



Coherent Policy Development for High-Quality and Sustainable Living Environment

Deliverable 2 Report:
State of play of the development of the
living and built environment in Estonia

Final

01 February 2023



This project is carried out with funding by the European Union via the Technical Support Instrument and in cooperation with the Directorate General for Structural Reform Support of the European Commission.

Authors

Koen Rademaekers (Trinomics)
Corina Haita-Falah (Trinomics)
Irati Artola (Trinomics)
Ling Ying Lee (Trinomics)
Maja Biemann (Trinomics)
Maja Lardot (Trinomics)
Nora Cheikh (Trinomics)
Stella Sluciakova (Trinomics)
Brigita Tool (SEI)
Kaidi Tamm (SEI)
Pille Metspalu (Hendrikson & Ko)
Tiit Oidjärv (Hendrikson & Ko)
Alex Cochrane (Sweco)
Ulf Johansson (Sweco)
Jenny Carlstedt (Sweco)
Robert Udén (Sweco)
Roode Liias (TalTech)

Contact person

Koen Rademaekers
T: +31(0)6 2272 5505
E: koen.rademaekers@trinomics.eu

Date

Rotterdam, 01 February 2023

Acknowledgement

This project is funded by the EU via the Technical Support Instrument and implemented by Trinomics, SEI Tallinn, Hendrikson & Ko, SWECO and TalTech, in collaboration with the European Commission.

Disclaimer

The views expressed herein can in no way be taken to reflect the official opinion of the European Union.



Rotterdam, 01 February 2023

Coherent Policy Development for High-Quality and Sustainable Living Environment

*Deliverable 2 Report:
State of play of the development of the built environment in Estonia*

In association with:



CONTENT

1	Introduction	8
1.1	Objectives and methodology	8
1.2	Definition of “built environment” and its relation to “living environment”	9
1.3	Definition of ‘high-quality’ and ‘sustainable’ living environment	11
2	The current state of the ‘built environment’ in Estonia	19
2.1	Overview of the built environment in Estonia	20
2.2	Buildings	25
2.3	Transport networks.....	32
2.4	Urban parks and greenery, nature reserves/services.....	36
2.5	Energy and water distribution systems, waste management	38
2.6	Mineral resources and materials	44
3	Current initiatives for improving quality and sustainability of the built and living environment in Estonia	46
3.1	Relevant EU initiatives.....	46
3.2	Cross-cutting initiatives	47
3.3	Buildings	55
3.4	Transport networks.....	61
3.5	Urban parks and greenery, nature reserves	66
3.6	Energy and water distribution systems	68
4	Governance and institutional setting of spatial development in Estonia	73
4.1	Current legislative structure with regards to spatial development	73
4.2	Plans that have an influence on spatial development	75
4.3	Key actors and the interactions between them.....	79
4.4	Facilitating the development of high-quality and sustainable living environment in Estonia - actors and factors	97
4.5	Instruments, interventions and actions to improve quality and sustainability of Estonia’s living environment	102
5	Monitoring and management of the built environment (digital services)	104
5.1	Overview of existing e-services	104
5.2	Governance of e-services	108
5.3	Overview of the efficiency and effectiveness of e-construction services	109
5.4	Opinions on the current state of play regarding digitalisation of services.....	113
6	International practices and trends	114

6.1	Territorial governance and spatial planning - systems and trends	115
6.2	EU policies and spatial planning.....	122
6.3	Challenges in comparing territorial governance and spatial planning	127
6.4	Good practices.....	128
7	Conclusions and takeaways for Estonia	158
7.1	Conclusions on the state of play	158
7.2	Lessons learnt from best practices for the Estonian context.....	161
8	Annexes	163
	Annex A: List of reviewed documents	163
	Annex B: Details on the Survey.....	168
	Annex C: Questionnaire (English)	169
	Annex D: Questionnaire (Estonian)	169

Glossary¹

Spatial planning	The main task of spatial planning is to help the parties agree on the principles and conditions for the development of a specific land area. In order to reach such an agreement as well as to ensure the sustainability of the agreement, spatial development must be planned democratically and long-term, coordinating and integrating the development plans of various areas of life. The long-term trends and needs of the development of the economic, social and cultural environment, as well as the natural environment, must be taken into account in a balanced way when creating a comprehensive spatial solution.
Spatial decision	Decisions made by different governmental institutions, local municipalities and private actors about the locations or spatial interactions of phenomena or factors in their specific fields. Often spatial decisions are made independently of spatial planning processes.
Spatial planning system	A collection of institutions that mediate competition over the use of land and property, and regulate land use change and development to promote preferred spatial and urban form.
Territorial governance	Active cooperation across government, market and civil society actors to coordinate decision-making and actions that have an impact on the quality of places and their development.
Level of government	A separate level of government administration having directly elected bodies with decision-making power in relation to spatial planning competences.
Functional planning regions	A common administrative arrangement for a special body created to deal with functional areas, such as metropolitan regions, polycentric urban forms and urban corridors.
Planning instruments	Plans and other tools that are used to mediate and regulate spatial development.
Visionary instruments	The setting of a normative agenda of principles or goals for a desirable future.
Strategic instruments	An evidence-based integrated and long-term frame of reference for coordinated action and decision making across jurisdictions and sectors.
Framework-setting instruments	Policies, proposals and other criteria for a territory that provide a non-binding reference for other plans and decision-making.
Regulative instruments	Legally binding commitments or decisions concerning land use change and development.
Statutory	Stipulated or provided for in legislation related to spatial planning, that is enabled or required by the law.

¹ From ESPON COMPASS

1 Introduction

1.1 Objectives and methodology

The overall purpose of this report is to set the scene for the next deliverables of the project, by firstly clarifying the terminology, and secondly presenting the current state of the spatial planning and of the built and living environment in Estonia. The next chapters of the report present (1) the general setting of the country and the main issues affecting the current state of the built environment, including issues related to the relevant infrastructures and the population dynamics, (2) the existing governance and management model of the built environment, (3) current initiatives meant to improve the quality of the built and living environment, as well as proposed options for improving it, drawing inspiration from international good practices. The report is thus meant to help with the understanding of the state of play in the built environment and its relation to the living space in Estonia and to identify the areas where the built environment needs improvement in order to contribute to reaching a high-quality and sustainable living environment.

The understanding of the state of play is based on desk research and a survey with the relevant stakeholders. The desk research consists of a comprehensive review of around 30 relevant reports, strategies, action plans, policy documents, and other supporting materials (see *Annex A: List of reviewed documents* for the complete list of the documents reviewed), as well as peer-reviewed scientific articles. A survey was also conducted with a range of relevant Estonian stakeholders, including public central and local authorities, professional associations, civil society, as well as small and medium enterprises in the spatial planning and construction sector. The aim is to gather a more complete picture regarding the current state of play of the Estonian built and living environment, and to better understand the vision for the future of these different types of stakeholders which ranges from public authorities to space planning and building specialists and international organisations. Additionally, to draw lessons for improvement, we review relevant international good practices regarding both governance and spatial planning. Finally, we apply these good practices to emphasize lessons for the Estonian context.

The survey was sent to stakeholders from the set of organisations presented in Table 8-1 of Annex B. The survey was open between October 3 and November 4, 2022 (both dates inclusive) and it was available in two languages - English and Estonian. In total, there were 98 participants to the survey of which 48% represented local governments, followed by ministries with 27% and governmental agencies with 10%. The exact distribution of the respondents by the type of organisation is presented in Figure 8-1 of Annex B.

We designed the survey to **elicit respondents' views** with respect to (i) the state of the physical and non-physical living environment, both in the large municipalities and in the small towns of Estonia; (ii) the essential elements that contribute to the definition of the living environment on the one hand and of the built environment on the other hand; (iii) the factors and actors that facilitate or hinder the development of a sustainable and high-quality living environment in Estonia. The purpose of the survey was also to **collect information** regarding (iv) past and existing private and public initiatives meant to improve the quality and sustainability of the living environment, as well as regarding (v) the existing digital services and digital needs in the domains of planning, design and management of the living and

built environment in Estonia. The results of the survey are included throughout the report at the respective sections and topics that constitute the content of this report.

1.2 Definition of “built environment” and its relation to “living environment”

The notions of “built environment” and “living environment” are often used interchangeably. Therefore, before proceeding to describe the state of play in the built/living environment in Estonia, it is worth clarifying the two terms and the difference between them.

The General Multilingual Environmental Thesaurus defines “living environment” as the “external conditions or surroundings in which people live or work.”² The Thesaurus also defines the “built environment,” namely, “*the part of the physical surroundings which are people-made or people-organised, such as buildings and other major structures, roads, bridges and the like, down to lesser objects such as the traffic lights, telephone and pillar boxes.*” The term “built environment” has emerged in 1980 and it is understood to encompass everything that is humanly made from past, present and future plans.³

We can, therefore, conclude that “living environment” is a broader concept than that of “built environment”.⁴ While the living environment consists of both physical and non-physical surroundings, the built environment is only a part of the physical surrounding in which people live and work, including their social, religious and cultural activities. In the academic world, the term “built environment” is also sometimes used interchangeably with the term “urban environment,” although the rural areas also have built environment.⁵ The urban environment has three main components: social environment, physical environment and the provision of services (educational, cultural, health etc.). In turn, the physical environment contains the natural environment, such as ecosystem services, and the built environment. The nature and the quality of the built environment impacts the social environment of its residents. For example, living in a spatially segregated areas might make it hard for someone to engage with communities outside the area in which they live.

In the Estonian context, living environment is defined as a finite resource consisting of physical space, both built and natural environment, indoors and outdoors.⁶ Going beyond physical versus non-physical classification of space, the “Estonia 2035” Strategy⁷ regards both personal and public space as integral parts of the living environment. This view is also shared by the stakeholders participating in the survey conducted as part of the tasks completing this report, where the ***built environment is seen primarily as comprising physical elements such as buildings and physical infrastructure (transport and technical infrastructure), sport places and availability of high-quality digital infrastructure*** (see Figure 1-1).

² The Thesaurus is maintained by the European Environment Agency and the European Environment Information and Observation Network and is accessible at <https://www.eionet.europa.eu/gemet/en/themes/>

³ John Wiley & Sons (2007). The Built Environment: A Collaborative Inquiry into design and Planning. Retrieved from http://students.aiu.edu/submissions/profiles/resources/onlineBook/N5Q8Z6_Design_and_Planning-2.pdf

⁴ The purpose of this report is to depict the state of play of the “built environment” in Estonia. However, it is part of a project that is dealing with the “living environment.” While this report clarifies the difference between these two terms, the reader is made aware that, generally, the documents reviewed here do not make any distinction between the two terms. Therefore, the authors of the current report have taken over the terminology used in the respective documents cited here, with the caveat that they might have been used interchangeably.

⁵ Smit, W. et al. (2016). Making unhealthy places: The built environment and non-communicable diseases in Khayelitsha, Cape Town, Health and Place, Volume 39, Pages 196-203. Retrieved from <https://www.sciencedirect.com/science/article/pii/S1353829216300247>

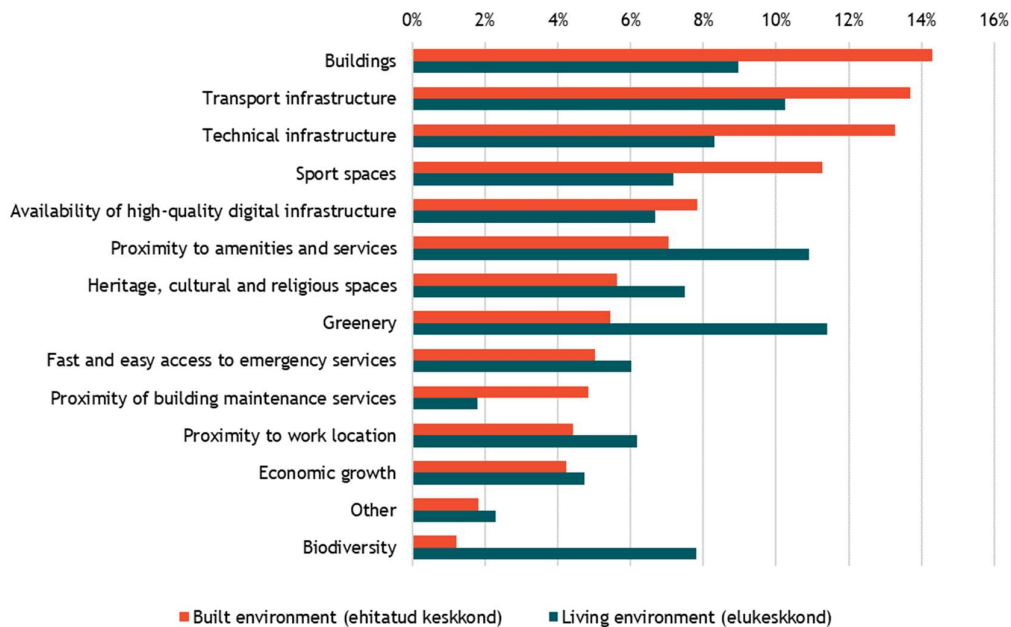
⁶ Republic of Estonia Government (2018). Report of the Expert Group on Spatial Design. Retrieved from <https://www.kul.ee/media/799/download>

⁷ Republic of Estonia Government (2021). “Estonia 2035” National long-term Development Strategy. Retrieved from <https://valitsus.ee/en/estonia-2035-development-strategy/strategy/strategic-goals>

Further, the survey outcome also shows that:

- **Buildings and physical infrastructure** are also seen as **prominent elements** for the *living* environment;
- The **most important elements** for the living environment are **greenery and proximity to amenities and services**.
- Heritage and cultural spaces, as well as access to emergency services are seen as **equally important** for living and built environment.
- It is also worth noting that biodiversity is chosen in 8% of the cases as an element of living environment as compared to only 1% of the cases as an element of the built environment.

Figure 1-1: Stakeholders' opinion on the elements defining living and built environment, N=76



Source: Survey with stakeholders conducted as part of the task for this report

When it comes to the planning of the living space/environment, the view of the Estonian Ministry of Finance (MoF), expressed in the “Green paper on Estonian spatial planning”⁸, is that spatial planning should be comprehensive and should aim to support several goals at the same time - e.g. a pedestrian road should serve both to reaching the school and the local government building. Hence, a **comprehensive spatial solution that combines different solutions and addresses several sectoral challenges will form the basis for a comprehensive living environment**. Apart from such conscious solutions, spatial planning ultimately may also contain unconscious planning and implementation decisions that affect the development of the living environment. Therefore, the quality of the living environment is often determined even before a process of spatial design and planning has started or before the involvement of experts.

⁸ Estonian Ministry of Finance (2020). Green Paper on Estonian Spatial Planning. Retrieved from <https://planeerimine.blogi.fin.ee/wp-content/uploads/2021/05/Green-Paper-on-Estonian-Spatial-Planning.pdf>

The above recommendations of the MoF regarding the need for a comprehensive spatial planning are due to the fact that, indeed, in the Estonian context, a large number of spatial decisions are made in silos,⁹ without any links to spatial planning, or to the long-term goals and value associated with the building projects. For this reason, the spatial decisions can be characterised as “spatially blind”. These include, for instance, decisions related to some transport and housing policy issues, forestry, mining, and access to services. **Therefore, for the purpose of this report, the term “spatial planning” should be rather understood as “spatial decisions”.**

1.3 Definition of ‘high-quality’ and ‘sustainable’ living environment

Beyond Estonia

The European Green Deal is committed to reach carbon neutrality of the EU economy by 2050 and to decouple growth from the use of resources, while leaving no person or nation behind and improving the well-being of all European citizens. In support of these goals, the European Commission has launched the New European Bauhaus initiative, which includes policy actions and funding opportunities, i.e. the European Regional Development Fund, Horizon Europe and LIFE, with the overarching purpose of designing sustainable living spaces. The initiative is engaging citizens, experts, businesses, and institutions to provide innovative ideas, tools and solutions for rethinking sustainable living in Europe and beyond. In doing so, the initiative aims to bring together three values:¹⁰

- Sustainability: climate neutrality, circularity and biodiversity;
- Aesthetics: quality experience and style in addition to functionality;
- Inclusion: nurturing diversity and ensuring accessibility and affordability.

This approach is also reflected in the metrics developed by Eurostat which includes¹¹ the natural and living environment, as well as the material living conditions, leisure and social interactions as integral parts of the quality of life in the EU. However, in this context of data collection, the notion of “living environment” has a limited view and essentially refers only to pollution, particularly air pollution and fine particle matter, grime and noise.¹²

Beyond EU, the Davos Declaration on Baukultur from 2018,¹³ to which 34 countries around the world have committed to and which was approved by a Conference of the European Ministers of Culture.¹⁴ The Declaration maintains that **a high-quality built environment should not provide only safe and healthy living conditions. In addition, it should also provide elements that contribute to social cohesion, such as traditions, practices, knowledge, skills or any other stamps of human activity on the physical environment.** Combined, these elements form the cultural environment which is recognized by the EU as an important component of a high-quality built environment. This recognition has been materialized in two resolutions of the Council of the European Union, namely the Council Resolution on architectural quality in urban and rural environments (2001/C73/04)¹⁵ and Council

⁹ This means that different entities work in the same field and possibly towards the same or similar objectives, but without communication and coordination.

¹⁰ European Union (n.d.). New European Bauhaus. Retrieved from https://new-european-bauhaus.europa.eu/about/about-initiative_en

¹¹ Eurostat (n.d.). Quality of Life. Retrieved from <https://ec.europa.eu/eurostat/web/quality-of-life>

¹² Eurostat (2022). Quality of life indicators - natural and living environment. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Quality_of_life_indicators_-_natural_and_living_environment

¹³ Swiss Confederation (2018). Davos Declaration 2018. Retrieved from <https://davosdeclaration2018.ch/davos-declaration-2018/>

¹⁴ Swiss Federal Office of Culture (n.d.). Involved countries and organisations. Retrieved from <https://www.bak.admin.ch/bak/en/home/baukultur/konzept-baukultur/erklaerung-von-davos-und-davos-prozess/beteiligte-staaten-und-organisationen.html>

¹⁵ EC (2001). Council Resolution of 12 February 2001 on architectural quality in urban and rural environments. Retrieved from [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001G0306\(03\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001G0306(03)&from=EN)

conclusions on architecture: culture's contribution to sustainable development (2008/C 319/05).¹⁶ Both of these resolutions advocate for an architectural quality that treats the cultural heritage of cities with care, thus contributing to creating more sustainable cities. In order to ensure a wide access to the cultural environment and for everyone to enjoy a high-quality living and build environment, not only is cooperation across sectors and governance at several levels are needed simultaneously, the involvement of all stakeholders to create a diverse cultural environment that is inclusive and accessible to all is also necessary.

In 2021, based on the 2018 Davos Declaration on Baukultur of the Ministers of Culture, the Baukultur Quality System was developed with the purpose of providing a guideline for defining a high-quality built environment, from spatial planning and design to construction (Baukultur). To this end, the system is able to assess, review and analyse the quality of the built environment based on eight criteria, namely:¹⁷

1. **Governance:** the quality of the living environment depends on the decisions made by local, regional and central governing bodies. High-quality built environment can be assured if conditions are developed to inform spatial solutions and planning/management processes to ensure quality outcomes;
2. **Functionality:** the built environment needs to address the needs of the users, such as shelter, security, health, and be able to adapt to changing needs;
3. **Environment:** the built environment needs to take the natural environment into account, such as sustainable land use, density problems, nature-based solutions, protect biodiversity, reduction of emissions and energy demand, climate change etc.;
4. **Economy:** the built environment should be financially/economically viable in the long term such that it provides benefits to commercial and social development and it uses financial resources efficiently, prioritizing the preservation of cultural values over short-term benefits;
5. **Diversity:** the built environment should encourage social inclusivity and improve social cohesion by promoting interaction between people;
6. **Context:** the built environment should be developed by taking into account the landscape and the surroundings in terms of scale, typology and materiality;
7. **Sense of place:** the built environment should have a positive impact on the local culture and community by fostering local character and giving special attention to the local unique identity of a place and the people attached to it;
8. **Beauty:** the built environment should have a positive aesthetic and atmospheric impact through enhancing people's emotional and sensory experience, which has a positive impact on the community, socially and economically.

As maintained by the 2018's Davos Declaration on Baukultur, **an essential component of a high-quality living environment is the quality of constructions**, i.e. the built environment as part of the living environment. For a high-quality built environment, the process of creation and design is as important as the appearance and functionality of the built environment, and indeed this is realised through quality capabilities and competence of all those involved. Another important element of a high-quality built environment is that it **achieves a broad social impact through high-quality design, by strengthening social cohesion and creating a bond of the users with the built environment in which they live**. In

¹⁶ European Union (2008). Council conclusion on architecture: culture's contribution to sustainable development. Retrieved from [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52008XG1213\(02\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52008XG1213(02)&from=EN)

¹⁷ European Union (2021). Towards a shared culture of architecture. Retrieved from <https://op.europa.eu/en/publication-detail/-/publication/bd7c7ba7e-2680-11ec-bd8e-01aa75ed71a1/language-en>

particular, public space has a crucial role in social integration and therefore high-quality public space ensures that it remains public and cannot be appropriated by any specific group.

Another characteristic of a high-quality built environment is that, through its design, it **improves the quality of life by satisfying the psychological, cognitive, emotional, social and cultural needs of humans**. Hence, the declaration of the Ministers of Culture encourages that the design of the built environment includes the so-called “environmental psychology,” puts the well-being of the people front and central and considers the relationship between human beings and their built environment. These can be better understood and facilitated by including the population in the decision-making process to strengthen not only their sense of responsibility for the design of their surroundings, but also their knowledge and understanding of the requirements for a high-quality built environment. The participation of the population in the design and construction process can be a fruitful source of solutions to the over-urbanisation issues and the creation of new models of living to ensure sustainable communities and economies.

A high-quality built environment must also ensure cultural richness and diversity with a view of creating a cultural value of the built environment. Along this line, the built environment should also preserve the regional identity, diversity and design traditions, and ensure durability of the buildings and infrastructure through innovation and high-quality craftsmanship. In fact, a pre-requisite for high-quality built environment is the participation of excellent professionals in all disciplines involved, from architects, constructors and economists to professionals in sociology and psychology of space.¹⁸ Their collaboration would contribute to the creation of a high-quality built environment which should be able to generate long-term economic benefits, ensure social integration and cohesion, protect the environment and natural resources for creating a sustainable living environment also for the next generations, and fulfil the cultural, social and psychological needs of its inhabitants and users. A high-quality living environment is thus defined by the impact of the relationship between the built and the natural environment on people’s wellbeing, by the degree of spatial coherence, its scale, its materiality and the degree to which it is tailored for the specific place.¹⁹

As for the notion of *sustainable built environment*, this is considered to embed several areas, namely environment, society, economy, having a life-cycle, circular view on issues such as the manufacturing of construction material, building design and engineering, urban planning and the environmental quality of the indoor space, including the quality of the social and community cohesion.²⁰ Thus, **a sustainable built environment is designed to be durable, to be flexible and adaptable, to be fit for dismantling, reuse, remanufacturing and recoverability, and to take into account adaptation and mitigation measures against climate change.** This means that it makes use of low-carbon and low-impact materials and technologies, i.e. renewable energy, secondary materials and recovered resources, not only at the planning, design and construction phases, but also at the utilization phase. A sustainable built environment is made to ensure sustainable water consumption and access to sustainable mobility means and sharing schemes, to offer greenery and to conserve natural biodiversity. All these contribute the wellbeing, safety and social connectivity of its users.²¹

¹⁸ Swiss Confederation (2018). Davos Declaration 2018. Retrieved from <https://davosdeclaration2018.ch/davos-declaration-2018/>

¹⁹ Ibid

²⁰ Abraham, M. (2017). Section Introduction: Sustainable Built Environment. Retrieved from <https://doi.org/10.1016/B978-0-12-804677-7.02003-X>.

²¹ WBCSD (n.d.). Blueprint for a sustainable built environment. Retrieved from <https://www.wbcd.org/Programs/Cities-and-Mobility/Sustainable-Cities/Blueprint-for-a-sustainable-built-environment>

In the Estonian context

In the Estonian context, sustainability is not a new topic. The country has had a Sustainable Development Act since 1995,²² being one of the first countries in Europe and across the world to adopt such a law. In 2005, this was followed by the Estonian Sustainable Development Strategy called “Sustainable Estonia” (EE: “Säästev Eesti”), which covers 17 of the United Nations Sustainable Development Goals (UN SDG) and which defines environmental monitoring. In light of these documents, among other things, a balanced development of the living environment and production activity was stipulated as the main direction of spatial planning.

Continuing to incorporate the UN SDG in its strategic plans, in 2020 Estonia adopted its long-term strategy “Estonia 2035.”²³ The living environment is one of the five goals of this development strategy, which are to be achieved via development plans and programmes developed by the central governmental agencies. Hence, the need for the work conducted under this project, which contributes to the development of the plans and programs dedicated to the improvement of the living environment. The development of these plans and programmes accounts for the targets of the local governments, but also of the local, public, private and civil sectors organisations. Regarding the living environment, “Estonia 2035” sets out three specific goals:

- **Design that meets the needs of all people** in terms of space planning, inclusive design, use of innovative technologies and nature-based solutions, effective mobility;
- **Safety**, especially regarding public space planning that ensures secure and health-promoting behaviour;
- **High quality**, i.e. spatial planning should preserve the heritage and biodiversity of nature.

Hence, Estonia **sees people and their interaction with the natural and artificial environment as a central element for creating a high-quality living environment**. Moreover, in Estonia, the living environment is diverse, and this itself is considered a value.²⁴ However, access to services across different living conditions should be ensured in all regions and for this the state intervention and participation is crucial.

Similarly, the report of the Expert Group on Spatial Design published in 2018 by the Ministry of Culture of Estonia²⁵ **regards high-quality living environment as both private and public space that balances cultural, technological, economic and natural aspects to ensure the well-being of the Estonian citizens**. In fact, similarly to the EU context, the “Estonia 2035” Strategy²⁶ considers access to cultural life as a requirement for a high-quality and valuable living environment. Moreover, a high-quality space that includes the architecture of buildings, both exterior and interior is the basis for creating a sustainable and integrated living environment through design and construction. This implies the creation of a large set of options in terms of living and working space, as well as a clean natural environment and a well-constructed and sustainable build environment.²⁷ In turn, the high quality of

²² Republic of Estonia Government (2013). Sustainable Development Act. Retrieved from <https://www.riigiteataja.ee/en/eli/530122013003/consolide>

²³ Republic of Estonia Government (n.d.). Long-term strategy “Estonia 2035”. Retrieved from <https://valitsus.ee/strateegia-est-2035-arengukavad-ja-planeering/strateegia>

²⁴ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

²⁵ Republic of Estonia Government (2018). Report of the Expert Group on Spatial Design. Retrieved from <https://www.kul.ee/media/799/download>

²⁶ Republic of Estonia Government (n.d.). Long-term strategy “Estonia 2035”. Retrieved from <https://valitsus.ee/strateegia-est-2035-arengukavad-ja-planeering/strateegia>

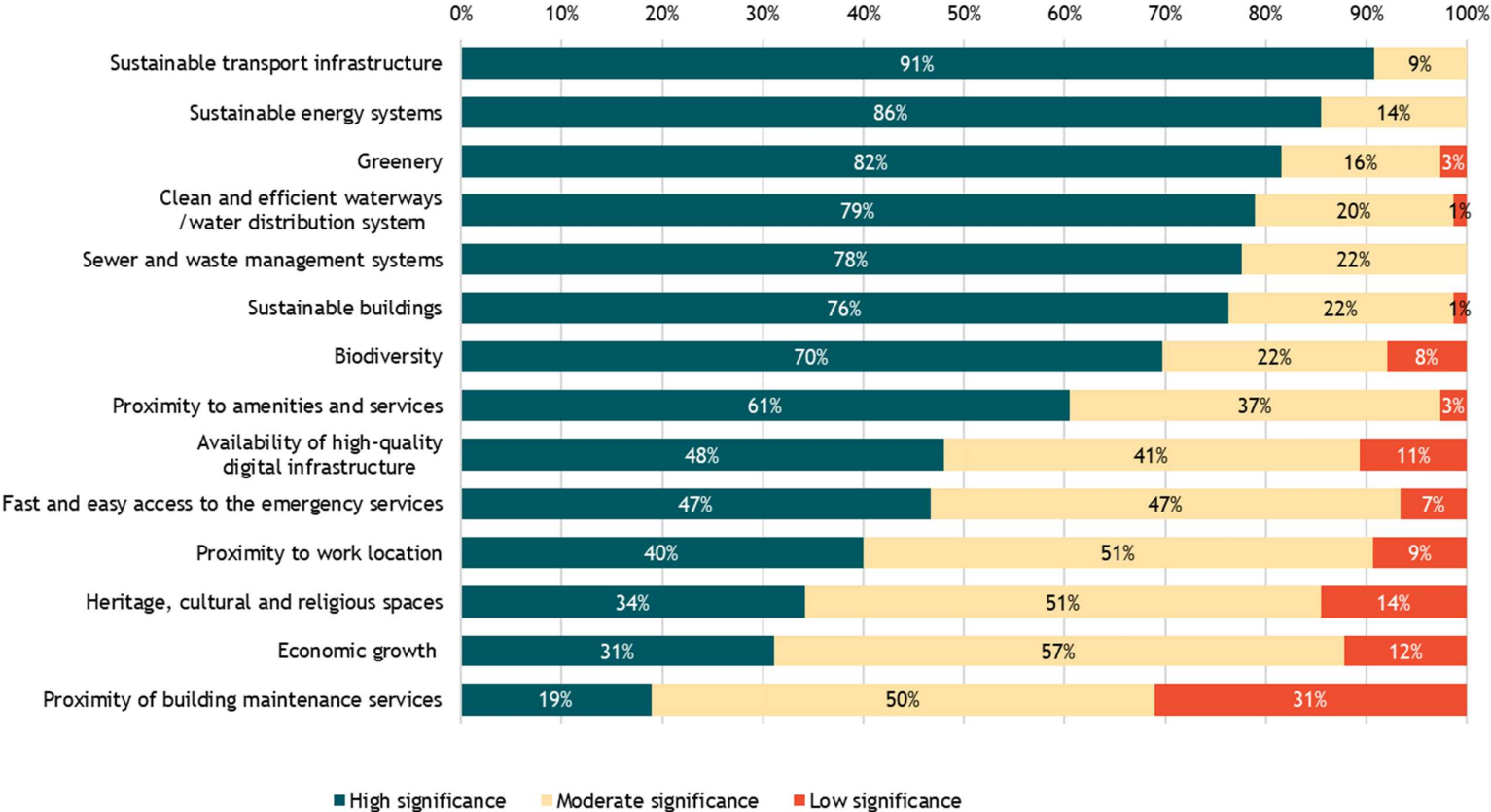
²⁷ Estonian Ministry of the Interior (2013). National Spatial Plan Estonia 2030+. Retrieved from <https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf>

public and private spaces balances the artificial and natural environment, which includes outdoor and indoor spaces.²⁸

The views of the stakeholder surveyed for this report reveal that for Estonia, **sustainable transport infrastructure** has the highest importance in developing a sustainable living environment. This is closely followed by **sustainable energy systems** and **greenery** (see Figure 1-2). Combining this with the understanding of the concepts of living and built environment in Estonia (see Figure 1-1), it shows that important elements of the built environment must be considered and created in a sustainable way in order to provide for an overall sustainable living environment. Importantly, greenery and biodiversity remain an element of high importance in creating a sustainable living environment, while the least important are the proximity to building maintenance services and, remarkably, economic growth.

²⁸ Estonian Ministry of Finance (2019). Working Group Final Report on Spatial Development 2019. Retrieved from https://www.rahandusministeerium.ee/et/system/files_force/document_files/ruumiloome_tooruhma_lopparuanne.pdf

Figure 1-2: Importance of elements for sustainable living environment (n=76)

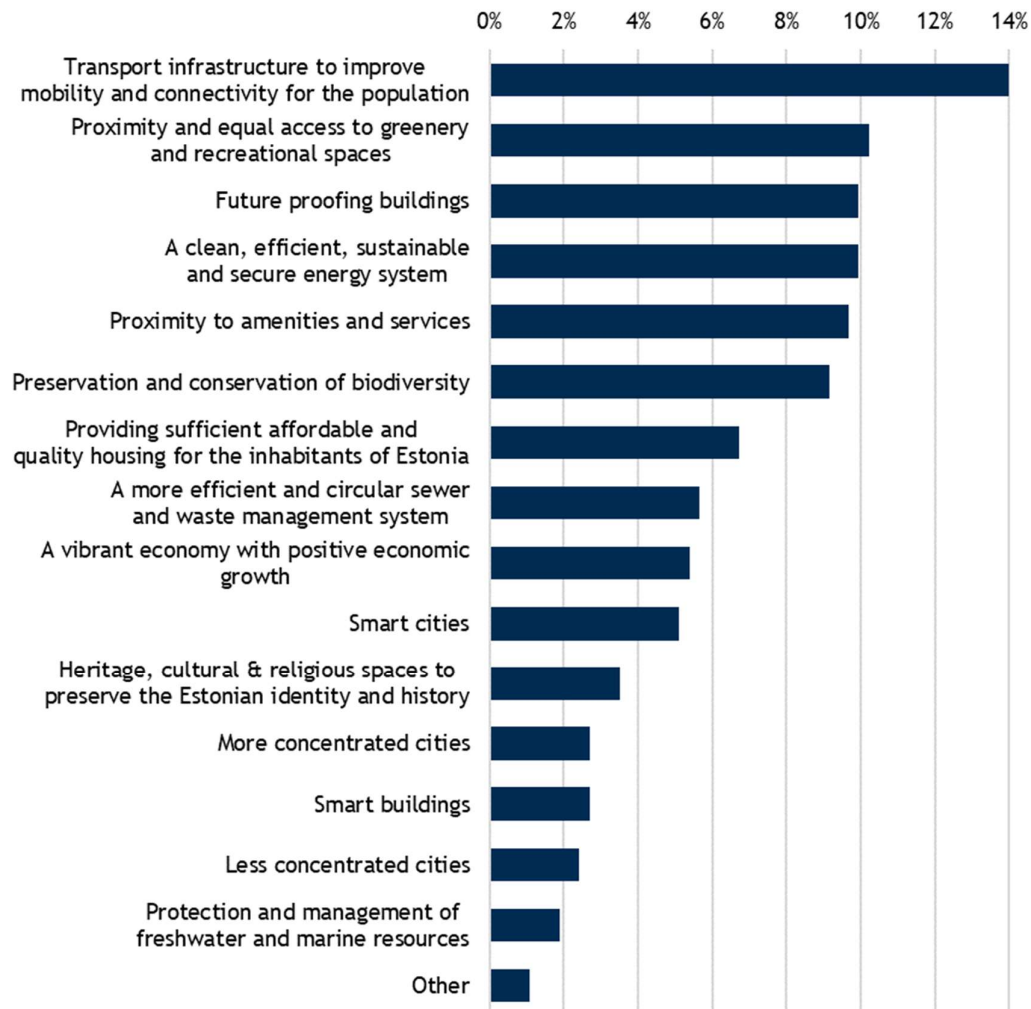


Source: Survey with stakeholders conducted as part of the task for this report

When it comes to the definition of a high-quality living environment, the current top five priorities listed by the survey respondents are (see Figure 1-3):

- Transport infrastructure that improves mobility and connectivity;
- Proximity to greenery and recreational spaces;
- Future proofing buildings;
- Clean, efficient, sustainable and secure energy system; and
- Proximity to amenities and services, such as healthcare, education, services etc.

Figure 1-3: Stakeholders' views on elements that constitute high-quality living environment (n=76)



Source: Survey with stakeholders conducted as part of the task for this report

It should be noted that the views of the stakeholders regarding the elements of a high-quality and sustainable living environment are a snapshot of the moment, and they may change in the future. They might, nevertheless, be a reflexion of the current needs and perceptions of what a high-quality and sustainable living environment encompasses. These needs may alter over time as some of them become fulfilled and the thus the new priorities take over.

Similar study conducted in Hong Kong, as part of the development of the city's Planning Vision and Strategy Hong Kong 2030,²⁹ has revealed through research and consultations with the public that the following elements constitute the conditions for a high-quality living environment:

- A green and clean environment
- Good aesthetics
- Efficient transportation
- A sense of space as a “dynamic mix of psychological (e.g. need for and perception of comfort and privacy) and physical attributes (e.g. internal layout, penetration of natural light and air ventilation, the neighbourhood and the local environment)”
- Diversity to provide choices for living style preferences (e.g. between rural and urban environments)
- A sense of place - designed to a human scale, taking into account the cultural heritage of the place
- Good urban infrastructure: community facilities, open space, green and efficient energy supply, waste and water management systems
- An inclusive and caring society - e.g. fair access to infrastructure to facilitate societal harmony

While there are many differences between Hong-Kong, an agglomerated city and Estonia, a country with scattered population, but a few agglomerated cities, we can gather that the views on what constitutes a high-quality living environment are fairly well shared by the population in both Hong-Kong and Estonia. For example, greenery, efficient transportation, efficient energy and water and waste infrastructure are listed as top elements in both studies.

In addition to the actual elements of the living surroundings, high-quality and sustainable living environment also include activities and processes that contribute to its creation. Thus, a working group headed by the Ministry of Finance of the Government of Estonia³⁰ has concluded that **the creation of a high-quality living environment includes spatial planning, decisions and design activities regarding building construction, architecture, spatial management, built and natural space, infrastructure and all the other decisions that involve the development of space.**

The Ministry of Culture and the Ministry of Finance, together with the Ministry of Economic Affairs and Communications and the Ministry of Environment, have elaborated **twelve basic principles of quality space**,³¹ which are largely in line with those enlisted by “Estonia 2035” and the Report of the Expert Group on Spatial Design. These include timeliness and relevance, expediency, adaptability, economy and efficiency, minimizing the life-cycle costs, climate suitability and environmental friendliness, safety and health, accessibility to all members of the society throughout their entire life span. Moreover, a high-quality space ensures social cohesion, supports diversity and prevents segregation, has distinctive features that create a sense of place, is considerate and friendly with the cultural heritage and has an aesthetic dimension.

The changes that occur in the process of creating a high-quality built environment should be well managed, especially for irreversible processes such as the loss of arable land, valuable landscapes

²⁹ https://www.pland.gov.hk/pland_en/p_study/comp_s/hk2030/eng/finalreport/, Chapter 4: “The desired living environment”

³⁰ Estonian Ministry of Finance (2019). Working Group Final Report on Spatial Development 2019. Retrieved from https://www.rahandusministeerium.ee/et/system/files_force/document_files/ruumiloome_tooruhma_lopparuanne.pdf

³¹ [KVALITEETSE RUUMI ALUSPÕHIMÕTTEDhttps://www.kul.ee/media/download](https://www.kul.ee/media/download)

or biodiversity.³² Hence, a prerequisite for a high-quality spatial solution is a good and well-thought-out spatial decision, most commonly at the governmental level, that affects the development of space. Nevertheless, the current situation in Estonia has demonstrated that this is yet not the case. Instead, factors such as tax policy, lack of long-term investment plans, changes in business plans, whereby the initial plans are only partially implemented, the general economic conditions, the process of acquiring building permits and the effectiveness of construction supervision seriously affect the quality of the built environment and the sustainable land use.³³

2 The current state of the ‘built environment’ in Estonia

The current state regarding the built environment in Estonia has been described by the Expert Group on Spatial Design. The country lacks a common understanding and an agreement between authorities about high-quality space/living environment. The statutes of government agencies, state foundations and companies, including RKAS, the Land Board, the Road Administration, Tallinn Port, etc., do not include the objective of creating a high-quality space. Currently, the priority is to achieve key sectoral objectives, which, without reflection on the space as a whole, do not guarantee the development of a coherent space. In addition, there is a preconceived opinion that the best decision from the point of view of space means high expenditures, although in the long run, this may not be the case.³⁴ To date, Estonia has not had a comprehensive and coherent spatial policy at country level, that could serve as a basis for regional planning and policy that would cover both natural and built environment. There is also a lack of a unity at the state level that could bring together competencies of the various spatial fields.

To overcome this drawback and build a unitary approach to spatial decisions, the Expert Group recommends that several topical issues must be addressed simultaneously, namely:

- the location of settlements in the country: to ensure compactness of urban settlements and preservation of a close-to-natural living environment in rural areas;
- encouragement for the use of historical buildings;
- coordination of the developmental issues of urban areas above the boundaries of local municipalities;
- implementation of the school reform and the creation of a modern learning environment;
- implementation of the support measures for rental housing;
- a more balanced regional development and adaptation to the decrease in the number of inhabitants in certain regions;
- replacement or modernisation of the depreciated mass-construction housing;
- development and implementation of national projects promoting space like the follow-up project of EV100 “Good Public Space”³⁵.

³² Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

³³ Estonian Ministry of Finance (2020). Green Paper on Estonian Spatial Planning. Retrieved from <https://planeerimine.blogi.fin.ee/wp-content/uploads/2021/05/Green-Paper-on-Estonian-Spatial-Planning.pdf>

³⁴ Republic of Estonia Government (2018). Report of the Expert Group on Spatial Design. Retrieved from <https://www.kul.ee/media/799/download>

³⁵ EAI. (2015). EV100 Great Public Space. Retrieved from http://www.arhliit.ee/english/ev100_greatpublicspace/

2.1 Overview of the built environment in Estonia

Estonian population and built environment

Overall, Estonia is a sparsely populated country across vast areas, with an **average population density of 31 inhabitants per squared kilometres**³⁶. Estonia is experiencing a **shrinking population** due to aging population and emigration, over the past 30 years: population has shrunk by 15% with projections indicating a continued downwards trend.³⁷ This was partially driven by the withdrawal of Russian troops and their families in the 1990s post-Estonian independence from the Soviet Union. Further, Estonia is also facing **great internal migration towards more densely populated areas**, such as Tallinn and Tartu. Table 2-1 provides a comparison of the situation in Estonia and the EU. Overall, Estonia is a less densely populated country compared to the EU average, although the share of the population living in urban areas is only slightly lower than the EU average. Even the most densely populated urban area of Estonia, namely Tallinn, is far below the EU average of the most densely populated cities in each MS, i.e. about 2,600 inhabitants/squared km compared to over 10,000 inhabitants/squared km as EU average, Paris being the most agglomerated city in the EU.³⁸ However, it is important to keep in mind that these statistics do not take into account the impact of the migration of Ukrainian refugees on current population trends.

Table 2-1 Summary of statistics on the Estonian and EU population and built environment

Indicator	Estonia	EU	Source (year)
Population density (inhabitants per km ²)	31	112	World Bank (2021)
Urban population	69%	75%	World Bank (2021)
Urban population density in most populated cities of each MS	2597	10,091	Eurostat (2015)
Settlement area (m ² per capita)	1,484	703	Eurostat (2018)
Built-up area	0.4%	1.3%	Eurostat (2018)
Unoccupied dwellings	9%	n/a	National survey on housing vacancy rates and patterns of vacancy in Estonia

The development of Estonia's current built environment is characterised by **significant intermigration**, whereby Estonia's metropolitan areas (Tallinn and Tartu) are considerably growing while the rest of the country is shrinking (Figure 2-1 **Error! Reference source not found.**).³⁹ This means that the population is migrating towards urban areas where the economic activity (jobs and education) and services are concentrated. According to the OECD,⁴⁰ about **a third of Estonia's population lives in the capital area**, compared to the average of 20% of the OECD countries, and about 69% of the population lives in cities.⁴¹ The parallel expansion of Tallinn and the shrinkage of the population in the rest of the country has given rise to *two Estonias*,⁴² with a clear division of spatial structure and administration between Tallinn and the other regions. Figure 2-1 illustrates the population concentration in the country.

³⁶ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

³⁷ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

³⁸ Based on 2015 data retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:Urban_Europe_%E2%80%94_statistics_on_cities,_towns_and_suburbs_%E2%80%94_life_in_cities&oldid=294950#Database

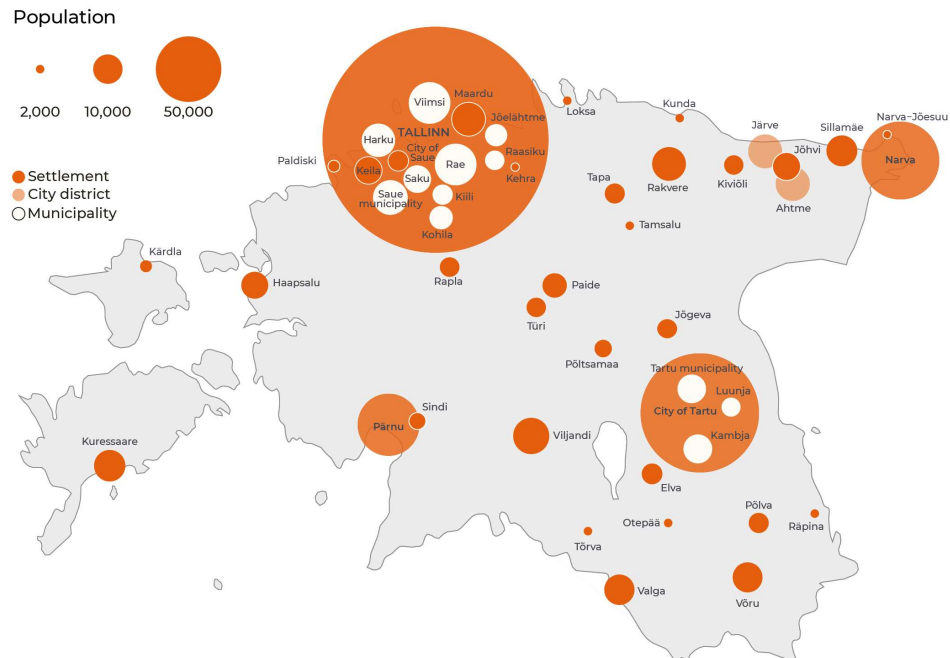
³⁹ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

⁴⁰ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

⁴¹ World Bank (n.d.). Urban population (% of total population - European Union. Retrieved from <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=EU>

⁴² Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

Figure 2-1 The Estonian urban system (2,000 or more residents as of 2019)



Source: Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/introduction-0.html>

According to a study by the Ministry of Economic Affairs and Communication, based on electricity consumption data, about **9% of Estonia’s residential building stock are unoccupied**.⁴³ This amounts to about 50,000 dwellings.⁴⁴ These uninhabited dwellings are scattered, more often in townships/villages than in cities, which can make it difficult for municipalities to set up a living environment strategy, given that the unoccupied dwellings are not concentrated.⁴⁵ The area with the highest percentage of uninhabited dwellings is in the South. In terms of type of buildings, large apartment buildings built in 1960-1990 have the highest rates of unoccupancy.⁴⁶ Namely, the Northeast region of Ida-Viru has lost more than a third of its inhabitants over the past thirty years.⁴⁷

The shrinking population is not an inconsequential issue. Population differences across the country leads to uneven tax revenues, salaries, housing markets, quality of public services (e.g. education), as well as the quality of the built environment.⁴⁸ Further declining population inevitably leads to higher costs per capita for local public services which, coupled with lower tax revenues, can lead to deteriorating built environments. Therefore, additional municipal resources are needed to compensate for declining tax revenues. Further, providing services to local residents, particularly vulnerable population, can be more difficult for local authorities in small municipalities where the population is

⁴³ Based on electricity data, the share of unoccupied apartments is 7.7% and for one- or two-family dwellings, 12.2%. It is important to note that this data was gathered before the Covid-19 pandemic and the war in Ukraine.

⁴⁴ Spin Unit & TalTech (2022). National survey on housing vacancy rates and patterns of vacancy in Estonia. Retrieved from https://eehitus.ee/wp-content/uploads/2022/04/Tuhjenemise-mustrid_lopprapprt_2022_compressed.pdf.

⁴⁵ Spin Unit & TalTech (2022). National survey on housing vacancy rates and patterns of vacancy in Estonia. Retrieved from https://eehitus.ee/wp-content/uploads/2022/04/Tuhjenemise-mustrid_lopprapprt_2022_compressed.pdf.

⁴⁶ Spin Unit & TalTech (2022). National survey on housing vacancy rates and patterns of vacancy in Estonia. Retrieved from https://eehitus.ee/wp-content/uploads/2022/04/Tuhjenemise-mustrid_lopprapprt_2022_compressed.pdf.

