicators* used to examine the socio-metabolic system of the city of Munich. These indicators are the reference values (baseline values) for the defined targets and monitoring KPIs.

Where data was only available for a different geographical location (e.g., the state of Bavaria), downscaling techniques were used, employing proxy information such as the gross value added (GVA) of economic sectors, the purchasing power of the population, or the population size. Further information on the methodology and the data sources used can be found in the CGR Munich methodology document[6].

Indicator	Data Source	Reference year of data value
Material footrprint (RMC)	Bavarian Houshold Expenditure: Bayrisches Landesamt für Statistik (2020). Einnahmen und Ausgaben privater Haushalte sowie Aufwendungen für den privaten Konsum in Bayern 2018	2018
	Munich Government Expenditure and GDP: Landeshauptstadt München, Referat für Arbeit und Wirtschaft (2022). Der Münchner Jahreswirtschaftsbericht 2022	2021
	GVA München: Landeshauptstadt München, Referat für Arbeit und Wirtschaft (2022). München. Der Wirtschaftsstandort. Fakten und Zahlen 2022	2022
	Environmentally Extended - Multiregional Input Output (EE-MRIO) Modell: K. Stadler, et al (2021). EXIOBASE 3	2019
Raw material productivity	GDP München: Landeshauptstadt München, Referat für Arbeit und Wirtschaft (2022). Der Münchner Jahreswirtschaftsbericht 2022	2021
Organisations	Circular Pioneers Ecosystem map: Circular Republic (2024). München als Vorreiter der Kreislaufwirtschaft: Neue Start-up Landkarte für die Circular Economy	2024
	Circular Start-ups in Germany and Munich: Circular Munich (2024). CIRCULAR MUNICH MAP	2024
Circular material use (CMU)	Composition of municipal solid waste: Wuppertal Institut für Klima, Umwelt, Energie gGmbh (2022). Zero-Waste-Konzept für die Landeshauptstadt München	2019
	Composition of household waste: Abfallwirtschaftsbetrieb München (2021), Geschäfts- und Nachhaltigkeitsbericht 2020	2020
	Separately collected recyclables: Statistische Ämter des Bundes und der Länder (2024). Regionaldatenbank Deutschland: Haushaltsabfälle - Jahr - regionale Tiefe: Kreise und krfr. Städte	2004-2022

[6] See https://cdn.prod.website-files.com/5e185aa4d27bcf348400ed82/66ab4f83ca3756ec22a142ee_%5BFINAL%5D%20CGR%20Munich%20-%20Methodology%20Document%20-%20July%202024%20.pdf

	Traded waste: Eurosat, European Union (2024), Eurostat Easy Comext	
Total waste generated	Composition of municipal solid waste: Wuppertal Institut für Klima, Umwelt, Energie gGmbh (2022). Zero-Waste-Konzept für die Landeshauptstadt München	2019
	Composition of household waste: Abfallwirtschaftsbetrieb München (2021). Geschäfts- und Nachhaltigkeitsbericht 2020	2020
	Separately collected recyclables: Statistische Ämter des Bundes und der Länder (2024). Regionaldatenbank Deutschland: Tabelle abrufen - Getrennt gesammelte Wertstoffe	2004-2022
	Construction and demolition waste: Bayrisches Landesamt für Statistik (2023). Statistik Bayern, Statistische Berichte	2018
	Industrial and chemical waste: Bayrisches Landesamt für Statistik (2022). Abfallwirtschaft in Bayern 2018	2018