⁴⁷ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

⁴⁸ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

greatly scattered. Among other consequences, this can further have an adverse impact on the capacity for small municipalities to adopt adequate climate adaptation measures.⁴⁹ An administrative reform merging local governments, which can enable redistribution of funds at the local level, could help ensure that these regions are sufficiently equipped for climate adaptation.⁵⁰

Distribution of Estonia's land use

Table 2-2 provides an overview of the distribution of the land use by activity. More than half of Estonia's land is comprised of forests, and almost a quarter is being used for agriculture. Other primary economic activities, such as mining and fishing take up about 1% of the land. Industry, energy production and construction take up only about 0.4% of Estonia's land. Compared to the EU average, more of Estonia's land is used for services (2.8% vs. 5.0%), whereas the proportion of residential area is slightly lower in Estonia (2%) compared to the EU average (2.9%). While 40% of Estonia's territory is owned by the state (and 1% owned by local governments), access to these public lands is very limited (e.g. land used for national defence)⁵¹ which hinders local development.⁵²

Table 2-2 Distribution of land use by activity (2018 data)

Type of land use	EU	Estonia
Agriculture	39.1%	24.5%
Forestry	35.9%	55.8%
Fishing and aquaculture	0.5%	0.2%
Mining and quarry	0.3%	0.8%
Energy production	0.2%	0.2%
Industry and manufacturing	0.2%	0.1%
Water and waste treatment	0.2%	n/a
Construction	0.1%	0.1%
Transport, telecommunication energy distribution, storage and protective works	3.0%	1.6%
Services ⁵³	2.8%	5.0%
Unused/abandoned areas	14.8%	9.7%
Residential	2.9%	2.0%

Source: Eurostat (2021)

Estonia has about one million hectares of agricultural land which is largely managed in an environmental-friendly fashion and is a reliable source of food for internal consumption and export.⁵⁴ At the same time, Estonia is a very green country, ranking the 6th in Europe regarding forest coverage, and therefore has, in general, no pollution problems, except for a few cities.⁵⁵ However, although there is a long-term negative trend in Estonia's population growth, the amount of developed land continues to increase.⁵⁶ In combination with a scattered population, this leads to inefficient use of land. Consequently, the conversion of farmland and forest to built environment has several adverse

⁴⁹ Estonian Ministry of Environment (2017). Climate change adaptation development plan until 2030. Retrieved from <https://envir.ee/media/912/download>

⁵⁰ Estonian Ministry of Environment (2017). Climate change adaptation development plan until 2030. Retrieved from <https://envir.ee/media/912/download>

⁵¹ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

⁵² The share of state property in terms of the built environment is relatively small. For instance, the central government owns 0% of residential dwellings and local municipalities less than 2%.

⁵³ Includes commercial, financial, professional and information services; community services; arts, entertainment and recreation

⁵⁴ Republic of Estonia Government (n.d.). Long-term strategy "Estonia 2035". Retrieved from <https://valitsus.ee/strateegia-eesi-2035-arengukavad-ja-planeering/strateegia>

⁵⁵ Republic of Estonia Government (n.d.). Long-term strategy "Estonia 2035". Retrieved from <https://valitsus.ee/strateegia-eesi-2035-arengukavad-ja-planeering/strateegia>

⁵⁶ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

environmental impacts, namely land degradation, loss of biodiversity and emission of greenhouse gases (GHG).⁵⁷

Achieving high-quality living environment in Estonia

To achieve a high-quality and sustainable living environment, preparing and implementing a good spatial plan solution is crucial. However, preparing spatial planning in Estonia is viewed more as an obligation than an opportunity to develop optimal spatial solutions.⁵⁸ The quality of the built environment will also be contingent on the financial incentives that occur in the process of planning, designing and building. Currently, regarding the Estonian spatial planning, there is no equal treatment of the interested parties and the agreements between the local government. Interested parties are not transparent and do not reflect a coherent framework of the distribution of the costs and benefits between the parties.⁵⁹ Moreover, the lack of transparency of these agreements is often rooted in corruption. In fact, spatial planning is considered a domain in which corruption often occurs - in 2017 there have been six identified cases of corruption in the construction and planning sector. This includes, for instance, planning proceedings being influenced by the personal benefit of a public official. Despite these cases, Estonia was, in the same year, the most corruption-clean country among the Central and Eastern Europe Members States according to the Transparency Integrity's Corruption Perception Index (CPI).⁶⁰ Nevertheless, in response to corruption occurrences, Estonia has increased digitalisation and achieved more uniform requirements in spatial planning in the past few years. This has increased transparency and has significantly reduced corruption.⁶¹

Spatial planning for cities and settlements

Through a review of scientific literature and with the help of a survey, Rimvydas Gaudesius (2021)⁶² finds that chaotic urbanisation and the abandonment of land are the most serious issues of land use in all Baltic countries, including Estonia. The same study finds that the population is, in general, satisfied with the trends in the land use, i.e. the split among industrial areas, recreational areas, agriculture and forestry land, residential areas etc. However, a great dissatisfaction was shown with regard to the aesthetic of the space, namely the arrangement of the urbanistic elements/objects in the space of the town or city.

Another urbanisation problem in Estonia is that of the residential segregation of ethnic groups, in particular between the Estonian-speaking and the Russian-speaking population. The segregation is most pronounced in the capital Tallinn, where the segregation index (0 - no segregation to 100 - total segregation) has increased from 31 in 1989 to 44 in 2019.⁶³

Further, there is currently a great deal of organic sub-urban growth as a result of private actors planning, such as real estate developers or young families buying or building a house, in areas where

⁵⁷ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

⁵⁸ Estonian Ministry of Finance (2020). Green Paper on Estonian Spatial Planning. Retrieved from <https://planeerimine.blogi.fin.ee/wp-content/uploads/2021/05/Green-Paper-on-Estonian-Spatial-Planning.pdf>

⁵⁹ Estonian Ministry of Finance (2020). Green Paper on Estonian Spatial Planning. Retrieved from <https://planeerimine.blogi.fin.ee/wp-content/uploads/2021/05/Green-Paper-on-Estonian-Spatial-Planning.pdf>

⁶⁰ Tromm, M. & Volintiru, C. (2018). Corruption Risks at the local level in the EU and EU periphery countries. Retrieved from <https://www.oecd.org/corruption/integrity-forum/academic-papers/Tromme.pdf>

⁶¹ Korruptsioon (n.d.). Anti-corruption Action Plan 2021-2025. Retrieved from <https://www.korruptsioon.ee/sites/www.korruptsioon.ee/files/elfinder/dokumentid/anticorruptionactionplan20212025.pdf>

⁶² Rimvydas Gaudesius (2021). Spatial planning in the Baltic States, affected by depopulation. Retrieved from <https://doi.org/10.24425/gac.2020.135149>

⁶³ https://ec.europa.eu/migrant-integration/news/estonian-capital-tallinn-segregating_en

land and construction works are cheap. These private actors do not internalize the broader public interests in their decisions and these decisions generate cascading effects. First, shopping centres will appear in these areas or on the ways of car-commute to the city. Second, roads will expand to satisfy the demand for commuting traffic to the next big city, which still remains the main location for business. However, eventually, various types of businesses will leave the city and relocate to peripheral areas, closer to new residential areas, thus undermining the quality potential and economies of scale of a business centre.

Moreover, the administrative fragmentation at the level of local governments, who enjoy *de facto* and *de jure* monopoly on urban and sub-urban decisions, prevents a coherent urban planning. This exercise of private interest comes after decades of living in a planned undemocratic society, in which private property was suppressed. Now, Estonians are eager to exercise their free will on their private land and practice democracy. But, as it turns out, managing suburbanisation and restraining the urban sprawl is a difficult task in democratic societies and this has also been the case in Estonia.⁶⁴ However, matters can be improved by creating thematic settlement plans⁶⁵ which better define areas for development and provide upper limits for the development of dwellings.

One reason for the aforementioned urbanisation problems may lie in that fact that the current national spatial plan is outdated, and it does not address the current trends, although there is a recent initiative to renew this plan. General local-level plans are also of poor quality, and they are not periodically updated, due not only to the lack of money but also of interest. Despite the fact that the Law of Territorial Planning in Estonia requires that territorial planning should be a process that includes the citizens, not only with respect to land use, but also water and underground resources,⁶⁶ this is not the case in practice. The evidence shows that city government officials are not in favour of taking into account residents' opinion when it comes to spatial planning. However, the last decade and a half has seen some improvement in this respect and the opinions of the local residents are increasingly taken into account in planning the living environment of specific communities.⁶⁷

Nevertheless, even if the democratic process has improved, specific city plans are not coherent and comprehensive and do not take into account the neighbouring regions and municipalities. For example, the city of Tallinn has had a general plan for 20 years, but this did not prevent the expansion of the urban sprawl, which began with Tiskre, followed by the Viimsi peninsula, moving deeper into Harjumaa county and running on a radius of 20 kilometres around Tallinn. The concept of urban sprawl designates the uncontrolled expansion of a city into the hinterland beyond the suburban area. Similar phenomena take place on a radius of 5 kilometres around Tartu and Pärnu municipalities, with rapidly and mechanically growing city outskirts, giving rise to sparse and fragmented settlements.⁶⁸ As a result, the importance of transport has increased and, consequently, CO₂ emissions and local pollution are generated. Other effects of urban sprawl include the creation of patchy strips of land, scattered houses that lead to wasteful use of land resources, congestions, limited access to public services etc.

⁶⁴ Antti Roose (2020). "The triumph of planning freedom in suburban Estonia" in "Estonian Human Development Report 2019/2020" . Retrieved from <https://inimareng.ee/en/the-triumph-of-planning-freedom-in-suburban-estonia.html>

⁶⁵ Ibid

⁶⁶ Rimvydas Gaudesius (2021). Spatial planning in the Baltic States, affected by depopulation. Retrieved from <https://doi.org/10.24425/gac.2020.135149>

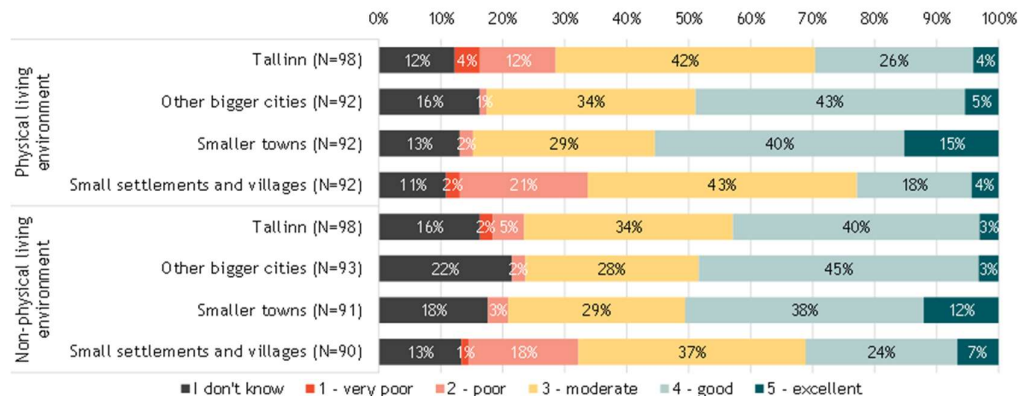
⁶⁷ Hiob, Mart and Nutt, Nele (2016), "Spatial Planning in Estonia - from a socialist to inclusive perspectives", *Transylvanian Review of Administrative Sciences*, No. 47 E, pp.63-79

⁶⁸ Antti Roose (2020). "The triumph of planning freedom in suburban Estonia" in "Estonian Human Development Report 2019/2020" . Retrieved from <https://inimareng.ee/en/the-triumph-of-planning-freedom-in-suburban-estonia.html>

Stakeholders view on living environment in Estonia

For the purpose of establishing the status quo of the living environment in Estonia, we asked the respondents of the survey to rate both the physical and the non-physical living environment. Physical environment relates to both the built and natural environment which includes buildings, green spaces, social and cultural facilities etc. Non-physical environment refers to factors such as safety, social, community and cultural environment, as well as economic and trade environment etc.

Figure 2-2 Opinion poll on the current quality of the living environment in Estonia



Source: Survey with stakeholders conducted as part of the task for this report

We asked the views of the respondents regarding the living environment, separately for the capital city Tallinn, for other bigger cities such as Tartu, Pärnu or Narva, for the smaller towns such as Kuresaare or Haapsalu, as well as for the small settlements and villages. The results are presented in Figure 2-2.

According to the stakeholders' views, the living environment in Tallinn is rather moderate to good. The other bigger cities and the smaller towns fare well in terms of quality of the living environment, with more than 50% of the respondents being of the opinion that the quality of both physical and non-physical environment is good or excellent. However, the quality of the living environment in the small settlements and villages of Estonia is rated as very poor to moderate by the majority of the respondents.

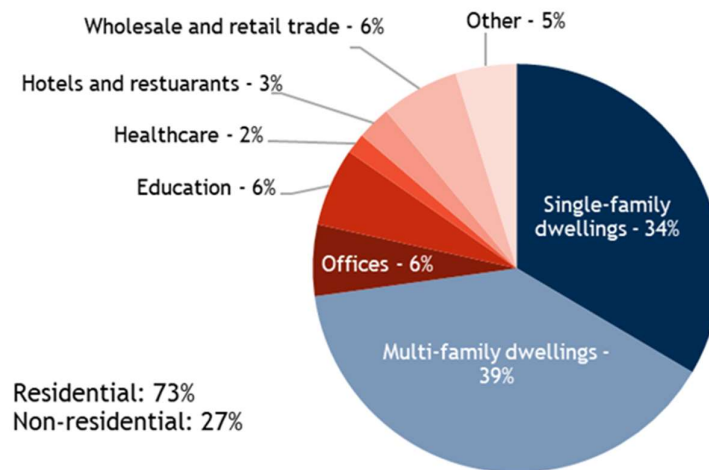
2.2 Buildings

The buildings stock of Estonia comprises only 0.4% of its territory, compared to the EU average of 1.3%.⁶⁹ Out of these, 73% represent residential buildings (single-family dwellings and multi-family dwellings), while the remaining buildings consist of offices, educational buildings, healthcare facilities, hotels/restaurants, wholesale/retail trade and other non-residential buildings (see Figure 2-3 for a breakdown). More than half of the residential buildings in terms of floor area are multi-family dwellings, while the remaining housing stock is for single families.⁷⁰

⁶⁹ https://ec.europa.eu/eurostat/databrowser/view/T2020_RD110__custom_3048504/default/table?lang=en

⁷⁰ https://andmed.stat.ee/en/stat/rahvaloendus_rel2021_eluruumid/RL21202/table/tableViewLayout2

Figure 2-3 Distribution of Estonia's building stock measure as floor area (2016)



Source: European Commission, Directorate-General for Energy. (2019). Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU: final report, Publications Office.

The energy consumption of houses and commercial/public buildings amounted to 16.5 TWh in 2020, of which 4.8 TWh for electricity, 4.9 TWh for (district) heating and 4.8 TWh of renewables/biofuels (mostly bioenergy).⁷¹ Most of the energy consumption comes from households (10.9 TWh). Residential consumption per square meter is higher in Estonia than the EU average⁷² and the highest compared to all IEA countries.⁷³ It is also higher compared to the Nordic and Baltic countries that have a similar climate. Estonia's aging building stock and energy-inefficient housing are the main drivers for this excess of energy use.⁷⁴

Residential buildings: current condition and renovation trends

The majority of residential buildings in Estonia are privately owned (97% in 2011).⁷⁵ About 2% of the residential buildings are owned by the public sector (state and local governments).⁷⁶ The majority of Estonians live in apartments and these are typically Soviet-era mass-produced apartment blocks. However, in the past two decades, there has been an increasing trend in the occupancy of private, single-family houses.⁷⁷ In addition, the majority of these apartments are owner-occupied, with over 80% of Estonians living in privately owned apartments/houses. However, the distribution of single- and multi-family dwellings in Estonia varies greatly depending on the type of settlement. While almost 80% of the housing in cities are multi-family dwellings, mainly Soviet-era blocks of flats, only 28% of the residential buildings in rural areas are multi-family houses (see Figure 2-4 for the distribution of the type of dwellings by the type of populated area).

⁷¹ https://ec.europa.eu/eurostat/databrowser/view/nrg_bal_s/default/table?lang=en

⁷² Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

⁷³ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

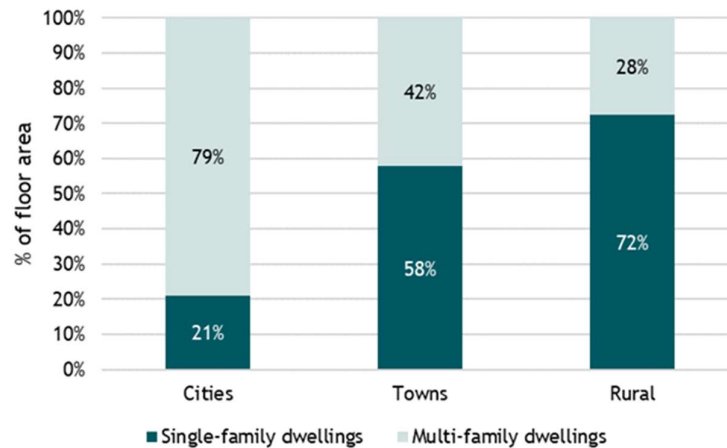
⁷⁴ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

⁷⁵ Tal Tech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ttrs_official_translation_en_0.pdf

⁷⁶ Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

⁷⁷ Statistics Estonia (2022). RLV215: Conventional dwellings by occupancy, type of buildings and location (administrative unit) (2000,2011,2021). Retrieved from https://andmed.stat.ee/en/stat/rahvaloendus__rel_vordlus__eluruumid/RLV215/table/tableViewLayout2

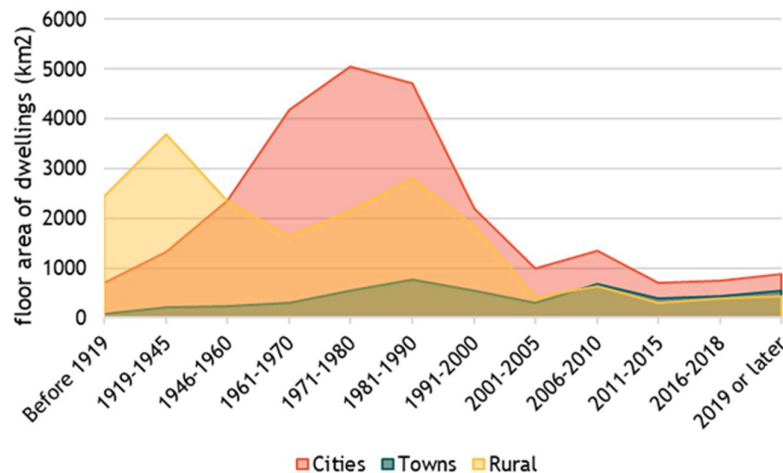
Figure 2-4: Distribution of Estonia's housing stock measured as floor area (2021)



Source: Statistics Estonia (2021). RL21202: Buildings containing conventional dwellings, dwellings and area of dwellings by type, time of construction of building and location (administrative unit), 31 December 2021. Retrieved from https://andmed.stat.ee/en/stat/rahvaloendus_rel2021_eluruumid/RL21202/table/tableViewLayout2

A large share of the Estonian housing stock was built between the 1960s and 1990s as Figure 2-5 shows. This era of mass housing construction was driven by pressure on the Estonian housing market due to immigration, urbanisation as well as industrialisation.⁷⁸ As mentioned above, these are still the dwellings with the highest occupancy rate. However, as mass-produced apartment complexes exceed their approximate 30-year design life,⁷⁹ investments will be required to extend the lifespan of these buildings as well as to improve their energy efficiency. In fact, 13% of the Estonian households still live in houses without modern amenities, such as up-to-date bathroom facilities, and have damp walls and decaying windows/floors.⁸⁰ This situation is mostly encountered in small towns and rural areas. According to the *Estonia 2035 Strategy*, one in three Estonian dwellings are in poor or emergency condition.⁸¹

Figure 2-5 Age of Estonia's housing stock measured as floor area (2021)



Source: Statistics Estonia (2021). https://andmed.stat.ee/en/stat/rahvaloendus_rel2021_eluruumid/RL21202/table/tableViewLayout2

⁷⁸ <https://link.springer.com/content/pdf/10.1007/978-3-030-23392-1.pdf>

⁷⁹ <https://link.springer.com/content/pdf/10.1007/978-3-030-23392-1.pdf>

⁸⁰ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

⁸¹ Republic of Estonia Government (n.d.). Long-term strategy "Estonia 2035". Retrieved from <https://valitsus.ee/strateegia-est-2035-arengukavad-ja-planeering/strateegia>

The conditions of the newly constructed housing stock after 1990 have improved and the living space per capita has gradually increased from 24.4 square metres floor area per person in 2000 to 31.4 square metres floor area per person in 2011.^{82,83} Despite this, only a portion of the population have sufficient financial resources required to renovate their houses.⁸⁴ In cities, high housing prices makes it difficult for young, middle-income households to afford a house, let alone renovate. Urbanisation has also created an unattractive housing market in smaller towns and rural areas, making investments in renovations less lucrative.⁸⁵ Further, Estonia's migration to urban areas has led to about 9% of the living spaces fall out of use.

For this reason, Estonia has put in place a Long-term Renovation Strategy (LTRS) which covers houses built before 2001 and accounting for 93% of multi-family dwellings and 89% of single-family dwellings.⁸⁶ Within this building-age scope, according to the Estonian Building Registry, there have been 3,200 energy performance certificates (EPCs) issued. With EPC class A indicating nearly zero energy building (nZEB) status and EPC class C signifying high energy performance after a major renovation, only 22% of single-family dwelling and 9% of apartment building meet an EPC class C or higher.⁸⁷

Based on data of renovation-related building permits, renovation of single-family houses and apartment buildings has increased from 2011 to 2018.⁸⁸ Moreover, the number of renovations recorded in the Building Registry could be underestimated due to unregistered renovations.⁸⁹ However, unregistered construction work is expected to decline as the construction sector continues to be more digitalised. **Even though the renovation rate is increasing, not all these renovations are expected to lead to an energy performance improvement of EPC class C or higher, as improving energy performance is usually not the primary goal of these renovations.**⁹⁰

According to the European Commission, the average energy renovation rate for residential buildings from 2012 to 2016 in Estonia was 11.2% (compared to 12.9% for non-energy related renovation).⁹¹ Further, the deep energy renovation rate⁹² was 0.1% (compared to the EU average of 0.2%⁹³). For the next period until 2050, the LTRS assumes that around 20% of the privately-owned buildings will remain unrenovated to reach at least class C.

As mentioned, there are currently many unregistered and/or unauthorised renovations, which may still be legal, although there are concerns about the quality and integrity of the renovation project. For instance, many unregistered renovations lead to improper ventilation systems in buildings, thus

⁸² Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

⁸³ However, according to Statistics Estonia, the housing area per inhabitant, including private houses and block of flats, has slightly decreases from 30.5 square meters in 2011 to 30.1 square meter in 2021.

⁸⁴ Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

⁸⁵ Estonian Human Development Report 2019/2020

⁸⁶ Tal Tech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

⁸⁷ Ibid

⁸⁸ Ibid

⁸⁹ Ibid

⁹⁰ Ibid

⁹¹ European Commission, Directorate-General for Energy (2019). Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU: final report, Publications Office.

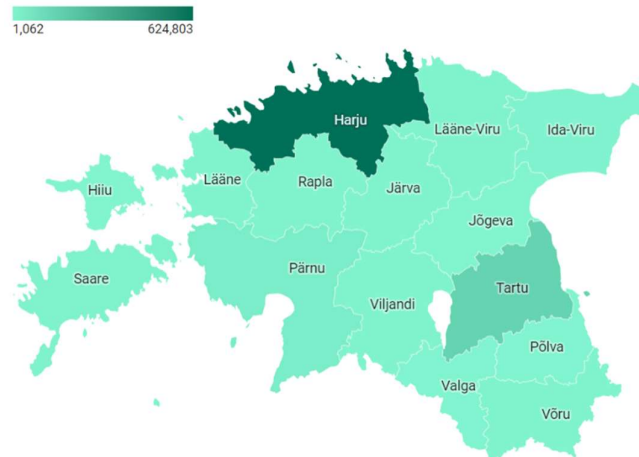
⁹² Deep renovation is considered renovation of a building which reduces energy consumption by at least 60%.

⁹³ EC (2020). COM/2020/662 final. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1603122220757&uri=CELEX:52020DC0662>

creating an unhealthy indoor environment.⁹⁴ This is mainly caused by lack of knowledge of the construction professionals, but also of the owners who make poorly informed decisions.

2,160 new residential buildings were completed in 2021, amounting to 612,543 m² of floor area. New construction of housing has been centred in urban regions (Figure 2-6). Most of this new construction was in Tallinn and the surrounding municipalities within the Harju county, followed by Tartu.

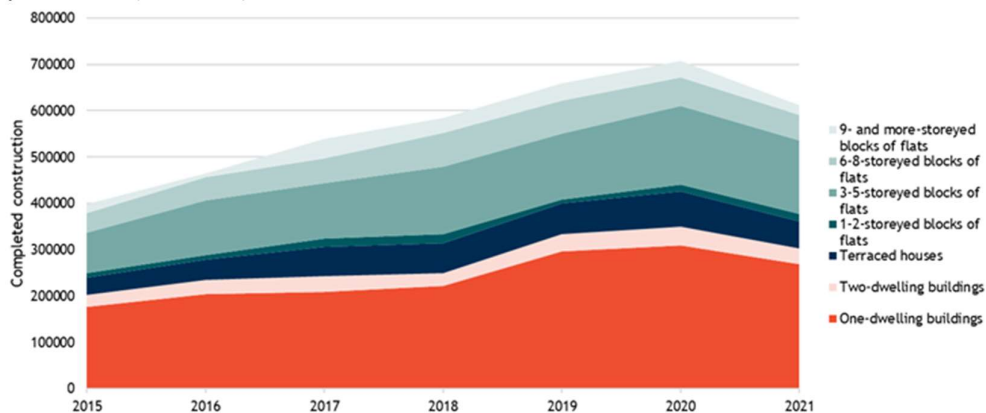
Figure 2-6 Newly completed construction of residential buildings in Estonia per county, floor area in square meters (2021)



Source: Based on data from Statistics Estonia (2022). Retrieved from https://andmed.stat.ee/en/stat/majandus_ehitus_ehitus-ja-kasutusload/EH045/table/tableViewLayout2

From 2015 to 2020, the amount of new construction of residential buildings has increased by more than 50% (Figure 2-7). Over the same period, the split of the type of residential buildings has remained fairly stable, with about half of the new buildings being one- or two- dwelling buildings and the other half being terraced or multi-story flats.

Figure 2-7 Newly completed construction of residential buildings in Estonia per building type, floor area in square meters (2015-2021)



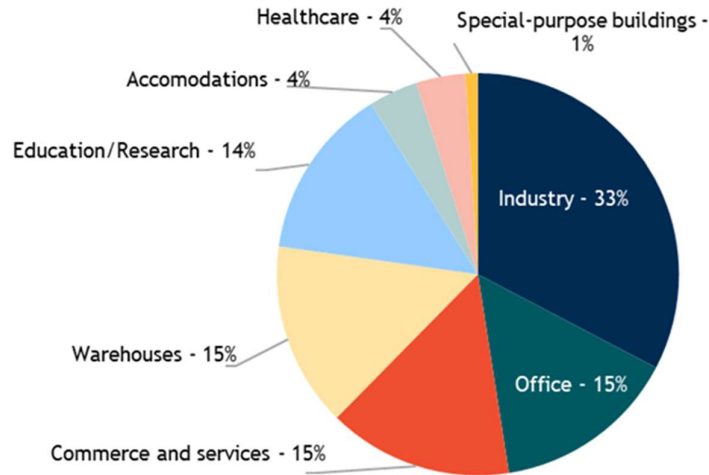
Based on data from Statistics Estonia (2022). Retrieved from https://andmed.stat.ee/en/stat/majandus_ehitus_ehitus-ja-kasutusload/EH045/table/tableViewLayout2

⁹⁴ Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

Non-residential buildings: current condition and renovation trends

According to the Estonian building registry, there are about 375,000 non-residential buildings, amounting to 62 million square metres, built before 2001.⁹⁵ Of this non-residential building stock, 32,000 buildings or 28 million square metres (45.2%) have climate control. 33% of these buildings with climate control are industrial buildings, followed by 30% being used for commerce, services and offices (Figure2-8). About 60% of these buildings (floor area) are in centres of functional regions, whereas only 6% are in peripheries of the functional regions.⁹⁶

Figure2-8 Distribution of the non-residential building stock with climate control (floor area) built before 2001



Source: Tal Tech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

About 1,700 non-residential buildings built before 2001 have been issued Energy Performance Certificates (EPCs), of which 5% are installed with climate control.⁹⁷ Most of these EPCs are issued to offices, followed by early development schools and other educational facilities. Only 27% of EPCs issued to these non-residential buildings have an EPC class between A and C.

Currently, there are no central databases for information concerning public buildings.⁹⁸ In 2018, the central government made use of 2.3 million square metres of buildings, of which about 60% are government owned and 40% are rented.⁹⁹ 46% of government-owned buildings are educational/research facilities, followed by offices (16%), accommodations (14%), commerce/services (8%), other special-purpose buildings (7%), residential buildings (5%), warehouses (2%), healthcare (1%) and industry (1%).¹⁰⁰ About half of the floor area of the government-owned buildings with climate control have been issued EPCs, with 25% being awarded an EPC class of C or higher.

The private non-residential building stock with climate control (built before 2001) accounts for 22 million square meter of floor area (27,000 buildings).¹⁰¹ This group of buildings mainly consists of

⁹⁵ Tal Tech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

⁹⁶ Ibid

⁹⁷ Ibid

⁹⁸ Tal Tech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

⁹⁹ Ibid

¹⁰⁰ Ibid

¹⁰¹ Ibid

industrial buildings, warehouses, offices, and commercial/service buildings. Within this group of buildings, it is projected that 6 million square metres will fall out of use, particularly in the peripheries of functional regions.

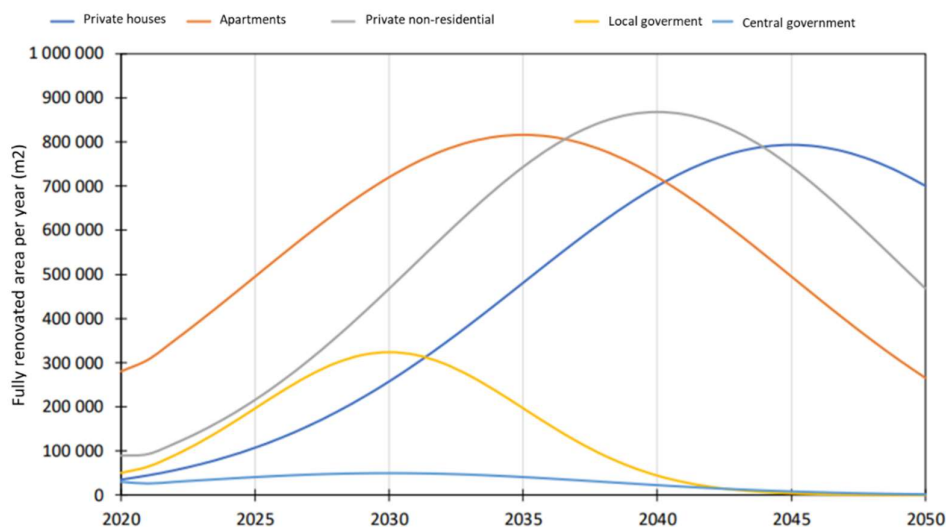
About 2% of the buildings covered in Estonia’s LTRS are considered architectural monuments. However, there is no central database of the buildings with cultural or environmental value.¹⁰² Although these buildings also require energy performance improvements, achieving an EPC class of C is usually not feasible without endangering the historic/environmental value of the building.

From 2011 to 2018, the renovation rate of non-residential buildings has been fairly steady, with a spike in renovation in 2012 as a result of a public building renovation programme. However, an analysis of these renovations found that most of these renovations do not accomplish energy performance improvements up to EPC class C; instead these were light energy renovations which are quicker and less inconvenient to carry out but lead to less energy performance improvements.¹⁰³

Renovation requirements for the Estonian building stock

Overall, the current renovation of the Estonian building stock has been insufficient to achieve Estonia’s building energy performance targets for 2050. According to the Estonian LTRS, about 54 million square metres of existing buildings need to be renovated from 2020 to 2050, including 22 million square metres of non-residential buildings, 14 million square metres of single-family houses and 18 million square metres of apartments (see Figure 2-9). The renovations could be executed according to the following schedule: 22% of the unrenovated area by 2030, 64% by 2040 and 100% by 2050. However, at the current rate, the majority of buildings will remain unrenovated by 2050. Only government-owned buildings are expected to reach Estonia’s target, although these buildings only account for 1.5% of the buildings which require renovation.¹⁰⁴

Figure 2-9 Required renovation by building type from 2020 to 2050



Source: TalTech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

¹⁰² Ibid

¹⁰³ Ibid

¹⁰⁴ Ibid

In addition to renovation, some vacant buildings will need to be demolished. It is estimated that by 2050, more than 5,000 apartment buildings and 10,000 non-residential buildings will fall out of use and will need to be demolished.¹⁰⁵

Barriers to energy renovation

As mentioned, **most homeowners do not have sufficient financial resources** to perform deep energy renovations, whereby a full renovation costs €60,000 on average for about 160 square metres.¹⁰⁶ Particularly in rural areas where property values tend to be low, accessing adequate financing is difficult. Further, financial support measures are fairly unstable and unevenly distributed amongst the regions, which discourages apartment associations to undertake renovations.¹⁰⁷

Although the construction sector already employs about 8.7% of all workers in Estonia, the construction sector will need to keep up with the increasing demands from the Renovation Wave. One difficulty in this is that the **construction sector currently has issues with labour productivity**. In 2016, the labour productivity in the sector was 71% of the overall industry average.¹⁰⁸

Additionally, property owners such as homeowners, apartment complex owners and property owners of private non-residential buildings **lack sufficient incentives to initiate deep renovations**. Thus, incentives to motivate renovation are required, particularly for apartment associations, where a group decision which require consensus amongst the members is difficult to reach. However, with the current increase in heating prices, owners may already be incentivised to take up energy efficiency measures independently, though, given the uncertainty of energy prices, this is not sufficient driver of long-term renovation.

As these barriers are more intense in rural areas, the disparity in housing quality in the main metropolitan areas and the rest of Estonia will continue to increase. Further, the migration to urban areas will make some of the rural housing stock uninhabited. Strategic spatial planning for the renovation and demolition are particularly important in these less populated regions.

2.3 Transport networks

Transport overview

In the last 10 years, Estonia has not seen a significant trend of switching to environmentally friendly modes of transport, although the availability of public transport in the country has improved. Specifically, between 2010 and 2019, the share of busses and trains in inland passenger transport, expressed in passenger-kilometres, increased from 16.4% to 20.1%, above the EU27 average of 17.5%. However, passenger rail transport corresponded to only 2.2%, significantly lower compared to the average of EU Member States of 8%. Therefore, Estonia ranks among the EU countries with the lowest share of rail passenger transport in total inland passenger transport.¹⁰⁹

Overall, Estonia offers good access to public transport with 76% of the population having access to public means of transportation. Despite this, the share of the population using public transport has a

¹⁰⁵ Ibid

¹⁰⁶ Ibid

¹⁰⁷ Ibid

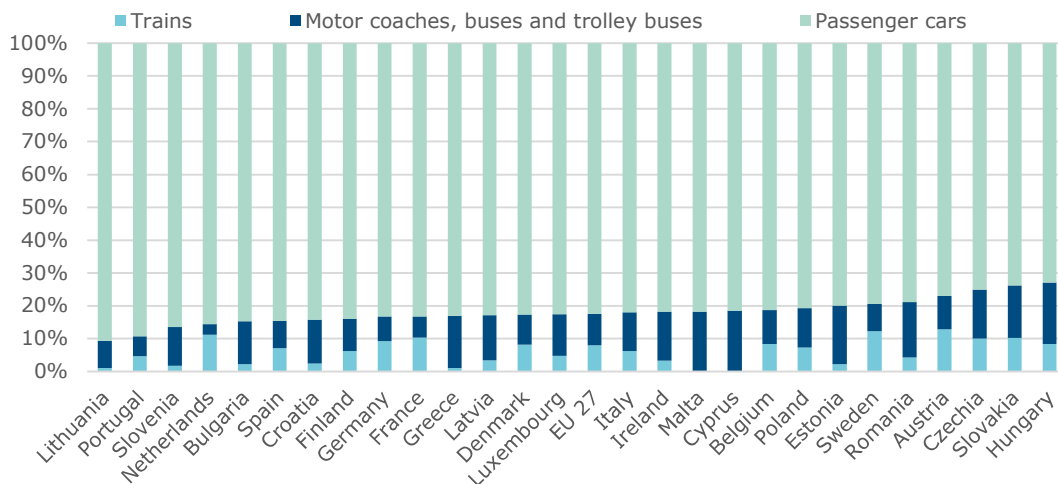
¹⁰⁸ Background document e-construction platform

¹⁰⁹ Eurostat (2022). Modal split of passenger transport. Retrieved from

https://ec.europa.eu/eurostat/databrowser/view/TRAN_HV_PSMOD_custom_3157902/default/table?lang=en

decreasing trend and represented 20.7% in 2018, while pedestrians and cyclists represented 15.1% and 2.7%, respectively. In 2018, 54.5% of the workforce used a privately owned or company car for commuting to work, while only 2.7% used a bicycle. In 2019, passenger transport by car in Estonia represented 79.9%, in total inland passenger transport,¹¹⁰ slightly below the EU average of 82.5% (see Figure 2-10). The two main reasons for this high usage of cars are the amount of time needed to reach the destination and the complexity of connections between means of transportation needed to reach a destination. Similar to other EU countries, in 2020, there was a significant drop in the share of busses and trains in inland passenger transport to only 11.6% due to the COVID-19 pandemic. As of 2022, the use of public transport in Estonia has recovered, with 26% more passengers using county bus lines in Q1 2022 compared to Q1 2021. However, this increase did not yet make up for the loss during the pandemic. In fact, there was no change compared to the Q1 2020 and it was still 7% less than in Q1 2019.¹¹¹

Figure 2-10 Modal split of passenger transport in EU countries in 2019



Source: Eurostat [tran_hv_psmo]

The progress of innovative demand-responsive transport (DRT) through pilot projects and a public transport application is slow due to fragmented governance of public transport in Estonia. While public transport is operated by public transport authorities, social transport is handled by local governments. Furthermore, the access of private organisations to the public transport market is limited due to rigid contracts lasting at least 5 years.¹¹²

In addition, the International Transport Forum (ITF) report cites low road investment efficiency as another key challenge for the Estonian transport sector.¹¹³ This means that investments in road infrastructure result only in marginal improvements in terms of overall travel time and travel costs. This situation could be improved by conducting more coherent project evaluation, taking into account relevant projections and information as well as integrating environmental objectives.

¹¹⁰ This indicator is measured in passenger-kilometres.

¹¹¹ Transport Authority (2022). Ühistranspordi kasutamine on saavutanud koroonapandeemia eelse taseme. Retrieved from <https://www.transpordiamet.ee/uudised/uhistranspordi-kasutamine-saavutanud-koroonapandeemia-eelse-taseme>

¹¹² SEI (2020). Demand-responsive transport (DRT) in the Baltic Sea Region and beyond. Retrieved from https://media.voog.com/0000/0045/1309/files/RESPONSE_WP3_2_Overall%20Analysis_Mapping_Study-1.pdf

¹¹³ OECD (2020). The Future of Passenger Mobility and Goods Transport in Estonia: Input Study for the Estonian Transport and Mobility Master Plan. Retrieved from <https://doi.org/10.1787/9db7333e-en>

Public transport in rural areas

Despite the overall good availability of public transport, Estonia faces problems with insufficient public transport in sparsely populated rural areas and peri-urban areas. Estonian peripheral regions are poorly connected to Estonian cities and European core areas. The overview of local authorities from 2021 confirms that satisfaction with public transportation is particularly low for the rural and remote regions of Estonia.¹¹⁴ At the same time, people in rural areas are forced to travel further than those in the urban areas due to changes in the geographical location of economic activities and public services, such as schools, medical care and other daily services, and the shrinking network of local and regional centres.

As a result, people living away from major cities depend on long-distance commuting, leading to an increase in private car ownerships.¹¹⁵ Tuvikene et al.¹¹⁶ emphasise that the suburbs of Estonia are extremely car-centred. Overall, the number of cars increased by 46% between 2010 and 2020 to 608 passenger cars per 1,000 inhabitants, one of the highest increases and the highest number of cars among EU member states.¹¹⁷

Moreover, low public transport quality in peripheral and rural regions is highlighted as one of the key challenges by ITF.¹¹⁸ Due to a lack of co-ordination with spatial planning agendas, there are no clear links between spatial planning and transport policy. Provision of public transport is not compulsory for new developments within or outside urban areas. Furthermore, municipalities lack a comprehensive overview of ongoing developments (e.g. in the electronic form)¹¹⁹ and the capacity to enforce specific rules regarding density or proximity to public transport on developers.

Along with the declining population in Estonia, car mobility hinders the operation and development of public transport. Furthermore, the car-only mobility model isolates certain groups, such as elderly or children. In the new suburbs outside the city border, public transport is not prioritised. According to Tuvikene et al., **the unfavourable car-based mobility model in the suburbs could be avoided by a combination of urban and suburban planning.**

Cycling

In Estonia, cycling has a very low modal share of around 1-5%, with the highest share of 8% in the city of Tartu in 2018.¹²⁰ The city also launched the bike sharing system in June 2019 covering the entire city. As cycling was considered as recreational activity during infrastructure building, cycling lanes in Estonia are fragmented and located mostly outside the city centres.

Although cycling is emphasized in several strategies and educational programmes for spatial and transport planners, the bicycle inclusive planning lacks political support at the national level. The bicycle planning is also poorly institutionalized between planners and engineering departments at the

¹¹⁴ Ministry of Finance (n.d.). Overview of local authorities. Retrieved from <https://minuomavalitsus.fin.ee/en/kov>

¹¹⁵ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

¹¹⁶ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

¹¹⁷ Eurostat (2022). <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

¹¹⁸ OECD (2020). The Future of Passenger Mobility and Goods Transport in Estonia: Input Study for the Estonian Transport and Mobility Master Plan. Retrieved from <https://doi.org/10.1787/9db7333e-en>

¹¹⁹ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

¹²⁰ Cyclurban (n.d.). Estonia. Retrieved from <https://www.cyclurban.eu/countries/estonia/>

municipality level. In Estonia, the cycling infrastructure mostly falls under the responsibility of local municipalities, while national level is responsible for investments and coordination of structural funds.

Railways

Between 2010 and 2019, the number of passengers in national and international rail transport increased from 4.8 to 8.4 million, corresponding to an increase of 74%, the highest among the EU countries.¹²¹ According to the Commission,¹²² this is mainly due to addition of new trains and faster connections. However, the positive trend suddenly reversed in 2020, a similar trend observed in all EU member states as a result of the COVID-19 pandemic. In Estonia, the use of rail transport in 2020 and 2021 decreased by 29% compared to 2019, to only 6 million passengers.

In addition, **the current transport capacity of trains on key routes does not meet the increasing demand.** According to the Commission, as of 2019, freight and passenger rail traffic is low due to inadequate infrastructure in the direction of North-South. The report by IMF and the World Bank from 2019¹²³ states that the perceived quality of railways is significantly below that of roads and air transport, which have steadily improved over the past 4-5 years. According to the IMF methodology, Estonia presents an efficiency gap of 13% regarding the perception of the quality of the public infrastructure and it is on the efficiency frontier regarding access to infrastructure.

The Commission document also noted that **Estonia's transport system is not environmentally friendly**, with only 0.4% of renewable energy in transport in 2019 (even though the 2020 target was 10%). Furthermore, Estonia has *the most environmentally unfriendly new vehicle fleet in Europe*. According to Eurostat data, only 12% of railway lines in Estonia are electrified and the length of electrified railway lines increased by less than 5% in the last 10 years.¹²⁴ Instead, the majority of Estonia's railway network uses diesel. Together with Latvia and Lithuania, Estonia has the lowest share of electrified lines in the EU.

According to a study by Regio AS¹²⁵, **81.5% of the Estonian population lives in the hinterland of the operating railways, which offers potential for the use of railway transport in Estonia.** However, this potential is not unlocked yet. The study shows that the participation on different rail routes ranges from 22% to 31% on routes connecting the 4 biggest cities (Tallinn, Tartu, Narva and Pärnu), to only 1 to 15% on other routes.

Connection with Europe

For Estonia, as a country located on the periphery and with a low population density, a functional transport connection with Europe is key to the development of the country's economy.¹²⁶ However, **there is still significant potential to improve the country's connectivity with Europe.** As of 2019, Estonia has not made significant progress on finishing the Trans-European Transport core network. Estonia is estimated to require Euro 3.5 billion in investments until 2030 in the transport sector. One of

¹²¹ Eurostat (2022). Passenger transport by type of transport (detailed reporting only). Retrieved from https://ec.europa.eu/eurostat/databrowser/view/rail_pa_typepas/default/table?lang=en

¹²² EC (2019). SWD(2019) 1005 final. https://ec.europa.eu/info/sites/default/files/file_import/2019-european-semester-country-report-estonia_en.pdf

¹²³ IMF (2019). Republic of Estonia Technical Assistance Report – Public Investment Management Assessment. Retrieved from <https://www.imf.org/-/media/Files/Publications/CR/2019/1ESTEA2019001.ashx>

¹²⁴ Eurostat (2022). Railway transport - length of lines, by nature of transport. Retrieved from https://ec.europa.eu/eurostat/databrowser/view/RAIL_IF_LINE_NA_custom_3158135/default/table?lang=en

¹²⁵ Regio (2011). Ülevaade potentsiaalsete reisirongiliikluse kasutajate hulgast ja tagamaast: ARUANNE. Retrieved from <https://eesti2030.files.wordpress.com/2011/01/aruanne.pdf>

¹²⁶ EC (2019). SWD(2019) 1005 final. https://ec.europa.eu/info/sites/default/files/file_import/2019-european-semester-country-report-estonia_en.pdf

the main elements of improving Estonia's transport is the Rail Baltica, planned for 2030, which will address congestion, sustainability and linkage with the rest of the internal market. It is also notable that air connections from the main cities of Estonia, Tallinn and Tartu, to the continental Europe are clearly insufficient and Helsinki and/or Riga are often used as a transit cities to reach Europe.

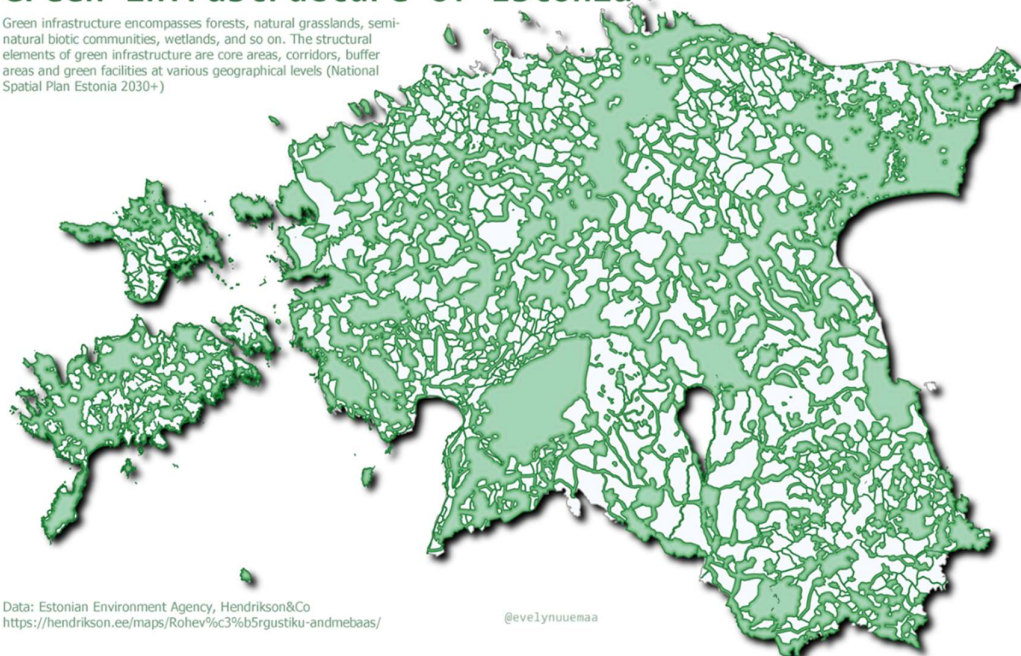
2.4 Urban parks and greenery, nature reserves/services

The Estonian Human Development Report 2019/2020,¹²⁷ defines a natural area as part of the ecosystem in which natural processes prevail and indigenous species dominate their natural environment (natural habitats). However, in most classification systems, natural areas are more vaguely defined (or not defined) than their artificial areas (e.g. built-up areas or mines) and agricultural land with agroecosystems counterparts. On the other hand, a 'green area' is defined as natural and nature-like areas (parks, urban grasslands, urban gardens, cemeteries, etc.) located in populated places. The vegetation in these areas is mostly cultivated and it contains selected, often exotic, species.

Figure2-11: Green infrastructure in Estonia

Green infrastructure of Estonia

Green infrastructure encompasses forests, natural grasslands, semi-natural biotic communities, wetlands, and so on. The structural elements of green infrastructure are core areas, corridors, buffer areas and green facilities at various geographical levels (National Spatial Plan Estonia 2030+)



Source: Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

Estonia is a country rich in green areas and wildlife whose population values natural areas. Land cover in Estonia is dominated by natural areas: 51.4% is forest land, with 26.2% being state-owned, 4.6% wetlands, 1.5% scrubland and 5.7% waterbodies, such as lakes, rivers or ponds (see Figure2-11). Recently, this distribution is being threatened by urban sprawl, with urban areas increasing by 1000 hectares per year on average between 2002 and 2017. Comparing with other countries, the urban sprawl in Estonia is developing relatively fast. **Additionally, in the last decade, Estonia is scoring increasingly worse in international comparisons of the Environmental Performance Index and in**

¹²⁷ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

ecosystem vitality, which indicates underperformance in terms of climate change impacts and air pollution indicators. The declining condition of Estonian ecosystems and the resulting decrease in benefits they deliver need to be framed better within spatial planning, which should consider various elements such as the health impacts of the living environment, universal access, and the use of the natural environment for educational purposes, developing social relations, but also for illness prevention and illness treatment.¹²⁸

Estonia, like many of the Nordic countries, is facing strong urbanisation and the shrinking of the rural areas and even of some remote towns and cities, which leads to so-called peripheralization. In the case of Estonia, this phenomenon is seen as a threat to its statehood since the shrinking of especially smaller rural areas due to the artificial growth under the soviet period might lead to an even more scattered population which puts stress on transport and provision of services. This strong urbanisation, together with its necessary infrastructure, comes at the expense of losing greenery, which is not only important for recreation, but also for the physical and mental health of people. Moreover, the suburban areas, in which about one tenth of the Estonian population are living in, suffer from poor spatial planning which results in a systematic neglect for the preservation of natural and cultural landscapes. **Current building activities in suburban areas are driven mainly by new housing demand and private interests rather than the conscious planning of green areas and landscape.** This leads to the emergence of fragmented land use patterns in suburban areas. Despite urban environmental movements gaining attractiveness, more attention needs to be paid to fostering urban green areas and engaging with citizens, for instance through stimulating urban gardening.¹²⁹

Approximately 90% (or 790,900) of people living in densely populated areas such as urban areas in Estonia have a 'very good access' to public green spaces, which is comparable to the 92% in Sweden. In a 2017 analysis by Statistics Estonia,¹³⁰ a 'very good access' was considered as the availability of a public green space in a distance of up to 200 metres from one's residence. However, the quality of green spaces in urban areas is characterised by the issue of fragmentation and the destruction of peri-urban green areas as a result of urban sprawl.¹³¹ As such, opinions of citizens on the quality of greenery are heterogeneous, with the overall picture indicating there is satisfaction on the amount and quality of green areas in their vicinity. Nevertheless, **a deeper analysis reveals that many remain disappointed in the share of green surface areas or consider the quality of natural areas to be problematic.**¹³² A survey by Rimvydas Gaudesius shows that not only in Estonia, but also in the other two Baltic countries, Latvia and Lithuania, people want more natural environment and eco-friendly industry.¹³³

Other threats posed to the natural and cultural landscapes include the intensive working of agricultural land and the intensified logging activities. Natural forests used to cover 58% of the land in 2000. However, the country experienced significant deforestation with a loss of 517 kha of tree cover between 2001 and 2021, equivalent to a 20% forest loss.¹³⁴ Additionally, many Estonians are raising concerns about the environmental impacts of planned mega-projects. While developing connectivity

¹²⁸ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

¹²⁹ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

¹³⁰ Sustainable Development Indicators - Säätva arengu näitajad (2018). Tallinn: Statistics Estonia.

¹³¹ Peterson, K (2010). Elukvaliteedist ja keskkonnast. Keskkond ja avalik huvi. Rohealade väärtus linnakeskkonnas. - Lauristin, M. (ed.). Eesti inimarengu aruanne 2009. Tallinn: Eesti Koostöö kogu, 26-34.

¹³² Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

¹³³ Gaudesius, R. (2021). Spatial planning in the Baltic States, affected by depopulation. Retrieved from <https://doi.org/10.24425/gac.2020.135149>

¹³⁴ Data source: Global Forest Watch: <https://www.globalforestwatch.org/>

with the main global and European economic centres is important, so is the preservation of the natural areas in Estonia. This means that regional disparities and further peripheralization should be prevented and the smaller Estonian towns should stay connected to transportation hubs and to the domestic and international economy.¹³⁵

Even though natural areas outside populated places are the largest type of common / public space due to their large surface area, the possibilities to access these areas seem to be declining due to a few reasons. Firstly, this is caused by private land-owners restricting the public use of their land. Secondly, there is a general impression that state-owned forests are decreasing in terms of their surface area and value. Thirdly, the access to natural areas for tourism purposes is increasingly concentrated in a few and homogenised areas, which is largely a result of a lack of investments in visitor infrastructure.¹³⁶

2.5 Energy and water distribution systems, waste management

Water supply and sanitation services

The country benefits from a very good drinking water infrastructure - a result of investments made in the last decades. 87.3% of the population in Estonia is connected to the public water supply. This reflects a high level of compliance with the Drinking Water Directive. However, 12% of the population still uses drinking water from their own wells, of which 60-70% do not comply with the quality requirements of the public water supply system. At the same time, 83.5% of the population in Estonia is connected to the public sewerage system, slightly above the EU average of 79%.¹³⁷ **Currently, the affordability of the water tariff is resolved at the level of the local government, where social support is available for eligible residents.** In 2020, the water tariff was <2.5% of household income, and the price of water service for households was EUR4.02/m³.¹³⁸

Urbanisation and shrinking population in Estonia pose challenges to the sustainability of the current state of water supply and sanitation. **The demographic trends significantly change the productivity and efficiency of the water supply and sewerage service.** As a result, the projected trends must be reflected in the future provision and development of the water supply and sewerage service. At the same time, financing of the system needs to be revised as investments in water supply and sanitation infrastructure has been largely financed by public funding, especially through EU support. **In the long run, new financing capacities are required to guarantee the sustainability of the systems as well as the quality and consistency of the service, while guaranteeing affordable tariffs for consumers.**

Due to the fragmentation of water companies, where the majority are micro-companies, the access to the funding is limited.¹³⁹ Currently, there are 177 water companies, although it is estimated that only 75% of the water companies in Estonia that service larger cities are operating sustainably. The actual number of water companies in Estonia is higher as more of them comply with the definition of water company given in the Public Water Supply and Sewerage Act.

¹³⁵ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

¹³⁶ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

¹³⁷ Eurostat (2022). Population connected to urban wastewater collecting and treatment systems, by treatment level. Retrieved from <https://ec.europa.eu/eurostat/databrowser/view/ten00020/default/table?lang=en>

¹³⁸ Estonian Ministry of Environment (n.d.). Analyses and action plan towards sustainable water services in Estonia. <https://envir.ee/en/analyses-and-action-plan-towards-sustainable-water-services-estonia-0>

¹³⁹ Ibid

In addition, the efficiency of using water resources represents another issue - investments are needed for infrastructure repair to reduce water leakage for e.g. In addition, it is also important to consider and implement nature-based solutions and water saving and reuse technologies in certain regions to reduce flood risks, extract natural resources or for other economic activities. Wastewater treatment plants must also be improved to comply with the requirements.

Another source of concern for stakeholders in the sector is the decentralised ownership for local infrastructure, complex governance structure and the issue of accountability at the institutional level for setting policies, monitoring performance and providing support.¹⁴⁰ While water companies and local governments are responsible for the provision of water services in cities and settlements, the Ministry of the Environment is responsible for sustainable access to water supply and sanitation services in the state as a whole.

In Estonia, the public water supply and sewerage system may be in public or private ownership, following the Public Water Supply and Sewerage Act. The majority (90%) of Estonian cities are served by publicly owned water companies, while smaller towns and rural municipalities are often served by a variety of entities, including specialised water companies with mixed (public and private) ownership, private companies or directly by local government agencies.¹⁴¹ **There is an ongoing process to consolidate water companies and to provide government financial support for regional companies to improve efficiency and allow better access to public funding.**¹⁴²

Energy distribution

According to the Estonian government, the energy infrastructure is reliable and the energy supply is provided without interruptions.¹⁴³ The reliability of the transmission network has been improved during recent years through upgrades of its transmission lines and interconnections, also resulting in a lower number of outages.

However, according to the IEA 2019 review, reducing outages remains one of the key priorities associated with distribution grids, especially the prevention of failures due to extreme weather conditions associated with climate change. As the majority of the power lines are located in the open landscape, strong storm winds passing through forests can cause potential breakdown of power lines and short circuits. Increased temperatures and air humidity lead to an increasing loss of electric energy in the overhead transmission lines.¹⁴⁴ In 2016, the largest distribution network operator, Elektrilevi OÜ, reported that 35% of the grid failures were caused by weather conditions. Only one-third of the country's medium voltage grid was considered weather-proof in 2016. As a result, **weather-proofing grids is a substantial part of reducing outages.**¹⁴⁵

Moreover, Estonia currently does not have a policy that integrates technical, environmental and economic aspects in the development of residential areas and urban spaces to improve the quality of

¹⁴⁰ Ibid

¹⁴¹ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

¹⁴² OECD (2020). Financing Water Supply, Sanitation and Flood Protection: Challenges in EU Member States and Policy Options. Retrieved from https://www.oecd-ilibrary.org/environment/financing-water-supply-sanitation-and-flood-protection_6893cdac-en

¹⁴³ Estonian Ministry of Environment (2017). Climate change adaptation development plan until 2030. Retrieved from <https://envir.ee/media/912/download>

¹⁴⁴ Ibid

¹⁴⁵ IEA (2019). Estonia 2019 Review. Retrieved from https://iea.blob.core.windows.net/assets/21965e0d-c9a9-4617-b1ad-5b4539d91ad7/Estonia_2019_Review.pdf

the housing environment. For this reason, the developments in the sector have been chaotic, which facilitated a high and inefficient energy consumption.¹⁴⁶

In 2020, 33 electricity distribution network operators were active in Estonia. Thereby, despite the fact that Estonia's electricity market was liberalised in 2013, Elektrilevi has been holding the largest distribution network, which grew even further after the acquisition of Imatra Elekter AS in July 2021.¹⁴⁷ Elektrilevi currently covers 95% of the electricity grid in Estonia.¹⁴⁸ The remaining 5% of the grid is shared between VKG Elektrivõrgud OÜ and other distribution undertakings. This illustrates the high concentration of Estonia's electricity market. The power system of Estonia operates synchronously under BRELL system together with other Baltic countries, Belarus and Russia. Although the power system in Estonia lacks adequate connections with the EU electricity markets, two connections between Estonia and Finland have been completed.¹⁴⁹ **Since 2017, the country has a country-wide smart metering network and has created a data hub to handle retail energy market data efficiently.**¹⁵⁰ The generated information is available to consumers who can access hour-based, real-time price signals. More accurate metre readings generated cost savings of around 30% and decreased network tariffs for consumers. However, no significant demand-side response has yet appeared, leading to incumbents holding most of the market share.¹⁵¹ According to the IEA review, this might be due to relatively low volatility in Estonian electricity prices.

As presented in the EEA Report (2022),¹⁵² Estonia has the third-highest technical potential for electricity production by prosumers in 2050, relative to the total electricity demand in the EU. Thereby, solar photovoltaic and wind energy carry the greatest potential. Yet, in 2015, Estonia had the third-lowest installed capacity for electricity production by prosumers in the EU.¹⁵³ Prosumerism has been a key objective of the Estonian energy policy what might have led to increasing numbers over the past years. However, **Estonia lacks a long-term grid development plan that can bring access to solar and wind power.** The lack of suitable grid connections is one of the major problems for wind energy deployment in Estonia.¹⁵⁴ One-way lines need to be replaced and transmission lines are not located close enough to potential wind park sites. Specifically, the electricity grid will need to be strengthened and extended, especially in the Western side of the country to take up the increased production of electricity from the wind parks. Current regulations require wind farm owners to provide investment to build the missing part of the grid, which leads to high production costs. As a result, the possibilities of integrating renewable energy are limited and even unprofitable in some areas.

Supporting the potential for renewable energy production in Estonia and upgrading the electricity transmission network will be so more important as electric mobility will become the standard in transportation in the next decade. This new electricity consumer together with the reliance on

¹⁴⁶ Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

¹⁴⁷ Republic of Estonia Competition Authority (2021). Electricity and gas markets in Estonia - Report 2020. Retrieved from https://www.konkurentsiamet.ee/sites/default/files/euroopa_aruanne_2021_tolge_en_081221_22.12.2021_korrigeeritud.pdf

¹⁴⁸ Elektrilevi (n.d.). About the Company. <https://www.elektrilevi.ee/en/ettevotest/elektrilevi-tutvustus>

¹⁴⁹ Fulli, G. (2016). Electricity security: models and methods for supporting the policy decision making in the European Union. Retrieved from <http://dx.doi.org/10.13140/RG.2.1.3020.5683>

¹⁵⁰ IEA (2019). Estonia 2019 Review. Retrieved from https://iea.blob.core.windows.net/assets/21965e0d-c9a9-4617-b1ad-5b4539d91ad7/Estonia_2019_Review.pdf

¹⁵¹ EC (2019). SWD(2019) 1005 final. Retrieved from https://ec.europa.eu/info/sites/default/files/file_import/2019-european-semester-country-report-estonia_en.pdf

¹⁵² EEA (2022). Energy prosumers in Europe. Citizen participation in the energy transition. Report (1). doi:10.2800/03021. Retrieved from <https://www.eea.europa.eu/publications/the-role-of-prosumers-of>

¹⁵³ This analysis considers the electricity produced if all available space and resources were used by prosumers to produce their own energy with renewable energy technologies. The economic feasibility of it is not considered.

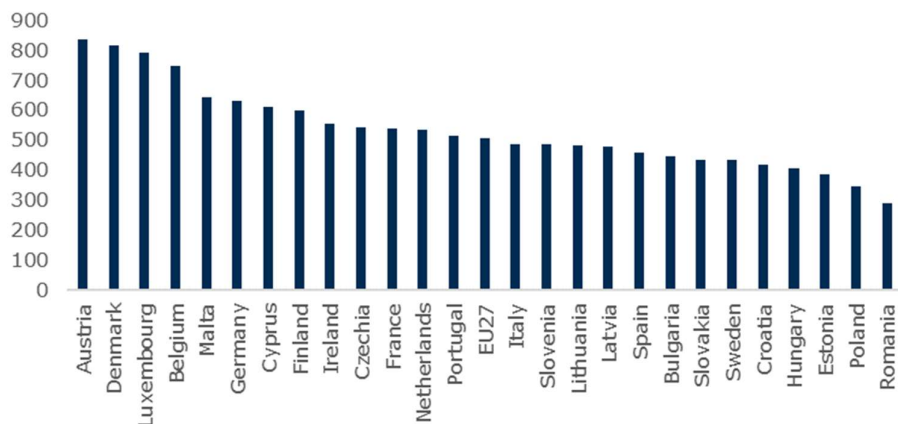
¹⁵⁴ INFORSE-Europe (2011). Sustainable energy vision for Estonia. Retrieved from <https://www.inforse.org/europe/pdfs/Estonia-note.pdf>

renewable energy will make electricity supply more volatile and less predictable. Therefore, instruments to balance the supply and demand will be crucial. In this respect, Estonia has an emergency power plant, based on the engine power plant technology, located in Kiisa. This plant can act as a buffer in case of temporary unexpected increases in electricity demand. This might, however, not be sufficient in the future and greater grid reinforcement will be needed to insure balanced power. For this purpose, Estonia is part of an alliance with Latvia and Lithuania in which they form a common Baltic balancing market as of 2018. All three Baltic countries are also members of the Manually Activated Reserves Initiative (MARI), which comprises transmission service operators from 19 European states to create a European platform for the exchange of balancing energy in the near future.¹⁵⁵

Waste management

Estonia has made substantial progress on waste management over the past 20 years but continues to lag behind some European Union targets. In the last 10 years, production of municipal waste in Estonia increased by 26% to 383 kg per capita in 2020. Despite the increase, **Estonia still ranks among the EU countries with the lowest waste generation per capita** (see Figure2-12).

Figure2-12 Municipal waste generation in 2020 (kg per capita)



Source: Eurostat [env_wasmun]

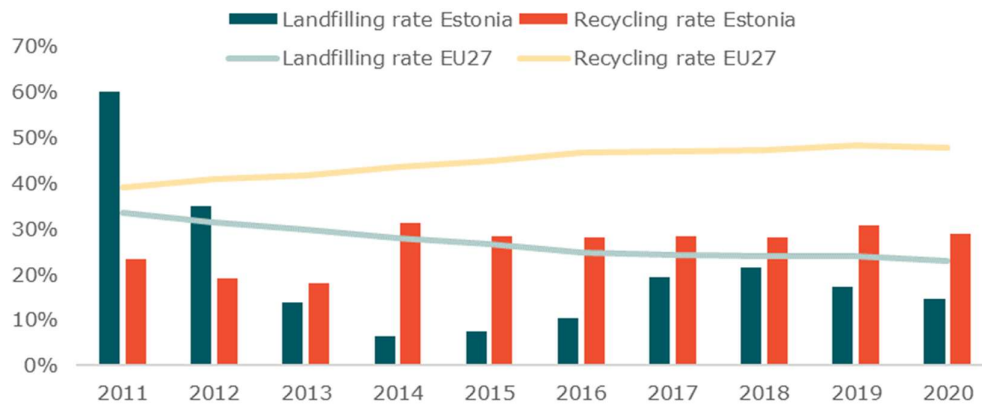
Estonia has significantly improved its municipal solid waste management, moving away from landfilling to energy recovery through incineration. The municipal waste landfilling has fallen from over 60% in 2010 to just 15% in 2020 and is on track to reaching a target of maximum 10% landfilling by 2035 (see Figure 2-13).¹⁵⁶ This shift was **mainly driven by introducing landfill ban on unsorted municipal solid waste since 2008 and landfill taxation**, which rose continuously since 2005 and is now at a level of approximately 30 euro per tonne.¹⁵⁷ The share of municipal solid waste sent to energy recovery remains above 50%.

¹⁵⁵ <https://www.oecd-ilibrary.org/sites/25d93653-en/index.html?itemId=/content/component/25d93653-en>

¹⁵⁶ Eurostat (2022). Municipal waste by waste management operations. Retrieved from https://ec.europa.eu/eurostat/databrowser/view/ENV_WASMUN_custom_3160421/default/table?lang=en

¹⁵⁷ CEWEP (2021). Landfill taxes and restrictions overview. Retrieved from <https://www.cewep.eu/wp-content/uploads/2021/10/Landfill-taxes-and-restrictions-overview.pdf>

Figure 2-13 Municipal waste treatment in Estonia and average EU27 (%)



Source: Eurostat [env_wasmun]

At the same time, recycling rate of municipal waste in Estonia increased from 18.2% in 2010 to 28.9% in 2020.¹⁵⁸ However, **the recycling rate is still significantly below the EU average of 47.8% and below the EU recycling targets of 50%, 60% and 65% in 2020, 2030 and 2035, respectively.**¹⁵⁹ This is mainly related to low separate collection in Estonia. Based on an online survey conducted by the World Bank,¹⁶⁰ about half of respondents reported that they sometimes separate waste, and around 10% never separate. Nevertheless, the results suggested that respondents expressed willingness to know more about the importance of separate collection, the benefits of recycling and the negative consequences of mismanagement.

In Estonia, local government bodies are responsible for organising waste management and residents must have access to separate collection.¹⁶¹ Local governments have separate waste management plans, which are region specific and aligned with the main objectives of the National Waste Management Plan. Collection and treatment of packaging waste is managed through the Extended Producer Responsibility (EPR) scheme, where producers are responsible for collection and treatment.

Municipal waste management is mostly financed via user fees paid directly to private contractors.¹⁶² Tallinn is one of the few examples where waste holders pay their service fees to the municipal entity. Charges for municipal waste management are differentiated based on waste container size and waste streams which provide motivation for separate collection. Usually, municipalities define the minimum service requirement based on volume and pick-up frequency. The waste fees vary significantly across the country, from EUR 5.40 euros per container lifting in Tallinn to EUR 17-29 per container in Saaremaa municipality. These differences mainly arise due to different transport distances to treatment facilities or municipality gate fees. The fees for separate collection are considerably lower than those for residual municipal waste, at the level of 20% to 50% of the fees

¹⁵⁸ Eurostat (2022). Recycling rate of municipal waste. Retrieved from https://ec.europa.eu/eurostat/databrowser/view/sdg_11_60/default/table

¹⁵⁹ EC (2008). Waste Framework Directive 2008/98/EC (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0098-20180705>)

¹⁶⁰ World Bank (2021). Waste management in Estonia. Survey on behaviors, perceptions and motivations. Retrieved from <https://documents1.worldbank.org/curated/en/145111637051108755/pdf/Waste-Management-in-Estonia-Survey-on-Behaviors-Perceptions-and-Motivations.pdf>

¹⁶¹ Republic of Estonia Government (n.d.). Separate collection of waste. Retrieved from <https://www.eesti.ee/en/housing-and-environment/separate-collection-of-waste>

¹⁶² World Bank (2021). Output 1.1: Baseline Review of Estonian Municipal Solid Waste Management System. Retrieved from <https://documents1.worldbank.org/curated/en/911911637048755678/pdf/Baseline-Review-of-Estonian-Municipal-Solid-Waste-Management-System.pdf>

for residual waste. However, households are billed only a single amount for both residual and separate waste collection. The lack of transparency in the billing could reduce the incentives and motivation for Estonian residents to sort their waste. In addition, the Producer Responsibility Organisations (PROs) are only required to provide public container systems free of charge for citizens, but the costs of door-to-door collection are not covered by PROs. The new legislation, to be implemented by 2023, will oblige producers to cover the full implementation costs.

According to a World Bank report from 2021,¹⁶³ **the EPR scheme is not sufficiently integrated with the municipal collection services and there is a lack of incentives for households to separate waste.** This is also related to scattered responsibilities between municipalities and PROs. While the system has good control over packaging quantities placed on the market, the provision of clear information on waste collection and treatment is missing.

The same report also recommends implementing ecomodulation of fees under EPR scheme for plastics which provides a clear financial incentive for producers to improve product design towards more sustainable and recyclable materials. Estonia has already well-established deposit refund system for beverage containers. The system is very efficient as the return rates in 2016 achieved 88% for PET packages, 74% for cans and 87% for one-way glass.¹⁶⁴

Most municipalities in Estonia introduced the separate collection of biowaste, although the separate collection remains relatively low. EEA study estimates the share of bio-waste in municipal waste generation on almost 30%, representing slightly more than 100 kg per capita.¹⁶⁵ The share of bio-waste collected separately in 2017 reached only 30%. **Moreover, in 2020, only 10 kg of biowaste per capita was reported as recycled via composting or digestion, which represented less than 3% of total municipal waste.** By comparison, the EU27 average is 90 kg per capita of recycled biowaste, corresponding to 18% of total municipal waste generation.¹⁶⁶ These low numbers could be related to the lack of reporting of waste from parks and gardens in smaller municipalities and the limited availability of data on home composting. **Low composted quantities are, however, mostly related to low household participation in collection systems, lack of enforcement measures and poor communication between local authorities and service providers.** Despite this, according to a food waste generation survey in Estonia, it is estimated that half of the food waste generated comes from households, corresponding to approximately 84,000 tonnes of food waste per year or 63 kg per capita.¹⁶⁷

World Bank¹⁶⁸ provides several recommendations for improving municipal waste management in Estonia. These include:

¹⁶³ World Bank (2021). Estonia - Municipal Solid Waste Management : Presentation of Project, Analysis and Key Findings (English). Retrieved from <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/797381637039038797/estonia-municipal-solid-waste-management-presentation-of-project-analysis-and-key-findings>

¹⁶⁴ Interreg Europe (2019). Packaging deposit refund system in Estonia. Retrieved from <https://www.interregeurope.eu/good-practices/packaging-deposit-refund-system-in-estonia>

¹⁶⁵ EEA (2020). Bio-waste in Europe - turning challenges into opportunities. Retrieved from <https://www.eea.europa.eu/publications/bio-waste-in-europe/download>

¹⁶⁶ Eurostat (2022). Municipal waste by waste management operations. Retrieved from https://ec.europa.eu/eurostat/databrowser/view/ENV_WASMUN_custom_3166290/default/table?lang=en

¹⁶⁷ SEI (2022). The generation of food waste and food loss in the Estonian food supply chain. Retrieved from <https://www.sei.org/publications/food-waste-food-loss-in-the-estonian-food-supply-chain/>

¹⁶⁸ World Bank (2021). Estonia - Municipal Solid Waste Management : Presentation of Project, Analysis and Key Findings (English). Retrieved from <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/797381637039038797/estonia-municipal-solid-waste-management-presentation-of-project-analysis-and-key-findings>

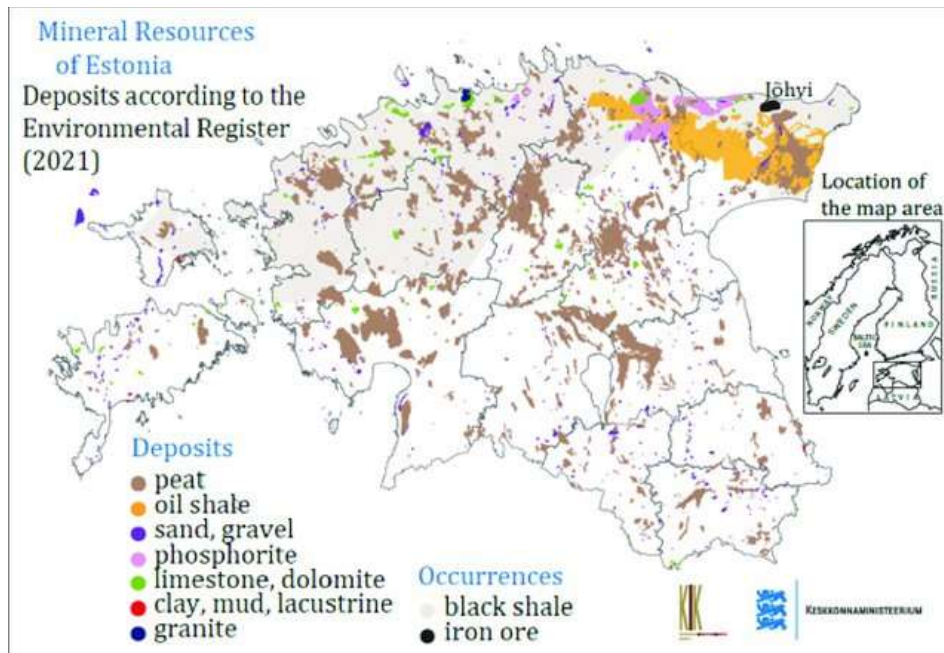
- Improved access to infrastructure by extending door-to-door collection, especially for packaging waste;
- Improvement of data management and reporting to increase transparency;
- Increase separate collection of biowaste to 65% and invest in anaerobic digestion technology for municipal biowaste;
- Assess feasibility of developing regional plastics sorting infrastructure, clarification of standards for bio-based and biodegradable plastics and setting the working groups to tackle plastics, which are difficult to recycle.

Related to the topic on plastics, the coastal area of the Baltic Sea faces the problem of marine pollution. The monitoring shows that beaches in Estonia are littered with a lot of plastic waste, mainly packaging and disposable dishes, which may negatively affect the health of marine species and coastal tourism.¹⁶⁹ Most of the plastic waste reaching the Baltic Sea originates from land, predominantly from big cities surrounding the Baltic Sea.

2.6 Mineral resources and materials

As Figure 2-14 shows, Estonia is rich in mineral resources. **The mineral resources sector in Estonia offers employment to thousands of people**, especially in oil shale, peat and natural building materials such as sand, gravel, limestone or clay. However, some important resources such as phosphorus, granite, also a construction material, and graptolite argillite, rich in uranium, are not exploited due to their low efficiency.¹⁷⁰

Figure 2-14: Sketch-map of mineral resources in Estonia



Source: Soesoo, A. (2021). Main Precambrian and Paleozoic Mineral Resources of Estonia. *Aspects Min Miner Sci.* 6(3). AMMS. 000639. Retrieved from <http://dx.doi.org/10.31031/AMMS.2021.06.000639>

¹⁶⁹ Haseler, M. et al. (2020). Marine Litter Pollution in Baltic Sea Beaches - Application of the Sand Rake Method. Retrieved from <https://www.frontiersin.org/articles/10.3389/fenvs.2020.599978/full>

¹⁷⁰ Estonian Ministry of the Environment (n.d.). Mineral Resources. Retrieved from <https://envir.ee/en/water-forest-resources/mineral-resources>

Oil shale (kukersite) mines are found in the North-eastern part of Estonia, in the Ida-Viru and Lääne-Viru counties and have a mining history of over 100 years. It is estimated that Estonia's oil shale resources amount to 4.6 Billion tons, of which 3.4 Billion tons are passive reserves. In 2019, the amount of mined oil shale was of about 12.2 million tons. The Estonian oil shale resources represent 17% of all European oil shale resources.¹⁷¹ This is a very important mineral resource for Estonia as more than 80% of the extracted oil is used for electricity and heat production. The rest is used for producing fuel, petroleum coke, pitch, bitumen, and other materials. Thus, for decades, oil shales have ensured Estonia's energy independence, but the ongoing climate crisis is raising the question of how oil shale can be exploited sustainably and how their direct combustion in power plants can be made more economical and environmental-friendly in the future.

Next, as Figure 2-14 illustrates, peat is another exploited resource in Estonia, and it is spread across the country, which the highest concentration in Pärnu County with 33%, followed by Tartu, Ida-Viru County and Harju County with 17%, 15% and 8%, respectively. The rest of the resources across the country make up less than 5% of the total peat resources of Estonia. Peat is a resource with high energetic value and, depending on the degree of its decomposition, it is used as biofuel or as fertiliser in horticulture and agriculture.

Finally, an important class of natural resources, which is also the most diverse one, is that of natural building or construction materials. The demand for these resources, and thus their mining, has increased significantly since 2002 mainly due to the flourishing road construction and building. The natural construction materials are mainly mine in the regions of Harju county, with 50% all the total mining, followed by Jõgeva and Lääne-Viru County, with 10% and 9%, respectively.¹⁷²

Regarding regulations, the mining sector and the use of mineral resources are regulated by the Earth's Crust Act and the Mining Act. In addition, the Ambient Air Protection Act and the Waste Act, which regulate the using of oil shale in combustion plants and oil production.

Estonia has also put in place a Registry of Mineral Resources, which is a comprehensive database of resources on the land, sea, lake and rivers, as well as the economic land. As of January 2022, 953 deposits were recorded in the registry, including oil shale, peat, and natural construction materials such as crystalline rocks, gravel, sand, clay, dolostone, limestone, sea mud etc.¹⁷³ The registry is very detailed and it provides individual information cards for each deposit, including information about the exact location, the area of the deposit, whether and what natural or immovable monuments are located within the area of the deposit, the type of the deposit (e.g. chemical, rock, mineralogical and granulometric composition), technical indicators and mining conditions etc. The Registry also includes a balance sheet of mineral resources, i.e. the reserves of the deposit, mined amounts of the mineral reserves and changes of the mineral reserves of the deposits. Information in the Mineral Registry is public and it contains a map¹⁷⁴ and downloadable datasets.¹⁷⁵

¹⁷¹ Soesoo, A. (2021). Main Precambrian and Paleozoic Mineral Resources of Estonia. *Aspects Min Miner Sci.* 6(3). AMMS. 000639. Retrieved from <http://dx.doi.org/10.31031/AMMS.2021.06.000639>

¹⁷² Estonian Ministry of the Environment (n.d.). Mineral Resources. Retrieved from <https://envir.ee/en/water-forest-resources/mineral-resources>

¹⁷³ Estonian Land Board (n.d.). Mineral Registry. Retrieved from <https://geoportaal.maaamet.ee/eng/Spatial-Data/Geological-Data/Mineral-Deposits-p352.html>

¹⁷⁴ Estonian Land Board (2022). No title. Retrieved from <https://xgis.maaamet.ee/xgis2/page/app/maardlad>

¹⁷⁵ Estonian Land Board (2022). Ruumiandmed. Retrieved from https://geoportaal.maaamet.ee/index.php?lang_id=1&page_id=874

3 Current initiatives for improving quality and sustainability of the built and living environment in Estonia

3.1 Relevant EU initiatives

Before turning to the initiatives specific to Estonia, we present several initiatives in place at the European Union level, which also have the potential to influence the landscape in Estonia in the context of the built and living environment. This section provides information on the main initiatives for each thematic area of this report.

Buildings

Relevant for the thematic area of buildings is the EU renovation wave,¹⁷⁶ which is an initiative to stimulate the renovation of the European building stock with a specific focus on energy efficiency. More specifically, the initiative puts forward the target of doubling the annual energy renovation rates in the next decade which entails renovating 35 million buildings in Europe by 2030. Additionally, investments will be stimulated to create up to 160,000 jobs in the construction sector. The underlying goals are the transformation of the existing building stock to green buildings, which in turn triggers the creation of jobs, and the improvement of the quality of life of the EU-citizens. It focuses on tackling energy poverty and bad-performing buildings, public buildings and social infrastructure, and decarbonising heating and cooling. This push for renovation of existing buildings is of substantial influence to improve the quality and sustainability of the built environment in Estonia.

Transport networks

On the European level, the main instrument for developing transport networks is the Trans-European Transport Network (TEN-T)¹⁷⁷. This network facilitates the development of a Europe-wide network of railway lines, roads, inland waterways, maritime shipping routes, ports, airports and railroad terminals. The policy has the primary goal of closing gaps, removing bottlenecks and technical barriers, as well as strengthening social, economic and territorial cohesion in the EU. The policy includes the Core Network which makes the most important connections in Europe and where the plan is to ensure easy transport through these corridors by 2030. Under this plan, the North Sea - Baltic corridor runs through Estonia. This plan is funded through the Connecting Europe Facility (CEF) funding program.¹⁷⁸

Urban parks and greenery, nature reserves

With regards to nature in an urban and non-urban setting, there are several laws, strategies and initiatives which try to protect and restore the EU's nature and biodiversity.¹⁷⁹ The main ones are the Birds and Habitats Directive, Nature restoration Law and the Natura 2000 initiative, which are all interconnected. For instance, the Nature Restoration Law has established the overarching restoration objectives for the long-term recovery of nature by restoring 20% of the EU's land and sea areas by 2030 and all ecosystems in need of restoration by 2050. The main aim of the Natura 2000 network is to

¹⁷⁶ EC (n.d.). Renovation Wave. Retrieved from https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en#the-new-european-bauhaus

¹⁷⁷ EC (n.d.). Trans-European Transport Network (TEN-T). Retrieved from https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t_en

¹⁷⁸ EC (n.d.). Connecting Europe Facility. Retrieved from https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/connecting-europe-facility_en

¹⁷⁹ EC (n.d.). Nature and biodiversity law. Retrieved from https://ec.europa.eu/environment/nature/legislation/index_en.htm

ensure the long-term survival of Europe's most valuable and threatened species and habitats, which are listed under the Birds Directive and the Habitats Directive. Estonia contains several Natura 2000 and other protected sites—there are a total of 20,751 protected areas in Estonia, 567 Natura 2000 sites, 66 Special Protection Areas (Birds Directive), 541 Sites of Community Importance (Habitat Directive), as well as 20,184 sites designated under national laws. In total, these cover 39.87% of Estonian land.¹⁸⁰

Energy, and water distribution systems and waste management

Energy security and dependence on fossil fuels is currently a high-priority topic in the European Union. For instance, the current REPowerEU¹⁸¹ plan aims to rapidly reduce dependence on Russian fossil fuels and accelerate the green transition. In terms of energy infrastructure, initiatives such as the Trans-European Networks for Energy (TEN-E) and Projects of Common Interest are working on accelerating common investments in renewable energy and to facilitate intra-EU distribution of energy. Under the TEN-E policy, Estonia is part of several priority corridors: Baltic Energy Market Interconnection Plan in electricity, Baltic Energy Market Interconnection Plan offshore grids and Baltic Energy Market Interconnection Plan in hydrogen.

With regards to waste management, the main EU legislation is the Waste Framework Directive. It establishes basic waste management principles (e.g. waste hierarchy) and includes objectives and targets to improve waste management, stimulate innovation in recycling and limit landfilling. Additionally, there are several specific policies which focus on different types of waste such as batteries and accumulators, end-of-life vehicles, packaging waste, construction and demolition waste etc.

3.2 Cross-cutting initiatives

Both accessibility and the quality of infrastructure are essential components of a high-quality built environment. Estonia has made considerable progress in developing its infrastructure since gaining its independence from the Soviet Union in 1990. This progress has resulted in a convergence towards the EU average, but the country is still lagging behind its more advanced neighbours and other advanced economies. According to a report of the IMF from 2019,¹⁸² the most notable progress has occurred in transport infrastructure, especially roads, and electricity. According to an IMF methodology cited in the same report, it appears that Estonia has scored among the countries with the highest index measuring the overall access to public infrastructure (education, health, electricity, roads and water) and having similar levels of income, in a sample of 148 countries. It also scored the highest on an index that combines a measure of access to infrastructure in the above-mentioned areas with a measure of perceived quality of this infrastructure. However, looking at the perceived quality alone, there is room for improvement.

The two major challenges faced by Estonia are the shrinking population and the increase of scattered, uninhabited towns and villages. It is crucial that future planning and spatial design at various levels consider adaptation to these challenges. Therefore, the “Estonia 2035” Strategy foresees that the spatial planning, including infrastructure development and renovations in Estonia will include both the

¹⁸⁰ EC (n.d.). Estonia. Retrieved from <https://biodiversity.europa.eu/countries/estonia>

¹⁸¹ EC (2022). REPOWEREU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

¹⁸² IMF (2019). IMF Report: Republic of Estonia. Public Investment Management Assessment. Retrieved from <https://www.imf.org/en/Publications/CR/Issues/2019/06/03/Republic-of-Estonia-Technical-Assistance-Report-Public-Investment-Management-Assessment-46963>

urban and the rural areas in a balanced manner.¹⁸³ To adapt to the declining population, the strategy foresees more compact settlements, in which public spaces promote safe behaviour, health and accessibility. Local authorities are expected to put together careful and substantial plans for limiting urban sprawl, optimise infrastructure for public services, including by reducing it where appropriate.¹⁸⁴

A study by the OECD¹⁸⁵ also provides several recommendations to tackle challenges resulting from population decline in Estonia. These include the following:

- Reduce land consumption and promote densification of central areas by updating Comprehensive Plans according to the population projections and by developing flexible zoning that allows temporary uses and efficient spatial development;
- Promote governance spanning sectors and levels of government;
- Increase the quality of services through municipal co-operation by providing public resources to joint projects with quality-enhancing service goals;
- Implement demolition and renovation projects at a larger scale within County-wide Spatial Plan (CSPs) and local Comprehensive Plans and allow expropriation for the demolition of empty detached housing;
- Reform fiscal structures to better prepare for population shrinkage by abandoning complex earmarked grants, land tax exemptions in rural areas;
- Provide municipalities with open information systems integrated in e-platforms, administrative support and support local government capacity building;

To this end, a study that provides guidelines for the development of settlements and whose recommendations have been used in the development of the regional plans, foresees the following three key measures:¹⁸⁶

- The spatial planning of cities and large settlements should be done in such a way as to keep them compact and reuse the abandoned land;
- The cities centres should be developed in such a way as to benefit from high-quality and pleasant architecture of urban spaces and a dense services infrastructure;
- The peri-urban areas should be developed either in large settlements with their social infrastructure or in areas which are easy to connect with the technical infrastructure.

For these measures to be implemented, a cross-sectoral and cross-level rethinking is required to ensure that the use of space in settlements is of high quality and is attractive for work and living. In this respect, a recognised initiative is the 'Good Public Spaces' programme¹⁸⁷ that made small towns and cities more attractive and helped raise the confidence of the local communities that their regions will not only develop in the future, but will also offer a high-quality and sustainable living environment.¹⁸⁸ Similarly, the main objective of the National Spatial Plan "Estonia 2030+" is to ensure that all settlements in Estonia are liveable. For this, they must provide a high-quality living environment accompanied by suitable infrastructure in terms of mobility and networks for essential services. Hence,

¹⁸³ Republic of Estonia Government (2021). "Estonia 2035" National long-term Development Strategy. Retrieved from <https://valitsus.ee/en/estonia-2035-development-strategy/strategy/strategic-goals>

¹⁸⁴ Estonian Ministry of Finance (2020). Overview of the National Planning "Estonia 2030+" implementation. Retrieved from <https://planeerimine.ee/wp-content/uploads/Eesti-2030-ulevaade-ja-tegevuskava-valitsusse-24.07.2020.pdf>

¹⁸⁵ OECD (2022). Shrinking Smartly in Estonia: preparing regions for demographic change. Retrieved from <https://doi.org/10.1787/77cfe25e-en>

¹⁸⁶ Estonian Ministry of Finance (2020). Overview of the National Planning "Estonia 2030+" implementation. Retrieved from <https://planeerimine.ee/wp-content/uploads/Eesti-2030-ulevaade-ja-tegevuskava-valitsusse-24.07.2020.pdf>

¹⁸⁷ EAL (n.d.) Good Public Spaces Programme. Retrieved from http://www.arhliit.ee/EV100_arhitektuur/

¹⁸⁸ Estonian Ministry of Finance (2020). Overview of the National Planning "Estonia 2030+" implementation. Retrieved from <https://planeerimine.ee/wp-content/uploads/Eesti-2030-ulevaade-ja-tegevuskava-valitsusse-24.07.2020.pdf>

the vision for Estonia's spatial development for 2030 and beyond reads as follows: "Estonia is a nation with a cohesive spatial structure, a diverse living environment and good links to the external world. Low-density urbanised space integrates compact cities, suburbs and traditional villages, valuing all of these lifestyles equally. The human scale and economic competitiveness of low-density urbanised space are provided primarily by an environment that is close to nature and a network of urban communities that are well linked."¹⁸⁹

The National Spatial Plan Estonia 2030+ has been completed more than a decade ago. Therefore, a reflection on whether its vision is still relevant today is warranted. For instance, it is questionable whether low-density urbanised spaces are still desirable and sustainable. On the one hand low density can provide enough green spaces in between settlements. On the other hand, sparse development is both environmentally problematic, as it triggers more travel demand and less efficient energy use, and more cost inefficient, particularly with respect to infrastructure for roads, communication, electricity, water and waste, but also with respect to public services such as health and education.¹⁹⁰

The motivation behind the National Spatial Plan Estonia 2030+ vision was however rooted in the desire to improve the "functioning of the existing settlement system and infrastructure,"¹⁹¹ while at the same time addressing the problem of decreasing and ageing population which still persists. The vision of a low-density urbanised space, as the opposite of urban sprawl, was also justified in Estonia 2030+ strategy as a way of preserving "centuries-long evolution" of the Estonian settlements characterized by low-density.

Additionally, in its overview from 2020 of the national planning process "Estonia 2030+", the Ministry of Finance of Estonia¹⁹² requires that the following elements pertaining to the improvement of the living environment must be taken into account:

- The long-term strategy for renovation,¹⁹³ based on the EU Energy Performance of Buildings Directive. The baseline analysis of the Strategy shows that 54 million square metres of existing buildings need renovation until 2050. This means that the volume of annual renovation work will quintuple relative to the current levels. This offers an opportunity to consider and correct other spatial issues. For instance, the energy efficiency of the buildings, and thus the quality of the housing environment, can be improved by correlating technical, social, environmental and economic aspects of urban planning with the assessment of energy consumption in the building and of the energy use for daily mobility needs.¹⁹⁴
- Long-term spatial planning must be conscious of the digital developments in the areas of construction and geoinformatics and generally of the fact that decisions are increasingly made based on real-time data and that even decision-making processes are becoming partially automated.

¹⁸⁹ Estonian Ministry of the Interior (2013). National Spatial Plan Estonia 2030+. Retrieved from <https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf>

¹⁹⁰ OECD (2022). Rural Studies Shrinking Smartly in Estonia: Preparing Regions for Demographic Change, retrieved from [https://www.oecd-ilibrary.org/docserver/77cfe25e-](https://www.oecd-ilibrary.org/docserver/77cfe25e-en.pdf?expires=1672851984&id=id&accname=guest&checksum=7D8F97B765321A4C5E2B8D073F397474)

[en.pdf?expires=1672851984&id=id&accname=guest&checksum=7D8F97B765321A4C5E2B8D073F397474](https://www.oecd-ilibrary.org/docserver/77cfe25e-en.pdf?expires=1672851984&id=id&accname=guest&checksum=7D8F97B765321A4C5E2B8D073F397474)

¹⁹¹ Estonian Ministry of the Interior (2013). National Spatial Plan Estonia 2030+. Retrieved from <https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf>

¹⁹² Estonian Ministry of Finance (2020). Ülevaade üleriigilise planeeringu „Eesti 2030+“ ning maakonnaplaneeringute elluviimise. Retrieved from <https://planeerimine.ee/wp-content/uploads/Eesti-2030-ulevaade-ja-tegevuskava-valitsusse-24.07.2020.pdf>

¹⁹³ Tal Tech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

¹⁹⁴ Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

- The national spatial development guidelines should implement the guidelines published in the documents of the Council of Europe on spatial development.
- The national spatial development plans should integrate with the view of preserving the cultural and built heritage of Estonia.
- The social dimension must be prominent in the spatial planning in order to promote integration and contact between the different ethnic groups, by using mobility solution to decrease spatial segregation.
- Clearly defining spatial planning responsibilities among the different relevant stakeholders.

The development of the Estonian living environment is also expected to account for the whole geographical region on which the country lies. Along these lines, one initiative that contributes to improving the quality and sustainability of the living environment in Estonia, which it developed at the regional level of the Baltic Sea Region (BSR), is the “BT2050. Territorial Scenarios for the Baltic Sea Region”¹⁹⁵ project. This is an initiative of the ESPON network¹⁹⁶ and it aims to develop alternative territorial development scenarios and identify trends for the BSR with time horizons to 2030 and 2050, and to contribute to policy making on territorial development. In doing so, the project accounts for the EU Territorial Agenda (EU TA) and Urban Agenda (EU UA), as well as UN New Urban Agenda. Thus, the project has identified a number of policy actions at the regional level that should be implemented in order to increase the quality and sustainability of the living environment in the region. These measures can be summarised as follows:

- Promoting the integration of the Baltic Sea through spatial planning, research and data collection;
- Supporting the development of cross-border infrastructure networks and metropolises;
- Incentivising immigration towards the Baltic Sea Region to ensure a demographically and spatially balanced settlement pattern;
- Fostering the sustainable use of resources in the region by, for example, implementing the principles of circular economy;
- Adapting to the impact of climate change.

Finally, regarding adaptation to climate change, the “**General Principles of Climate Policy until 2050 for Estonia**”¹⁹⁷ envisions resilient settlements that are able to adapt to storm and flood risks as a result of climate change by considering the location during the elaboration of spatial planning and land use and through reducing the so-called urban heat island effect. Cooperation with local governments will ensure that settlements are developed to be resilient, sustainable and friendly from the socio-economic, cultural and ecological viewpoints.

Adaptation measures are also foreseen in the “**Climate Change Adaptation Development Plan until 2030**”, elaborated by the Ministry of the Environment of Estonia.¹⁹⁸ Related to land use and planning, the goal of the plan is to manage storm, flood and erosion risks, mitigate the heat island effect and increase the climate security of settlements by choosing the best solutions in land use and spatial planning. The goal is measured by the number of residents on flood risk areas (1% probability) with the target level of less than 11,000 residents in 2030. Proposed measures to achieve this target include:

¹⁹⁵ ESPON (n.d.). BT2050 - Territorial Scenarios for the Baltic Sea Region. Retrieved from <https://www.espon.eu/BT%202050>

¹⁹⁶ ESPON is a European network of territorial cooperation co-financed through the European Regional Development Fund

¹⁹⁷ Republic of Estonia Government (2017). Resolution of the Riigikogu. General Principles of Climate Policy until 2050. Retrieved from https://ec.europa.eu/clima/sites/its/its_ee_et.pdf

¹⁹⁸ Estonian Ministry of Environment (2017). Climate change adaptation development plan until 2030. Retrieved from <https://envir.ee/media/912/download>

- increasing awareness about the effects of climate change and risks in land use, urban arrangement and planning, development of planning methods of risk areas and organisation of the legal framework;
- management of flood risks and the development of green areas and urban landscapes for managing climate risks.

The measures for the prevention of damages and risk management related to heat waves and heat islands focus on the establishment and maintenance of green areas, the use of the cooling power of water and the engineering solutions, such as the reconstruction and establishment of stormwater drainage systems, taking into consideration the heat reflecting, absorbing and storing properties of surfaces and the air circulation when designing and constructing buildings. The implementation of these measures is primarily the task of land owners, while the state and the local governments guide the execution of the implementing measures within their legal and administrative competence.

Planning competence and capacity of the local or county governments is an important factor to prevent risks related to the adaptation of towns and coastal areas. Therefore, it is essential to provide information on the effects of climate change adaptation and awareness raising to both residents and experts who integrate this information into spatial planning. The test projects of general and detailed plans are important to give an input for an effective legislative process and for preparing a spatial database. The plans then serve as a basis to prepare the guiding materials to manage the risks related to climate change and to prepare recommendations for climate-proof implementation of design criteria.

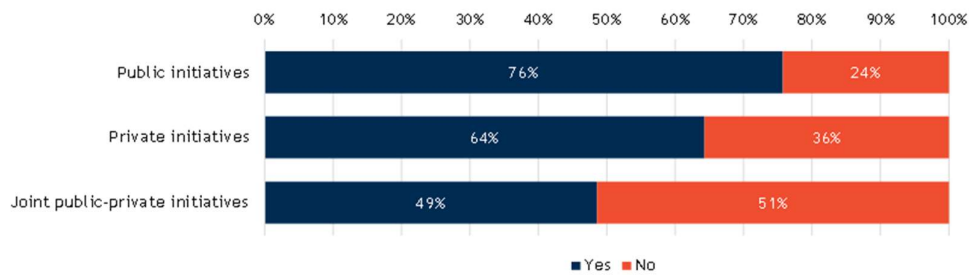
Other initiatives, included in several national development plans, require a more coherent and implementation-oriented approach to spatial planning than before.¹⁹⁹ These initiatives include:

- "Transport and Mobility Development Plan 2021-2035" - which identifies the principles of sustainable transport and mobility and sets out the strategy to achieve this;
- "Estonian Business Growth Strategy 2020" talent policy - created to promote a creative economy and comprehensive development of business environment;
- "Estonian Regional Development Strategy 2014-2020" - envisions the creation of an attractive living environment and urban space both for foreign-skilled labour and investors and for visitors and permanent residents;
- "Energy Economy Development Plan until 2030" - handles reconstruction activities, both new and renovations, to ensure the sustainability of the building stock;
- "Culture 2020" and "Estonian architectural policy" - are excellent examples of measures for creating and maintaining high-quality architecture and living environment.

The survey we conducted as part of this report has contributed to completing the picture on the current and past public, private and joint initiatives for improving the quality and sustainability of the living environment in Estonia. Most of the respondents to the survey confirmed that they were aware of both public and private initiatives (see Figure 3-1). However, the initiatives that are jointly implemented by public and private actors are less known among the stakeholders of living environment in Estonia.

¹⁹⁹ Republic of Estonia Government (2018). Report of the Expert Group on Spatial Design. Retrieved from <https://www.kul.ee/media/799/download>

Figure 3-1: Stakeholders' awareness of initiatives to improve the quality and/or sustainability of the living environment (n=70)



Source: Survey with stakeholders conducted as part of the task for this report

The inputs of the respondents allow us to present concrete examples of initiatives that contribute to the improvement of the living environment in the Estonian settlements. In the following section, we present a selection of cross-cutting initiatives by both public and private actors, for the specific areas of the living environment in Estonia that are covered within the scope of this report.

Public initiatives

Good Public Spaces

This is an initiative organised by the Estonian Association of Architects and supported by the Estonian Ministry of Culture, Estonian Ministry of Finance, Haljala rural municipality, Lääneranna rural municipality, Paide city government and Tapa rural municipality.²⁰⁰ The programme has been organised as part of the events celebrating the state centenary, with the objective of renewing the public spaces in central areas of 15 Estonian towns, among which Tõrva, Põlva, Rapla, Valga, Võru, Kuressaare, Elva and Rakvere. In the follow-up programme, four new architecture competitions for the renewal of the centres of Tapa, Võsu, Paide and Lihula were conducted. These competitions were funded by the local municipalities, the Ministry of Culture and the Ministry of Finance.

Car-free boulevard

Organised by the Tartu City Government, Tiigi Seltsimaja and SA Tartu 2024,²⁰¹ it encourages public discussion and reflection on what kind of public space the city of Tartu should offer and how to make the heart of the city more environmentally friendly. To facilitate this, the initiative consists of closing the Vabaduse Boulevard for car traffic, on the river side, between July 1 and August 14 on weekends, starting on Friday evening. The space is then filled with cultural and social activities that bring people together and enjoy the summertime in the centre of Tartu. The event has been taken place since 2020, though its scope has been reduced in 2022.

LED test street project Tallinn

Implemented by the municipality of Tallinn with the participation of the private sector actors among which, LED manufacturers, the purpose of this pilot project²⁰², which was launched in March 2010, was to offer the LED manufacturers the opportunity to prove their suitability for the technical needs and the economy. The end objective was to gain a common understanding of what is possible in terms of

²⁰⁰ <https://www.estonianart.ee/architecture/good-public-space/> and <https://www.arhitektuurimuseum.ee/en/naitus/great-public-spaces-centres-of-tapa-vosu-paide-and-lihula/>

²⁰¹ Municipality of Tartu (n.d.). Südasuvine kohtumispaik Autovabaduse puiestee. Retrieved from <https://tartu.ee/et/autovabaduse-puiestee#Liikluskorraldus-ja-%C3%BCistransport>

²⁰² Luci Association (n.d.). Best Practice: Tallinn (Estonia). Retrieved from <https://www.luciassociation.org/best-practice-tallinn-estonia/>

LED outdoor lighting. The outcome was that the LED lighting in the street is not energy efficient compare to the modern gas solution lamps, but using LED lighting in parks, pedestrian sidewalks and bicycle lanes can save energy. However, the cold light, though efficient in terms of luminosity, is uncomfortable for some of the people. Therefore, luminaries with warmer light would be preferred.

Investments through the National Recovery and Resilience Plan

Finally, the Estonian Recovery and Resilience Plan has foreseen several investments to further the quality and sustainability of the living environment in the country. For instance, in preparation for electric mobility, 45 million Euro are dedicated to upgrading the electricity grid and piloting energy storage to increase renewable energy production. Other investments include strengthening advisory and digital tools to promote energy efficient renovations and to improve the public mobility in and around Tallinn by implementing a common transport system in the whole capital region.²⁰³

Private initiatives

Transforming urban environments

The goal of this initiative is to create better urban environments. This initiative is lead by Wolfscape²⁰⁴ and involving other five partners: TalTech, Rohetiiger, Siemens, Hendrikson&Ko and Arhitektuuribüroo PLUSS. The project is financed through the European Regional Development fund, Investing in your future and Enterprise Estonia and it seeks to develop a blueprint for a circular urban, sustainable, yet affordable city environment. The goal is the development of a smart neighbourhood that is centred on people, is inclusive, and offers a harmonious blending between the natural and the built environment. To reach this goal, the project consortium combines academic research with the latest available technologies. It brings together urban innovators, developers, scientists, policymakers, regulators, and the community, to create and implement solutions to urban challenges in energy, transportation, waste management, air quality, food, segregation, and other areas.

The first pilot project is the creation of the biggest climate-neutral district project of the Baltics. For this, an industrial seaside neighbourhood in North Tallinn, i.e. the Paljassaare Harbour, will be transformed into a smart neighbourhood that will be “circular by design.”²⁰⁵ The end result will be a district relying on a closed renewable energy infrastructure, with 100% green energy, on diverse and smart mobility solutions, a balanced share of residential and commercial buildings, with a proper conditions for the development of green businesses, plentiful of green spaces, including the urban farms and community gardens. It is estimated that the first residences will be completed within a horizon of three to five years and that it will take about 30 years to fully develop the complete areas as depicted above.

Lively Street

The Lively Street initiative (EE: Elav Tänav) is a private initiative by MTÜ Elav Tänav, a group of entrepreneurs and investors, urban specialists and designers whose purpose is to improve Tallinn’s street space. The initiative is designed with long-term and strategic views to balance street space planning so that both young and old can enjoy, feel comfortable and safe on the street. The members of the initiative create analysis and capacity in the field of street planning, facilitates the involvement

²⁰³ https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/estonias-recovery-and-resilience-plan_en#estonias-recovery-and-resilience-plan

²⁰⁴ Wolfscape (n.d.). Wolfscape. Retrieved from <https://www.wolfscape.eu/en/home>

²⁰⁵ O-mag (2021). The first green district wil be built in Tallinn. Retrieved from <https://www.o-mag.eu/node/319>

of those who want to create modern street space by allowing access to the necessary network and practical toolbox to do so. Thus, their goal is to actively engage the communities for accelerating the implementation of the city plans in their neighbourhoods, supervise the implementation and participate in the enactment of practical changes in the respective communities.

The principles of the initiative rely on three pillars:

- **Streets are much more than just traffic corridors.** This means that streets should be designed to make its users feel both physically and psychically safe, where the noise is reduced, the greenery, including city gardens, and amenities are present, where the street elements create food for thought, and where functionally is playing its daily role.
- **Promises are being kept.** The initiative militates for following through with the implementation of the goals written down in Tallinn's strategic documents, such as the Bicycle Strategy, Strategy 2035 and the Climate Plan.
- **A city that supports and active and healthy lifestyle.** The initiative works towards promoting a active forms of movement in the city environment, both for children and adults and for incorporating physical movement in everyday life.

Public-Private initiatives

Anija Switch 2018

This initiative is an accelerator of local cooperation to help improve the life and living conditions of the residents of Anija, by combining their good ideas, skills and knowledge with the advice and the financial support of the municipality of Anija. The initiative is organised by the NGO Soodlast Kõrven located in Anija parish, Harju County. It was meant to stimulate the community to think of what they would like to improve in Anija. This process culminated with a day of activities on April 14, 2018 in which the winning ideas were implemented. Among the implemented ideas count planting of trees on the streets, renovation of a historic bus stop pavilion, the construction of a safe bridge for a safe access to the hill in Alavere village, making a nursery garden for the outdoor area of a kindergarten, demolish an old barn next to a playground and build a playhouse for children instead etc.

The declared aim of this initiative is to guarantee a good feeling of the citizens of being able to contribute to the development of the space in which they live, to give them a sense of success for their achievement and, importantly, give them the chance to spend free time in the great company of their community. In the process, several problems raised in the municipality have been solved and the civil society has expanded to a wider context. The initiative is also hoping to serve as an example for other municipalities to follow.

Urban Lab

Urban Lab is an initiative that benefits from the cooperation of both private and public sector actors. Therefore, it can be classified as a joint public-private initiative, although it is lead by a private actor, i.e. the Linnalabor NGO. The initiative is a laboratory for testing urban innovation that includes scientific, social and artistic methods with the purpose of improving the diversity of urban life. The initiative has started in 2006 and it has become known for popularising urban studies, promoting citizen participation in urban planning and enhancing sustainable city development.

3.3 Buildings

Public initiatives

Estonia 2035 Strategy

Under the Estonia 2035 Strategy, Estonia has committed to a national renovation plan of the Estonian building stock with the outlook to increase the resilience of the settlements to climate change and extreme weather events as well as increasing accessibility for the disabled and aging population.²⁰⁶

Regulations

A few pieces of public initiative for improving the built environment in Estonia, in the form of regulations, are worth mentioning. First, under the **Energy Sector Organisation Act** (in line with the Energy Efficiency Directive), 3% of useful floor area of central government-occupied buildings needs to be renovated each year. This obligation accounts for about 25,000 square metres of renovation per year.²⁰⁷

Second, in compliance with the Energy Performance of Buildings Directive, the Estonian Government will order and make available **near zero-energy buildings (nZEBs) designs**.²⁰⁸ At the same time, the legal framework will be amended to accelerate the construction of new nZEBs, both in the private and public sectors. The requirements for nZEBs have been in place for all new public buildings since 2019 and all new private sector buildings since 2021.

Third, Estonia's **Building Code** is intended to encourage sustainable development and ensure safety, functionality and usability of the built environment.²⁰⁹ In the new Building Code, to be published in 2023, the building code goals have been modified to ensure a high-quality built environment and purposeful and safe performance and usability, promoting the sustainable development of high-quality space. The Building Code applies to construction works, building design, as well as use and maintenance of buildings (including the demolition and renovation of buildings). The Building Code includes several principles:

- good practice must be observed during the design, building and maintenance of construction works;
- safety of buildings, including prevention of hazard for humans, property and environment as well as the protection of natural and cultural aspects;
- environmental soundness of buildings (e.g. minimizing use of natural resources); and
- professionalism: requirement to exercise due diligence.²¹⁰

The Building Code specifies several requirements for construction and building works to comply to, including requirements for construction safety, health, environment, energy conservation/efficiency, accessibility, and adherence to spatial planning specifications.²¹¹ Particularly, buildings with indoor

²⁰⁶ Republic of Estonia Government (n.d.). Long-term strategy "Estonia 2035". Retrieved from <https://valitsus.ee/strateegia-eeesti-2035-arengukavad-ja-planeering/strateegia>

²⁰⁷ Tal Tech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

²⁰⁸ Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

²⁰⁹ Republic of Estonia Government (2015). Building Code. Retrieved from https://www.riigiteataja.ee/en/compare_original/511082015002

²¹⁰ Republic of Estonia Government (2015). Building Code. Retrieved from https://www.riigiteataja.ee/en/compare_original/511082015002

²¹¹ Republic of Estonia Government (2015). Building Code. Retrieved from https://www.riigiteataja.ee/en/compare_original/511082015002

climate controls²¹² are obligated to follow specific energy performance requirements, in line with the EPBD.²¹³ These requirements include:

- **Minimum requirements for energy performance:** all new buildings and major renovations must comply to minimum energy performance requirements once construction is completed
- **Energy performance certificates (EPCs):** energy performance certificates are required for new buildings and existing buildings in the case of change in tenancy/ownership. The EPC is used to prove compliance with minimum energy performance requirements and also lists suggestions for improving energy performance in an annex of the EPC. EPCs must be issued by a qualified professional and must be entered electronically into the construction works registry.

National Development Plan of the Energy Sector until 2030

Estonia's National Development Plan of the Energy Sector until 2030 (NDPES 2030)²¹⁴ sets up several targets for building renovation for a third of Estonia's residential buildings. Table 3-1 lists these targets for public buildings, single-family dwellings, apartment buildings, private non-residential buildings and new constructions.

Table 3-1 Estonia's NDPES 2030 targets for buildings

Objective	Target
Total renovated floor area of public buildings from 2021 to 2030	170,000 m ²
Share of single-family dwellings in the total building stock with an EPC class of at least C or D	>40%
Share of apartment buildings in the total building stock with an EPC class of at least C	>50%
Share of non-residential buildings in the total building stock with an EPC class of at least C	>20%
New buildings conforms to requirements for nearly zero-energy buildings (nZEBs)	100%

Source: Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

The NDPES 2030 also considers how planning can play a crucial role in the reorganisation of areas where building abandonment is high. This entails providing options for more energy efficient use of housing (e.g. moving residents from partially vacant buildings to new, energy efficient residential buildings) as well as demolishing vacant buildings.

National Energy and Climate Plan

Estonia's National Energy and Climate Plan (NECP) includes three main measures related to energy savings in buildings:

1. Renovation of public and commercial buildings;
2. Renovation of single-family dwellings and apartment buildings; and

²¹² There are exceptions for certain buildings with historical/heritage value, places of worship, temporary buildings and small buildings (less than 50m²).

²¹³ Republic of Estonia Government (2015). Building Code. Retrieved from https://www.riigiteataja.ee/en/compare_original/511082015002

²¹⁴ Government of the Estonian Republic (2017). Energiamaajanduse arengukava aastani 2030 (EN: National Development Plan of the Energy Sector until 2030). Retrieved from <https://www.mkm.ee/media/99/download>

3. Establishment of minimum requirements for nZEBs.²¹⁵

The NECP also includes additional measures for renovation which are still to be determined.

E-construction platform

Since 2019, the Estonian government has been developing the **e-construction platform** in order to stimulate the construction industry's digital transition and assist it overcome its fragmentation. The goal of the platform is to enable lossless exchange of standardized and trusted data between all stakeholders throughout the building lifecycle. This will also help make BIM (building information modelling) the standard, resulting in more efficient (automated) and transparent public processes and creating value from new digital products and services.

Some of the key developments include the application of **BIM in the building permit process** to enable automated building code checks and the **national digital twin** that is an up-to-date digital mirror of the physical world data with 3D visualization and other digital services. This is intended to help make better decisions regarding the development of the built environment.

HOPE Management system

In order to establish a registry of state-owned and contracted real estate, a management system (HOPE)²¹⁶ is being introduced by the Ministry of Finance. The intention of the HOPE system is to aid in the planning and budgeting of state-owned property. The HOPE system is expected to go into full implementation by 2023, depending on the financing available for the information systems development. It is intended to:

- provide clarity on the privileges and responsibilities of various stakeholders involved in the real estate decisions and establish coherence in the decision-making processes;
- establish a longer-term view (i.e. 20 years) in the planning process of state investment requirements, compared to the state budget strategy which is 4 years;
- provide an overview of information to relevant stakeholders concerning the priorities, purpose, condition, investment requirements, costs, etc. of property management plan assets so that they can make informed decisions and improve the link with strategic planning.²¹⁷

General Principles of Climate Policy until 2050

In the Estonia's Resolution of the Parliament concerning the principles of climate policy until 2050, the aim for maximising energy efficiency of the existing building stock is established.²¹⁸ The principles emphasise the need for more awareness of property owners and identifying market barriers for renovation. The paper also considers the use of various funding options to make renovations feasible and more cost-efficient.

Climate Change Adaptation Development Plan until 2030

Estonia's Climate Adaptation Plan includes ambitions to maintain the availability of services to Estonia's residents as well as to ensure energy efficiency of buildings despite of the adverse impacts of

²¹⁵ EC (2019). Estonia's 2030 national Energy and Climate Plan (NECP 2030). Retrieved from https://energy.ec.europa.eu/system/files/2022-08/ee_final_necp_main_en.pdf

²¹⁶ The legal basis for the HOPE system is in the State Assets Act and its by-laws.

²¹⁷ Estonian Ministry of Finance (2019). Working Group Final Report on Spatial Development 2019. Retrieved from https://www.rahandusministeerium.ee/et/system/files_force/document_files/ruumiloome_tooruhma_lopparuanne.pdf

²¹⁸ Republic of Estonia Government (2017). Resolution of the Riigikogu. General Principles of Climate Policy until 2050. Retrieved from https://ec.europa.eu/clima/sites/lts/lts_ee_et.pdf

climate change.²¹⁹ Following the same targets as the NDPES 2030, the Climate Adaptation Plan proposes measures to make sure buildings are durable and provide efficient H&C and high-quality indoor climate.

The Plan also considers how the current construction standards are based on past weather conditions even though climate change will alter future weather conditions, having a significant impact on buildings. Therefore, the plan suggests that the construction standards should take future climate conditions into account.

Long-term Renovation Strategy

Estonia's Long-term Renovation Strategy (LTRS)²²⁰ is aimed to set up the foundation for the complete renovation of the existing building stock that was built before 2001. The LTRS consists of several measures to accelerate the Renovation Wave in Estonia:

1. **Adopting new technological solutions.** To compensate for the lack of skilled-labour in the construction sector and accelerate the renovation process, new technological solutions are needed, such as prefabrication of building elements and setting up (simplified) digital tools. These types of solutions will not only speed up the process, but also cut costs.
2. **Supporting research and development.** The LTRS suggests the development of state registries to monitor renovation activities, mapping out the decision-making process of owners to help create better guidance for the renovation process, developing strategic spatial planning so that building renovations incorporate the basic principles for high-quality space, as well as developing greater technical expertise.
3. **Raising awareness.** Homeowners and property owners need digital information resources to encourage renovation activities and aid informed decision-making. Energy audits for commercial properties are also suggested to encourage renovation in the building sector.
4. **Demolition of vacant buildings.** The demolition of buildings should be linked with measures to make sure that urban spaces remain fully functional and improve the availability of public services.
5. **Financial support in the form of loans, guarantees and grants is crucial and should be tailored to the needs of the region/building type.** For instance, for single-family houses in regions where property values are low, access to state guarantees is needed. Support for full renovation in apartment buildings should be a high priority in more urban regions and renovation of apartment buildings in less urban areas could require state-funded loans (due to low property value). The degree of financial support should also depend on the depth of the renovation, where more extensive renovations receive more support. The LTRS also suggests the possibility of using CO₂ emissions as bases for financial support for commercial buildings.
6. **Additional services from the Estonia Business and Innovation Agency to incentivise private investment in residential buildings (loans, guarantees and technical advice).**

The LTRS estimates that the financing needs for the Renovation Wave will be €220 million per year, of which the State will cover 10%. However, the amount of financing required may fluctuate depending on the adoption of new technologies, supply of construction services, etc.

²¹⁹ Estonian Ministry of Environment (2017). Climate change adaptation development plan until 2030. Retrieved from <https://envir.ee/media/912/download>

²²⁰ Tal Tech & Estonian Ministry of Economic Affairs and Communication (2020). Long-term strategy for building renovation. Retrieved from https://energy.ec.europa.eu/system/files/2020-09/ee_2020_ltrs_official_translation_en_0.pdf

Following up with the LTRS, LIFE IP BuildEST project, a European Union funded project, is expected to offer a *national framework* for the Renovation Wave in Estonia. The project will start in 2022 and will continue until 2028, with a budget of €16.3 million (€9.5 million being from the European grant).

Estonian Business and Innovation Agency

The Estonian Business and Innovation Agency (known as KredEx until 2021) was set up by the Ministry of Economic Affairs and Communication and provides financial options for building-related investments for households, apartment associations and local municipalities. The Agency currently provides the following building-related financing option in the table below.

Table 3-2 KredEx building-related financial support schemes.

Name of support	Recipient	Type of support	Purpose
Housing loan guarantee	Households	Loan guarantee	Reduce the down payment obligation for buying or renovating private housing
Renovation grant for small residences	Households	Grant	Improve energy efficiency and indoor climate as well as adopting renewable energy of small residential buildings
Electrical system renovation support	Households & apartment associations	Grant	Partial funding for renovation of building electrical systems in Tallinn
Renovation grant	Apartment associations	Grant	Comprehensive renovation of apartment buildings to improve energy efficiency and extend the useful life of the building
Factory renovation grant for apartment buildings	Apartment associations	Grant	Encourage the adoption of new technical solutions for renovation of apartment buildings for improving energy efficiency and indoor climate
Apartment building renovation loan	Apartment associations	Loan	Projects with a negative response from a bank for apartment building renovation to ensure structural stability, increase energy efficiency or improve the living condition of the residents
Loan guarantee for apartment associations	Apartment associations	Loan guarantee	Projects for raising the quality of life for apartment residents deemed too high risk by banks
Renovation grant REACT-EU	Apartment associations & local municipalities	Grant	Energy efficiency renovation of apartment buildings
Renovation grant RRF	Apartment associations & local municipalities	Grant	Comprehensive renovation of apartment buildings to improve energy efficiency, extend the useful life of the building, raise the real estate value and improve indoor climate
Demolition grant for local governments	Local municipalities	Grant	Demolition of buildings that have fallen out of use
Housing development investment support for local governments	Local municipalities	Grant	The construction of new buildings with rental units or renovate existing buildings for rental use

Source: <https://kredex.ee/>

The vacant apartment buildings project (Tühjenevate korterelamute project)

The vacant apartment buildings project (EE: Tühjenevate korterelamute project) is a toolbox of legal and financial solutions for municipalities to develop long-term solutions for local empty/semi-empty residential buildings. The project is coordinated by the Ministry of Justice and Ministry of Economic

Affairs and Communications and is administered by the Ministry of Finance, Lüganus municipality, Valga municipality and the city of Kohtla-Järve. The project is to develop an effective model for reorganising housing at the local level across Estonia and will be the basis of amendments to the law and specific support measures for local governments

Private initiatives

The preparation of '*Construction Green Roadmap 2040*' has been initiated by Rohetiiger.²²¹ The aim is to discuss and decide the necessary activities for Estonian construction sector to be internationally competitive and meet the requirements of the green revolution as well as provide high-quality living environment.

The Construction Roadmap will provide practical guidance for both the private and public sectors to implement a green revolution in the construction sector. The footprint of the construction sector will be analyzed throughout its entire life cycle - from the extraction of mineral resources and the production of building materials to the impact of the building during its lifetime and the disposal of construction waste. The data-driven approach in Roadmap is intended to solve the challenges posed by the climate crisis: how to build houses and roads in the future so that the construction sector is economically viable, how to ensure the preservation of the quality of life of Estonian people and how to meet the environmental requirements of Estonia and the EU and the 2050 climate neutrality goals. The collected data will be automatically updated in the future, and the recommendations given in the text will also be modernized, so that the Roadmap will be usable until Estonia and the EU achieve climate neutrality in 2050. The Construction Green Roadmap 2040 is expected to be completed in March 2023.

There are also entrepreneurial initiatives to transform buildings which have fallen out of use into cultural hubs. The **Telliskivi Creative City** (EE: *Telliskivi Loomelinnak*) in Tallinn, for example is a former industrial complex, which instead of being demolished, has been renovated into a creative hotspot with art galleries, shops and restaurants. Another examples are:

- **Noblessner** in Kalamaja, which is a former shipyard which is converted to a space for restaurants, shops and apartments;
- **Tallinn Creative Hub** (EE: *Kultuurikatel*), which is a former power plant in Tallinn that has been renovated into a creative space for cultural organisation and companies;
- **Rotermanni Grain Elevator** in Tallinn, which is a former grain elevator that has been reconstructed to be used as a space for restaurants and offices; and
- **Fahle House** in Tallinn is a former cellulose and paper factor which now is used for businesses and housing.

More examples of historical out-of-use buildings reconstructed to fit the current needs of the community can be found at the Estonian Centre for Architecture.

Further, there are architectural initiatives in Estonia which include:

- **Estonian Centre of Architecture (ECA)**, is non-profit organisation which is a collaboration between the Estonian Academy of Arts and the Union of Estonian Architects, which concentrates on the development and promotion of Estonia's architectural culture. The ECA mainly focuses of development and innovation in Estonian architecture and urban planning as well as raise awareness and share knowledge across Estonia and abroad.

²²¹ Rohetiiger (2022). Rohetiiger Alustas Ehituse Teekaardi Koostamist. Retrieved from https://rohetiiger.ee/rohetiiger-blogi/rohetiiger-alustas-ehituse-teekaardi-koostamist/?fbclid=IwAR2EwqJcogXUSW5rLoXmQ03B-U_UmvOZXKW12DfSUVIoi02c1gB3l41E4s

- The **School of Architecture** (EE: Arhitektuurikool) is a non-profit ‘hobby school’ for youth between 7 and 19 years old to provide education on architecture and collaborate with leading architectural organisations.

3.4 Transport networks

Public initiatives

Cross-cutting

Under the “Estonia 2035” Strategy, the Estonian government is committed to build sustainable mobility services across the country and internationally which rely on new technologies, such as hydrogen, and account for the socio-economic and environmental factors. Simultaneously, the use of public and shared transport is promoted.

In NECP 2030,²²² 16 measures for transport sector were developed in order to meet its objectives:

- Increasing the share of biofuels in the transport sector;
- Increasing the fuel efficiency of the transport sector;
- Promotion of sustainable driving;
- Development of convenient and modern public transport;
- Development of railway infrastructure (incl. Rail Baltica);
- Electrification of railways and ferries;
- Promotion of sustainable driving;
- Time-based road charge for heavy goods vehicles;
- Aid for the purchase of electric vehicles;
- Additional enhancement of fuel-efficient driving;
- Spatial and land use measures in cities to increase the fuel-efficiency of transport and enhance the transportation system;
- Additional spatial and land use measures in cities to increase the fuel-efficiency of transport and enhance the transportation system;
- Additional activities for the development of convenient and modern public transport;
- Establishment of mileage-based road charges for heavy goods vehicles;
- Tyres and aerodynamics of vehicles;
- Transfer of public transport to biomethane and electricity.

To reach targets of renewable energy in transport, Estonia mandated that the share of biofuels in transport fuels must account for 6.4% by April 2019 and 10% by January 2020. However, the mandate does not apply to all transport fuels.²²³

The Recovery and Resilience Plan aims to increase the sustainability of transport and mobility by providing financial support for railway and tram transport. The Plan includes the construction of Ülemiste joint terminal, which is part of Rail Baltic.²²⁴

²²² EC (2019). Estonia’s 2030 national Energy and Climate Plan (NECP 2030). Retrieved from https://energy.ec.europa.eu/system/files/2022-08/ee_final_necp_main_en.pdf

²²³ EC (2019). 2019 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011. Retrieved from https://ec.europa.eu/info/sites/default/files/file_import/2019-european-semester-country-report-estonia_en.pdf

²²⁴ Republic of Estonia Government (2021). The government approved a recovery plan worth near a billion euros. Retrieved from <https://www.valitsus.ee/uudised/valitsus-kinnitas-pea-miljardi-euro-suuruse-taastekava>

The Estonia 2030+ National Spatial Plan²²⁵ sets objectives related to transport that include:

- The availability of services, educational institutions and jobs is provided by the linkage within and between daily activity spaces by means of sustainable transport modes
 - Ensuring the cohesiveness within daily activity spaces
 - Network of bus services which provides frequent, fast and reliable connections;
 - Increase functioning of bus services (for example by introducing demand-based public transport or state-of-the-art ticketing system);
 - Student transport via regional and local bus services;
 - Improve the quality of electric railway in the Tallinn area;
 - Provide linkage between passenger vehicles and public transport (e.g. park-and-ride systems).
 - Provision of mobility facilities in urban areas
 - Replace passenger vehicles with public vehicles;
 - Improve light traffic by linking residential areas to workplaces, city centres, etc.;
 - Secure parking facilities at major public transport stations.
 - Provision of mobility facilities for low-density settlements
 - Increase quality of local road networks, traffic safety and organisation
 - Reciprocal linkage of daily activity spaces
 - Regional railway services need to operate on the Tallinn-Pärnu, Tallinn-Viljandi, Tallinn-Tartu-Valga/Koidula, Tallinn-Narva and Valga-Koidula routes;
 - Preserve frequent air and ferry services to the islands.
- Fast, sufficiently frequent and convenient connections are provided to the external world
 - Connections to more distant destinations
 - Better linkage between the Tallinn airport and public transport within Estonia and adjustments in travel schedules;
 - Use of Amari as backup airfield, which can also be used for freight transport. Consider the creation of a railway link to Amari.
 - Connections to destinations nearby
 - Thematic plans will need to select the location of a modern, high-speed north-south railway route (Rail Baltic);
 - If desired, regular connections by passenger ship could be organised also out of the harbours of Paldiski, Sillamäe and Kunda;
 - Flights from the Estonian mainland to main destinations nearby, which are linked by railway, may be replaced with high-speed, frequent train services.
 - Freight transport and transit
 - The high-potential harbours of Paldiski and Sillamäe need to be involved in international transport more than before;
 - Since most of the necessary infrastructure in the ports of Muuga, Paldiski and Sillamäe has been completed, exploiting already planned areas in the said ports or in their vicinity is important for the nation;
 - A number of harbours with a good export potential remain untouched by international transit flows. The harbours of Pärnu, Virtsu, Roomassaare and

²²⁵ Estonian Ministry of the Interior (2013). National Spatial Plan Estonia 2030+. Retrieved from <https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf>

The Resolution of the Parliament of Estonia regarding the General Principles of Climate Policy until 2050²³⁰ maintains that the reliance on motorisation and the dependency on private cars will change. Well-integrated settlement planning and transport management will help to reduce the car dependency in Estonia. Projects like Autovabaduse puiestee of Tartu City, a car-free boulevard, aim to reshape urban experiences by reducing traffic jam and increasing the amount of green spaces in city centers.²³¹ Moreover, the City of Tartu dedicated EUR 100,000 of its 2021 participative budget to transform a former port railway area into a green corridor for light traffic users, accompanied by a cycle track network along the area.²³²

Additionally, energy-efficient traffic will be advanced by prioritising the development of public transportation, non-motorised or electric traffic and energy-efficient carriage of goods. In this respect, the Building Code²³³ specifies several requirements for construction and building works that must be met, including the following requirements for charging infrastructure for electric cars:

- When constructing a building for which more than ten parking spaces are prescribed, it is necessary to install cabling infrastructure:
 - for each parking space in the case of residential buildings;
 - cabling infrastructure at least for each fifth parking space and an electric car charging point at least for one parking space in the case of non-residential buildings;
- When constructing a building for which more than 20 parking spaces are prescribed for the servicing of a non-residential building, an electric car charging point must be installed at least for one such space.

Cycling

At the municipality level, Tallinn was the first city to approve a cycling strategy in autumn 2017.²³⁴ The strategy offers several objectives, including the increase of the share of cycling in all transport modes to 11%, a better connected cycling network and increasing safety measures, such as physically separating cycling paths from the road. In 2019, the city also adopted the Tallinn Sustainable Urban Mobility Plan²³⁵ as a result of a cooperation between the city, the state, and regional authorities. The vision of the strategy is to build an excellent network of public transport and innovative mobility services as well as convenient cycle tracks and sidewalks which are accessible and usable throughout the year to everyone. Cycling is also highlighted under the Tallinn 2035 Development Strategy.²³⁶

To achieve this, Tallinn City runs several pilot projects. One example is a bike paths project in Ülemiste City in cooperation with FinestTwins Smart City Centre of Excellence, which is financed by the European Regional Development Fund and the Estonian Ministry of Education and Research. Under this project, two streets were transformed into one-way streets for cyclists and scooter drivers for two months.²³⁷ Moreover, the municipality of Tallinn is planning on subsidising a Cycling School. This

²³⁰ Republic of Estonia Government (2017). Resolution of the Riigikogu. General Principles of Climate Policy until 2050. Retrieved from https://ec.europa.eu/clima/sites/its/its_ee_et.pdf

²³¹ Tartu (2022). Autovabaduse puiestee. Retrieved from <https://tartu.ee/et/autovabaduse-puiestee>

²³² Tartu (2022). Port railway covered with pedestrian and bicycle-friendly reclaimed asphalt pavement last week. Retrieved from <https://www.tartu.ee/en/news/port-railway-covered-pedestrian-and-bicycelfriendly-reclaimed-asphalt-pavement-last-week>

²³³ Republic of Estonia Government (2015). Building Code. Retrieved from

https://www.riigiteataja.ee/en/compare_original/511082015002

²³⁴ Tallinna Kommunaalamet (n.d.). Summary of the Tallinn Bicycle Strategy 2018-2027. Retrieved from <https://www.tallinn.ee/et/media/300829>

²³⁵ Maanteeamet and Tallinn (2019). Tallinn region sustainable urban mobility strategy 2035. Public draft strategy. Retrieved from <https://www.hel.fi/static/kanslia/elo/sump-suunnitelma.pdf>

²³⁶ Tallinn (n.d.). Field of activity: Mobility. Retrieved from <https://strateegia.tallinn.ee/en/mobility>

²³⁷ Ülemiste City (2022). A pilot project of bike paths was launched in Ülemiste City to give cyclists more space. Retrieved from <https://www.ulemistecity.ee/en/news-messages/ulemiste-city-kaiivutus-rattateede-pilootprojekt-mis-annab-ratturitele-seniseest-rohkem-ruumi/>

institution will provide courses on road traffic rules to children aged 10 to 15. If successfully attended, the children are granted with EUR 100 to purchase a bicycle.²³⁸

However, it is the city of Tartu that has the highest share of cycling from the modal split at approximately 8%.²³⁹ The municipality's plans to invest in infrastructure prefer pedestrians and cyclists.²⁴⁰ In 2019, the Tartu City Strategic Action Plan for bicycle traffic 2019-2040 was approved.²⁴¹ The vision of the Action Plan is that the bicycle is the preferred all-year-round mode of transport and walking is the preferred mode of travel. The overall aim is to achieve a 1% annual increase in share of cyclists and the same decrease of car use. The Plan depicts 12 strategic objectives related to education and infrastructure development, maintenance and repair, increased number of cyclists and their satisfaction, reduced traffic and noise pollution and improved air quality. Moreover, the municipality runs the initiative Tartu Smart Bike Share, a public self-service bike sharing system. This includes more than 90 stations providing over 750 bikes, out of which two-thirds have electric-assist motors. For this project, the City of Tartu collaborated with Bewegen Technologies Inc and is financed by the urban development measure of the European Regional Development Fund and the Horizon 2020 programme for European research and innovation (support agreement no. 691883).²⁴²

Private initiatives

The RESPONSE project²⁴³ was a private initiative aiming to develop demand-responsive transport to ensure accessibility, availability and reliability of rural public transport. The project addressed the problems of low cost-effectiveness and decreasing interest in the public transport by creating demand-orientation model based on open data and digitalisation.

In September 2022, the preparation of the Construction Green Roadmap 2040 started²⁴⁴ with the aim of providing a high-quality living environment and meeting the requirements of the green transition. The Roadmap will analyse the impact of the construction sector throughout its life cycle and provide guidance and recommendations, including mobility planning. The document should be completed in March 2023. The project was launched by the multidisciplinary cooperation platform Rohetiiger ('Green Tiger') with partners from entrepreneurs, individuals, the public sector and the civic sector.

Architects do engage in the sustainability transition of Estonia's transport systems. For example, the Riia Street bridge was redesigned to improve the experience of walking into the city centre by increasing the visual attractiveness of the underpass for pedestrians and cyclists.²⁴⁵ The Landscape Architects' Association also awards projects, like the Annelinna pedestrian and cycling lane.²⁴⁶

²³⁸ Iolov (2022). Tallinn will help schoolkids buy a bicycle with 100 euros. Retrieved from <https://www.themayor.eu/en/a/view/tallinn-will-help-schoolkids-buy-a-bicycle-with-100-euros-10581>

²³⁹ Cyclurban (n.d.). Estonia. Retrieved from <https://www.cyclurban.eu/countries/estonia/>

²⁴⁰ Antov et al. (2020). Spatial Choices for an urbanized society. Retrieved from <https://inimareng.ee/>; Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

²⁴¹ HeiVäl Consulting and HeiVäl OÜ (2021). Tartu strategic action plan for bicycle traffic 2019-2040. Retrieved from https://www.euki.ee/wp-content/uploads/2021/08/Cycling_Strategy_EE_Tartu.pdf

²⁴² Tark Ratas Smart Bike (n.d.). About us. Retrieved from <https://ratas.tartu.ee/about>

²⁴³ SEI Tallinn (2022). Demand-responsive transport to ensure accessibility, availability and reliability of rural public transport - Response. Retrieved from <https://www.sei.org/projects-and-tools/projects/response-eng/>

²⁴⁴ Rohetiiger (2022). Rohetiiger alustas ehituse teekaardi koostamist. Retrieved from https://rohetiiger.ee/rohetiiger-blogi/rohetiiger-alustas-ehituse-teekaardi-koostamist/?fbclid=IwAR1iLoE-S9M1gJMu5iNR_Bnhdl-gpM6roDzBZ1S7Zzw8qsEUCvk6xucfojc

²⁴⁵ Maja Eesti Arhitektuuri Ajakiri (2017). Sille Pihlak, Siim Tuksam. The winning entry in the Riia Street bridge and tunnel competition. Retrieved from <https://ajakirimaja.ee/en/the-winning-entry-in-the-riia-street-bridge-and-tunnel-competition/>

²⁴⁶ Tartu Postimees (2018). Tartu vaksali väljak pälvis maastikuarhitektuuri peapreemia. Retrieved from <https://tartu.postimees.ee/6471715/tartu-vaksali-valjak-palvis-maastikuarhitektuuri-peapreemia>

3.5 Urban parks and greenery, nature reserves

Public initiatives

Under the Estonia 2035 Strategy, the Estonian government committed to giving more value and granting more public access to waterfront areas in cities and towns. Thus, in order to increase the use of water bodies, more public points of access will be created, and water banks can be linked to other areas which are open to the public. Additionally, the strategy mentions the aim to increase the connectivity of green areas within cities and towns, especially Tallinn and Tartu, with natural areas and woods in their vicinity. To this end, more attention is required for valuing and preserving the integrity of the ecosystems and on preserving and improving the cohesion of the green network. In general, the strategy aims to avoid dense settlements in areas such as natural conservation areas, core natural areas green corridors and green networks and agricultural land, since these present a high value in certain areas.²⁴⁷ Furthermore, in the Estonia 2035 strategy, several objectives were identified:

- Cohesiveness of the green network;
- Preservation of valuable landscape features; and
- Planning of green networks.

Planning of green networks imply the development of an integrated approach to enhance nature conservation and sustainable development since the preservation, conservation and sustainable utilisation of valuable landscapes partly contribute to the objectives of the functioning of the green networks. To this end, there is a need to define the conditions which need to be reached in order to preserve landscapes which are a part of the Estonian identity. However, the strategy also mentions that the current measures described in the county plans are sufficient to preserve green networks. Additional protection through listing the natural areas as ‘protected areas’ is deemed not necessary.²⁴⁸

Another example of a public initiative is provided by the Estonian Human Development Report 2019/2020. Specifically, the city of Pärnu has set a goal of improving its residents’ health through the boosting of the quality of the urban environment by adding more green areas. To achieve this, the city has set up a cooperation with universities and health institutions. One of the expected outcomes is to reduce direct health costs.²⁴⁹

The third example is one of the oldest greenery initiatives which Estonia was a part of—the development of a Pan-European Ecological Network, as defined under the Pan-European Biological and Landscape Diversity Strategy, through obligations in all 15 counties of Estonia over the period of 1999 to 2008. One of the important subtopics of this plan is the “Green Network” which combined the network of protected areas into a unified system of natural areas, especially incorporating the Estonian Natura 2000 sites. Results demonstrated that 10 of the 15 counties successfully implemented this goal, as a minimum of 95% of the Natura 2000 sites within these counties have been incorporated into the Green Network. In the other three counties, about 90% have been incorporated, although in

²⁴⁷ Estonian Ministry of the Interior (2013). National Spatial Plan Estonia 2030+. Retrieved from <https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf>

²⁴⁸ Ibid

²⁴⁹ Estonian Cooperation Assembly (2020). Estonian Human Development Report 2019/2020. Retrieved from <https://inimareng.ee/en/index.html>

Võru and Valga counties, this percentage is much lower at respectively 75% and 60%. As such, a revision of Green Network thematic plans should be held in these counties.²⁵⁰

In recognition of the efforts that local authorities put in to improve the environment, Tallinn has recently been named the European Green Capital for 2023 by the European Commission. It has been awarded €600,000 to support the implementation of measures to enhance its environmental sustainability. Extensive reasons for winning the competition are given. Tallinn's network of nature and biodiversity sites are protected by several designations such as Natura 2000. Special attention is given to biodiversity education by the city in places such as the Aegna Nature House, Nõmme Nature House, Tallinn Zoo Environmental Education Centre, and the Lehola Environmental Education Centre. Furthermore, Tallinn has adopted key elements of the European Green Agreement, the EU Biodiversity Strategy, and the priorities of the EU Pollinators Initiative as it looks to further conserve and enhance nature in the city over the next decade. This is clear from initiatives such as pollinator habitat coherence mapping, the B. Green project, nature-based approaches to landscape and urban design, the reduction of pesticides, and the creation of pollinator passages across the city.²⁵¹

Finally, some smaller scale initiatives that place high importance on highlighting the nature areas are present in Estonia:

- RMK hiking route - A network of hiking trails that passes through all of Estonia for 370 km and includes two national parks and nine nature reserves. This trail facilitates access to the dense Estonian forests and provides the possibilities for hikers to discover the vast natural areas in the national parks and nature reserves. Along the way, attention is drawn to special features of Estonian nature to also raise awareness.²⁵²
- Project 'Curated Biodiversity' in Tartu - The city wants to increase the biodiversity in its public spaces in light of the city's role as Europe's Capital of Culture in 2024. The actions to enhance biodiversity include a broad range of projects such as a reduction in mowing grass since more plant species grow in taller grass, and a more diverse environment is a better habitat for insects, small animals and birds. Another example is the creation of a biodiverse flower meadow in Uueturu Park in the centre of Tartu where interested people can take part by planting and donating local flower seeds.²⁵³
- Eco-golf course in Tallinn - Tondiraba is a green urban area where the city planned to build an eco-golf course with a diverse and species-rich landscape and preservation of protected species. The landscape was developed in different 'micro-communities' and their flora were generated with specific landscape maintenance methods.²⁵⁴

Private initiatives

Respondents to the survey mentioned several private actions such as urban gardening, installing green roofs and greening of offices and residential buildings, but did not provide any specific initiatives. However, in Tallinn, urban gardening is gaining popularity. More specifically, community gardens are open city gardens created on the initiative of active city citizens. Up to date, 29 community gardens are being managed by more than 1,035 volunteers and reaching approximately 3,535 involved

²⁵⁰ Raet, J., Sepp, K., Kaasik, A., Kuusemets, V. & Külvik, M. (2011). Distribution of the Green Network of Estonia. *Forestry Studies*, 53(2010) 66-74. <https://doi.org/10.2478/v10132-011-0090-x>

²⁵¹ EC (n.d.). Tallinn: winning city 2023. Retrieved from https://environment.ec.europa.eu/topics/urban-environment/european-green-capital-award/winning-cities/tallinn-2023_en

²⁵² Loodusega Koos (n.d.). Hiking route. Retrieved from <https://www.loodusegakoos.ee/where-to-go/hiking-route>

²⁵³ Tartu 2024 (n.d.). Curated biodiversity. Retrieved from <https://tartu2024.ee/curatedbiodiversity>

²⁵⁴ Urban Nature Atlas (2021). Tondiraba eco-golf course. Retrieved from <https://una.city/nbs/tallinn/tondiraba-eco-golf-course>

citizens. In addition to gardening activities, various environmental, educational and cultural events are organised, such as workshops, concerts, workshops, lectures and talk evenings.

Some more specific private initiatives have been identified.

- Paljassaare special conservation area in the city of Tallinn is partly a nature reserve and partly used to accommodate a wastewater treatment facility. In the past, the zone was a restricted military area, but now it includes many leisure facilities and natural areas which have been designated as Natura 2000. It has undergone this transformation under the governance of NGOs and private companies.²⁵⁵
- In a project from the Estonian Urban Lab or Estonian Linnalabor, the Beta-promenade has been established as a simple footpath along the seaside. The beta promenade was made by filling an old, impassable landfill and has brought the citizens closer to the waterfront and the accompanying fauna and flora.²⁵⁶
- In the city of Tallinn, an old and abandoned fishing harbour has been transformed into an urban wilderness area which attracts many recreational visitors. The area is privately owned, but publicly used and thus a green open space with a high recreational value. Limited biodiversity conservation activities have been done with the goal of preserving and strengthening the existing ecosystems as well as reducing negative impacts on the environment and avoiding alterations or damages to the ecosystem.²⁵⁷

3.6 Energy and water distribution systems

Energy distribution

Public initiatives

Through its National Development Strategy²⁵⁸ and National Energy and Climate Plan (NECP 2030), Estonia aims at deploying smart grids, increasing capacity towards Latvia, while desynchronising from BRELL grid and synchronising with the electricity grid with the frequency band of the continental Europe in order to create connections for renewable energy and support the green transition of the country. The synchronization of the Baltic States' power system with the Continental European Network is expected to be completed by 2025.²⁵⁹ Key actions in NECP 2030 related to energy sector include:

- Additional development of heating and electrical efficiency;
- Reverse tenders of renewable energy;
- Development of wind parks (including off-shore);
- Development of heating infrastructure;
- Grid development, incl. synchronisation with Central Europe;
- More efficient use of primary energy;
- Energy sector research and development programme.

²⁵⁵ Urban Nature Atlas (2022). Paljassaare perpetuum mobile project. Retrieved from <https://una.city/nbs/tallinn/paljassaare-perpetuum-mobile-project>

²⁵⁶ Urban Nature Atlas (2021). Beta-promenade. Retrieved from <https://una.city/nbs/tallinn/beta-promenade>

²⁵⁷ Urban Nature Atlas (2021). Urban wilderness at former fishing harbour. Retrieved from <https://una.city/nbs/tallinn/urban-wilderness-former-fishing-harbour>

²⁵⁸ Republic of Estonia Government (n.d.). Long-term strategy "Estonia 2035". Retrieved from <https://valitsus.ee/strateegia-est-2035-arengukavad-ja-planeering/strateegia>

²⁵⁹ International Trade Administration (n.d.). Estonia - country commercial guide. Retrieved from <https://www.trade.gov/country-commercial-guides/estonia-energy>

The Estonia 2030+ national spatial plan²⁶⁰ also highlights importance of energy infrastructure availability with the main objectives as follows:

- The development of electricity production capacity focusing on energy supply in efficient and sustainable way by:
 - increasing energy security, where attention should be focused on more decentralized, regional energy production;
 - introducing more integrated energy-production solutions, combining several energy sources and enabling CHP;
 - focusing on wind and bio-energy capacity with potential trend towards nuclear energy
 - improving energy storage facilities;
 - improving facilities for storing energy primarily by increasing the utilisation of smart grids.
- Options for supplying Estonia with energy need to be expanded by creating external connections with energy networks in the Baltic Sea region by:
 - developing transit linked to energy networks and sources (electricity, gas, liquid and solid fuels) while considering the capabilities to import or export energy, including LNG ship imports;
 - improving connections to the electricity networks in neighbouring countries;
 - creating DC connections to Sweden and Finland, submarine cable connections to Latvia;
 - the continual updating of the electricity networks at intervals of approximately 30 years;
 - constructing high-voltage ring line connecting the Estonian islands, which will enable connection of offshore wind farms and ensure supply security.
- The need to avoid any unwanted impacts on the climate, achieve a higher share for renewable energy in the energy supply, ensure the implementation of energy-efficient measures and energy transition, and decrease the environmental impact of energy production by:
 - planning new and reconstruction of existing urban regions and using local energy sources;
 - increasing energy efficient solutions to reduce spending on energy and environmental impact resulting from energy production.

To reduce the number of failures caused by extreme weather conditions, Estonia plans to weather-proof up to 75-80% of all distribution grids by 2030, compared to 37% in 2016.²⁶¹ Regarding natural gas, as of 2019 there are several infrastructure projects, namely the Baltconnector pipeline, the Karksi gas metering station and the Gas Interconnection Poland-Lithuania pipeline. They will lead to the diversification of natural gas sources and routes, which will ultimately increase the competitiveness of the Eastern Baltic Sea region.

Private initiatives

To ameliorate the blending of energy distribution infrastructure with the natural and built environment, the national transmission system operator for electricity, Elering, hosted a designer competition for a new pylon in Risti, Western Estonia. The high voltage pylon was named Soorebane (Bog Fox) and

²⁶⁰ Estonian Ministry of the Interior (2013). National Spatial Plan Estonia 2030+. Retrieved from <https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf>

²⁶¹ IEA (2019). Estonia 2019 Review. Retrieved from https://iea.blob.core.windows.net/assets/21965e0d-c9a9-4617-b1ad-5b4539d91ad7/Estonia_2019_Review.pdf

completed in 2020. The company announced that the goal of this project was to show how a power line could blend in with the natural environment and also raise the public's awareness of the role of the electricity system in modern society.²⁶²

Another project is the Paldiski LNG Terminal build by Balti Gaas, a subsidiary of the Alexela Group. Initially planned to be finished by 2025, efforts were stepped up in 2022 to support Estonia's independence from imported Russian gas²⁶³ by creating a security of gas supply between Estonia, Latvia and Finland. The floating terminal was complemented in winter 2022. Currently, a dispute is ongoing between the grid operator Elering and Pakrineeme Sadam, jointly owned by Alexela and Infotart, regarding the rights to use a gas pipeline connection at the facility.²⁶⁴

Water management

Public initiatives

The Estonia 2030+ national spatial plan aims at increasing opportunities for the use of water bodies by creating public points of access, and the banks of the bodies of water may be naturally linked up to the rest of areas that are in open and public use.²⁶⁵

The Environmental Protection and Use Programme for 2020-2023 is a strategic document that sets targets to provide sustainable access to safe drinking water, wastewater collection and treatment, and the provision of the service at an affordable water tariff.²⁶⁶

Maritime space planning in Estonia is explained in the Maritime Spatial Plan (MSP) which aims at agreeing on the long-term principles of the use of marine area in order to attain and maintain a good status of the marine environment and to promote the maritime economy. Effective and sustainable use of the marine area and Estonia's openness to the sea are emphasized also in the national spatial plan "Estonia 2030+". Furthermore, Estonia 2035+ strategy provides guidance on strategic goals, reforms, and key activities in marine use. The MSP will determine areas, guidelines, and conditions for the development of offshore wind energy, which is expected to be developed in the near future.²⁶⁷

The objective regarding marine area is to achieve good environmental status, diverse and balanced use its resources, and support of the sustainable growth of the blue economy. This vision will be achieved by following spatial development principles:

1. The Estonian marine area is characterized by synergistic combined use;
2. The use of the marine area must be diversified, favouring activities that are more suited to the region;
3. The marine area is used as a public good, including through ecosystem services;
4. Marine area related decisions are knowledge-based;
5. Cooperation and communication between states, authorities and stakeholders in decision-making on the use of the marine area takes place.

²⁶² Tambur, S. (2021). Estonian has its first designer pylon. Retrieved from <https://estonianworld.com/technology/estonia-has-its-first-designer-ylon/>

²⁶³ Pekic, S. (2022). Paldiski LNG terminal in Estonia step closer to completion. Retrieved from <https://www.offshore-energy.biz/paldiski-lng-terminal-in-estonia-step-closer-to-completion/>

²⁶⁴ Whyte, A. and Aaspõllu, H (2023, 05 January). Estonia's Paldiski LNG terminal rent €300 a year, compared with €6 million. *ERR News*. Retrieved from: <https://news.err.ee/1608840430/estonia-s-paldiski-lng-terminal-rent-300-a-year-compared-with-6-million>

²⁶⁵ Estonian Ministry of the Interior (2013). National Spatial Plan Estonia 2030+. Retrieved from <https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf>

²⁶⁶ Estonian Ministry of Environment (n.d.). Analyses and action plan towards sustainable water services in Estonia. <https://envir.ee/en/analyses-and-action-plan-towards-sustainable-water-services-estonia-0>

²⁶⁷ Estonian Ministry of Environment & Hendrikson&Ko (2021). Estonian Maritime Spatial Plan. Retrieved from http://mereala.hendrikson.ee/dokumendid/Eskiis/Estonian_MSP_main-solution_ENG.pdf

Estonian Marine Strategy's Programme of Measures 2022-2027²⁶⁸ sets several measures related to littering and marine pollution:

- litter collection campaigns in the vicinity of ports;
- environmental-friendly management of waste on the coast and beaches;
- reducing littering related to the recreational activities and tourism industry.

The Estonian Environmental Investment Centre (KIK) supports several water management activities through the Water Management Programme.²⁶⁹ The projects supported include: waste water treatment and drinking water supply; cleaning residual pollution and making pollution sites safe; non-structural development works and studies; and restoration/maintenance of inland and coastal water bodies. The KIK also had a grant programme for:

- constructing and renovating combined sewerage and water systems in wastewater collection areas with more than 2,000 consumers;²⁷⁰ and
- connecting dwellings to public water supply and sewerage infrastructure.²⁷¹

Private initiatives

The International project BLASTIC (Plastic Waste Pathways into the Baltic Sea) aims to decrease the amount of marine plastic pollution and its negative impacts on ocean health by mapping and monitoring litter in rivers and coastal waters/areas. The project will produce a list of sources and pathways with recommendations that are closely linked to resource efficiency in waste and water sectors. As part of this project, information boards were installed on the changing cabins on the beach in Tallinn, providing information about plastic pollution and encouraging people to be more environmentally friendly.²⁷²

In 2021, the city of Tallinn together with private associations launched a campaign that invites companies to provide tap water instead of bottled water in order to decrease waste production and increase resource-efficiency.²⁷³ Catering facilities can join this initiative by offering tap water and make themselves visible by obtaining a respective label.

Waste management

Public initiatives

The aim of Estonia's 2030 National Energy and Climate Plan (NECP 2030) is to achieve 13% reduction of GHG emissions by 2030 compared to the 2005 levels in the sectors falling under the scope of the Shared Effort Regulation, including waste management.²⁷⁴ Four measures have been developed to meet the NECP 2030 objectives for waste management:

²⁶⁸ Estonian Ministry of Environment (2022). Estonian Marine Strategy's Programme of Measures 2022-2027: Strategic Environmental assessment (SEA) programme. Retrieved from <https://www.naturvardsverket.se/contentassets/f8b716379f2c447798db72b458283e90/estonian-marine-strategy-programme-2022-2027-sea-programme.pdf>

²⁶⁹ KIK (n.d.). Water management programme. Retrieved from <https://www.kik.ee/en/grants/water-management-programme>

²⁷⁰ KIK (n.d.). Development of water infrastructure. Retrieved from <https://www.kik.ee/en/toetavad-tegevused/veemajandustaristu-arendamine>

²⁷¹ KIK (n.d.). The construction of water and sewerage infrastructure for private individuals. Retrieved from <https://www.kik.ee/en/toetavad-tegevused/eraisikute-vee-ja-kanalisatsioonitaristu-rajamine>

²⁷² SEI (2018). Changing cabins on Tallinn beach highlight the problem of marine plastics. Retrieved from <https://www.sei.org/featured/changing-cabins-tallinn-beach-highlight-problem-marine-plastics/>

²⁷³ Tallinn Municipality (2021). A campaign calls for companies to provide tap water instead of bottled water. Retrieved from <https://www.tallinn.ee/en/campaign-calls-companies-provide-tap-water-instead-bottled-water>

²⁷⁴ European Commission (2019). Estonia's 2030 National Energy and Climate Plan (NECP 2030). Retrieved from https://energy.ec.europa.eu/system/files/2022-08/ee_final_necp_main_en.pdf

- Percentage restriction of biodegradable waste going to landfills and increasing the volume of waste taken for recycling;
- Reduction of landfilled waste incl. biodegradable waste;
- Promoting the prevention and reduction of waste generation, incl. reducing the hazardousness of waste;
- Reduction and monitoring of environmental risks from waste and improvement of supervision.

Estonia's Waste Prevention Programme 2014-2020²⁷⁵ sets the objective to support activities that contribute to the more efficient usage of resources and help to introduce the principles of a circular economy, prevent waste and emissions, and reduce the environmental impact of activities, including food/organic waste, municipal waste and packaging as priority waste types. The programme sets two quantitative targets related to municipal waste:

- The relative growth of municipal solid waste generation compared with the relative increase in GDP to remain less than 50%;
- The relative growth of packaging waste generation is to be at most two-thirds of the relative increase in GDP.

The Estonian Ministry of the Environment plans further improvements through digitalization and monitoring of waste management across the country to analyse behaviour of citizens towards separate collection and waste production. This will allow for a better waste management planning, higher transparency and support for reaching Estonia's goal of recycling 55% of municipal waste by 2025.²⁷⁶

Linked to the Waste Prevention Programme, Estonia also foresees measures to prevent food waste in the Food Waste Prevention Plan, published in 2021,²⁷⁷ which focuses on six action areas:

1. Data collection and measuring food waste quantities;
2. Legislative framework and regulative objectives;
3. Effective cooperation;
4. Innovation and research and development;
5. Promoting food redistribution;
6. Awareness raising, information and training.

Related to food waste prevention, some initiatives were established to promote food waste prevention, such as the Estonian Food Bank. In 2020, it redistributed 2,470 tonnes of food and 73% of it was rescued food.

The Estonian Environmental Investment Centre (KIK) supports waste management through several different grant programmes, including:

- Waste recycling and preparation;
- Separate collection of waste within local governments (including bio-waste management);
- Circular economy pilot projects for innovative, local solutions; and
- Circular economy programme.

²⁷⁵ Estonian Ministry of Environment (2014). Riigi Jäätmekava 2014-2020. Retrieved from <https://envir.ee/media/808/download>
Retrieved from <https://envir.ee/media/808/download>

²⁷⁶ ERR (2021). Estonian planning national real-time waste management system. Retrieved from <https://news.err.ee/1608207373/estonia-planning-national-real-time-waste-management-monitoring-system>

²⁷⁷ EEA (2021). Overview of national waste prevention programmes in Europe: Estonia. Retrieved from <https://www.eea.europa.eu/themes/waste/waste-prevention/countries/estonia-waste-prevention-country-profile-2021>

At the local level, the Waste WEISTE (Waste in the Western Estonian Islands) in Hiiumaa and Saaremaa was a local project to encourage sustainable waste solutions for treating solid waste and waste water.²⁷⁸ The programme was supported by the European Commission.

Private initiatives

Food sharing is gaining in popularity among citizens and there are several food sharing points in different Estonian towns. Digital platforms, such as Fudler, Food Angels Estonia and ResQ Club, provide solutions for food waste prevention in restaurants, cafes, etc., by offering leftover food at a reduced price.

Joint public-private initiatives

There is an Estonian company called Ringo Eco that sells reusable fast-food packaging which uses a deposit system where users can return the packaging in public return boxes. With financial support from the Estonian Environmental Investment Centre, the company has launched a tender to construct the largest food packaging cleaning centre in Northern Europe.²⁷⁹

Smart waste bins is another innovative solution which has been introduced in Estonia by the company Clevering, in partnership with Negawatt and the Estonian Environmental Investment Centre. The company collaborates with apartment associations, packaging managers and local authorities to create more efficient waste management through smart waste bin systems. The smart waste bin have a reward system such that users receive points for separating the waste correctly. This detection process uses machine learning, to detect whether the user has thrown the waste in the correct bin.

Additionally, there is the organisation *Let's Do It*, which organises projects, such as World Cleanup Day and Keep It Clean Plan, and support waste management initiatives in collaboration with other organisations, social enterprises and local authorities. Let's Do It started out as a national initiative in Estonia and has grown into a worldwide organisation, with about 36 million volunteers within 169 countries.²⁸⁰

4 Governance and institutional setting of spatial development in Estonia

4.1 Current legislative structure with regards to spatial development

Currently, legislation in Estonia with regards to spatial development is limited to the regulation of procedures and to achieve specific sectoral goals. There is no existing legislation that deals with spatial creation in a comprehensive and cohesive manner to achieve a high quality and sustainable living environment in Estonia. Currently, there is also no central authority or coordinating authority that is responsible for spatial development in Estonia. Nonetheless, the basic principles for spatial planning are defined in the Planning Act while the national spatial plan and development strategy “Estonia 2035” also stress the importance of having a coherent view in the spatial planning process. Some of the key pieces of legislation are described below.

²⁷⁸ Virtsu (n.d.). Waste WEISTE. Retrieved from <https://virtsu.ee/vana/bka/projektid/waste/index.html>

²⁷⁹ Ringo Eco (n.d.). Ringo Eco builds Northern Europe's largest food packaging cleaning centre. Retrieved from <https://ringo.eco/en/news/ringo-eco-builds-northern-europes-largest-food-packaging-cleaning-center/>

²⁸⁰ Let's Do It (n.d.). About us. Retrieved from <https://letsdoitfoundation.org/about-us/>

Planning Act

The Planning Act is an important piece of legislation that identifies the roles and responsibilities of the different ministries. The Act highlights the principles of improving the living environment, balancing and integrating interests, and purposeful, reasonable and economical land use in the preparation of the planning document. However, the planning documents only cover a part of spatial creation and the principles of the Planning Act do not apply directly outside of these plans.²⁸¹ The Planning Act also dictates the differentiated roles and responsibilities of stakeholders, which are detailed below.²⁸²

Planning authority

A *planning authority* is the administrative body which organises the preparation of a plan, identifies the impacts and interests related to the implementation of the plan, and prepares the planning decisions.

These are:

- a city or rural municipality government (in the case of a comprehensive plan, a detailed plan, or a local municipality designated spatial plan);
- the Ministry of Finance (in the case of the national spatial plan, including maritime thematic spatial plans, county plans, and national designated spatial plans);
- in some cases, by decision of the Government, the Ministry of Defence or the Ministry of the Interior (in case of a national designated spatial plan concerning national security).

Decision-maker

The *decision-maker* is the administrative body that has been given the right and obligation by law to make a final decision on a spatial plan. These are:

- a city or rural municipality government (detailed plan),
- the city council or the council of a rural municipality (comprehensive plan, detailed plan amending the comprehensive plan, local municipality designated spatial plan), or
- the Government of the Republic (national spatial plan, including a maritime thematic spatial plan, a county plan, a national designated spatial plan).

Other stakeholders involved in the decision-making process includes:

- planning official - an employee of the planning authority;
- planning consultant - an expert who provides consulting services and who is not a public employee;
- the interested party, i.e. the owner of the planned land who wants to carry out the plan (e.g. the Road Administration of the Ministry of Economic Affairs and Communications, the planning authority itself etc.).

Building Code

The Building Code²⁸³ aims to promote sustainable development and to ensure the safety, purposeful functionality and usability of the built environment. It applies to construction works, their design,

²⁸¹ Republic of Estonia Government (2018). Report of the Expert Group on Spatial Design. Retrieved from <https://www.kul.ee/media/799/download>

²⁸² Based on the definitions from Estonian Ministry of Finance (2020). Green Paper on Estonian Spatial Planning. Retrieved from <https://planeerimine.blogi.fin.ee/wp-content/uploads/2021/05/Green-Paper-on-Estonian-Spatial-Planning.pdf>

²⁸³ Republic of Estonia Government (2015). Building Code. Retrieved from <https://www.riigiteataja.ee/en/eli/ee/511082015002/consolide/current>

building, use and maintenance, insofar as these are not governed by other Acts, by ratified international treaties or by EU legislation. The Building Code used to be mainly a safety law²⁸⁴, but in its newest version which has been in force since 1 September 2022²⁸⁵, it has also included other elements that could contribute to a higher-quality and a more sustainable built environment. Examples of these additions are the inclusion of chapters regarding the need for electric car charging infrastructure, renovation support measures which are intended for improving the energy performance of buildings, and consideration for the energy performance of heating and cooling systems.

Currently, the Ministry of Economic Affairs and Communications is working on amending the Building Code for it to support even more efficient and higher quality procedures. The next amendment of the Building Code is expected to go into force in end 2023 or early 2024. There will also be another amendment to the Building Code in 2024 or early 2025 for the transposition of the upcoming recast of the Energy Performance of Buildings Directive (EPBD).

Nature Conservation Act

The Nature Conservation Act²⁸⁶ regulates construction and development in nature protected zones, and areas close to waterbodies including rivers, lakes and the coast.

Heritage Protection Act

The Heritage Protection Act²⁸⁷ regulates building activity in conservation sites. This legislation helps to ensure the preservation of monuments and the specific environment of the heritage protection areas in order to preserve the cultural heritage of Estonia.

Regulation on “the procedure for cooperation in the preparation of plans and the basis for coordination of plans”

This regulation establishes the procedure for cooperation with the agencies participating in the preparation of plans and the basis for coordination of plans in order to fulfil the tasks of the organizer of planning activities. It entered into force on 25 December 2015 and was recently revised on 01 September 2022.²⁸⁸

4.2 Plans that have an influence on spatial development

National Long Term Development Strategy

The National Long Term Development Strategy “Estonia 2035” is a plan that has been approved by the Estonian Government on 8 October 2020, being subsequently submitted to the Parliament, which also approved the general part of “Estonia 2035”. The main focus of the strategy is on health, preparedness

²⁸⁴ Republic of Estonia Government (2018). Report of the Expert Group on Spatial Design. Retrieved from <https://www.kul.ee/media/799/download>

²⁸⁵ Republic of Estonia Government (2015). Building Code. Retrieved from <https://www.riigiteataja.ee/en/eli/ee/511082015002/consolide/current>

²⁸⁶ Republic of Estonia Government (2004). Nature Conservation Act. Retrieved from <https://www.riigiteataja.ee/en/eli/508112013010/consolide>

²⁸⁷ Republic of Estonia Government (2019). Heritage Protection Act. Retrieved from <https://www.riigiteataja.ee/akt/119032019013>

²⁸⁸ Republic of Estonia Government (2015). The procedure for cooperation in the preparation of plans and the basis for coordination of plans. Retrieved from <https://www.riigiteataja.ee/akt/127082022004?leiaKehtiv>

for change, and the relationship with the living environment.²⁸⁹ The long-term development strategy is a strategic document²⁹⁰, and receives funding from the state budget.

Action plan of the National Long Term Development Strategy

The action plan of the “Estonia 2035” strategy is approved annually by the Estonian Government, which was last updated on 28 April 2022 (as of the writing of this report). This plan provides a comprehensive overview designed to steer the long-term development in Estonia, and is also accompanied by an overview of the implementation progress. During this annual review, changes to the action plan can be suggested by ministries, the private sector, including the general public, while maintaining the basic principles, to achieve strategic goals and meet the development needs described in the long-term development strategy ‘Estonia 2035’. Negotiations will be made within the Government, i.e. through the Government Office, before finally submitting the updated action plan to the Parliament. The action plan includes both short- and long-term plans, and are linked to indicators to measure progress - there are about 20 indicators in the latest approved action plan document. This updated action plan has also been submitted to the European Commission in end April 2022 as part of the European Semester Framework.

Spatial and land-use plans

An overview of the Estonian spatial planning system is presented in Figure 4-1 below. At the top of the hierarchy is the National Spatial Plan, where all other plans have to conform to. The figure also provides the link between the national planning framework and the sectoral planning.

National Spatial Plan

The national spatial plan is a document that is currently a responsibility held by the Spatial Planning Department within the Ministry of Finance (since 1 September 2015). The previous national spatial plan “Estonia 2030+” was prepared under the coordination of the Spatial Planning Department of the Ministry of the Interior and was enacted by Order No. 368 of the Estonian Government on 30 August 2012. Prior to this, the Environmental Board (under the Ministry of Environment) also gave its approval on 27 Jan 2012 to the strategic environmental assessment report of the national spatial plan.²⁹¹ Almost a decade later, in 2022, the Spatial Planning Department of the Ministry of Finance has initiated the process to develop a new national spatial plan. The scope of the work includes a trend analysis which will be carried out based on the data of previous years. According to the State Budget Act, this plan is not a ‘strategic document’; this implies that the budget for the actions arising from this plan comes from a different budget source and is coordinated by the Ministry of Finance.

County-wide Spatial Plan

The broad outlines of spatial policy in the National Spatial Plan form the basis for the County-wide Spatial Plans, which incorporate a wider range of policy areas. These plans may also be supplemented by Thematic County-wide Spatial Plans that have a focus on a particular policy area - for example, in the fields of transport and environmental policy, and a distribution of social infrastructure.

²⁸⁹ Republic of Estonia Government (2020). The government approved the national long-term development strategy “Estonia 2035”. Retrieved from <https://www.valitsus.ee/en/news/government-approved-national-long-term-development-strategy-estonia-2035>

²⁹⁰ Strategic development documents that are financed by the State Budget are laid out in the State Budget Act. This includes documents that include the general principles of policy, sectoral development plan, development plan of the area of government and programme. See Republic of Estonia Government (2014). State Budget Act. Retrieved from https://www.riigiteataja.ee/en/compare_original?id=504072014004.

²⁹¹ Estonian Ministry of Finance (n.d.). Üleriigiline planeering. Retrieved from <https://www.fin.ee/en/node/160>

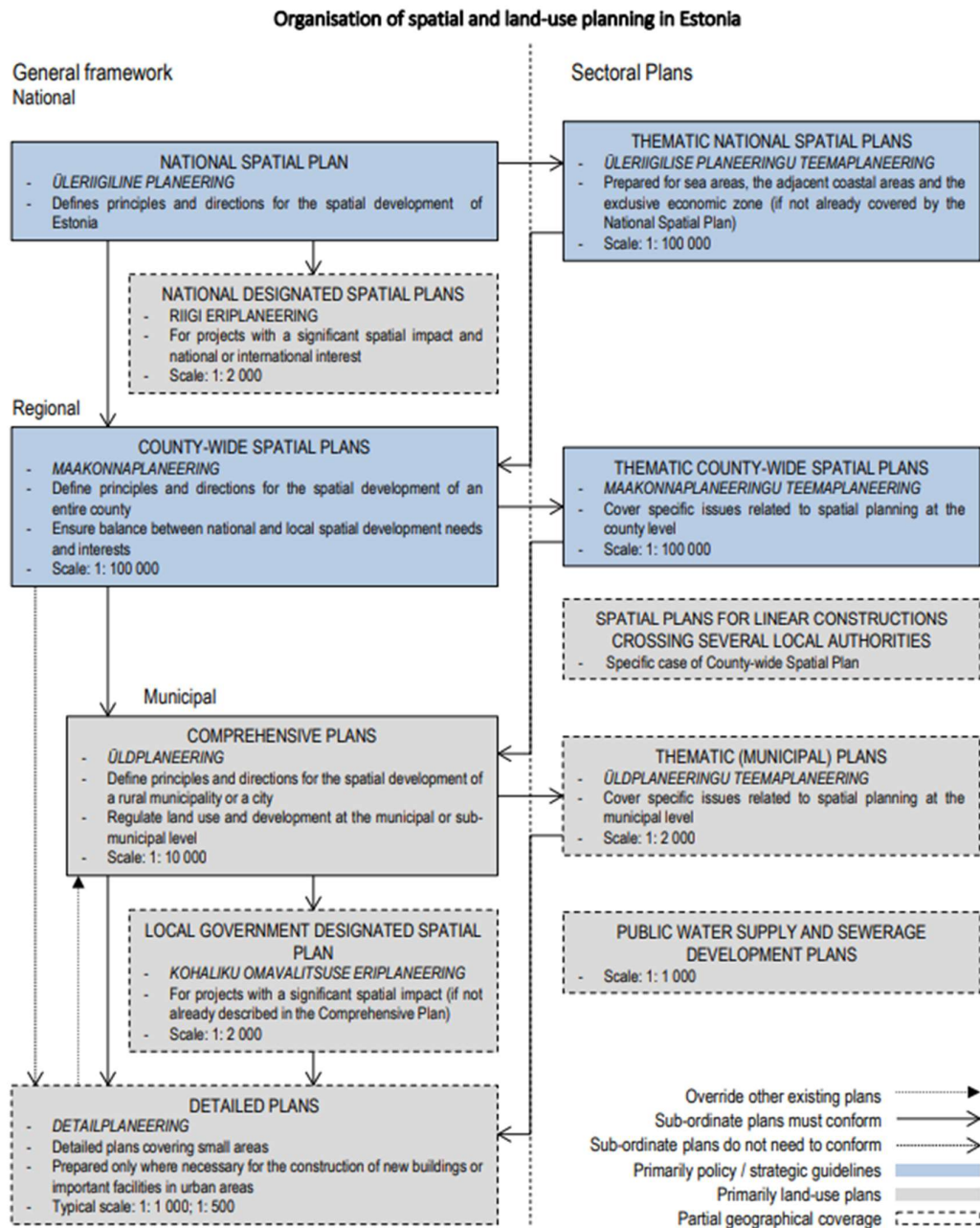
Comprehensive Plan

The main strategic land-use planning instrument in Estonia is the Comprehensive Plan, which may be complemented by Thematic (Municipal) Plans which incorporates elements of sectoral plans.

Detailed Plans

Detailed plans are created for projects such as new buildings or important facilities primarily in urban areas. They are not required for new buildings that fit into their existing surroundings, and that are in accordance with the use designated to the plot as stipulated in the Comprehensive Plan. The decisions made in the Detailed Plans can override the Comprehensive Plan (see Article 142, Paragraph 8 of the Planning Act).

Figure 4-1 Overview of how spatial and land-use planning is organised in Estonia



Source: OECD. (2017). *The Governance of Land Use - Country Fact Sheet Estonia*. Pg 2.292

In addition, there are also other plans that are not mentioned above, which will also have an impact on the spatial development of Estonia. These include the following:

²⁹² OECD (2017). The governance of land use. Retrieved from <https://www.oecd.org/regional/regional-policy/land-use-Estonia.pdf>

Development plan of the living environment (EE: elukeskkonna arengukava)

The Estonian Ministry of Economic Affairs and Communications are also in the process of developing a development plan for the living environment.

Development Strategy of the Natural Environment 2030 (KEVAD)

This strategy is currently under development by the Ministry of the Environment and has the aim of creating a coherent sectoral development plan as well as developing measures and actions necessary to implement the plan.

Maritime Spatial Plan

The Estonian Maritime Spatial Plan²⁹³ is an instrument for planning out the long-term sea usage, and is a strategic basis for all decisions regulating sea usage. It addresses economic prosperity, social well-being and environmental targets at the same time. The Plan was organised by the Ministry of Finance, in collaboration with Ministry of Rural Affairs and Ministry of Economic Affairs and Communications. The Estonian Maritime Spatial Plan was approved by the Government on 12 May 2022.²⁹⁴

4.3 Key actors and the interactions between them

Estonia has two levels of government, i.e. the national government and the 79 municipalities (of which 64 are rural, and 15 are urban). As of January 2020, the smallest municipality in Estonia is Ruhnu, with 131 inhabitants, and the largest is in Tallinn, with approximately 438,000 inhabitants. Local self-governance is a right guaranteed by the Constitution, which states that all local matters are determined and administered by local authorities, who discharge their duties autonomously in accordance with the law. Currently, municipalities are the only level of self-governance, as there is no functional governance at the regional level (County level). County governments, along with the county governors, were abolished with the 2017 administrative-territorial reform, which took effect from 01 January 2018. Before that, the spatial planning was organised as in Figure 4-2.

Figure 4-2: Estonian territorial planning system as of 2015 (before the reform which took effect from 1 Jan 2018)

Territorial planning level	Types of territorial planning documents
National	– national plan (covers the whole territory of the country up to the sea); – national thematic plan (development of marine part is decided upon); – national purpose plan (construction of especially significant objects).
National / municipal	– county plan (solutions intersect administrative borders).
Municipal	– thorough additional plan – (spatial development of a village, town, city or parts thereof); – municipal purpose plan (construction works which are not planned in higher-level plans are planned); – detailed plan (issues regarding usage of land plots and parts thereof).

Source: Rimvydas Gaudesius, "Spatial planning in the Baltic States, affected by depopulation", *GEODESY AND CARTOGRAPHY*, Polish Academy of Sciences, Vol. 70, no. 1, article no. e01, 2021, <https://doi.org/10.24425/gac.2020.135149>¹

After 2017, counties became a devolved level of central government and functions as state administrative units with no elected representatives and has no other significant independent competence. Eventually, these counties lost their significance and the tasks and responsibilities of the

²⁹³ EC (2022). Estonian Maritime Spatial Plan adopted. Retrieved from <https://maritime-spatial-planning.ec.europa.eu/events/estonian-maritime-spatial-plan-adopted>

²⁹⁴ EC (2022). Estonian Maritime Spatial Plan adopted. Retrieved from <https://maritime-spatial-planning.ec.europa.eu/events/estonian-maritime-spatial-plan-adopted>

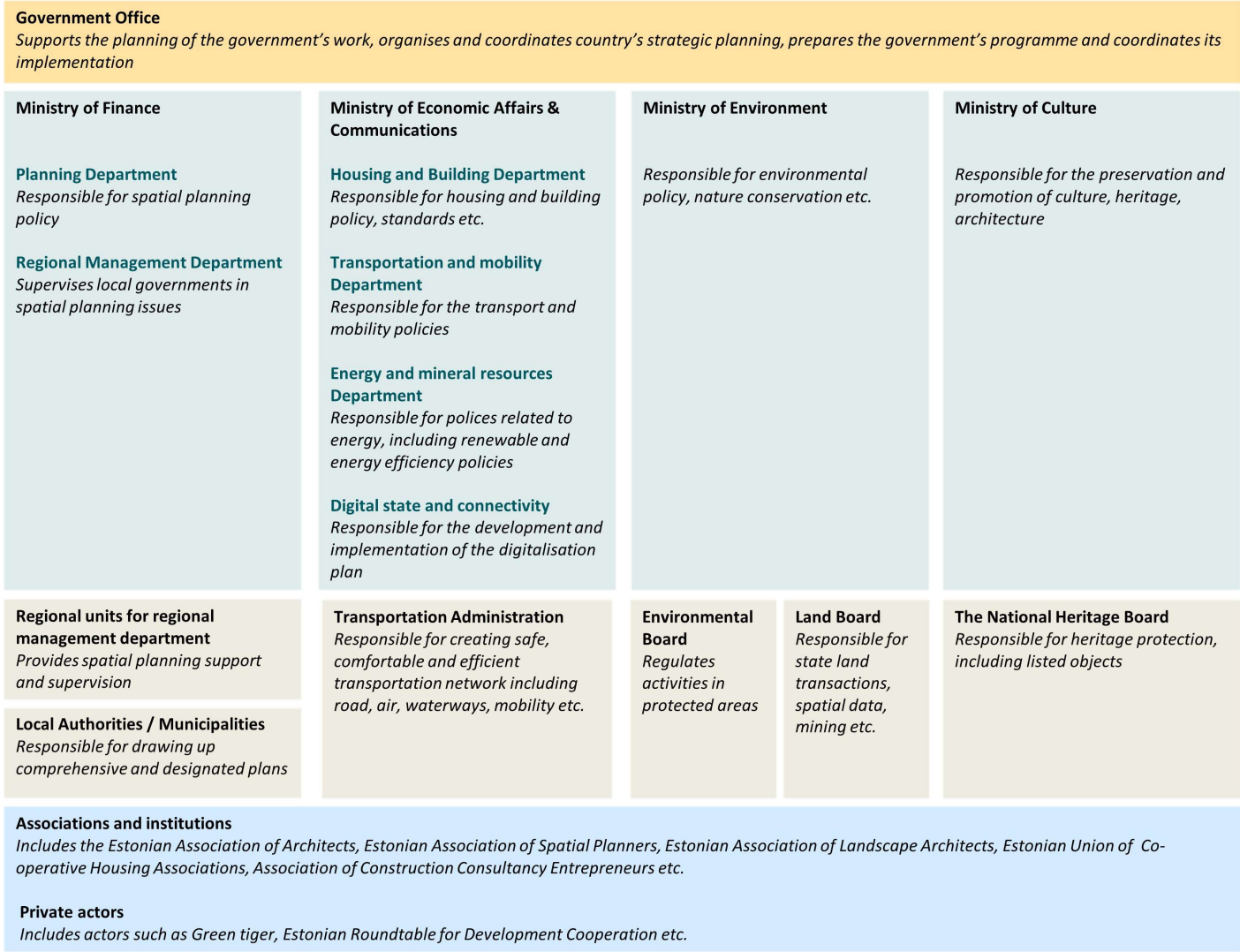
county governors and the county governments were handed over to either the local government or state administrative bodies.

The key actors of spatial development in Estonia are presented in an organogram in Figure 4-3, and further described in the section below. The list of actors included in this figure is not exhaustive. There are other actors that play a role, either directly or indirectly, in the shaping of the spatial landscape but are not further elaborated in this report. For example, the European Commission, such as the Directorate-General for Economic and Financial Affairs, Directorate-General for Structural Reform Support, Directorate-General for Energy etc. Other actors that are not further discussed in this report are the City of Tallinn, City of Tartu, Association of Estonian Cities and Rural Municipalities, Estonian Association of Architectural and Consulting Engineering Companies, Estonian Chamber of Real Estate Agents, Estonian Association of Construction Entrepreneurs, Estonian Digital Construction Cluster etc.

295

²⁹⁵ European Committee of the Regions (n.d.). Estonia. Retrieved from <https://portal.cor.europa.eu/divisionpowers/Pages/Estonia-Introduction.aspx>.

Figure 4-3 Organogram of key actors in Estonia for spatial development



Government office

The Government Office is a government institution, whose roles are stipulated under the Legal Act. This includes providing support to the Government of the Republic and the Prime Minister; supports, organises and coordinates Estonia's strategic planning (legislative and statute); recruits high-level civil servants; oversees crisis management etc. The Office is run by the Secretary of State, and is staffed by 160 people, with about 10 staff working for the Prime Minister's office. There are several departments / units within the Government Office, which includes the Strategy Bureau. This unit supports and coordinates the drawing up of strategic plans, and the implementation of action plans, including strategic development plans, to increase Estonia's competitiveness and ensure sustainable development. In addition, the Government Office also undertakes the coordination of some horizontal topics, such as the coordination of the European Green Deal, which requires facilitation of cooperation amongst ministries.

The responsibility to set up a framework for strategic planning for Estonia was initially coordinated by the Ministry of Finance, but was transferred to the Strategy Bureau with the aim to separate strategic planning and financing. It was seen as important to have a neutral institution, i.e. not politically motivated, to take a helicopter view of strategic planning happening across ministries. In this regard, the Government Office solely acts as a coordinator for developing the strategic plan, but does not have leadership on this topic – this competency is split amongst ministries. The Government Office is the key author to the National Long Term Development Strategy document "Estonia 2035" and its action plan.

Ministry of Finance

Spatial planning development

While typically, the Ministry of Finance of any country is responsible for the taxation and public spending policy, the Ministry of Finance in Estonia, through its internal departments such as the Department of Regional Development or the Local Government Policy Department, also has an additional portfolio in spatial planning and regional policy. According to the Planning Act,²⁹⁶ the Ministry of Finance is the authority in charge of organising the spatial planning work, which includes:

- Ensuring the existence of spatial plans corresponding to the land area;
- Arranging the preparation of spatial plans;
- Preparing spatial plans or commissioning the preparation of spatial plans;
- Taking procedural steps required in the course of preparing spatial plans;
- Assessing the relevant economic, social, cultural and environmental impact to result from the implementation of the spatial plan, including arranging its strategic environmental assessment;
- Following, reviewing and implementing adopted spatial plans to the extent of the duties imposed by legislation on the authority that organises planning work.

The Ministry of Finance may issue guidelines to define the principles and directions of spatial development in order to:

- Promote the creation and preservation of integral environments of high quality;
- Harmonise the practices of arranging the preparation of spatial plans;
- Ensure the balance between different interests and values;
- Provide other explanations in relation to the application of this Act.

²⁹⁶ Republic of Estonia Government (2015). Planning Act. Retrieved from <https://www.riigiteataja.ee/en/eli/518022022002/consolide>

Ministry of Finance arranges the preparation of:

- **National spatial plans.** The Ministry reviews a spatial plan together with county-wide spatial plans at least once every five years and presents an overview of the findings of the review to the government within six months following its completion;
- **National designated spatial plan.** The purpose of a national designated spatial plan is to erect construction work which has significant spatial impact and whose chosen location or whose functioning elicits significant national or international interest;
- **County-wide spatial plans:** The purpose of a county-wide spatial plan is to define the principles and directions of spatial development of the entire county or a part thereof, or of another region. A county-wide spatial plan is prepared primarily in order to express interests that transcend the boundaries of individual local authorities, and in order to balance national and local needs and interests regarding spatial development.

In spite of these above-mentioned processes, there still remains a disjoint between what is foreseen in the national spatial plan and the actual spatial development across the country. The Ministry of Finance was then given the spatial planning portfolio with the aim to make a positive impact to improve coordination and cooperation amongst ministries and with the regional and local planning departments, since it is responsible for dispensing public budget and could exert a certain level of influence. While this has fostered more cooperation, the results on the quality of the living environment have not been optimal. This has been attributed to reasons including the following:²⁹⁷

- Lack of a holistic view / consensus on of what quality and sustainable spatial development would entail for Estonia, including the lack of understanding on the benefits and trade-offs that may be involved;
- Difficulty in achieving consensus amongst different ministries;
- Existence of silo thinking / working;
- Lack of clarity with regards to the significance and value of regional level planning;
- Lack of competencies, for e.g. architects and spatial planners;
- Lack of resources of the local government, especially at the municipal level;
- Lack of a structured approach to incorporate the criteria of improving the living environment in investment;
- Lack of structure to ensure compliance / implementation of plans;
- Lack of political will.²⁹⁸

These are all aspect to be taken into account when developing the strategy for spatial development, i.e. Deliverable 4 of this project.

Real estate management of State properties

While not a department within the Ministry of Finance, the Ministry controls the shares in Riigi Kinnisvara AS (RKAS), a real estate development and management company which contributes to the maintenance and monitoring of state property assets.

²⁹⁷ Based on interviews held in June 2022, in Tallinn, with various ministries and institutions, including members of the extended steering group of this study.

²⁹⁸ Political will is also contingent on public opinion. Therefore, the lack of public interest or opinions on the need to improve the quality of the living environment could also be considered as a contributing factor to the lack of political interest to prioritise this issue.

RKAS develops real estate for ministries and state agencies, provides facilities management services, and conducts project management activities as needed on their behalf. In relation to new real estate development, ministries or agencies that would like to propose new real estate developments propose these projects to the MoF by way of project memoranda, prepared with support from RKAS. Once a new development is approved via the budget process, RKAS is mandated to implement the project. Upon completion, the constructed asset is owned by RKAS and occupied at an agreed rent by the client ministry. Annual investments by RKAS in recent years have been between €60 and €100 million.²⁹⁹ The RKAS also works towards creating sustainable and efficient buildings, for e.g. they are considering to introduce the concept of accessibility based on the principle of inclusive design, which is beyond the Building Code, and also support research and development activities that attracts young people to the field so as to increase innovation, human-centredness, environmentally sustainable and efficient future of Estonian real estate and construction sector³⁰⁰.

Ministry of Economic Affairs and Communication (MEAC)

The overall objective of the MEAC is to increase the competitiveness of Estonian companies and the prosperity of people. Within the MEAC, there are several departments working on various aspects, i.e. the ‘construction and housing’, ‘energy and mineral resources’, ‘digital state and connectivity’, and ‘transport and mobility’.

Construction and housing

Construction

The construction sector has an important role to play in the socio-economic development of society. Besides contributing to the quality of life, construction activities, together with the real estate sector, accounts for approximately 17% of Estonia’s GDP, and therefore is an important consideration in the country’s policy-making process. MEAC is responsible for the ensuring that the construction law are respected throughout the entire life cycle of the building, from the planning, usage, and demolition phases, such that principles of good practice, safety, environmental sustainability and expertise are being applied.

Housing

The MEAC is responsible for the housing policy, the implementation of the renovation wave, and leading in a research development programme ‘LIFE IP BuildEST’ which will pave the way for reducing emissions of the Estonian building stock through demonstrations in technical solutions and pilot renovations in 25 buildings, with the pilot renovations in the cities of Tartu (for multi-storey apartment buildings and detached houses), Rakvere (detached houses and historic buildings), and Võru (historic wooden buildings).

In terms of housing, the long-term objectives are to ensure the availability of housing for Estonian residents, the energy efficiency, quality and sustainability of housing, and the diversity of residential areas and sustainable development. In order to achieve these, it would be necessary to develop a sound overarching policy, which is currently lacking, and to put in place regulations, institutional arrangements and financial measures that are appropriate in the Estonian context. Currently, local governments are the key decision-makers concerning the organisation of housing and communal services leading to diverging policies.

²⁹⁹ IMF. (2019). Republic of Estonia - Public Investment Management Assessment.

³⁰⁰ Raggi Kinnisvara (2020). Annual report 2020: we develop and sustain Estonia. Retrieved from https://rkas.ee/sites/default/files/users/user56/Annual%20report_2020_Riigi%20Kinnisvara.pdf

As part of the housing policy to improve the energy efficiency, quality, and sustainability of housing, the Estonian government has, in 2020, approved a long-term renovation strategy as part of the Renovation Wave. The main goal of the strategy is to achieve, by 2050, the full renovation of existing buildings constructed before the year 2000. Further, taking into consideration the current building stock and future projections, new constructions are required. In the residential building sector, some 105,000 detached houses with a total area of 14 million square metres, and 14,000 apartment buildings with a total area of 18 million square metres will have to undergo renovations by 2050. In the non-residential buildings sector, this figure is 22 million square metres. In total, the area of renovations required in all buildings in Estonia by 2050 is estimated to be around 54 million square metres.

Transport and mobility

The goal of the transport policy is to ensure convenient, safe, fast and sustainable movement options for residents and businesses. The MEAC has also prepared a transport and mobility development plan that supports the achievement of the transport policy; it has the long-term vision to develop a safe, fast and technologically innovative transport sector, infrastructure and a competitive logistics sector. Some of the key sectoral directions include³⁰¹:

- Development of mobility as a service, with a focus on cycling and foot travel;
- Development of a unified public transport ticket system to increase attractiveness of public transport;
- Increase rail speeds, safety, and creation of new connections with the aim of shifting both passenger and freight traffic from road to rail;
- Improve the quality of public transport and logistics sector through asphaltting gravel roads, and building four-lane highways from Tallinn to Narva, Tartu and Pärnu;
- Reduce the expenses for passenger cars by offering better train connections in combination with fast and convenient local public transport such as light rail and bus.
- Improve the competitiveness and sustainability of the maritime transport sector through improved connection with other transport infrastructure;
- Keep Estonia connected to flights through the development of new businesses directions in the aviation sector, for e.g. in aircraft maintenance.

The transport and mobility development plan is handled by the transport and mobility department, which responsibilities are further described below.

Road maintenance and construction

The main goal of this department is to maintain roads to ensure the safety of users. It does not have plans to expand Estonia's road network as this is largely established, and it is deemed as not economically feasible to significantly reduce travelling time. Nonetheless, the transport and mobility development plan still plans to build four-lane highways from Tallinn to Narva, Tartu and Pärnu in order to reduce time-space distances and increase traffic safety. The conversion of gravel roads to asphalt will also improve quality of private transport and support the logistics sector. The road network in Estonia is generally divided into state and local roads. The maintenance of 'state' roads is the responsibility of the Estonian Transport Administration and the fiscal budget available for each year is determined based on the road maintenance plan approved by the Government.

³⁰¹ Estonian Ministry of Economic Affairs and Communication (n.d.). Transpordi tulevik. Retrieved from <https://www.mkm.ee/transpord-ja-liikuvus/transpordi-tulevik>

The maintenance and development of ‘local’ roads are arranged autonomously. In terms of funding, the state allocates a subsidy of up to 10% of the total road maintenance costs of these ‘local’ roads and external funds are also allocated for investments per budget period of the European Union. The subsidy allocated for the maintenance of local roads is divided into two types of support, i.e., a formula-based support and a case-based support, which comes from separate budget streams from Ministry of Finance and MEAC respectively.³⁰²

Estonian Transport Administration

The Ministry of Economic Affairs and Communications is also the parent ministry of the Estonian Transport Administration which was established on 01 January 2021. The Transport Administration is a result of the merger of the Civil Aviation Administration, Road Administration and the Maritime Administration to reduce duplication of functions of state administrations and to improve the overall quality and availability of public services. This Administration aims to become a competence centre combining all modes of transport and to drive forward a safe, comfortable, comprehensive and fast traffic environment in Estonia. It will also design smart mobility solutions and implement policies and projects covering various transportation modes. Six strategic goals have been established by the Transport Administration:

- Decrease by 50%, the travelling time spent by customers;
- Plan and build a smart and needs-based transport infrastructure that increases socio-economic impact;
- Support and pilot new solutions in the field of mobility and infrastructure;
- Emerge as the top five European countries in terms of safety of various transportation modes;
- Decrease greenhouse gas emissions by making environmentally sustainable choices and guiding others to do the same;
- Become valued and trustworthy.³⁰³

Energy and mineral resources

The energy department within the MEAC is responsible for energy policies and for coordinating the implementation of the National Development Plan for the energy sector. This department cooperates with the Construction and Housing Department for matters related to improving the energy efficiency of the housing stock and district heating.

It is also responsible for the implementation of the EU Renewable Energy Directive and other EU legislations related to the topic on energy. MEAC also has subordinate bodies such as the Estonian Business and Innovation Agency (EE: Ettevõtluse ja Innovatsiooni Sihtasutus, [EIS])³⁰⁴ which supports the implementation of renewable and energy efficiency policies for private households, industries and in the public domain.

Geological Survey of Estonia

The Geological Survey of Estonia is under the governance and administration of the MEAC and is responsible for the following activities:

³⁰² Estonian Ministry of Economic Affairs and Communication (n.d.). Teehoid ja -ehitus. Retrieved from <https://www.mkm.ee/transport-ja-liikuvus/teehoid-ja-ehitus>

³⁰³ Estonian Transport Administration (n.d.). About the Estonian Transport Administration. Retrieved from <https://www.transpordiamet.ee/en/administration-news-and-contact/administration>

³⁰⁴ The structure if the result of Enterprise Estonia merging with KredEx Fund at the beginning of 2022.

- Geological mapping;
- Geological surveys;
- Preservation of and ensuring access to geological information;
- Advising of government authorities; and
- Informing the public about matters concerning the earth's crust.

The agency monitors and gathers information on the resources present in Estonia's environment. Its tasks related to mapping are thus crucial for other agencies to build upon when determining spatial planning related policies.

Digital state and connectivity

MEAC is also responsible for preparing the digital society development plan 2030, a plan which has a long-term objective of ensuring the success of a powerful Estonian digital society, where people are able to get the best digital experience. This development plan focuses on three areas - digital state, connectivity, and cyber security. An action plan, the Estonian digital society programme, has also been developed. This plan provides an overview of the activities, measures, and lays out the responsibilities of the various parties. However, the achievement of a fully digitalised society is quite complex as it requires not only the contribution of many stakeholders, including various ministries and private actors, but also coherence amongst various policy areas. Therefore, the action plan is planned for every four years, but reviewed and renewed annually. While the overall responsibility for implementation is the MEAC, the process is guided by the steering group 'Digital Society Development Plan', which is chaired by the Minister of Entrepreneurship and Information Technology, and involves the key personnel of the relevant state agencies, representatives from the local governments, the private sector and other experts.³⁰⁵ The implementation of this digitalisation programme is funded by both EU and national funds. In addition, the MEAC will also create an action plan to reduce the environmental footprint of digital services in the Estonian public sector.³⁰⁶

The Ministry is also actively looking into the digitalisation of the construction and real estate sector to increase quality and productivity throughout the entire lifecycle of buildings, i.e. during the stages of planning, procurement, design, construction and maintenance. Some of the initiatives taken include:

- ✓ Improving information flow between different parties involved in the life cycle of buildings;
- ✓ Creating a replica of the Estonia built environment online, i.e. a digital 3D twin;
- ✓ Improving information exchange between various services such as the construction register, land cadastre, planning register, real estate register etc.;
- ✓ Connecting the digital 3D twin with real-time data to improve analysis and development of the living environment, where permits are processed based on digital models, artificial intelligence is used to collect information and inform decisions, blockchain technology is applied to ensure data uniformity and security.³⁰⁷

Examples of key projects include:

- E-construction procedural environment, which will improve the entry and processing of the use and construction permit and the construction notification;

³⁰⁵ Republic of Estonia Government (2021). The government approved the vision for the Estonian digital society for the next decade. Retrieved from <https://www.valitsus.ee/en/news/government-approved-vision-estonian-digital-society-next-decade>

³⁰⁶ Estonian Ministry of Economic Affairs and Communication (n.d.). Rohedigi. Retrieved from <https://www.mkm.ee/digiriik-ja-uhenduvus/rohedigi>

³⁰⁷ Estonian Ministry of Economic Affairs and Communication (n.d.). Digitaalehitus. Retrieved from <https://www.mkm.ee/ehitus-ja-elamumajandus/ehitus/digitaalehitus>

- Construction e-jump, i.e. e-HÜPE of construction, which will support entrepreneurs / companies in the creation and implementation of innovative digital solutions;
- BIM-based building permit procedure, which will include automatic checks. This simplifies the permit procedure and helps to shorten the processing time;
- Complete database of network facilities in 3D, as part of the Building Register (EHR), and linking to other services of the EHR. This includes a spatial 3D database that includes both above- and underground services. This will help to coordinate construction / joint-construction activities.

Further, the Ministry is also looking at developing a communication portal to facilitate discussion, updating the data structure of technical systems and harmonising information from the building register, developing a system to calculate energy labels in the building register automatically and enhancing the accessibility of information for users, and preparing a construction guide to inform citizens regarding the legalities around the topic of construction and housing administration.

Overall, the development of the Information, Communications and Technology sector (ICT) will provide Estonia an economic opportunity to increase exports and win new markets.

Ministry of Environment

The Ministry of Environment is responsible for creating conditions to ensure that the current and future generations will continue to enjoy the diverse nature and clean living environment. The three key focus areas are:

- i. Climate and environment protection;
- ii. Water, forest and resources;
- iii. Waste, emissions and circular economy

The National Environmental Strategy 2030 is one of the important documents produced by the Ministry of Environment. It aims at defining long-term strategy for the preservation and improvement of the Estonian living and natural environment while considering the socio-economic needs of the country. Progress is monitored through the Environmental Action Plan that is adopted to implement this Strategy. The Environmental Protection and Use Programme for 2020-2023 is also an important strategic document which states that a policy on the provision of public water supply and sewerage services will be developed to guarantee sustainability and continuity of these services in all regions. In 2020, a project funded by DG REFORM, titled “Analysis and Action Plan towards Sustainable Water Services in Estonia” was launched.³⁰⁸

Overall, their area of responsibility includes:

- Organising and coordinating environmental policy and strategic documents;
- Organising national environmental and nature protection;
- Organising the use, protection, re-production and registration of natural resources;
- Management of land, including the land cadastre;
- Management of spatial databases;
- Monitoring of the quality of the environment (consisting of 12-sub programmes);

³⁰⁸ Estonian Ministry of Environment (n.d.). Analyses and action plan towards sustainable water services in Estonia. Retrieved from <https://envir.ee/en/analyses-and-action-plan-towards-sustainable-water-services-estonia-0>

- Organise meteorological observations, nature and marine research, as well as geological, cartographic and geodetic operations
- Creating awareness and educating the public about the value of the environment;
- Coordinating and management of EU funds that impacts the environment. This includes, for example, the EU Modernisation Fund which is dedicated to support measures to transit to climate neutrality by modernising energy systems and improve energy efficiency³⁰⁹; DG REFORM Support Programme for the project ‘Analyses and Action Plan towards Sustainable Water Services in Estonia.’³¹⁰

The wide range of activities within the purview of the Ministry of Environment is carried out through a variety of entities. These include the Environmental Board, Environmental Inspectorate, Estonia Land Board, State Forest Management Centre (RMK), Foundation Private Forest Centre (PFC), OÜ Estonian Environmental Research Centre, AS Estonian Map Centre, AS Ökosil, Estonian Environment Agency (KAUR), Estonian Museum of Natural History and Information Technology Centre of the Ministry of the Environment (KEMIT). The Estonian Environmental Investment Centre (EIC), which is the central funder of environmental projects in Estonia, also belongs to the administration area of the Ministry of Environment.

The responsible ministries / bodies which are involved in water management are the water, marine environment and fisheries departments, the Estonian Environmental Agency, Estonian Environmental Board, Estonian Environmental Research Centre - all of which are also under the purview of the Ministry of Environment, and the Ministry of Social Affairs, which is responsible for surveillance of drinking water quality³¹¹. Local governments are also responsible for organising the supply of water and sewerage, ensuring the continuity of drinking water supply including restricting industrial use of potable water where necessary, and to manage the utilisation of natural resources (including water bodies).³¹² In terms of governance, water management planning follows a hierarchy - see Figure 4-4.

Figure 4-4 Hierarchy of water management planning



Source: Estonian Ministry of Environment (2012). Estonian experience in the waster management. from https://www.unece.org/fileadmin/DAM/env/documents/2012/wat/workshops/Nordic_Baltic_Seminar_Oslo/4a.Estonia_final_water_management_sewage.pdf, Pg 4

³⁰⁹ Estonian Ministry of Environment (n.d.). Modernisation Fund. Retrieved from <https://envir.ee/en/climate-and-environment-protection/climate/modernisation-fund>

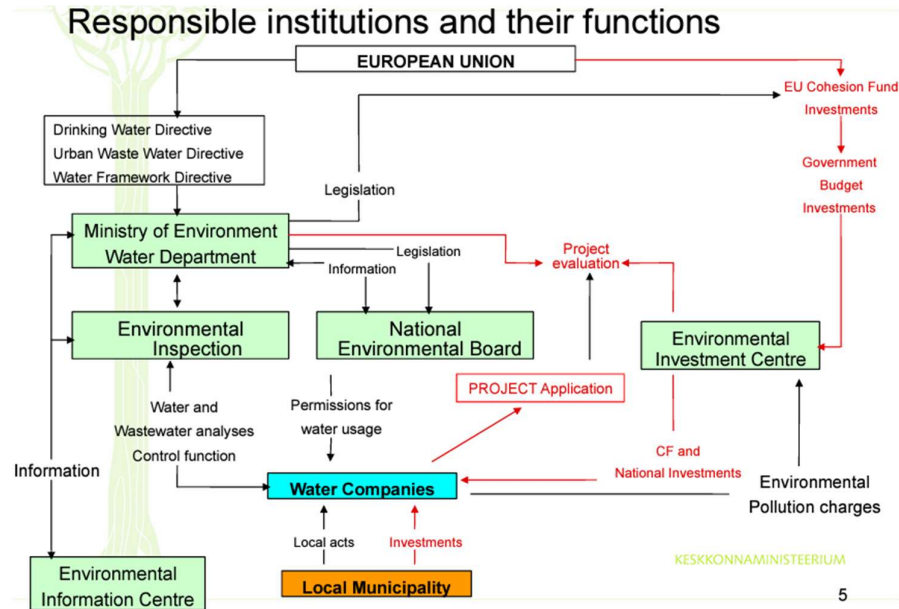
³¹⁰ Estonian Ministry of Environment (n.d.). Analyses and action plan towards sustainable water services in Estonia. Retrieved from <https://envir.ee/en/analyses-and-action-plan-towards-sustainable-water-services-estonia-0>

³¹¹ OHCHR (2017). Response of the Government of Estonia to the questionnaire circulated by the Special Rapporteur on human right to safe drinking water and sanitation Retrieved from <https://www.ohchr.org/sites/default/files/Documents/Issues/Water/ServiceRegulation/States/Estonia.pdf>

³¹² European Committee of the Regions (n.d.). Estonia - water management. Retrieved from <https://portal.cor.europa.eu/divisionpowers/Pages/Estonia-Water-Management.aspx>

There are also many organisations and institutions at different levels who are responsible for the water management in Estonia, ranging from the local governments, private companies, various organisations / institutions, and the Ministry of Environment (see Figure 4-5 below).

Figure 4-5 Governance structure for water management



Source: Estonian Ministry of Environment (2012), “Estonian experience in the water management”, page 5. Retrieved from: https://www.uncece.org/fileadmin/DAM/env/documents/2012/wat/workshops/Nordic_Baltic_Seminar_Oslo/4a.Estonia_final_water_management_sewage.pdf

Further, the Ministry is also responsible for the development and execution of the National Waste Plan 2014-2020, which has been extended until 2022. This also goes hand in hand with Estonia’s waste prevention plan. The waste prevention programme prioritises the sectors of construction and infrastructure, industry, retail, households, and public services. Quantitative targets are also set, where amongst others, construction and demolition waste recovery rate of >75% is to be achieved.³¹³ Regarding governance, while the Ministry of Environment is in charge of national issues such as permitting, auditing, data management and national legislation, local governments are responsible for municipal waste operations and local regulations.³¹⁴

In addition to supporting the protection of the climate and environment and the protection and sustainable management of water, forest and resources in Estonia, it is also responsible for developing the circular economy strategy document and action plan to accelerate the transition to a more circular Estonia. The strategy document and action plan are expected to be ready by end 2022³¹⁵.

Land Board

The Estonian Land Board is the national mapping and cadastral agency, and one of the oldest boards, being more than 30 years old. The Land Board is under the purview of the Ministry of Environment,

³¹³ EEA (2021). Overview of national waste prevention programmes in Europe: Estonia. Retrieved from <https://www.eea.europa.eu/themes/waste/waste-prevention/countries/estonia-waste-prevention-country-profile-2021>

³¹⁴ World Bank (2021). Output 1.1: Baseline Review of Estonian Municipal Solid Waste Management System. Retrieved from <https://documents1.worldbank.org/curated/en/911911637048755678/pdf/Baseline-Review-of-Estonian-Municipal-Solid-Waste-Management-System.pdf>

³¹⁵ Estonian Ministry of Environment (n.d.). Creating a strategy and action plan for circular economy in Estonia. Retrieved from <https://ringmajandus.envir.ee/en/creating-strategy-and-action-plan-circular-economy-estonia>

although there are also frequent interactions with the Ministry of Economic Affairs and Communications to facilitate data exchange between the two separate data systems. The responsibilities of the Land Board are described in the section below.

Land transactions, land cadastre

The priority of the Land Board is to complete the land reform in Estonia which was initiated on 1 November 1991 with the adoption of the Land Reform Act. The main purpose of the land reform is to remedy the injustice that occurred during the Soviet occupation, when all land was nationalised, and private land ownership was forbidden. Together with local governments, the Land Board facilitates the return of land to its former owners or their legal successors or compensations. It also helps to ascertain land that is suitable for inclusion into the state land reserve, and land that will remain in state ownership.

The Land Cadastre consists of the cadastral register and maps, which aims to record and preserve information regarding the value, natural status, and uses of the land, and to avail this information to the public. The Land Board is the authorised cadastral registrar who registers cadastral parcels, restrictions and rights of land use, and to collect and process data necessary for land valuation. All cadastral documents are stored in an archive, which are also maintained in a digital format.

The Land Board also performs land assessments and valuation for public land, which serves as a basis for land related transactions and investments, taxation, compensation and planning procedures in land consolidation. It also maintains the land quality and assessment map (as stipulated under Estonian Regulation No. 256 of 2003), raises the competencies and quality of land valuers (including through assessments), manages and develops the real estate transactions database, informs the public on the state of the real estate market, and consults other state agencies on real estate related matters.

State land transactions

As of the beginning of 2021, the Land Board manages more than 182,000 ha of state land, about 11% of the total area of state land managed by the Ministry of Environment (1.6 million ha, or 90% of total state land). Besides managing state land that is in their possession, the Land Board administers the state land managed by the Ministry of Environment and performs land transactions on their behalf. This includes the sale and lease of state-owned land via auctions, land consolidation participation in spatial planning procedures, processing civil engineering projects within its limits of authorisation and making spatial planning data available for the public.

The Land Board is also the main structural unit in the realisation of Rail Baltic, a planned railway route in Estonia that runs from Tallinn to Ikla through Harju, Rapla, and Pärnu counties, and will connect to major cities of neighbouring countries such as Helsinki (Finland), Riga (Latvia), Panevėžys, Kaunas and Vilnius (Lithuania), Warsaw (Poland). The Land Board carries out land acquisition on the basis of the established county plans, the preliminary design documentation and basic project for the railway, and the detailed plans prepared at the local level.³¹⁶

³¹⁶ Pursuant to the cooperation agreement concluded between the Ministry of the Environment, the Land Board, and the Ministry of Economic Affairs and Communications on 6 September 2016, the Land Board deals with the acquisition of land. Refer to: <https://maaamet.ee/en/node/69>

Spatial data and maps

The Land Board is also responsible for geodesy, which deals with the accurate measurement and representation of space on Earth, including its geometric shape, orientation in space, and its gravity field. It is also responsible for managing the Address Data System (ADS) which supports the maintenance of other datasets. One of the major tasks of the Land Board is to produce national topographic data and maps but also to maintain and update them in the databases and to facilitate data exchange between different data systems. It also carries out photogrammetry and makes and/or update maps of wide areas using aerial photography and airborne laser scanning.

Geoportals and spatial data catalogue

The Land Board manages the depository of spatial data and maps, which are made available through the Geoportal. The portal provides public access to spatial data that are owned by the state, local governments, and other legal persons governed by public law. These data comply with the EU INSPIRE Directive and are thus compatible and usable in a transboundary context.

Ministry of Culture

The Ministry of Culture is responsible for the preservation and promotion of national culture, sport and heritage. This includes protection of, amongst others, physical monuments and archaeological sites. Heritage protection areas in Tallinn, Tartu, Narva, Kuressaare, Pärnu, Valga, Võru, Viljandi, Paide, Rakvere and Lihula, mostly medieval or modern old towns, have been established. The Ministry is also responsible for the protection of architectural heritage and architecture as an art form.

Local authorities / Municipalities

Municipalities are, under the Constitution, responsible for dealing with all local issues which include the following responsibilities:³¹⁷

- Education (nursery, primary, and secondary levels);
- Upkeep of public areas;
- Social welfare and services;
- Welfare services for the elderly;
- Youth work;
- Provision of public services and amenities;
- Housing and utilities;
- Water supply and sewer maintenance;
- Local planning;
- Maintenance of local public roads;
- Local public transport;
- Municipal libraries and museums;
- Sports and leisure facilities.

The functions, responsibility and organisation of local government and the relations of local authorities with one another and with state bodies are specified in the Local Government Organisation Act.³¹⁸

³¹⁷ European Committee of the Regions (n.d.). Estonia. Retrieved from <https://portal.cor.europa.eu/divisionpowers/Pages/Estonia-Introduction.aspx>

³¹⁸ <https://www.riigiteataja.ee/en/eli/ee/530082021001/consolide/current>

Municipalities also have great autonomy in land-use decisions in Estonia, being responsible for drawing up a Comprehensive Plan, the Local Government Designated Spatial Plan, and the Detailed Plans. This has led to problems in developing a high-quality living environment due to the fragmentation of decisions and the lack of common objectives in developing spatial living environment. One reason for this is that they lack the expertise for planning and monitoring the architectural quality of the spatial environment and the financial resources to do so. Despite their autonomy, the local governments are sometimes dictated spatial decisions by the central government, which means that they are not always based on the local needs.

Most of these operations operate with their own budgets, although national level funding are also available for specific circumstances. In terms of resources, overall, Estonia's municipalities have weak financial independence, with low public spending and lowest share of local tax revenues (as compared to the EU). However, these figures can differ across municipalities, depending on the difference in socio-economic factors. According to a 2011 OECD report,³¹⁹ small municipalities often faced similar challenges of having few employees to handle large volumes of tasks, leading to a more reactive rather than preventive actions, and having to provide financial support to its residents instead of investing in the improvement of services.

In 2017, an administrative reform took place, which reduced the number of municipalities from 213 to 79. This reform helped to improve the alignment of budgets of local communities and to improve the efficiency of local municipalities in the provision of services. However, no substantial change to the financial independence of local authorities were observed, i.e. local municipalities are still facing limitations in financial autonomy, with low shares of local revenue and tax bases, operating largely from their own budgets.

Associations

In addition to the governmental authorities as discussed above, there are various associations which also play an active and direct role in spatial planning and development. A couple of key associations are mentioned in the section below, although this list is not exhaustive.

Estonian Association of Architects

The Estonian Association of Architects organises architects, landscape architects and architecture researchers. It is also a observing member in the Architects' Council of Europe since 2000. The Association had initiated the development of the official architecture policy of Estonia and proposed a concept for a state architect³²⁰ etc. Their activities include offering architecture expertise and offering expert assessments on special cases. There are also various workgroups set up, which includes the Building and Planning Legislation Workgroup³²¹ and the Energy Efficiency Workgroup etc., which aims to contribute to improving the quality and sustainability of the built environment in Estonia. In 2017, they participated in the space creation expert group which operated at the State Chancellery from July 2017 to September 2018, to find out state of space creation in the public sector, and to come forth with suggestions for improvements³²².

³¹⁹ OECD (2011). Estonia: Towards a single government approach. Retrieved from <https://doi.org/10.1787/9789264104860-en>

³²⁰ Eesti Arhitektide Liit (n.d.). Building and planning legislation workgroup. Retrieved from <http://www.arhliit.ee/english/association/groups-commissions/building-planning-legislation/>

³²¹ Eesti Arhitektide Liit (n.d.). Building and planning legislation workgroup. Retrieved from <http://www.arhliit.ee/english/association/groups-commissions/building-planning-legislation/>

³²² Eesti Arhitektide Liit (2022). Arhitektuuripoliitika / Ruumiloome ekspertgrupp 2017/2018. Retrieved from http://www.arhliit.ee/arhitektuuripoliitika/ruumiloome_ekspertrupp/

The Association is also active in spearheading ground-up initiatives to improve the quality and sustainability of the living environment in Estonia. These include, for example:

- Setting up of a pilot project, which includes the setting up of a council including architects, and in collaboration with universities and municipalities to form a board of consultants. The aim is to provide support to local architects or the person in-charge of development projects.
- Taking part in public discussions on how to increase liveability of the environment, including the organisation of public debates on urban and public space development³²³;
- Taking part in an EU-funded programme, in collaboration with the Ministry of Education, which involves the reorganising of school structure and designing new state schools³²⁴;
- Working closely with municipalities to provide consultancy services;
- In around 2015, they were also involved in an initiative to improve the design of public spaces, which helped to reshape small city squares.

Estonian Association of Spatial Planners

The Estonian Association of Spatial Planners was formed 20 years ago, in 2002.³²⁵ It is a non-governmental organisation (NGO) which encompasses spatial planners from different vocations and fields of practice including geographers, architects, landscape designers, urbanists, ecologists, environmentalists etc. Currently, there are around 100 association members who are working in different sectors, including the public sector (local governments or ministries), private sector (consultants), the third sector (NGOs) and academia / researchers. The objective of the association is to:

- Elaborate and promote best spatial planning practices;
- Develop inner Estonian cooperation;
- Dedicate empirical and theoretical information between different specialists in varied fields and planning levels;
- Enable a regular communication platform;
- Systemisation and spreading of planning know-how.

The Association has also been actively organising and participating in various activities, such as

- Organisation of workshops, seminars, conferences etc. on the topic of spatial planning;
- Collaboration in the creation of planning and other relevant fields of law;
- Monitor and spread information on judicial practices and decisions;
- Provide expert opinions and act as opinion leader in spatial planning.

The activities of the Association are carried out voluntarily, although some of these projects are also funded.

Estonian Association of Landscape Architects

The Estonian Association of Landscape Architects is a voluntary professional association which represents the interests of landscape architects and landscape-architecture researchers and was

³²³ For example, see: Eesti Arhitektide Liit (2022). Debatt: Poliitiline tahe riikliku ruumiloome juhtimisüksuse loomiseks on olemas. Retrieved from <http://www.arhliit.ee/uudised/eal/poliitiline-tahe-riikliku-ruumiloome-uksuse-loomiseks-olemas/>; and Eesti Arhitektide Liit (2022). Avalik debatt Tallinna linnaruumi arengu ja riigiarhitekti institutsiooni loomise teemal. Retrieved from <http://www.arhliit.ee/uudised/eal/avalik-debatt-tallinna-linnaruumi-arengu-teemal/>

³²⁴ Eesti Arhitektide Liit (n.d.). Hariduse ruum ja ruumiharidus. Retrieved from <http://www.arhliit.ee/kooliarhitektuur/>

³²⁵ Eesti Planeerijate Ühing (n.d.). In English. Retrieved from <https://www.planeerijad.ee/in-english/>

created in 2003.³²⁶ They define landscape architects as certified specialists (minimum 4 years academic professional education) who are in charge of the spatial design of the landscape.

The aims of the association are the following:

- Represent and promote the specialty of landscape architecture in Estonia;
- Protect the creative, professional and economic interests of its members;
- Cooperate with other organisations;
- Organise professional competitions;
- Develop landscape architecture training and support members' self-improvement;
- Participate in the organisation of landscape architecture profession in Estonia;
- Make proposals for the protection of landscape architectural heritage, organisation of protection and preservation of documentary material;
- Convey information to members of the union and issue publications; and
- Share recognition for outstanding achievements in the field of landscape architecture, and to award scholarships.

Estonian Union of Co-operative Housing Associations

The Estonian Union of Co-operative Housing Associations (EKYL) is an independent non-profit working across Estonia to support apartment associations and to represent their interests on local, national and international level. The Union has more than 1400 members (apartment associations) today. The EKYL is involved in shaping housing policy agendas, and observe and contribute to the development of legislative and other acts of law in the field of sustainable development and housing in Estonian and European level. Among other roles, it also conducts trainings for managers, board members and apartment owners/ tenants, and has a wide network to which they disseminate and share information with.

The key objectives of this Association is to:

1. Support the development of apartment associations in Estonia, through the implementation of knowledge-based activities as training, consulting, advisory services, research, national and international cooperation projects;
2. Engage apartment associations to energy efficient renovations, energy poverty alleviation programs and sustainable development commitments;
3. Disseminate best practice case studies and promote the use of EU funds to achieving European and Estonian climate ambition.

Association of Construction Consultancy Entrepreneurs

The Association of Construction Entrepreneurs (EACE) is a voluntary association of construction enterprises created to support and coordinate its members' actions on industry related economic issues and relations with employees and employee unions.³²⁷ It was established in 1991 and reorganised in 1993. Members of the association includes 100 active companies accounting for more than 45% of the construction turnover in Estonia. Their members include developers, who often interact and interfere with planners and architects regarding spatial development plans.

³²⁶ Email (n.d.). Organisatsioonist: tutvustus. Retrieved from <https://maastikuarhitekt.ee/liit/organisatsioonist/tutvustus>

³²⁷ <https://eeel.ee/english/>

Private actors

There are also other private actors who are actively involved in spatial planning. Two of these actors are elaborated in the section below, although this list is by no means exhaustive.

Green tiger

The Green Tiger (EE: Rohetiiger), which is an independent, apolitical, multidisciplinary platform that provides support to companies and organisation towards environmentally conscious development and putting forth proposals to policymakers. Their activities include:

- Applying systematic and knowledge-based approaches to companies and organisations;
- Representing and gathering companies on environmental topics;
- Mapping of regulations that hinder companies, local governments and organisations from acting in an environmentally friendly way;
- Providing input and creating proposals for policymaking;
- Organising and implementing climate assemblies.

In order to support their work, they have also set up a 'Green Tiger Think Tank' comprising Estonian entrepreneurs with a common goal of finding environmentally friendly while having a realistic economic vision that is based on future technologies, i.e. the creation of a sustainable green economy in various fields such as the energy, transport and agriculture sectors. They have also launched the 'Green Energy Roadmap' which gathers the proposals of entrepreneurs and experts to achieve carbon-neutrality in the energy sector in Estonia. Furthermore, they are currently preparing the *Construction Green Roadmap 2040*³²⁸ which envisages a strategy for embedding green practices in the Estonian construction sector.

Further, they have also organised a 'Green Tiger Academy' for companies and institutions, in cooperation with universities. Participants of this Academy include representatives from the Government Office, Ekspress Media, Pipedrive, Estonian Reform Party, Tere, Bolt, LHV Bank, Estonian Public Broadcasting, Police and Border Guard Board, Rocca al Mare School, Elisa and Coop.

The Green Tiger is a member of the Estonian Government's Green Policy Steering Committee.

Estonian Roundtable for Development Cooperation

The Estonian Roundtable for Development Cooperation (AKÜ)³²⁹ is an NGO platform comprising 34 Estonian NGOs that work in the field of development cooperation and sustainable development, as well as humanitarian aid and global citizen education. They carry out both national and EU-level advocacy on development issues, and on SDGs and policy coherence. This Roundtable is also the founder and lead partner of the Estonian Coalition for Sustainable Development, a cross-sectoral network for promoting Sustainable development goals and global issues. Their work include public campaigns and research on public opinion.

The Estonian Roundtable for Development Cooperation is a strategic partner for the Government Office and the Estonian Ministry of Foreign Affairs, as a representative of civil society on the Commission for Sustainable Development, and the Commission Development Cooperation respectively.

³²⁸ Rohetiiger (n.d.). Rohetiiger. Retrieved from <https://rohetiiger.ee/en/>.

³²⁹ Terveilm (n.d.). About us. Retrieved from <https://www.terveilm.ee/leht/about-us/?lang=en>

Textbox 4-1 Note regarding Public-Private Partnerships in Estonia

There are no specific pieces of legislation regarding public-private partnerships (PPPs) in Estonia. However, related to PPPs is the public procurement policy, which the Ministry of Finance is responsible for, i.e. drafting the law, providing supervision and consulting. A summary report on the public-private partnerships of Estonia was published by the World Bank - the number of PPP projects that reached financial closure between January 2014 and December 2018 was 0.

While there is no specific legislation regarding PPPs, the State Real Estate Company (RKAS) is the only institution that has taken an active role in developing PPPs. There is also some interest in PPPs among local governments, including in the areas of water, industrial parks, real estate and schools.

4.4 Facilitating the development of high-quality and sustainable living environment in Estonia - actors and factors

The following section presents the results of the survey which sought the opinions of respondents on the most important and influencing actors and factors that have an impact on the development to the quality and sustainability of the living environment in Estonia.

Actors

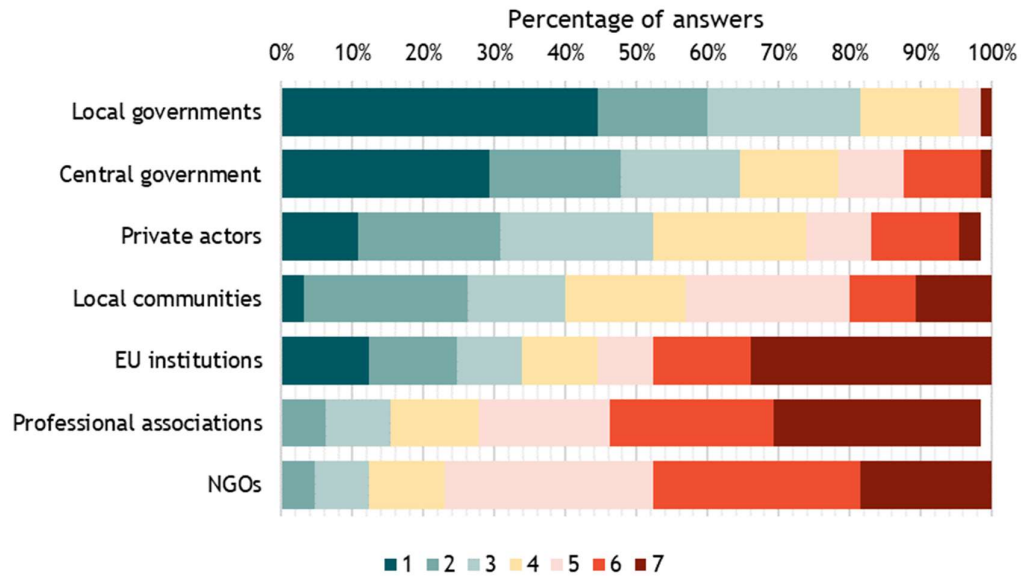
Survey respondents were also asked to rank, from 1 (most important) to 7 (least important), the most influential actors to facilitate the development of high-quality and sustainable living environment in the Estonian context, see Figure 4-6 below. The results show that:

- **Local governments, followed by the central government are the most important actors**
 - The results correspond with the fact that local governments are currently responsible for developing the Comprehensive Plan, the Local Government Designated Spatial Plan, and the Detailed Plans. These should conform to the principles laid out in the National Spatial Plan that is developed by the central government (currently a competency of the Ministry of Finance).
- **Private actors and local communities are also key actors**
 - Private actors may be given a high ranking due to the current situation that the majority of the creation and construction of the built environment (except the public transport infrastructure) is currently undertaken by private actors.
- **Overall, EU institutions ranked as the fifth, although they had a higher percentage of respondents ranking it as the most important actor (12%) than for private actors (11%) and local communities (3%)**
 - This can likely be explained by the fact that Estonia receives EU-level funding for various projects, and this financing source can be a key determining factor for successful project implementation.

Several respondents also mentioned other actors that can promote and shape the living environment which include the following:

- Academia, i.e. universities and research institutions, that can promote and shape the quality and sustainability of the living environment in Estonia;
- Various agencies such as the Heritage Protection Board, which directs the development of city centres of old towns, or the Environment Board, which oversees the forest policy and issuance of mining permits, including the establishment of new quarries, or expansion of existing ones;
- Media and opinion leaders.

Figure 4-6 Ranking of the most influential actors that facilitate the development of the living environment in Estonia expressed as percentages of responses received (n=65)



Note: The figures for *Private actors* and *Professional associations* did not add up to 100%, as it was not mandatory for respondents to rank all provided options.

Other influencing factors

Besides considering the most influential actors, other factors are also important in shaping the quality and sustainability of the Estonian living environment. Some examples as provided by the respondents include the following:

- the source of funding, such as EU grants, governments and local government budgets;
- the level of cooperation and coordination between the different ministries;
- the level of cooperation and coordination between various actors as mentioned above;
- Inspiration from other countries.

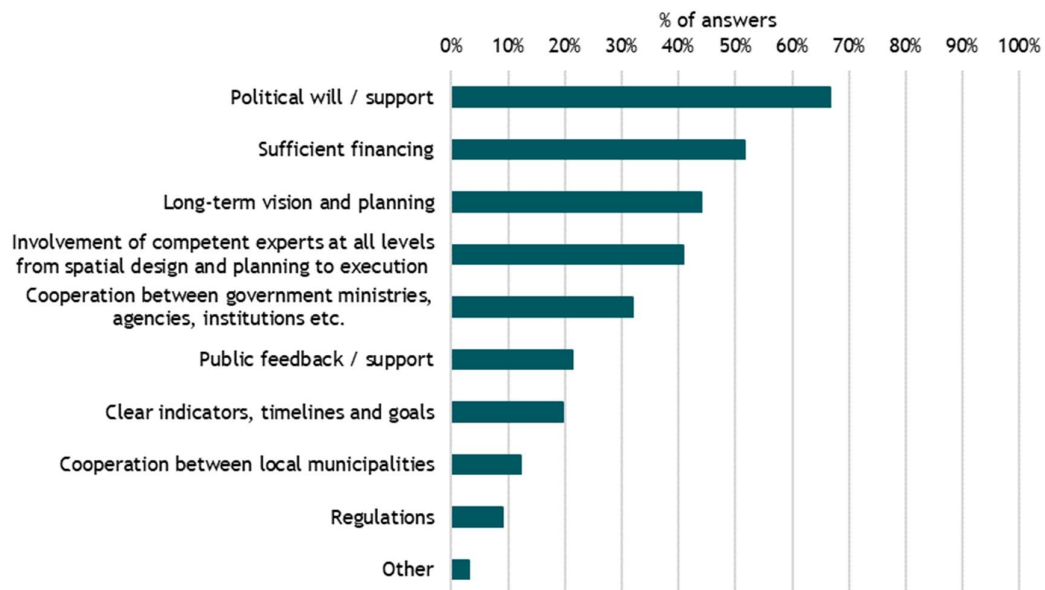
Public initiatives

Figure 4-7 shows the factors that are considered as important to facilitate the successful implementation of *public* initiatives. In order of their importance given by the stakeholders, these are:

- political will/support (67%);
- sufficient financing (52%);
- long-term vision and planning (44%); and
- involvement of competent experts at all levels from spatial design and planning to execution (41%).

This classification is followed by involving competent experts from across all levels of spatial development (from design to execution) in the process and good cooperation between various government ministries, agencies, institutes etc.

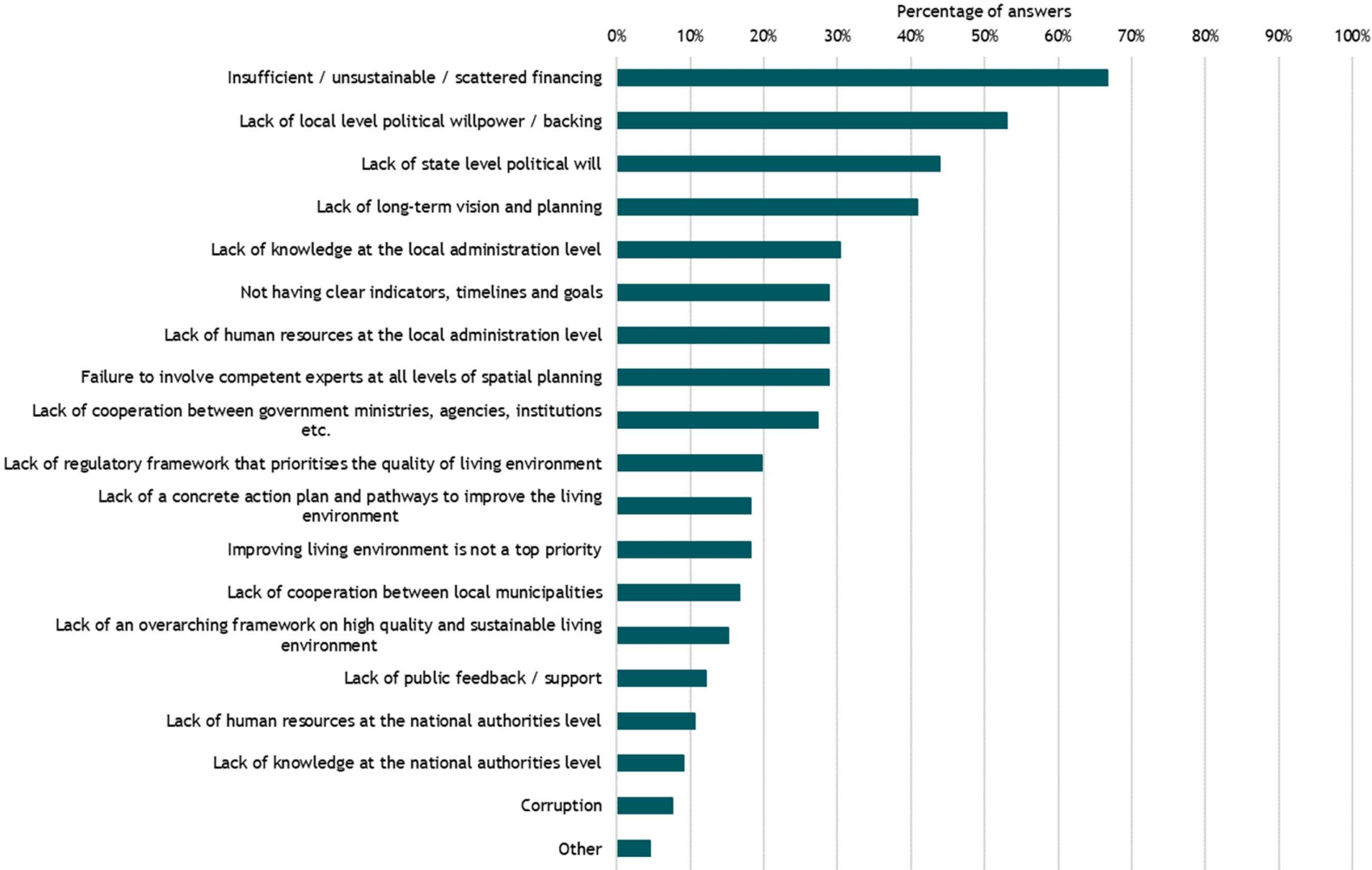
Figure 4-7 Factors for successful implementation of public initiatives, expressed as percentages of responses received (n=66)



The same factors that are considered to be necessary for successful implementation of *public* initiatives are also considered as the top hindering factors. These factors are listed below (see Figure 4-8):

- Insufficient / unsustainable / scattered financing (67%);
- Lack of local level political will / backing (53%);
- Lack of state level political will (44%); and
- Lack of long-term vision and planning (41%).

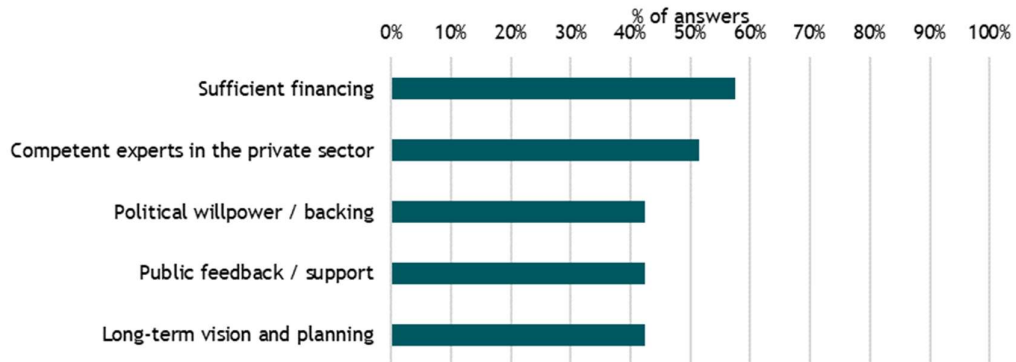
Figure 4-8 Factors that hinder implementation of public initiatives, expressed as percentages of responses received (n=66)



Private initiatives

Respondents were also asked to consider the most important factors to facilitate the successful implementation of *private* initiatives. The results are shown in Figure 4-9, where respondents indicated ensuring sufficient financing (58%) and the availability of competent experts within the private sector (52%) as the most important factors. Other factors such as political willpower / backing, public feedback / support and long-term vision and planning were also considered as important factors (42%). None of the respondents indicated that the smooth co-operation between government ministries, agencies and institutions as a factor.

Figure 4-9 Factors for successful implementation of private initiatives, expressed as percentages of responses received (n=66)

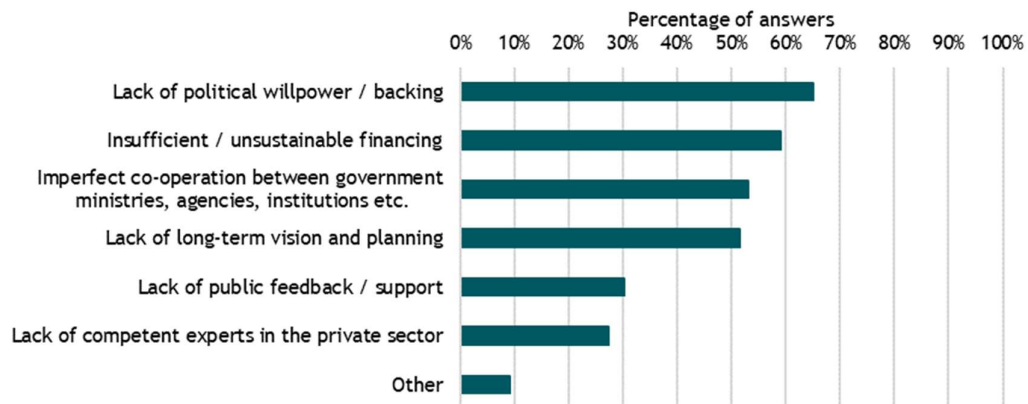


Regarding the factors that hinder the successful implementation of private initiatives, factors similar to the ones provided in the same question concerning public initiatives were also provided (see Figure 4-10). The top choices of the respondents are:

- the lack of political willpower / backing (65%);
- insufficient / unsustainable financing (59%);
- imperfect co-operation between government ministries, agencies, institutions etc. (53%); and
- the lack of long-term vision and planning (52%).

In addition, the lack of public feedback / support (30%) and the lack of competent experts in the private sector (27%) were also considered as hinderances to the realisation of private initiatives. Other factors include the lack of interest from the private sector or non-approvals from the local government.

Figure 4-10 Factors that hinder the successful implementation of private initiatives, expressed as percentages of responses received (n=66)



4.5 Instruments, interventions and actions to improve quality and sustainability of Estonia's living environment

In addition to gathering insights on the key actors and factors, the survey also sought the opinion of the respondents on the instruments, interventions, and actions that are most necessary to have an impact on the development of a quality and sustainable living environment in Estonia. The results are presented in the section below.

Survey respondents were also asked to rank, from 1 (most important) to 7 (least important), a selection of instruments / interventions / actions which they think would contribute the most towards the development of a high-quality living environment in Estonia. The results are shown in Figure 4-11 below.

The most highly ranked instruments / interventions / actions, i.e. the top three options of respondents, are *related to financing, i.e.:*

- More funding allocated on the national level to projects preparing and delivering improvements in the living environment (65%); and
- More funding dedicated to the quality of the living environment in local municipalities' budgets (56%).

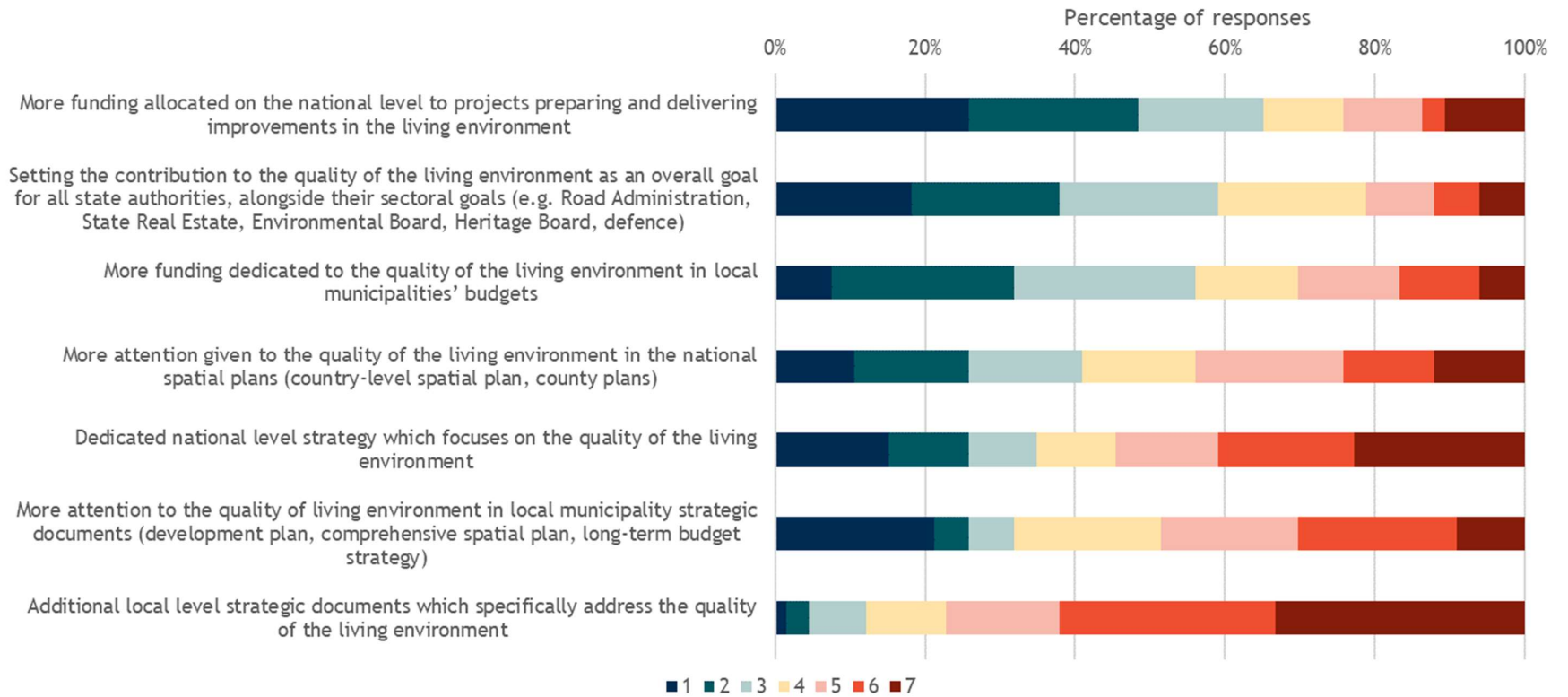
This is consistent with the results that have been discussed above, reiterating the need for sufficient and sustainable financing for the implementation of initiatives. However, the lack of funding is also directly related to the lack of a development plan for the built environment, perpetuating this causality dilemma.

In addition, 59% of the respondents also consider it important to set the contribution to the quality of the living environment as an overall goal for all state authorities, alongside their sectoral goals (e.g. Road Administration, State Real Estate, Environmental Board, Heritage Board, defence). This highlights the need for a comprehensive approach to involve actors across all sectors to contribute towards a high-quality and sustainable living environment.

Further, the topic on *plans and strategy* for a high-quality living environment in Estonia were ranked after the financing options that are mentioned above. The following observations can be made:

- more attention on the quality of the living environment should also be placed in the National Spatial Plans, including the County Plans (41%);
- a dedicated national level strategy which focuses on the quality of the living environment should be developed (35%);
- more attention should be put into ensuring the quality of living environment in local municipality strategic documents – this includes the development plan, comprehensive spatial plan, as well as the long-term budget strategy (32%);

Figure 4-11 Ranking of the most important instruments / interventions / actions that would contribute the most towards the development of high-quality living environment in Estonia, expressed as percentages of responses received (n=66)



5 Monitoring and management of the built environment (digital services)

This section of the report presents an overview of the digital solutions that operate in Estonia to provide information access and exchange between parties involved in the acquisition, development, and management of immovable assets. The aim is to give an extended synopsis of the status of digital infrastructure for the built environment, the incentives behind its development as well a functional framework which describes the quality and effectiveness dimensions of the digital infrastructure in place.

5.1 Overview of existing e-services

The Green Paper on the Estonian Spatial Planning by the Ministry of Estonia³³⁰ proposes digitalization of spatial planning as a solution to avoiding unnecessary time spent in the elaboration of spatial plans. This includes all the opportunities offered by the digital solutions to accelerate the internal and inter-institutional cooperation, such as the transition from paper- and document-based management to data-based management. Moreover, automation of processes should be implemented wherever possible - e.g., for checking the requirements of the prepared plan against the higher-level plans and regulations or for the technical operations of the proceedings. This would allow the planning officials to focus on the content of the proposed planning solution instead of the bureaucratic activities.

As such, endeavours to collect and aggregate spatial data in Estonia has obtained a significant momentum in the last five years. With the ambition to establish an integrated platform for a Digital Twin on the national level, Estonia is one of the few leading countries in digitalization in the EU, according to the European Construction Sector Observatory analytical report released in 2021.³³¹ The development of digital solutions to access, account and manage administrative processes related to immovable assets and corresponding metadata is driven by the Ministry of Justice (Justiitsministerium), Ministry of Finance (Rahandusministeerium) and the Ministry of Economic Affairs and Communications (Majandus- ja Kommunikatsiooniministeerium). The former is assigned at the political level to coordinate, manage and finance initiatives of development and interoperability of digital solutions.³³² As outlined in Long-Term View on Construction 2035: 7 Big Steps,³³³ these initiatives in setting up automated procedural pipelines of coupling spatial data with their permit systems and enabling integration of other technical elements such as environmental permits or charges provide a stable launchpad for digital strategy in the built environment.

As of autumn 2022, Estonia holds five digital service platforms that are directly serving the digital cooperation needs of the already established as well as anticipated spatial planning, and of the Architecture, Engineering and Construction (AEC) industry practices, namely:

³³⁰ Estonian Ministry of Finance (2020). Green Paper on Estonian Spatial Planning. Retrieved from <https://planeerimine.blogi.fin.ee/wp-content/uploads/2021/05/Green-Paper-on-Estonian-Spatial-Planning.pdf>

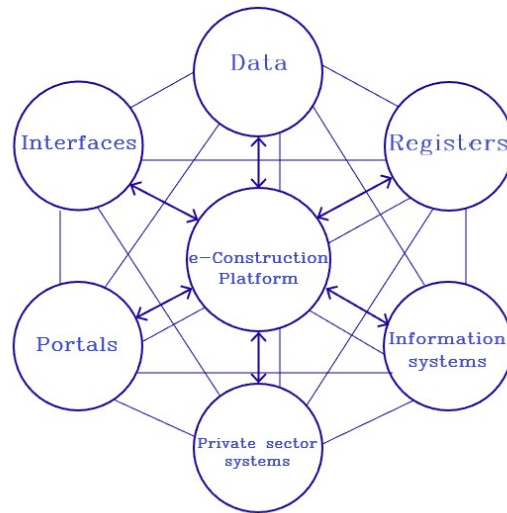
³³¹ EC (2021). Construction Sector observatory: Estonia The Estonian Digital Construction Cluster. Retrieved from https://single-market-economy.ec.europa.eu/document/download/3ae8a41e-4b82-4150-968c-1fc73d1e2f61_en

³³² EC (2021). Digital Public Administration Fact Sheet 2021 Estonia. Retrieved from https://joinup.ec.europa.eu/sites/default/files/inline-files/DPA_Factsheets_2021_Estonia_vFinal.pdf

³³³ Civitta & Ministry of Economic Affairs and Communication (2021). Long-Term View on Construction 2035: Long-Term View on Construction 2035: 7 Big Steps. Retrieved from https://eehitus.ee/wp-content/uploads/2021/09/Ehituse-pikk-vaade-2035-v1_7en.pdf

- **PLANK (Planeeringud) - a national unified plan database**
 Under the supervision of the Department of Planning and the Department of Regional Administration of the Ministry of Finance, the centralised database is set to accommodate standardised planning data and its proceedings with a controlled access of various interest groups. Such setup ensures a seamless planning process ahead of development, which is less prone to communication or data inefficiencies. The official launch with a complete functionality is planned for Q4, 2022.
- **Immovables Portal (Kinnistuportaal) - a property registration portal**
 Operated by the Centre of Registers and Information Systems (RIK), the platform is a gateway to the proceedings of property registration, which in turn grants access to property information in e-Land Register.
- **e-Land Register (e-kinnistusraamat) - a national cadastral database**
 Authored and supervised by Land Registry and the Registration Department and operated by the Centre of Registers and Information Systems (RIK), e-Land Register serves as a land register data- and management system. Among other things, the platform allows disclosure and management of information regarding property rights, transfer of ownership or encumbrance. The database is governed by law, which means that it is ensured that the transactions related to real estate are secure and obey relevant regulations under the existing law.
- **Building Registry (Ehitisregister) - a national database of building register**
 Established and authorised by the Housing and Construction Department of the Ministry of Economic Affairs and Communications, the Building Register is a dynamic web-map-based interface that allows e.g. to apply for building permits, construction notices or energy declarations. The platform allows to access geometry data, including metadata tags of properties as well as buildings via Application Programming Interface (API) functionality, which aids in efficient decision-making processes for current as well as planned areas or buildings.
- **e-Construction (e-ehitus) - a steering platform for all stakeholders in throughout the whole building life-cycle**
 Led by the Ministry of Economic Affairs and Communications, e-Construction is an ever-evolving hub-platform targeted towards all actors in the AEC sector (Figure 5-1). With an active role of drawing together various interest groups, e-Construction designs future agenda, clarifies relevant directives, establishes basic data-structures and standardised routines as well as hosts initiatives for innovative engagement.

Figure 5-1 e-Construction as it represents itself being “The engine of the modern construction sector is the smooth digital flow of information”³³⁴



Source: The authors, adapted from the infographic available at <https://eehitus.ee/vision/>

The list of digital services is dynamic and increasing. The Ministry of Economic Affairs and Communications anticipates further continuous expansion of services which, among other, includes Utility Network Services, BIM (Building Information Modelling) services and Digital Twin services. The development of such extent is aided by a philosophy of decentralised IT architecture which enables seamless and secure communication between different databases, services and sectors³³⁵.

The public procurement process for the construction sector is managed through a comprehensive e-procurement platform. The electronic platform significantly reduces the administrative costs and ensures transparency, competition and speed. The established Public Procurement Act favours qualitative, environmental or social evaluation criteria, to ensure the selection of the tender with the best price-quality ratio.³³⁶ In fact, the report of the IMF on the public investment management in Estonia³³⁷ has concluded that the Estonian Public Procurement Register can be qualified as a modern e-procurement system, stratifying sufficient transparency requirements to allow the access to the procurement information for all interested stakeholders, including the civic society. The report emphasizes the most noteworthy elements of the Estonian Public Procurement Register, namely:

- eNotification - publication of notices;
- eAccess - tender documents are available online;
- eCommunication - communication with the bidders;
- eSubmission - online tender submission;
- eEvaluation - automatic evaluation of the bids;
- eAward - notification on the outcome of the evaluation;

³³⁴ Quote from: IMF. (2019). Republic of Estonia. Public Investment Management Assessment. Retrieved from <https://www.imf.org/-/media/Files/Publications/CR/2019/1ESTEA2019001.ashx>

³³⁵ E-Estonia (n.d.). Interoperability services. Retrieved from <https://e-estonia.com/solutions/interoperability-services/uxp/>

³³⁶ Civitta & Ministry of Economic Affairs and Communication (2021). Long-Term View on Construction 2035: 7 Big Steps.

³³⁷ IMF (2019). Republic of Estonia: Public Investment Management Assessment. Retrieved from <https://www.imf.org/en/Publications/CR/Issues/2019/06/03/Republic-of-Estonia-Technical-Assistance-Report-Public-Investment-Management-Assessment-46963>

- eAuction - online updating of offers;
- eCatalogues - electronic documents describing products and prices in a structured manner;
- Contract register - information on contract amendments and final contract price.

According to the joint manifesto of the European Construction Industry,³³⁸ digitalisation is the main solution for remaining competitive. Consequently, digitalization must happen across the whole value chain. However, it should not become a goal on its own, but rather a device for achieving strategic objectives, such as increased productivity, circular economy principles and a better living environment. The origin of all these changes stands in the application of IT&C solutions and the automation of certain processes. Such applications include the use of drones and 3D printing and scanning, automation of processes based on big data and machine learning, but also innovative information management for construction administration, such as Building Information Modelling (BIM) and Geographic Information Systems (GIS).

The Building Information Modelling (BIM), as it plays a significant operational role in AEC's branch process coordination, creates a coordinated system for the management of the whole life-cycle of a building. Such models include all the information about the building, from its geometric design data to functionality and other characteristics which can be used from the building planning and procurements phase until the beginning of the utilization phase and even beyond. BIM provides a real-time collaboration platform among architects, engineers, project managers, constructors, and contracting parties. Thus, BIM offers many advantages such as increased transparency, easy exchange of construction information between the project's partners, enabling the reduction of mistakes, waste of resources and delays etc. These features ensure the efficiency of construction works and maintenance. Moreover, as some studies have shown, BIM can lead to savings of up to 40% on incidental expenses and waste, and according to different sources it saves 5-20% on construction costs.³³⁹ BIM has been applied successfully in Estonia, with its usage being the normal industry standard now.

Prominent applications of BIM in Estonia are by the State Real Estate Ltd and the Estonian Road Administration as public procurers with significant market power.³⁴⁰ State Real Estate Ltd has started using BIM as early as 2008 and currently it requires the use of BIM for design, construction and maintenance of the buildings it commissions. In April 2018 it published its updated requirements on procurements regarding non-residential building which stipulate the utilization of BIM. The Estonian Road Administration, on the other hand, had started two BIM pilot projects in collaboration with private-sector partners. One project envisioned the development of the administration of the design and construction process started from the usual data surrounding the contracting entity, the designer and the constructor. The second project is dedicated to the management of works at the construction phase using cloud-based project bank. Finally, the Estonian Road Administration has initiated the development of an information system (tee elukaare infosüsteem; TEIS) that is expected to improve the information management in relation to the entire life-cycle of the roads managed by the Estonian Road Administration, by aggregating all the existing data.³⁴¹

³³⁸ Civitta et al. (2018). Background document of developing the vision of e-construction platform. Retrieved from <https://eehitus.ee/wp-content/uploads/2019/07/e-construction-platform-background-ENG.pdf>

³³⁹ Civitta et al. (2018). Background document of developing the vision of e-construction platform. Retrieved from <https://eehitus.ee/wp-content/uploads/2019/07/e-construction-platform-background-ENG.pdf>

³⁴⁰ Civitta et al. (2018). Background document of developing the vision of e-construction platform. Retrieved from <https://eehitus.ee/wp-content/uploads/2019/07/e-construction-platform-background-ENG.pdf>

³⁴¹ Civitta et al. (2018). Background document of developing the vision of e-construction platform. Retrieved from <https://eehitus.ee/wp-content/uploads/2019/07/e-construction-platform-background-ENG.pdf>

Further initiatives on including BIM along all phases of the buildings' life-cycle in Estonia, include that of the Ministry of Economic Affairs and Communications through their declaration of mutual intentions, together with other public institutions, on the application of digital BIM in their public procurement activities. The declaration also involves the preparation of an action plan and a timetable for the implementation of BIM, with also entails collaboration with the academic sector.³⁴²

5.2 Governance of e-services

This section provides an overview of the current organisation of the e-services for construction, to outline the key actors involved in this organisation, both private and public actors, including their roles and responsibilities and to give an indication of how construction e-services in Estonia are financed.

The Ministry of Economic Affairs and Communications, Ministry of Justice, as well as the Ministry of Finance are administering and governing the process of digital development at the national level.

The coordination of registries is carried out both in a centralised as well as a decentralised manner depending on the responsibilities which are distributed to the subordinate authorities of corresponding ministries. In general terms, a joint collaboration across aforementioned bodies officially orchestrates the developmental framework of e-services that relate to the built environment. However, the Ministry of Economic Affairs and Communications has an exceptionally amended statute as of May 2021 by which **the ministry is a central figure in the management of the digital development and cyber-security.**²⁸¹ This concerns regulatory as well as compliance domains within which the authorities proactively establish relevant tools for a wide range of actors across the public and private sectors. The incentive to develop centralised platforms to serve individuals and groups in the AEC branch and its auxiliary agents comes from data-driven processes that require relevant digital services. The goal is to be able to handle immovable assets and associated administrative processes between spatial planning, building proceedings and their life-cycle management seamlessly.

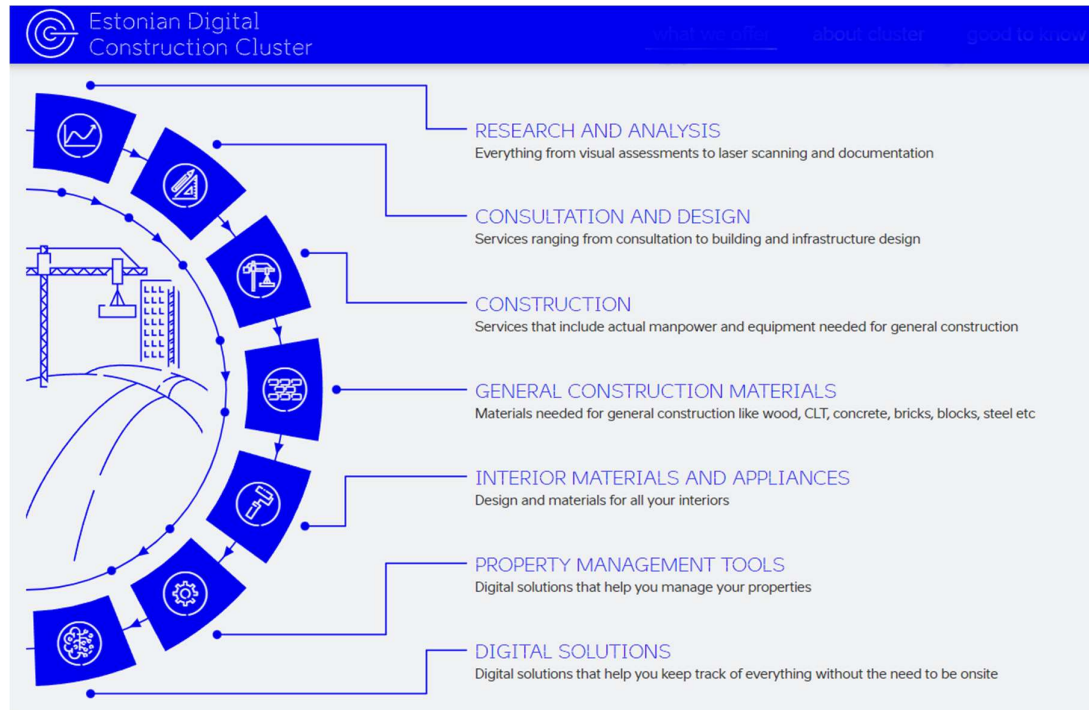
One of the key important initiatives of introducing the e-Construction services in Estonia is the creation of *Estonian Digital Construction Cluster* in 2015 that brings together innovative firms in the IT&C and AEC sectors, academic institutions and centres of competences.³⁴³ The cluster has the potential of enabling meaningful cooperation between the innovative private sector and other parties involved in buildings' life-cycle. The main goal of the cluster is to adapt business models in the construction sector and to create a novel collaborative construction environment that would allow the monitoring of the building process from the conceptual idea and design to the utilization of the built space. To this contributes, among other solutions, the utilization of software and digital solutions at the documentation phase, thus implementing paperless operations between all parties, including those in charge of issuing building permits.³⁴⁴ A whole spectrum of initiatives and services Estonian Digital Construction Cluster offers is summarised in Figure 5-2.

³⁴² Civitta et al. (2018). Background document of developing the vision of e-construction platform. Retrieved from <https://eehitus.ee/wp-content/uploads/2019/07/e-construction-platform-background-ENG.pdf>

³⁴³ European Construction Observatory (2020). The Estonian Digital Construction Cluster; Thematic objective 2 & 4. Retrieved from <https://single-market-economy.ec.europa.eu/system/files/2021-11/The%20Estonian%20Digital%20Construction%20Cluste.pdf>

³⁴⁴ European Construction Sector Observatory (2021). Estonia - ECSO country fact sheet. Retrieved from https://single-market-economy.ec.europa.eu/sectors/construction/observatory/country-fact-sheets/estonia_en

Figure 5-2 Themes and services that the Estonian Digital Construction Cluster offers



Source: Authors, adapted from the infographic available at <https://estoniandcc.com/lifecycle>, last accessed 2022-10-10

As governmental authorities facilitate development of digital strategy, **funding is key in driving the process** up front. This is especially acute when an attempt to draw multiple stakeholders towards common goals is a priority objective. Public financing takes place in a form of government allocations supported by Enterprise Estonia (national investment agency) as well as EU grants which are packaged in various allocations such as the EU Recovery and Resilience Plan³⁴⁵ or the European Regional Development Fund (ERDF).³⁴⁶ One of the most prominent examples of how facilitators incentivise work towards innovative solutions and collaboration is a part of e-Construction ecosystem under the name of **construction e-jump**. The program’s volume of EUR 4.5 million is allocated for innovation in digital solutions in the building sector and is meant to call for proposals twice a year until 2025.³⁴⁷

5.3 Overview of the efficiency and effectiveness of e-construction services

As mentioned in the overview section, the e-Construction platform takes an operating role in accommodating and engaging a wide spectrum of actors in the construction branch. The purpose of the e-Construction platform is to ensure that spatial planning, the design and the actual construction and utilization of buildings are transparent processes and save financial and human resources throughout the lifetime of a building.²⁸² Despite these benefits, **a challenge to overcome appears to be the significant fragmentation of the construction sector, both vertically and horizontally, and the scattered data across different systems that prevent a good flow of information and data exchange.** As a consequence, private actors cannot profit from their investments in efficient data management because other sectoral participants are not willing to get involved in the needed innovation. Since

³⁴⁵ EC (2021). Summary of the assessment of the Estonias recovery and resilience plan. Retrieved from https://ec.europa.eu/info/files/summary-assessment-estonian-recovery-and-resilience-plan_en

³⁴⁶ EC (2021). Construction Sector observatory: Estonia The Estonian Digital Construction Cluster. Retrieved from https://single-market-economy.ec.europa.eu/document/download/3ae8a41e-4b82-4150-968c-1fc73d1e2f61_en

³⁴⁷ <https://ehupe.eehitus.ee/>

digitalization of the construction sector appears to be a matter of a public good, the public sector plays the critical guiding and coordination role in bringing up the digitalization of this sector. Again, a constructive prospect of e-Construction prevails in the interplay of governmental, local authority and private endeavours, which are summarised and constantly updated on the e-Construction website <https://eehitus.ee/kontakt/>.³⁴⁸

A delineated character of digitalisation of planning and construction pipelines in the overarching strategy is specifically moulded to act upon effectiveness, sustainable solutions and transparency. The functional framework of the relevant aspects of such development in Estonia can be defined through the following themes:

Circularity

Construction sector being one of the key focus areas in The Circular Economy Action Plan (CEAP)³⁴⁹ that came into effect in March 2020, provides important waypoints which are being implemented in the aforementioned digital solutions. As an example, in its visionary white paper,³⁵⁰ e-Construction follows the main aspects of sustainable development in the built environment where circularity is enhanced, namely:

- Automation
 - Automation of processes
 - Use of drones and 3D scanning
 - Utilisation of 3D printers
 - Data-driven processes, big data, machine learning
 - Factory produced elements
- Construction administration and information management
 - BIM
 - Lean construction
 - Integrated project delivery
- Innovation in buildings
 - Nearly zero-energy requirement
 - Smart cities and houses

These innovation areas include e.g. establishing basis for optimization of maintenance needed across the building's life-cycle and recycling of the materials deriving from demolition. A centralised implementation of requirements together with specific rulesets to assess the quality of data-driven building models in BIM workflows grant deterministic means to roll out and manage applications which suffice underlying the national goals casted in the Long-Term View on Construction 2035 as well as the goals at the EU level.

Ecosystem services

It is challenging to establish a specific framework of knowledge that would demonstrate how digital solutions are specifically contributing positively or negatively influence towards ecosystem services. This is due to the lack of analytical studies on how digitalisation perspective is utilised in information

³⁴⁸ Civitta & Ministry of Economic Affairs and Communication (2021). Long-Term View on Construction 2035: 7 Big Steps.

³⁴⁹ EC (2020). Circular economy action plan. Retrieved from <https://op.europa.eu/en/publication-detail/-/publication/45cc30f6-cd57-11ea-adf7-01aa75ed71a1/language-en/format-PDF/source-170854112>

³⁵⁰

provision. However, general remarks relating to the link between digital and ecosystem services' domains can be drawn based on observations in regulatory services. Studies such as IPBES-IPCC (2021)³⁵¹ and Vacht et al (2018)³⁵² provide basis for how aspects related to regulation in planning and construction e.g. air purification, noise reduction, temperature regulation and stormwater runoff in urban environments can affect biotypes, wildlife habitats and ecosystems services. Data integration and its standardisation as well as ease of access and transparent processes within and between public and private domains provides a valid ground for decision-making considering the multifunctional nature of ecosystem services^{353 354}. Furthermore, as of ambitions to meet high sustainability criteria in AEC sector, for example, BREEAM as well as LEED standards are sought to be implemented in the design stages for upcoming buildings nationwide. Such objectives are, in turn, stipulated in the overarching agenda of digitalisation, which are effectively bootstrapped in the designs of e-services mentioned in this chapter. As a result, a synergistic effect between digital development and value returns of ecosystem services are achieved.

Resilience

Estonia's recovery and resilience plan³⁵⁵ devotes 21.5% of the total allocation of EUR 969.3 million in grants to digitalisation within two main categories: the digital transformation of enterprises and the further modernisation of digital public services. In seeking to establish a stable and resilient digital ecosystem of the built environment, a significant portion of financing is set for developing the e-Construction platform. The colossal initiative which reaches not exclusively public actors, works in tandem with funds dedicated to decarbonising the energy sector, as well as improving labour market with the relevant education able to meet the demands of digitalisation.

Furthermore, ambitions of resilient development in the Baltic state are reflected in actions and activities towards meeting SDG's Agenda 2030. Estonia is under way in developing a wide range of infrastructural projects (under Goal 9) within e.g. transport, energy and access to internet domains which include provision of quality public services in a form of e-platforms among which a part is mentioned in this chapter.

Inclusion

Inclusive and sustainable development advances hand in hand with ambitions of resilient growth where digitalisation is the pivotal element.³⁵⁶ As an underlying mechanism in Estonia, internet (and its various tangible forms) alleviates accessibility not only to information but also to public services which are to this day already in working order and ever developing via proactive digitalisation initiatives. Furthermore, industry hub-platforms such as e-Construction facilitate ease of communication for authorised stakeholders in planning and construction processes which bring not only beneficial functional outcomes but also obligatory effort to comply regulatory frameworks on equal and more transparent terms. When it comes to an interplay between citizens and public service platforms (which

³⁵¹ IPBES (2021). IPBES-IPCC co-sponsored workshop report on biodiversity and climate change. Retrieved from <https://ipbes.net/events/ipbes-ipcc-co-sponsored-workshop-biodiversity-and-climate-change>

³⁵² Vacht, P., Koff, T., Plüschke-Altof, B. & Müüripeal, A. (2018). Ecosystem services of Tallinn city: achievements and challenges. Retrieved from <https://journals.openedition.org/dynenviron/2383>

³⁵³ EC (2021). MAES-related developments in Estonia. Retrieved from <https://biodiversity.europa.eu/countries/estonia/maes>

³⁵⁴ European environmental Agency (2021). Accounting for ecosystems and their services in the European Union. Retrieved from <https://ec.europa.eu/eurostat/documents/7870049/12943935/KS-FT-20-002-EN-N.pdf/de44610d-79e5-010a-5675-14fc4d8527d9?t=1624528835061>

³⁵⁵ EC (2021). Summary of the assessment of the Estonian recovery and resilience plan. Retrieved from https://ec.europa.eu/info/files/summary-assessment-estonian-recovery-and-resilience-plan_en

³⁵⁶ Republic of Estonia Government (2016). Executive summary of the Estonian review on implementation of the Agenda 2030. Retrieved from <https://sustainabledevelopment.un.org/content/documents/10452Executive%20Summary%20of%20Estonia.pdf>

is also applicable to former example), the logic of inclusiveness is rather based on persistent effort to eliminate instances of exclusion.³⁵⁷

Strategic communication

A sign of an adequate strategic communication in the development of e-services within construction domain is set in the fact that there exists a clear *ad hoc* action plan³⁵⁸ including continuous reporting on the *status quo* internally as well as at the EU-level. It is notable that an effort to create interoperable e-services within planning and construction areas of expertise are not ignored when it comes to interlinked communication between various existing domains of e-services. On broader scale, an important aspect of strategies to deliver information and implement requirements is observed to take place as both top-down as well as bottom-up approaches, where innovative ideas and best industry practices are welcomed (e.g. Estonian Digital Construction Cluster) while aggregated information takes shape of strategic agenda in form of formal recommendations and requirements steered by responsible actors.

Governance & digitalisation

All the above-mentioned themes agreeably constitute that effectiveness of sustainable solutions (not exclusively in planning and AEC domains) prevail in consistent governance model that is used in digitalisation strategy. This is partially evident due to a solid base of e-governance and digital maturity of the nation that Estonia has been striving for the last two decades³⁵⁹. On the other hand, it is an active role for all actors in the system to work over sectoral (silo) borders in seeking to implement and maintain most recent and confident digital solutions to meet the requirements across regulatory and compliance domains. This specific challenge appears to constantly re-occur and dominate the literature, though in many instances it acts as an incentive for structural change³⁶⁰.

Productivity & green growth

The Green Paper on the Estonian Spatial Planning by the Ministry of Finance³⁶¹ proposes digitalization of spatial planning as a solution to avoiding unnecessary time spent in the elaboration of spatial plans. This includes all the opportunities offered by the digital solutions to accelerate the internal and inter-institutional cooperation, such as the transition from paper- and document-based management to data-based management. Moreover, as mentioned earlier, automation of processes should be implemented wherever possible. For example, for checking the requirements of the prepared plan against the higher-level plans and regulations for the technical operations of the proceedings. This would allow the planning officials to focus on the content of the proposed planning solution instead of the bureaucratic activities.

³⁵⁷ Raal, C. (2022). An inclusive society begins with equal access to public services. Retrieved from <https://e-estonia.com/an-inclusive-society-begins-with-equal-access-to-public-services/>

³⁵⁸ Civitta & Ministry of Economic Affairs and Communication (2021). Long-Term View on Construction 2035: Long-Term View on Construction 2035: 7 Big Steps. Retrieved from https://eehitus.ee/wp-content/uploads/2021/09/Ehituse-pikk-vaade-2035-v1_7en.pdf

³⁵⁹ Ibid

³⁶⁰ CIVITTA (2018). Background document of developing the vision of e-construction platform. Retrieved from <https://eehitus.ee/wp-content/uploads/2019/07/e-construction-platform-background-ENG.pdf>

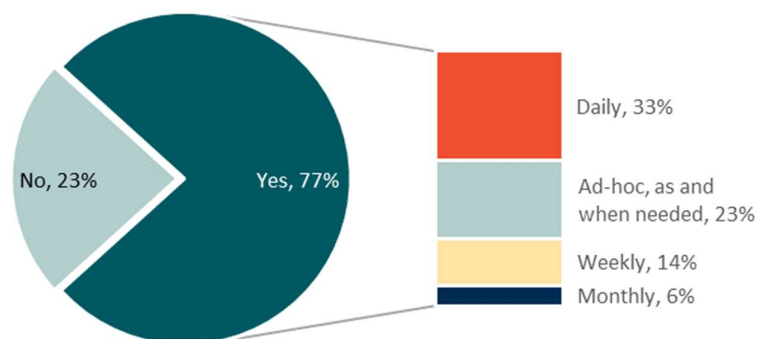
³⁶¹ Estonian Ministry of Finance (2020). Green Paper on Estonian Spatial Planning. Retrieved from <https://planeerimine.blogi.fin.ee/wp-content/uploads/2021/05/Green-Paper-on-Estonian-Spatial-Planning.pdf>

5.4 Opinions on the current state of play regarding digitalisation of services

The section below provides an analysis of the results of the survey conducted as part of the task to review of the state of play on the living environment in Estonia.

Importantly, 77% of the survey respondents stated that they are currently making use of digital services related to the planning, design, construction and management of the living and built environment. Of these, 33% make use of these services on a daily basis.

Figure 5-3 Percentage of survey respondents who make use of digital services related to the planning, design, construction and management of the living (and built) environment (n=64)



The survey also asked respondents which digital services they most often use. The main services that were mentioned include the building register, or the EHR Planeeringute registrid³⁶² and the geoportal of the Land Board. Other services include ArcGIS, the e-construction platform, the various registers of population, business, cultural monuments, environmental decision information system, the Estonian Nature Information System (VEKA) etc. 90% of the respondents (n=49) also shared that they have to visit different platforms to complete their tasks.

With regards to suggestions on how existing digital services can be improved, respondents shared the following comments:

- The building register (EHR) is not user-friendly, ineffective, and should be improved. One of the concrete examples was to be able to create and modify project directly in the register;
- The portal of the Land Board should show data on land restriction zones, utility networks etc.

Some respondents also provided feedback on the type of digital services that are currently unavailable but could be useful to facilitate the cohesive development of the living environment. These include:

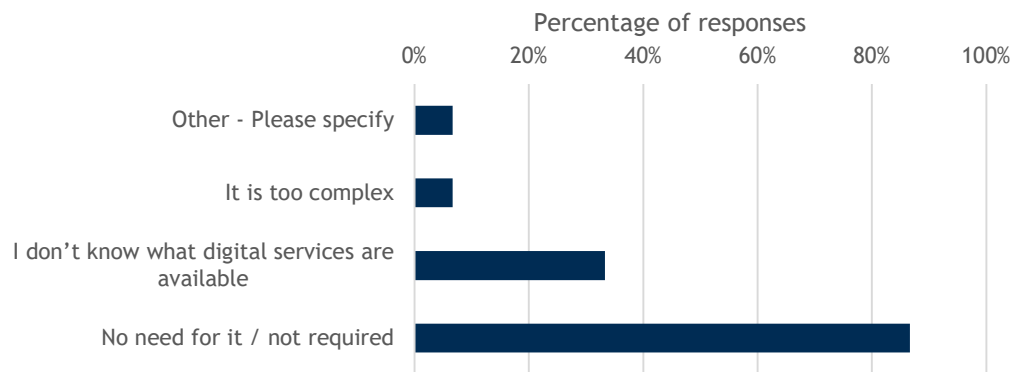
- Setting up a central depository of information where the different layers of information can be stored and easily be retrieved, facilitated with common agreements, classification system etc.;
- Setting up of a nationwide planning environment;
- Exploring the possibilities to improve the integration between different services, improvement of the flow of processes, further automation etc.;

³⁶² <https://livekluster.ehr.ee/ui/ehr/v1>

- Setting up tools to improve collaboration, such as viewing of calendars across organisations, and to improve efficiency of communication amongst stakeholders.

Figure 5-4 presents an overview of the reasons why digital service(s) are not being used by respondents. The main reason is that there is simply no need for it in their daily functions. There were also other respondents who indicated that they are unaware of the digital service(s) that are available and that it is too complex. Better information on these services and how to use them would be helpful.

Figure 5-4 Reasons for not using digital service(s) (n=15)



6 International practices and trends

This section of the report provides an overview of territorial governance and planning systems, illustrated with examples from different countries in Europe. We have used the European Spatial Planning Observatory Network (ESPON) definitions to ensure consistency (see textbox below). Our inspiration and food for thought for this overview has come mainly through ESPON's and other researchers' findings as well as well as Sweco's international knowledge and experience from the

Textbox 6-1 Definition of 'territorial governance' and 'spatial planning systems' (ESPON COMPASS, 2018)

"Territorial governance comprises the institutions that assist in active cooperation across government, market and civil society actors to coordinate decision-making and actions that have an impact on the quality of places and their development.

Spatial planning systems are the ensemble of institutions that are used to mediate competition over the use of land and property, to allocate rights of development, to regulate change and to promote preferred spatial and urban form."

sector.

The first comprehensive comparative analysis of spatial planning in Europe was published by the European Commission in 1997 - the EU Compendium of Spatial Planning Systems and Policies.³⁶³ It covered the then EU15 and became a standard reference for practitioners and researchers. At the time, the European Spatial Planning Perspective was in the making and much focus was given to the role of spatial planning for a more strategic approach to the development of European territories. Much has

³⁶³ Commission of the European Communities (CEC) (1997). The EU Compendium of Spatial Planning Systems and Policies. The Compendium has been further developed with country fiches etc. since 1997.

changed since 1997, with the enlargement of the EU, the increasing influence of EU sectoral policies, geopolitical shocks, increased awareness of the need to tackle climate change and substantial reforms of spatial planning and territorial governance across Europe.

Spatial planning has long been an important tool in the toolbox to weigh and prioritise among a multitude of competing spatial interests in a complex environment. Furthermore, spatial planning is by nature an open process where members of the public, together with researchers as well as policymakers or private enterprises, can exchange views, agree on visions and goals, identify synergies and solve conflicts based on a legal framework.

We are observing the emergence of a new paradigm. The last 25 years have brought increased attention to the need to mitigate climate change, increased need to tackle social exclusion resulting in divided societies and territories, as well as the necessity to create more resilient and sustainable spatial structures. All those issues have one thing in common. They can only be solved through cooperation and coordination between sectors as well as public and private stakeholders, across administrative boundaries and through a multilevel approach. This creates new challenges to traditional spatial planning systems and governance.

Traditionally, spatial planning has been based on territory and the mandate to decide over that territory (government). Today, spatial planning needs to involve multiple stakeholders and cross both administrative and sectoral borders (holistic approach). It needs to build on dialogue and shared objectives rather than directive (territorial governance). This requires a regulative framework that is flexible enough to adjust to fast change while not losing its regulatory function or sight of the overall goals.

This section of the report has been elaborated mainly through desk research. Inspiration and food for thought has come mainly through ESPON's and other researchers' studies of planning systems and spatial governance.³⁶⁴ For the best practices, experts in EU countries were interviewed by ESPON experts.

6.1 Territorial governance and spatial planning - systems and trends

Constitutional and legal frameworks for spatial planning

Legal framework establishes and governs the formal model for spatial planning and territorial governance. All countries in this study (32 in total) have allocated competences for spatial planning through laws at national and/or local levels (not all levels of government hold planning competences in all countries). **National laws** also deal with how the government exercises authority over land or territory, especially those rights that enable the transformation or building on land or change of use of property, that is to 'develop' land. A core prerequisite for effective government influence over the process of spatial development is that rights to develop land or property are restricted for private individuals and held and allocated by the state (in the Nordic countries planning rights are delegated to the local authorities).

³⁶⁴ ESPON (2018). COMPASS - Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe: Additional Volume 6 Case Studies Report.

In European countries, both the state and private individuals can own land. However, with a few exceptions, land ownership does not automatically confer rights to develop the land. In Europe, the right to develop land effectively belongs to the state. In some countries, the concentration of the development of rights with the state, has been achieved through a comprehensive legal act which nationalises those rights. In other cases, it has been achieved by law that says that the act of adopting statutory regulation plans removes any right to develop. In the latter case, the need to provide coverage of the territory by legally binding plans becomes paramount. Development rights are allocated according to the land use plan in most cases. Few exceptions to this arrangement have been reported by country experts, for example, where the constitution may grant specific limited rights to develop land. Similarly, rights of expropriation (taking property from private owners for public uses or benefit) is only possible by government or its agencies which hold devolved powers.

The formal scope of spatial planning

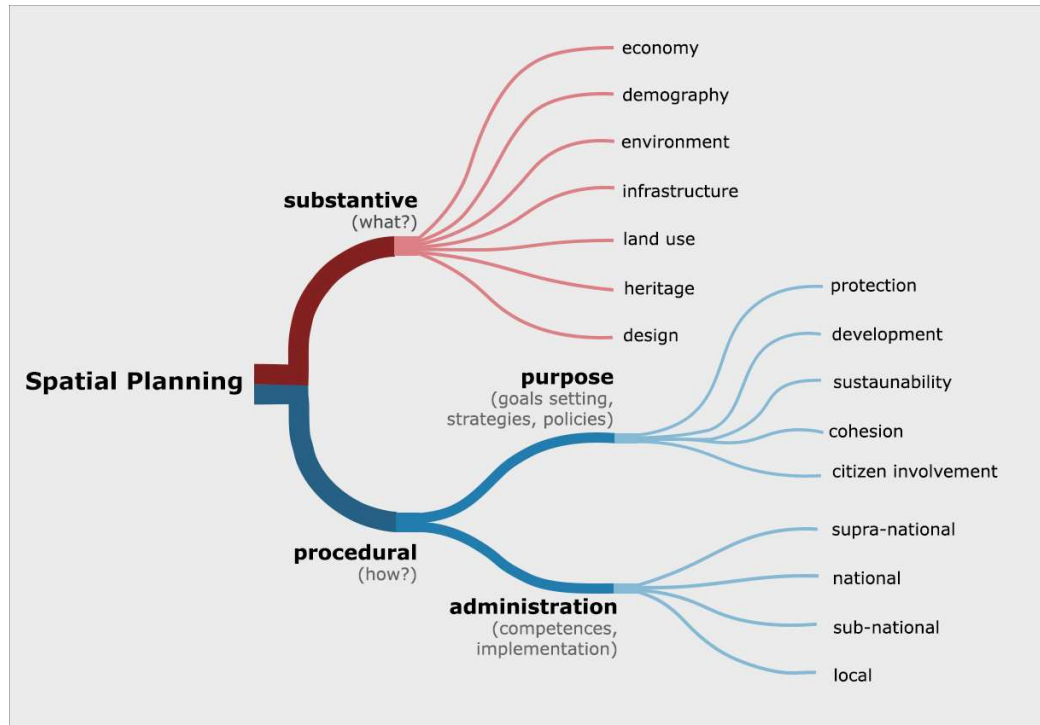
The scope and objectives of territorial governance and spatial planning are established in law, policy and practice. This section explains the scope of spatial planning according to the law and professional discourse in selected countries. In a later chapter, the scope in terms of planning's relationship in practice with sectoral policies are explained.

When experts from the ESPON network were asked to provide the formal legal terms for 'spatial planning' and other key terms 'that are used to describe spatial planning and territorial governance in professional discourse', many respondents had difficulties in finding a clear definition of spatial planning. This is because that there is no definition (in some countries), but rather, the meaning of the term is embodied in the whole legal act or acts.³⁶⁵ In other countries the meaning may be ambiguous, or it may be given in general government policies. In these cases, country experts provided a summary of the meaning of spatial planning.

The findings on the formal scope of planning were categorised in three ways as shown in Figure 6-1 - 1) the substantive topics identified in the definitions, 2) the broad purpose of planning and 3) the competences associated with levels of administration,. The first two categories reflect a procedural understanding of planning, that is, they emphasise the role of planning in decision-making processes such as providing a legitimate basis for intervention or the engagement of citizens. The third category - concerning a substantive understanding of planning - emphasises the role of planning in achieving certain policy goals such as economic growth or the provision of infrastructure.

³⁶⁵ Here, it can be added that while the terms "land-use planning" and "spatial planning" are commonly found in legislation, they are usually not specifically defined.

Figure 6-1 Scope of spatial planning



Source: COMPASS - Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe, ESPON (2018).

Administrative structures and distribution of competences for spatial planning among levels of government

In its study of different levels of government relevant for spatial planning in 32 European countries, the ESPON study defined the level of government as ‘those separate levels having directly elected bodies with decision-making power in relation to spatial planning competences’. This may exclude special regional bodies created by national governments for the implementation of regional-economic policies, for instance to administer EU Cohesion Policy. It also excludes bodies created by local governments to address planning issues which are situated on a supra-local level but below the level of a sub-national government (if such a level exists) and also do not have an elected body. These are usually collections of local level governments such as regional unions of local governments or communes (more on this in section 3.2.5).

Under this definition, the picture of the administrative systems in terms of levels of government with spatial planning competences in the 32 countries, is quite varied as shown in the table below. Most countries (20) are characterized by three levels with some sort of competence in planning. Ten countries have two levels of administration with competences in planning while three countries have four levels of administration with competences in planning. Portugal is the only country that has five levels of administration with competences in planning. In three countries there are no planning competences for the whole country at the national level: Belgium, Spain and the United Kingdom.

This simplified picture hides a variety of arrangements between levels, the locus of competences and changes over time in the distribution of competences. The overall picture is clear, there is no European blueprint for spatial governance and planning. Each country has developed their own systems and the results from the ESPON study show that competences are widely distributed. Unsurprisingly, law-making

competences are concentrated in national governments and/or federal states, with a few exceptions where local level bodies also make law (CH, EE). Policy making is mostly a competence of national and sub-national governments. Plan and decision-making are mostly shared among all levels of government with some exceptions.

Figure 6-2 Levels of government relevant for spatial planning as 2016

2 Levels	3 Levels	4 Levels	5 Levels
DK; IS; LI; LT; LU; MT; SE; SI; UK- SCT/WAL/NIR	AT; BE; BG; CH; CY; CZ; EE; EL; ES; FI; FR; HR; HU; LV; NL; NO; PL; RO; SE; SK; UK-ENG	DE; IE; IT;	PT

Source: ESPON COMPASS study, (2018) No planning competences at national level: BE; ES; UK. The UK Government has competence for spatial planning for England. After the amalgamation reform in Estonia, regional planning is done on national level

Functional regions and sectoral logics vs administrative structures and spatial planning instruments

A key message from ESPON Compass, is that spatial planning is receptive to most sectoral policies. Similar to the role of spatial planning within a number of sectoral policies, sectoral policies such as environmental and transport policies have an important role within spatial planning. These two sectoral policies are considered to be ‘very influential’ or ‘influential’ within spatial planning in most countries. For other sectoral policies, the situation is different. For example, health and (higher education) policy and retail policy are often considered ‘neutral’ or ‘not influential’ in spatial planning.

ESPON Compass country experts were asked to report the degree of change of influence of other sectoral policies in the debates on spatial planning between 2000 and 2016, by means of an arrow between the four categories of influence mentioned above. The results reported by the national experts across 14 sectoral policies show an increasing influence of those sectoral policies on spatial planning. A decreasing influence was only reported in a small number of countries. Examples are NL (cultural, heritage and tourism policy), DK (environmental policy, transport policy), HU (cohesion and regional policy, health and (higher) education policy) and NO (agricultural and rural policy).

In the specific case of the changes of influence of the cohesion and regional policy, an increasing influence was reported in around half of all countries. The influence between 2000 and 2016 was reported to remain unchanged in around one third of all countries. In only a small number of countries (including Estonia), the influence decreased during this period.

Spatial planning can promote sectoral policy integration by playing an integrating role between sectors and by fulfilling an objective-setting role to guide or steer decision-making within different sectors.³⁶⁶ Consequently, planning systems are increasingly being seen as mechanisms to improve policy integration, and policy integration is increasingly becoming part of main stream trends in spatial planning.

Assessments among ESPON Compass country experts about the extent to which spatial planning and territorial governance is contributing to sectoral policy integration, reveal that, in the majority of countries (28 out of 32 countries), that spatial planning took more account of the territorial impacts of sectoral policies in 2016 compared to 2000. In other words, there was a general increase in attention to

³⁶⁶ Börzel T, Risse T (2000). When Europe Hits Home. Europeanization and Domestic Change, European Integration Online Papers, 4(15), pp. 1-13.

policy integration during the period 2000-2016. The two most commonly reported shifts in policy integration between 2000 and 2016 were towards more integration: (i) from exchange of information to cooperation on sectoral policies; and (ii) from exchange of information to coordination of sectoral policies. These trends were reported for more than half of all countries (17 out of 32 countries).

Climate change, and the increased efforts to mitigate it, has underlined the need for a holistic and collaborative approach to achieve ambitious international and national goals. Many of the challenges connected to these efforts cannot be tackled without a cross sectoral, cross territorial and inclusive approach. While spatial planning by nature is well suited for such an approach, the need to involve different stakeholders in combination with a more unclear division of responsibilities suggests that new approaches to spatial planning need to be developed. Many of the trends in spatial planning described above and further elaborated on in chapter indicate that a shift is happening. The largest obstacles seem to be the tradition of sectoral based (silo) planning and lack of incentives for collaborative efforts.

Reforms in structures and procedures

There have been many reforms in the administration of spatial planning during the last 20 years and many of which are related to 'simplification' - of procedures, of the framework of instruments, and in the scope of development regulation.

The formal procedures for plan preparation and permits have been reformed to simplify the process. Simplification of procedure takes four main forms:

- **Speeding the planning process** by reducing the number of planning instruments or requirements of the process (e.g. NO) or lifting requirements for hierarchical plan conformity (e.g. LV), or special procedures for projects of national interest (e.g. HU);
- **Unifying regulation** especially linking planning and building control (e.g. BG, CZ), or unifying plans for sectoral policies (e.g. NL);
- **Adopting statutory time limits** in the process and giving incentives to planning authorities to make quicker decisions through, for example, granting 'tacit permits' where a decision is not made in good time (e.g. FR, SE); and reducing opportunities for citizen engagement in the process (e.g. IE);
- **Reducing the scope of regulation** by giving exemptions to certain forms of development (e.g. FR, HU), which has taken the form of 'deregulation' of territorial development (e.g. PL).

The reasons given for these simplification measures include a drive for more certainty in the planning process by, for example, reducing opportunities for negotiation (EE, UK); and/or to reduce the administrative burden on government by reducing the bureaucratic demands in the in a search for greater cost efficiency (EL, LI, NL, NO, UK). Other reasons for changing the planning process include: improving the quality of outcomes (which may be pursued alongside simplification); strengthening reasoning in the decision-making process; improving the enforcement of the regulation of development; extending the professional capacity of planning authorities; and increasing the transparency and citizen engagement in the planning process.

The administrative structure of planning instruments has been simplified in some countries to consolidate and reduce variety and complexity in the number and form of plans (DE, EE). Changes to regulation are also being made to accommodate EU law, particularly in relation to the Habitats

Directives which restricts the ability of member states to give exemptions to planning control in designated areas.³⁶⁷

Reforms have been made to seek greater integration of sectoral policies (including land use) which is sometimes described as ‘joined-up policy making’. This includes measures to improve cooperation across administrative boundaries through a requirement for engagement with neighbouring authorities (LV, PT, UK), between sectors of government (LU) particularly between spatial planning and regional development (Cohesion Policy) (BG); and between strategic environmental assessment and planning (DE).

A number of ESPON Compass country experts reported that there have been attempts to strengthen the implementation of plans or their influence over spatial development either to control the planning of new development (HU), especially to address recognised problems such as urban sprawl (CH) or nature conservation (IS), and to engage in land value capture (UK). In specific places, the scope of spatial planning is also being strengthened or broadened to address substantive issues such as marine planning (EL, PT, UK), or coastal zone management (HR).

The overall formal structure of planning systems and territorial governance is consistent across Europe with governments managing rights to develop through a hierarchy of planning instruments and development regulation. Governments use spatial planning to manage spatial or territorial development and to engage stakeholders and citizens in that process. There is considerable variation in the precise arrangements of instruments and procedures which tends to reflect the legal and administrative structure of government. There are no other significant patterns in the variation of systems. There is strong consistency in the way that countries are reforming planning, particularly to reduce the administrative burden of decision making by simplifying plan and regulation procedures; and to provide more speedy decisions and certainty in the system.

Mobilising citizen and stakeholder engagement in spatial planning and territorial governance

Spatial planning and territorial governance have important repercussions for the characteristics and quality of the built environment. In many countries, citizens are seen as having a legitimate stake in decision-making about the built environment. Often the concept of stakeholders is widely defined. In many countries interest groups - often under specific conditions to limit the number of stakeholders - are seen as stakeholders to be included as well. To assess spatial planning and territorial governance systems and practices it is therefore critical to assess the level of engagement of citizens and stakeholders. A first assessment is on a broad level by assessing the degree to which citizens are generally engaged in spatial planning and territorial governance processes. For this purpose, a scale of five levels of engagement was used by ESPON Compass based on key literature about engagement:

- no engagement of citizens in spatial planning (SP) and territorial governance processes (no evidence of citizen engagement);
- access to information only;
- weak engagement (citizens passively engage in consultation with planning authorities)
- engagement in certain aspects or stages;

³⁶⁷ Council of the European Communities (1992). Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive). Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31992L0043>

- full and effective engagement (citizens actively participate in the preparation and adoption of planning instruments at all stages of the process).

The two most common shifts in citizen engagement between 2000 and 2016 were in the direction towards more engagement: (i) from weak engagement to limited engagement; and (ii) from limited to full and effective engagement (Figure 6-3). These trends were reported for more than half of all countries (18 out of 32 countries).

Figure 6-3 Shifts in citizen engagement between 2000 and 2016



Source: ESPON COMPASS study, (2018)

Adaptive territorial governance and placed-based decision-making

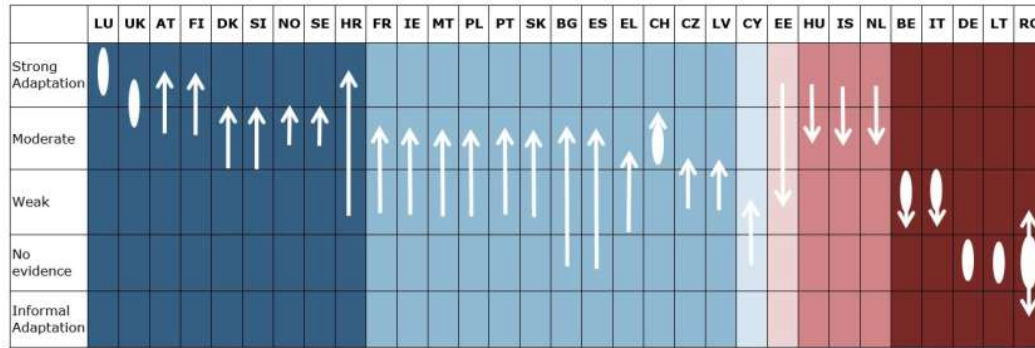
To understand the practice of spatial planning, country experts were asked to assess the degree to which territorial governance and spatial planning instruments are able to adapt to changing circumstances, and to consider changes in the situation between 2000 and 2016. To define the degrees of adaptation, an approach to ‘adaptation’ in territorial governance and planning was used drawing on the ESPON TANGO project report³⁶⁸ and its related guidance.

The results show a general trend in improving policy adaptation between 2000 and 2016 (Figure 6-4). The most commonly reported shift was in the direction from weak to moderate adaptation, although the extent of adaptation varied. Three countries (HR, BG and ES) increased their degree of adaptation at a higher pace during the selected period.

Despite the overall improvement, the assessments reveal that the degree of adaptation in some countries did not change much between 2000 and 2016 (LU, CH, BE, IT, DE, LT), or even showed trends towards less adaptation (HU, IS, NL, EE). In the case of Estonia, the degree of adaptation decreased strongly. Informal adaptation was reported in DE, EL and RO. The latter reported no evidence of adaptation in 2000, with opposite trends towards weak and informal adaptation. An effort to distinguish geographical patterns with the data from the adaptation trends, showed no significant pattern.

³⁶⁸ ESPON (2014). Towards Better Territorial Governance in Europe, A guide for practitioners, policy and decision makers based on contributions from the ESPON TANGO Project.

Figure 6-4 Change in degree of adaptation of territorial governance and spatial planning, 2000-2016



Source: ESPON COMPASS study, (2018)

Conclusions

Focusing on the practice of spatial planning in Europe and based on ESPON research, this chapter has identified the most significant changes in territorial governance and spatial planning systems and policies between 2000 and 2016. The analyses have shown that the level of policy integration is generally increasing in spatial planning and territorial governance; that spatial planning now engages citizens and stakeholders more strongly than it did in 2000; and that in most countries, spatial planning instruments were more robust and able to adapt to changing circumstances in 2016 than they were in 2000.

The overall formal structure of planning systems and territorial governance is consistent across Europe with governments managing rights to develop through a hierarchy of planning instruments and development regulation. Governments use spatial planning to manage spatial or territorial development and to engage stakeholders and citizens in that process. There is considerable variation in the precise arrangements of instruments and procedures which tends to reflect the legal and administrative structure of government. There are no other significant patterns in the variation of systems. There is strong consistency in the way that countries are reforming planning, particularly to reduce the administrative burden of decision making by simplifying plan and regulation procedures; and to provide more speedy decisions and certainty in the system.

6.2 EU policies and spatial planning

The overall aim of EU cohesion policy and other sectoral policies is to contribute to a positive development of the social and economic life of cities and regions. Through effective coordination between those policies and spatial planning, synergies can be achieved between sectoral policies while counterproductive or incompatible actions can be avoided.³⁶⁹

European Spatial Development Policy

Ever since the first meeting of the European ministers responsible for spatial development more than 25 years ago, spatially relevant approaches have been established in European Union policies. This has resulted in key political documents (ESDP, TAEU, TA 2020) as well as programmes for research and implementation. The European Research Network ESPON, the programmes for Interreg B transnational

³⁶⁹ ESPON (2021). Policy Brief (2021): Cross-fertilisation of cohesion policy and spatial planning. Retrieved from https://www.espon.eu/sites/default/files/attachments/ESPON%20Policy%20Brief_Cross-fertilisation%20of%20cohesion%20policy%20and%20spatial%20planning.pdf

cooperation as well as the approach of macro-regional strategies have firmly embedded spatial concepts and approaches to action in EU policy. Spatial aspects play an increasingly important role in the structural and sectoral policies of the EU. The goal of enhancing territorial cohesion in Europe, which is closely related to the concept of a European spatial development policy, has been enshrined as a guiding principle in the EU Treaties (Treaty of Lisbon) since 2009. However, there is still no commonly shared spatial vision for the development of the European territory in the future and no formal council for European spatial development or territorial cohesion.³⁷⁰

The European Agenda for the future

During the last five years, the European Union efforts to mitigate the effects of climate change, promote ecological multi-diversity and compensate for the negative effects of the Covid pandemic have resulted in different policies and initiatives. Many of those have a clear connection to spatial planning and development on national, regional and local levels. Besides from EU Cohesion Policy, adopted and implemented by all Member States, initiatives like “The Green Deal”, “Fit for 55” or “NextGenerationEU” aim at assisting Member States, regions and local communities to be better prepared for the future and contribute to necessary change. For example, to invest in environmentally friendly technologies, roll out greener vehicles and public transport, make buildings and public spaces more energy efficient, create more green spaces in European cities and increase the use of renewable energy.

There are many examples of EU policies with a link to the living environment. One is the “Renovation Wave Strategy” (2020), which aims to double the yearly EU energy renovation rate by 2030 and specifically promote renovations with high energy savings.³⁷¹ Another is the “Urban Agenda for the EU” (Pact of Amsterdam, 2016) refers to social, planning and financial aspects of the built environment.³⁷² A third example is The “European Cultural Heritage Strategy for the 21st Century” (The Namur Strategy, 2017) which aims to promote good governance and social participation in cultural heritage and thus improve its positive impact on society.³⁷³ Finally, the New European Bauhaus is an interdisciplinary initiative that connects sustainability with the living spaces and experiences that are enriching and inclusive.³⁷⁴

All those policies and initiatives have a spatial dimension. They share the need to be implemented through spatial planning, cross sector coordination and a multilevel governance approach.

A place-based approach requires spatial planning and territorial governance

European cities play a key role in many European policies. Spatial development and urban development are closely interrelated. The place-based approach promoted by European development policies is particularly relevant in cities, where the sectoral policies of the various levels converge and are implemented through integrated municipal action strategies and spatial planning.³⁷⁵ Furthermore, the need for repair and recovery in a post-pandemic Europe places an obligation on policymakers in all sectors to work cooperatively with other policy sectors and stakeholders towards a strong, efficient and socially inclusive response. This demands cooperation and the coordination of policy and investment

³⁷⁰ Schön, Karl Peter (2018). European spatial development policy.

³⁷¹ EC (2020). COM/2020/662 final. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1603122220757&uri=CELEX:52020DC0662>

³⁷² EC (2016). Establishing the Urban Agenda for the EU ‘Pact of Amsterdam’.

³⁷³ Council of Europe (n.d.). European Heritage Strategy for the 21st century. Retrieved from <http://www.coe.int/en/web/culture-and-heritage/strategy-21>

³⁷⁴ https://new-european-bauhaus.europa.eu/index_en

³⁷⁵ Barca, F. (2009). An agenda for a reformed cohesion policy: A place-based approach to meeting European Union challenges and expectations.

through a place-based approach.³⁷⁶ In its guidance on post-pandemic recovery, the OECD also emphasises the value of a ‘place-based approach’ in avoiding disjointed policies and unnecessary competition for resources.³⁷⁷

Cross-fertilisation of cohesion policy, spatial planning, and governance

Cohesion policy during the 2014-20 programming period introduced a number of tools for improving the coordination of EU investments by EU Member States in specific territories. The present cohesion policy period (2021-27) introduces several provisions that have the potential to improve cross-fertilisation in national programming and budget allocation. However, domestic policy to strengthen the territorial coordination of cohesion policy with other sectoral policies is very much needed to counter inefficient, less effective and sometimes counterproductive interventions.³⁷⁸

Conditions for cross-fertilisation in countries and regions can be very different in terms of the capacity of the spatial planning system to engage with sectoral policy, and in terms of the significance of cohesion policy in relation to overall investment. Cross-fertilisation of spatial planning with cohesion policy and other EU sectoral policies, such as transport and the environment, is likely to improve the efficiency and social inclusiveness of investment. Spatial planning could also help to steer sectoral policies towards meeting broader policy objectives by, for example, assessing the territorial impact of sectoral policies and facilitating cooperation and coordination. In practice, in many places, spatial planning is rarely able to play this role because of its weak relationship with other sectors, and because it is often poorly prepared in terms of capacity and available tools.³⁷⁹

Within the ESPON COMPASS a spin off project was undertaken in the Czech Republic in 2021 to update and deepen the findings from the 2018 COMPASS project. The findings from that spin off project are especially relevant in other central and eastern EU Member States that, since accession, have undergone far reaching reforms and a huge influx of investment. They show that cohesion policy and domestic spatial planning are effectively operating in parallel universes. A reactive spatial planning and professional planning culture is largely driven by sectoral policies and is poorly prepared to work with cohesion policy in which there is limited consideration of the contribution to spatial development. However, it also found much potential in a mature, fully developed spatial planning system, and consistent, predictable cohesion policy funding over a well-defined period. A separate report on this spin off project provides a set of practical and strategic recommendations for strengthening relations between spatial planning, regional policy and EU cohesion policy in the Czech Republic.³⁸⁰

³⁷⁶ ESPON (2021). Policy Brief (2021): Cross-fertilisation of cohesion policy and spatial planning. Retrieved from https://www.espon.eu/sites/default/files/attachments/ESPON%20Policy%20Brief_Cross-fertilisation%20of%20cohesion%20policy%20and%20spatial%20planning.pdf

³⁷⁷ OECD (2021). OECD Regional Outlook.

³⁷⁸ ESPON (2021). Policy Brief (2021): Cross-fertilisation of cohesion policy and spatial planning. Retrieved from https://www.espon.eu/sites/default/files/attachments/ESPON%20Policy%20Brief_Cross-fertilisation%20of%20cohesion%20policy%20and%20spatial%20planning.pdf

³⁷⁹ Ibid

³⁸⁰ K Maier, J Kabrhel, & M.M. Dabrowski (2021): Cross-fertilisation between Spatial Planning and EU Cohesion Policy in the Czech Republic: ESPON case study report.

The study highlighted substantial institutional and cultural challenges facing relationships between cohesion policy, spatial planning and other sectoral policies, but also certain potential that offers opportunities to make progress on cross-fertilisation. These characteristics are common to many countries, especially those in central and eastern Europe and/or those in receipt of significant cohesion funding.

Challenges

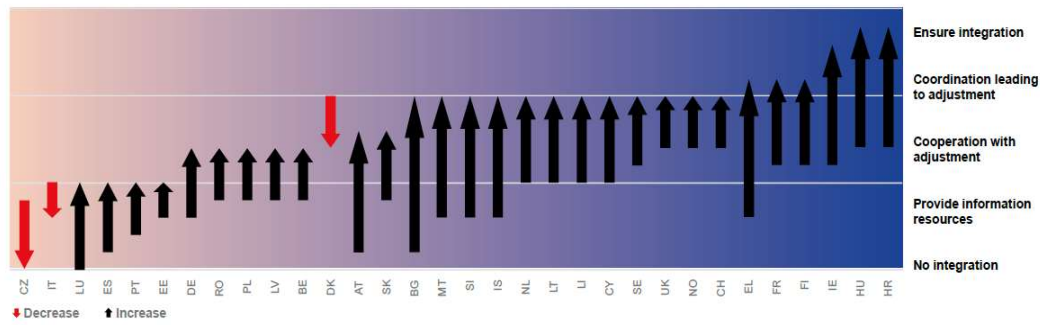
- separate strong policy silos for regional economic policy and spatial planning;
- a reactive planning system that records sectoral policies with little ambition to coordinate;
- weak capacity for strategic planning for investment, and lack of attention to the longer-term effects of investment projects on territorial cohesion;
- use of incompatible data sets by sectors that are not shared;
- local interests determining investments and lack of scrutiny;
- dominance of a top-down government culture and weak capacity to collaborate and compromise;
- low awareness of wider public interest goals and wider externalities of investment;
- a substantial gap between formal planning policy and actual practices.

Potentials

- strong legal setting for spatial planning, with mature, comprehensive, well-developed institutions and plans;
- legal protection for public goods, the environment and critical natural assets;
- increasing public interest in spatial planning and a shift in attention from spending to achieving strategic goals.

In Europe, there is generally a trend towards cross-fertilisation as spatial planning systems give more attention to sectoral policy integration. Figure 6-5 below summarises the trends in sectoral policy integration in spatial planning from 2000 to 2016 in the 32 ESPON countries, using the same scale. In some countries cross-fertilisation remains only at the level of sharing information, but it is at least on the agenda. Most countries seek to use spatial planning to achieve more effective cooperation and coordination (some findings may seem anomalous, but the actual findings have been recorded and do not undermine the general point).

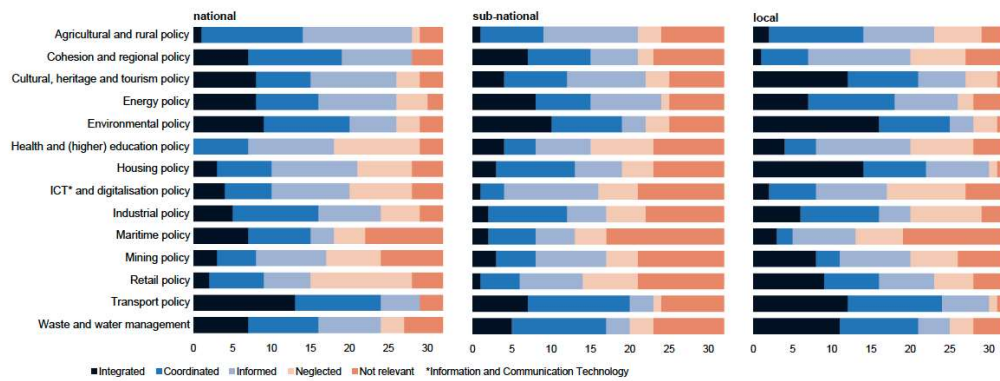
Figure6-5 Trends in sectoral policy integration in spatial planning between 2000 and 2016



Source: COMPASS study (2018), adapted from ESPON, Policy Brief (2021) ³⁸¹

Across Europe, it is usually still the case that the cross-fertilisation of spatial planning with cohesion policy is weaker than that with other sectoral policies. Evidence from the 2018 ESPON COMPASS project found only a weak role for spatial planning in cohesion policy at the local level, where spatial planning policymaking tends to be concentrated (see Figure6-6). This is in contrast to a strong role for spatial planning in environmental, transport and housing policy. Cross-fertilisation of spatial planning with cohesion policy is stronger at the national level, but it is still weaker than other sectors. ³⁸²

Figure6-6 The role of spatial planning in sectoral policies at the national, subnational and local levels (2016)



Source: ESPON COMPASS study (2018), adapted from ESPON, Policy Brief (2021)

In summary, the state of cross-fertilisation of cohesion policy and spatial planning varies by country. It is generally weak, but there are indications that governments are taking serious steps to use spatial planning more to improve the efficiency and outcomes from cohesion policy funding and to coordinate the territorial impacts of sectoral policies. These trends are part of wider reforms in spatial planning systems that are seeing deeper engagement with citizens and stakeholders and the use of more adaptable planning tools, strategies and cross-border working that give spatial planning a more proactive approach.

Future success in coordinating the combined impacts of EU cohesion policy, EU initiatives and other sectoral policies is highly dependent on choices made in EU Member States. In principle, spatial planning is the Member States' primary means to assist in the place-based coordination of sectoral

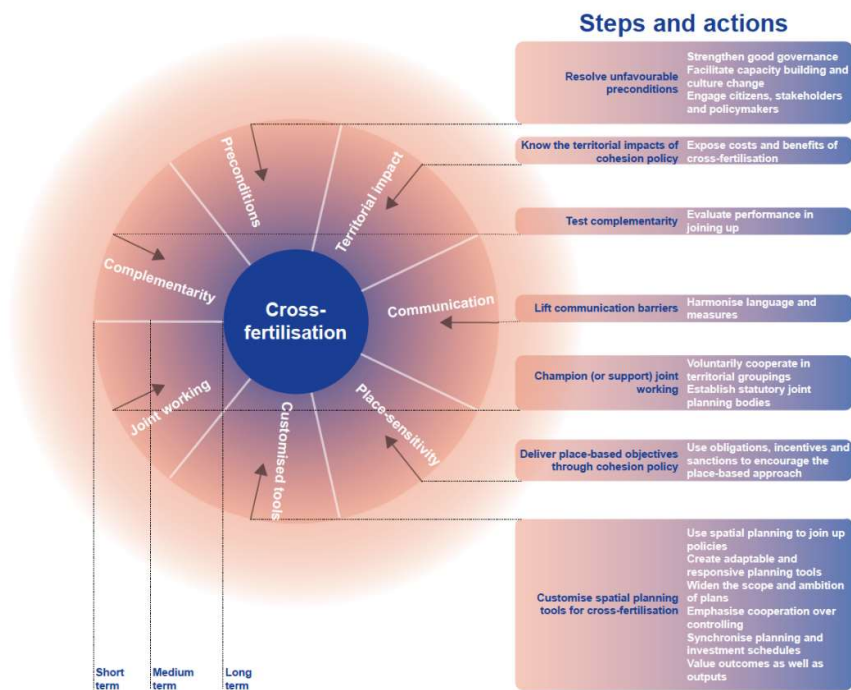
³⁸¹ ESPON (2021). POLICY BRIEF Cross-fertilisation of cohesion policy and spatial planning, Retrieved from https://www.espon.eu/sites/default/files/attachments/ESPOLICY%20Brief_Cross-fertilisation%20of%20cohesion%20policy%20and%20spatial%20planning.pdf

³⁸² Ibid

policies, but there is often little cross-fertilisation with cohesion policy as carried out in these countries. Thus, in most places it does not deliver on this potential. Where cross-fertilisation is not working, there is much to be gained from understanding why and acting immediately.

There are many good examples of initiatives that strengthen cross-fertilisation of cohesion policy with spatial planning, reducing wasted resources and reinforcing positive cohesion benefits. Governments and other stakeholders at all levels should consider how they can learn from these examples. They can benefit in the short term from taking steps to mainstream good practices. Investing in the reform of spatial planning tools so that they are better prepared to undertake a territorial coordination role will pay dividends in the medium term. Figure6-7 below provides food for thought on how to enhance the cross-fertilisation of cohesion policy with spatial planning.³⁸³

Figure6-7 Steps and actions that may enhance cross fertilisation



Source: ESPON Policy Brief (2021): Cross-fertilisation of cohesion policy and spatial planning

6.3 Challenges in comparing territorial governance and spatial planning

The purpose and scope of spatial planning is determined by law, policy and practice. In most European countries, the law defines spatial planning as the process of organising territory, land use or territory and balancing competing interests to balance development with the protection of public interest. As the ESPON TANGO and COMPASS research has underlined, difficulties arise when comparing spatial planning systems and governance structures in different countries. ESPON found that the most important challenges are³⁸⁴:

³⁸³ ESPON (2021). Policy Brief (2021): Cross-fertilisation of cohesion policy and spatial planning. Retrieved from https://www.espon.eu/sites/default/files/attachments/ESPON%20Policy%20Brief_Cross-fertilisation%20of%20cohesion%20policy%20and%20spatial%20planning.pdf

³⁸⁴ ESPON (2018). COMPASS - Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe: Additional Volume 6 Case Studies Report.

- **Planning systems are historically rooted in place and language.** Variation must be explained with reference to national and regional social models (socio-economic, political and cultural systems) that can be important factors explaining performance and change. Thus, there can be no single definition of spatial planning or territorial governance.
- **Translation of terms from one language to another must be done with great care.** In this case the translation to English must avoid using terms that have a specific meaning in English language countries. That means that generic non-country specific terminology should be used.
- **It is not sufficient to record the formal structure and instruments of spatial planning systems and territorial governance,** but also their operation in practice.
- **Territorial governance and spatial planning systems are dynamic and, by necessity, always incomplete.** Thus, it is important to identify trends rather than a snapshot of systems (the diachronic method).
- **Planning systems operate in a fluid, multi-scalar and iterative process** between multiple institutions and actors, and thus there is a need to consider the interplay of actors and networks.
- **Micro-scale practices are as important as larger structures** for understanding of a planning system's effectiveness, the identification of 'good practices', and the potential for policy transfer.
- **Spatial planning can be usefully conceptualised as an 'institutional technology'** comprising structure, tools, discourse and practices, in order to analyse the interplay of the EU and countries in the process of Europeanisation.

6.4 Good practices

The best practice review is organised in terms of the two main dimensions of the overall study. The first looks at best practice in terms of achieving EU priorities for territorial governance & spatial planning, for which the primary source is the aforementioned COMPASS report of 2020.

The second relates to the implementation of 'High Quality and Sustainable Living Environments' determined through the two lenses of:

- Urban Livability, and
- Urban Sustainability.

For this a wider net has been cast, also looking outside the EU for relevant best practice examples where they can be shown to have been brought forward through similar structural tools to those outlined above in the COMPASS report.

Good Practice in EU Territorial Governance & Spatial Planning

Analytical Framework & Selection

In its COMPASS report of 2018³⁸⁵, ESPON select a number of ‘good practices’ which show *‘the extent to which territorial governance/spatial planning supports the implementation of operational programmes as well as individual projects and vice versa’*.

The good practices were selected from a review of 13 case studies from across Europe³⁸⁶. The case studies included both countries and cross-border regions. The main selection criteria for the case studies were:

- the range of policy-making cultures;
- key governance characteristics using the typology proposed in the ESPON TANGO study;
- the regions’ challenges in relation to the TA 2020 thematic issues (see Table 1.1); and
- their exposure to different objectives of the EU Cohesion Policy: convergence; regional competitiveness and employment; and European territorial cooperation.

The selection criterium for the good practices was the demonstration of successful implementation of two key EU policy areas through territorial governance & spatial planning, namely:

- Territorial Agenda of the European Union 2020³⁸⁷
- Support for EU Cohesion Policy³⁸⁸

This is coupled with coverage and representation of four key dimensions of territorial governance & spatial planning, namely:

- **Spatial planning structure:** introduction of new laws and regulations influencing spatial planning, administrative reform and introduction of new planning levels, introduction of new government bodies, and shift of competences from one body to another.
- **Spatial planning instruments:** new plans at any planning level, monitoring procedures, environmental assessment procedures, and change of the role of existing instruments.
- **Spatial planning issues and contents:** especially the introduction of EU priority issues in planning like energy, and territorial cohesion, polycentrism.
- **Spatial planning practice:** changes in the practice as the introduction of new modes of coordination or communication between levels and/or agencies at the same level, between public and private, increasing the importance of participation/consultation.

Figure 6-8 sets out the relationships between TA 2020 priorities and the challenges of spatial planning and territorial governance specifically. The matrix results in a list of ‘Thematic Issues’ which are used as a framework to order the good practice examples.

With regard to EU Cohesion Policy, the report³⁸⁹ states that *‘In most of the cases, it was hardly possible to reveal practices of direct cross-fertilisation of Cohesion Policy with spatial planning/territorial governance. At the same time, good practices were identified, associated with*

³⁸⁵ ESPON (2018). COMPASS - Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe: Additional Volume 6 Case Studies Report.

³⁸⁶ ESPON (2018). COMPASS - Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe: Additional Volume 6 Case Studies Report.

³⁸⁷ EC (2011). Territorial Agenda of the European Union 2020. Retrieved from

https://ec.europa.eu/regional_policy/sources/policy/what/territorial-cohesion/territorial_agenda_2020.pdf

³⁸⁸ European Commission (n.d.). Cohesion Policy 2021-2027. Retrieved from https://ec.europa.eu/regional_policy/en/2021_2027/

³⁸⁹ Source?

spatial planning which facilitate the effective implementation of projects pursued under Cohesion Policy (e.g. monitoring territorial processes). They can be defined as the examples of good preparation of the planning system for external intervention.'

Figure 6-8 Relationships between TA 2020 priorities and challenges of spatial planning and territorial governance

TA 2020 priorities	Challenges of spatial planning and territorial governance	Thematic issues
Promote polycentric and balanced territorial development	Concentration of economic development in capital and 'core regions', competition between cities and towns, suburbanisation	Polycentricity and suburbanisation
Encourage integrated development in cities, rural and specific regions	Development of peripheral, isolated and less-populated areas	Peripheries and other specific regions
Territorial integration in crossborder and transnational	Transborder planning and governance	Cross-border regions
functional regions		
Ensure global competitiveness of regions based on strong local economies	Support for specific local assets (including renewable energy sources and tourism potential)	Support for the local economy
Improve territorial connectivity for individuals, communities and enterprises	Relations between spatial and transport policy, spatial planning alongside transport corridors	Transport infrastructure and accessibility
Manage and connect regions' valuable ecological, landscape and cultural features	Planning in areas enjoying protection of the natural environment	Natural and cultural heritage

Source: ESPON COMPASS - Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe: Additional Volume 6 Case Studies Report, (2018)

Key Recommendations Under Thematic Issues

a) Policentricity and suburbanisation

- i. Integrate spatial planning systems and territorial governance with other influencing policy areas such as transport infrastructure.
- ii. Characteristics of suburbanisation differ between beneficiaries of CP; therefore a place-based and cross-sectoral approach must be taken.
- iii. A mechanism for bottom-up cooperation and cooperation between neighbouring spatial units is needed through adoption of thematic development programmes that reflect shared interests and priorities for example.
- iv. In countries with malfunctioning spatial policy, implementation of policies and plans needs reinforcement. Clear guidelines (and strict land-use regulations) need to be laid down.

b) Peripheries and other specific regions

- i. Development and implementation of integrated and comprehensive place-based programmes of a must be pursued and based on local capacities characterised by accountability and continuity, with involvement in planning, programming and implementation.
- ii. Capacity-building within community groups, NGOs and voluntary groups should be promoted and integrated within programmes.

- iii. A wider and fuller understanding of the idea that rural policy goes beyond agricultural policy is needed. Shrinking rural areas imply changes in land use which need monitoring (local economic diversification is a prime example).
- iv. Peripheral regions, almost by definition, have a favourable natural environment which needs to be maintained and developed in a sustainable way.
- v. Lagging regions have a strong need of a more systemic approach, especially in terms of territorial governance; this can be addressed through formal planning instruments, such as joint comprehensive plans using both vertical and horizontal cooperation.

c) Cross-border regions

- i. National authorities should establish an 'intergovernmental commission' (or equivalent) with appropriate resources to overcome operational deadlocks obstructing cross-border activities.
- ii. National and regional authorities should use EGTCs and other cross-border entities as knowledge pools and facilitators of soft cooperation.
- iii. Local and regional authorities should support small-scale and grassroots actors willing to cooperate cross-border through project definition and identification of funding - including micro funding to kick-start projects.
- iv. National and European authorities will need to give consideration to changes of area functions in reflection of ongoing spatial processes in a neighbouring country e.g. suburbanisation spreading beyond state boundaries.
- v. For European and regional authorities, CP ought to ensure that support is offered to spatial planning at the cross-border dimension, including the creation of joint planning tools, documents and systems of territorial monitoring.
- vi. For European and National authorities, it is expedient to strive for enhanced coordination of activities between different EU Operational Programmes.

d) Support for the local economy

- i. Responsibilities for economic development and spatial planning are typically separated and should be brought together through coordinated through spatial & economic development strategies.
- ii. More focus on the functional diversification of regions.
- iii. Improve coordination and complementarity between different sectoral policies supporting regional and local development.
- iv. Spatial planning must be prepared and capable of new economic development sectors; e.g. renewables, tourism diversification.
- v. Improve governance practices based on territorial cooperation and stakeholder networks.

e) Transport infrastructure and accessibility

- i. Transport infrastructure should be seen as a tool for spatial planning and as a sectoral policy, in which spatial planning can be integrated and coordinated with other sectoral policies such as housing.
- ii. Horizontal coordination between and within regions is important; regional authorities usually have different responsibilities and mandates for the planning and provision of infrastructure.
- iii. Greater integration of transport policy with spatial planning systems.
- iv. Integration of transport investments at different levels through spatial plans and governance.

- v. When transport and accessibility projects are involved, national planning investment agencies should plan the necessary requirements for inter-modal connections in advance of construction approval.

f) Natural and cultural heritage

- i. Approach areas with valuable resources of biodiversity, landscape and/or cultural heritage strategically through spatial planning & governance to attract tourism and economic investment in balance with the protection of resources.
- ii. Coordinated, integrated and systemic approach to management mechanisms, such as 'natural-cultural RIT (Regional Territorial Investments) as part of CP.
- iii. Increase cohesion between operational documents and spatial planning instruments.
- iv. Systematise EU financial support to cultural heritage to avoid isolated actions.
- v. Partial strengthening of the law for the imposition of stricter regulations for protective purposes is desirable.
- vi. Broader involvement of citizens and stakeholders in the process of planning may help to manage conflicts between spatial development and the protection of assets.
- vii. More effective use of agri-environmental programmes to protect highly-valuable ecosystems requires the development of systemic mechanisms to support the protection of entire ecosystems.

Good Practice Implementation of High Quality & Sustainable Urban Living Environments

Analytical Framework & Selection

The selection of best practice examples begins by posing two questions;

1. From a results and impacts perspective, can the example(s) demonstrate best practice in achieving a high quality & sustainable urban living environment in terms of the EU's Green Deal & Quality of Life parameters?
2. Have the results and impacts been achieved through **structures, instruments, issues and practices**, which are aligned with the recommendations set out in the COMPASS report summarized above?

Examples have been filtered according these two key requirements from the following sources:

- UN Habitat - best practice & guidance documents
- C40 Cities - best practice & guidance documents
- Sharing cities network project database
- Further desktop research

Good Practice Examples Matrix

Table 6-1 summarises the 11 identified good practices from the COMPASS report under the thematic issues headings.

Table 6-1 Summary of 11 identified good practices

Best Practice Examples			EU TA 2020 Thematic Issues						EU Green Deal	EU Quality of Life in Cities
Dimension	Location	Example	Polycentricity and suburbanisation	Peripheries and other specific regions	Cross-border regions	Support for local economy	Transport infrastructure and accessibility	Natural and cultural heritage		
5.1	Spain-France Cross Border	Intelligent Territorial Monitoring in Navarre	Yes							
		Cross-border strategic planning in the Euroregion Aquitania-Navarra-Euskadi			Yes					
		Pyrenean Climate Change Observatory						Yes		
	Hungary	The coordination of spatial planning in the Budapest agglomeration	Yes							
		Cross-border transportation system in Győr-Moson-Sopron counties			Yes		Yes			
	Ireland	Ferbane Community Plan - Offaly		Yes		Yes				
		Dublin International Airport - Terminal 2					Yes			
	Poland	Regional Territorial Investment: Mazovian rail/road transfer node in Siedlce	Yes		Yes		Yes			
		Managing the tourist product of The Augustowski Channel		Yes	Yes			Yes		
	Sweden	Encouraging integrated development in cities: the example of Inner Harbour in Norrköping.		Yes						
Managing and connecting ecological, landscape and cultural values of regions in the Östergötland Archipelago			Yes				Yes			
5.2	Netherlands	Amsterdam Circular City	Yes		Yes	Yes			Yes	

Best Practice Examples			EU TA 2020 Thematic Issues						EU Green Deal	EU Quality of Life in Cities
Dimension	Location	Example	Polycentricity and suburbanisation	Peripheries and other specific regions	Cross-border regions	Support for local economy	Transport infrastructure and accessibility	Natural and cultural heritage		
	<i>Austria</i>	Sustainable Urban Renewal Vienna	Yes			Yes	Yes	Yes	Yes	Yes
	<i>Sweden</i>	Conservation of the Cultural Heritage, Halmstad		Yes		Yes		Yes	Yes	Yes
		Circular Economy Transition in Sweden							Yes	
	<i>UAE</i>	Plan Abu Dhabi 2030	Yes		Yes		Yes	Yes	Yes	Yes
	<i>Turkey</i>	Sustainable Urban Mobility Plan, Istanbul	Yes				Yes		Yes	Yes
	<i>New Zealand</i>	Christchurch Public Open Space Strategy				Yes	Yes		Yes	Yes
	<i>UK</i>	Edinburgh public realm strategy				Yes	Yes	Yes	Yes	Yes
	<i>USA</i>	Portland Climate Action Plan 2015	Yes				Yes		Yes	Yes
	<i>Australia</i>	Livable Melbourne				Yes	Yes		Yes	Yes

Source: ESPON COMPASS study (2018)

Short Summaries & Key Lessons from Best Practice Examples

Intelligent Territorial Monitoring in Navarre

- Example of linking strategic spatial objectives with operational implementation through guides & monitoring of private & public sector actors
- Territorial Strategy for Navarre 2025 promotes the sustainable & territorially balanced development of the Region
- Relies on intersectoral coordination to achieve territorial coherence of impacts
- Annual monitoring of progress across 6 dimensions (3 x socioeconomic & 3 x spatial) using indicators & data
- Review of 29 indicators from the Indicator System for Territorial Development of Navarre (SIOTN) with comparison to EU and Spanish reference metrics
- GIS based comparative analysis
- Impacts / outputs:
 - Model for territorial monitoring supporting policy implementation;
 - Cross-sector, target- and place-based approach creates efficiencies in urban development and platform for cross-sectoral collaboration;
 - Derivation of evidence for other territorial planning & monitoring

The coordination of spatial planning in the Budapest agglomeration, Hungary

- A dysfunctional working relationship existing between Budapest and Pest County until administrative reforms in Hungary from 2014
- New tools facilitating regional coordination particularly ITI & CLLD
- Led to an integrated approach emerging in spatial planning practice including the 'Integrated Urban Development Strategy'
- The document paid much attention to the territorial aspects of planned developments, focusing on areas of actions extending beyond district boundaries and influencing urban structure.
- Planned interventions and identification of projects following three spatial topics shared among around 40 key authorities & stakeholders:
 - Development of the Danube river corridor;
 - Brownfield regeneration;
 - Social urban regeneration;
 - Economic development & job creation
- Weekly working group meetings
- High level of meaningful public involvement using multiple channels for different purposes
- Impacts / outputs:
 - A model for collaborative topic & place based spatial planning across functional urban areas;
 - Capacity building;
 - Inclusivity via and public engagement

Regional Territorial Investment: the Mazovian rail/road transfer node in Poland

- Successful implementation of the Regional Territorial Investment (RTI)

- RTI 'Leader' in each of the 5 subregions.
- Financed under the overarching Regional Operational Programme for Mazowieckie
- Partnerships between Leaders are formed on thematic basis to tackle shared challenges
- Forming integrated 'bundles' of projects which solve a problem jointly
- Integrated Territorial Investment (ITI) a tool for funding collaborative projects given justification through research & analysis
- Projects are identified from place-based, functional and thematic perspectives
- Key project - Integrated Multifunctional Passenger Exchange Node in Siedlce which spread across several administrative boundaries
- Impacts / outputs:
 - More efficient spatial development, based on needs not institutional boundaries;
 - Location of new development in connection with natural functional urban systems;
 - Capacity building for intranational collaboration

Ferbane Community Plan - Offaly

- A declining rural area due to loss of primary employer (peat fired energy plant)
- Successful implementation of LEADER (EU community-led rural development fund)
- Challenges faced:
 - Lack of an effective process for the creation of shared visions;
 - Linkage between the making of a community plan and the adoption into the statutory process
- Visioning & decision making by the local community & stakeholders led to a viable and impactful action plan
- Place-based, inclusive, partnership and community-driven approach
- Successful participation process facilitated by an empathetic external expert
- Went on to inform a White Paper & the National Development Plan
- Impacts / outputs:
 - Economic diversification - craft food & tourism;
 - Community capacity building;
 - New bus service;
 - New community school;
 - New community centre;
 - New childcare facility

Managing the tourist product of the Augustowski Canal in Poland

- 102km long landmark of Polish civil engineering heritage
- Crosses borders between Poland & Belarus
- Runs through several natural and culturally valuable areas with significant tourism potential
- Intensive tourism lacking adequate quality infrastructure poses a serious threat to the natural environment in the region
- Common tourism & economic development strategy began pre-Polish accession to EU - implementation was limited however
- Upscaling using European Regional Development Fund and the Poland-Belarus-Ukraine Cross Border Cooperation Programme

- Management through the Polish-Belarusian Working Group - representatives from authorities & stakeholders from both sides of the border
- Impacts / outputs:
 - Blueprint for bottom-up territorial management;
 - Formalising cooperation between authorities at local & regional level across-borders;
 - Local economic development through environmental & cultural enhancement;
 - Modernisation of tourism infrastructure;
 - Strengthening of cross border tourism.

Cross-border regions in Hungary's Győr-Moson-Sopron counties

- Bratislava (Slovak Republic) is a large and growing city closely bordering Austria (to the west) and Hungary (to the south)
- Its expansion is hindered by international borders and geographic constraints to the north and east
- The project strengthened cross border collaboration to allow for the growth of the city along existing high quality infrastructure corridors
- Benefits the city's economy and the population of the hinterland lying within Hungary
- The newly established scheduled bus provides:
 - a connection between the municipality of Rajka and the city of Bratislava, via their settlements
 - a connection between the municipality of Rajka and the centre of Bratislava particularly the new National Theatre and that quarter of the city
 - a connection via a new route between the villages of Čunovo, Rusovce and Jarovce, and the centre of the city
 - the Slovak bus company was able to come to an agreement with the Hungarian public transport company holding the concession on the Hungarian side
- Impacts / outputs:
 - A model for cross-border collaboration to achieve an efficient & sustainable growth corridor based on urban functionality and territorial realities
 - Strengthening of the regional public transport network

Dublin International Airport Terminal 2

- National funding was allocated to the expansion of the three state airports in Ireland following the National Development Plan
- Ireland lacked an overarching national aviation policy to underpin local planning allocations for the expansions
- This undermined and compromised consultation with stakeholders which had a highly influential impact on the progress of the project
- The right / requirements for stakeholder consultation is enshrined in EU and Irish legislation
- Dublin Airports Authority carried out pre-application consultation supported by the deeming of the expansion project to be a priority project under the Planning and Development (Strategic Infrastructure) Act 2006 (SID)
- SID also provides a one-stop-shop for planning applications
- Impacts / outputs:

- Delivery of a key piece of national strategic infrastructure investment through proactive stakeholder consultation

Good practices to overcome problems of natural and cultural heritage in Östergötland region

- Regional economic development is hindered by its peripheral location and the unique natural and cultural value of the area
- Tensions exist between agricultural, maritime, tourism and environmental protection interests
- The regional government of Östergötland is an important coordinating actor for spatial planning & territorial governance even if it does not have a legal mandate for spatial planning
- It works strategically to coordinate different policy fields with a view to cross-fertilising EU policies and thematic issues with Swedish spatial planning & territorial governance at different levels and across authority boundaries
- Utilisation & blending of different planning instruments via a Regional Spatial Strategy
- The region has also joined up coastal municipalities in adjacent regions to develop a joint programme for the archipelago
- Impacts / outputs:
 - Creation of a regional planning tool / nexus for coordination of spatial policy from many sectors, scales and territories
 - Implementation through place- and theme-based perspectives

Amsterdam Circular City

- Place-based economic development strategy for circular economy across the metropolitan region setting out spatial principles for circular relationships between economic activities
- Encompasses several administrative boundaries
- Informs local spatial planning decisions and sectoral decision making

Plan Abu Dhabi 2030

- Cross sectoral integration through spatial plan
- Metro area across multiple administrative boundaries
- Place-based public space strategy linked to multimodal urban transit
- Integrated climate adaptation & mitigation certification system for buildings, infrastructure; and communities 'Estidama'

Sustainable Urban Mobility Plan, Istanbul

- Follows the 2011 Integrated Urban Transportation Masterplan
- Has been successful in reducing / managing motorised traffic through multimodal connectivity linked to other sectors through spatial planning
- Produced the first SUMP in a global megacity
- People oriented, active & inclusive mobility focussed
- Integrated public participation with special focus on vulnerable & excluded groups
- Joint working group from 23 divisions of the Metro Municipality (IMM)
- Engagement with over 100 stakeholders
- UN SDGs provided a market & monitoring system for the integration & delivery of sustainability & livability

Christchurch Public Open Space Strategy

- Place-based cross sectoral spatial strategy for increasing urban quality & amenity
- Well integrated public consultation and partnership approach including conflict resolutions mechanism
- Spatial database of all public spaces to refer to for any sectoral approvals / strategy preparation
- Governance reforms & implementation plan to implement the strategy

Edinburgh public realm strategy

- Place-based cross sectoral spatial strategy for increasing urban quality & amenity
- Leveraging of developer contributions through a framework
- Alignment with other plans such as the Climate Change Adaptation and Biodiversity Strategy and the Parks and Gardens strategy
- Reflected in local action plans and policies across the city through different sectors

Portland Climate Action Plan 2015

- Place-based cross sectoral spatial strategy for increasing climate responsiveness in the city - mitigation, adaptation and finance
- Well integrated public consultation and partnership approach including stakeholders
- Linked to city's economic development strategy

Liveable Melbourne

- Economic development strategy through urban street enhancement
- Part of Plan Melbourne 2050; 20 minute neighbourhoods concept
- Integrating transport, civil, landscape / public realm & economic development through spatial planning & governance
- Pedestrian volume on the main street jumped by 50% over 10 years surpassing London's Regent Street

Spatial governance good practice examples from five EU Member States

Ireland

Ireland	
Theme	Description
Current trends in spatial development	<p>Ireland is an island state located at the economic, political and urban periphery of mainland Europe. Although with an area about 50% larger than Estonia, Ireland is a small country in size and just as in Estonia, almost half the population lives in the capital region. The population density in Ireland is about two and a half times higher than in Estonia.</p> <p>In 2006, Ireland introduced national and regional plans as well as a fast-track planning procedure for major infrastructure projects. Recently (2015), the Urban Regeneration and Housing Act and the Sustainable Urban Housing and the Design Standards for New Apartments Guidelines for planning authorities were introduced with new guidelines for better living environments and sustainable housing. In 2018, the Irish Government published the National Planning Framework, which is the main policy and planning framework for the country.</p>
Planning system	<p>NATIONAL LEVEL</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">NATIONAL PLANNING FRAMEWORK (NPF)</p> <ul style="list-style-type: none"> - Is an integrated part of the project Ireland 2040 - Is the overarching policy and planning framework for Ireland's social, economic, environment and cultural development. - It is binding and must be followed when preparing regional spatial and economic strategies and local development plans </div> <p style="text-align: center;">↓</p> <p>REGIONAL LEVEL</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">REGIONAL SPATIAL AND ECONOMIC STRATEGY</p> <ul style="list-style-type: none"> - Strategies for regional development, growth and employment to support the NPF and the economic policies and objectives of the government. - The strategy is a long-term planning and economic framework for the development of each of Ireland's three strategic planning areas - Binding </div> <p style="text-align: center;">↓</p> <p>MUNICIPAL LEVEL</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">DEVELOPMENT PLAN</p> <ul style="list-style-type: none"> - Sets out the land use, amenity and development objectives and policies of the local planning authority - Needs to show that the plan is consistent with the National (NPF) and Regional (RSES) policies - Valid for six years </div> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">LOCAL AREA PLANS</p> <ul style="list-style-type: none"> - Provides more detailed planning policies for areas where significant development and change is expected - Valid for six years </div>
Roles in spatial development of different levels of government	<p>The national government and the 31 local governments are the two levels of directly elected government in Ireland. Ireland also has three regions that are governed by regional assemblies. Those regional assemblies are indirectly elected bodies and consist of members of the local authorities within the region. The regional assembly adopts the</p>

Ireland	
Theme	Description
	Regional Spatial and Economic Strategy. The local authorities are responsible for their own development plans and detailed planning. The local authorities are also responsible for determining the majority of planning applications and for enforcement.
Multilevel coordination	Ireland's system, inspired by the ESDP, has a clear line of coordination between national, regional and local level. Through the regional assemblies, set up by the local municipalities, coordination is also supported on the regional level.
Types of spatial plans	<p>Since 2018, the Irish government prepares the National Planning Framework (NPF). The NPF is the overall framework for spatial development in Ireland.</p> <p>The three regional assemblies each prepare and adopt a Regional Spatial and Economic Strategy. These strategies need to be in line with the NPF and set the regional, spatial development framework for local authorities.</p> <p>The 31 local municipalities in Ireland have a large amount of spatial planning authority delegated to them. In all regions, the municipalities prepare a Development Plan. It sets out the land use, amenity and development objectives and policies of the planning authority, for a six-year period. It also needs to show that the plan is consistent with the National (NPF) and Regional (RSES) policies. The local authorities also elaborate Local Area Plans that provide more detailed planning policies for an area where significant development is expected. Those plans are also valid for six years.</p>
Legislation	The land use and spatial planning legislation in Ireland has undergone recent reforms, as illustrated above. The framework is set out in the Planning and Development Act (2000). A number of amendments have been made since the adoption of the Act. The Planning and Development Regulations (2001) provide the principle regulations (also with amendments made after 2001).
Reforms to the spatial governance system (recently or planned)	The Irish spatial governance system has been updated during the last 20 years and no new reforms are anticipated. In 2018, the Irish Government published the National Planning Framework, which is the principal policy and planning framework for the country. The project Ireland 2040 plays a significant role in the overhaul of the system and provides a link between overall national ambitions for the nation and the spatial implementation of those ambitions. Urban Development Zones will be introduced and involve a key decision-making role for the local authorities. It will build on and early engagement by the local authority with the local community and landowners.
Good practices	<ul style="list-style-type: none"> • A general take away from Ireland is the consistency between overall national ambitions as formulated under the Ireland 2040 project and the spatial planning system. • The Irish system makes a clear connection between spatial planning and the development of a good living environment.

Sweden

Sweden	
Theme	Description
Current trends in spatial development	In comparison with mainland Europe, Sweden is very sparsely populated. The population in larger urban regions has increased during the last ten years, but urban sprawl has been very limited through densification of already exploited areas. In rural parts of Sweden, the population has decreased and land use for housing or economic activities has remained unchanged. Regional disparities (urban regions vs rural regions) have increased. Initial data indicate that the COVID-19 pandemic seems to have caused a small change in migration patterns from urban to rural locations.
Planning system	<p>REGIONAL LEVEL</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">REGIONAL PLANS (Regionplan)</p> <ul style="list-style-type: none"> - Provides policy objectives for the spatial development in regions - Compulsory in Stockholm and Skåne (South Sweden) regions - Voluntary for other regions - Not binding </div> <p style="text-align: center;">↓</p> <p>LOCAL LEVEL</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">COMPREHENSIVE PLANS (Översiktsplan)</p> <ul style="list-style-type: none"> - Provides strategic objectives and strategies for the spatial development in municipalities - Is a “contract” between the national government and the municipality on how national interest shall be considered in land-use development - It is a non-binding guide for detailed planning </div> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">DETAILED PLANS (Detaljplan)</p> <ul style="list-style-type: none"> - Regulatory zoning plans that are prepared if a change in land use needs to be controlled in detail and consider multiple common and/or private interests - Rarely used outside densely populated areas of a municipality - Binding for public and private landowners </div> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Special Area Regulations (Områdesbestämmelser)</p> <ul style="list-style-type: none"> - A simplified planning instrument, primarily used outside densely populated areas - Ensures a holistic approach on land-use development - Binding for public and private landowners </div>
Roles in spatial development of different levels of government	<p>Sweden has three levels of government: national level, 21 regions and 290 municipalities. Regional and local self-governance is very strong in Sweden with directly elected political governments.</p> <p>The national level is responsible for legislation and designate areas of national interest (nature, cultural heritage, defense, energy etc. - “riksintressen”). The National Board of Planning and Housing (Boverket) provides guidance (policy, planning, building code etc.) and to the regions and municipalities.</p>

Sweden	
Theme	Description
	<p>On regional level, the County Administrative Boards represent the national government's interests in the planning process. They oversee that the guidelines stated in the Planning and Building Act are followed. They also provide the regions and the municipalities with advice and data and act as a mediator in land use conflicts between municipalities.</p> <p>The regional level (a directly elected regional body - region) is responsible for health care, transport and regional development. Two regions, Stockholm and Skåne, are responsible for regional planning, while all regions are required to have a regional development strategy. Such strategies often have a spatial dimension, sometimes expressed in the form of a structural image (strukturbild).</p> <p>The municipal level is responsible for local planning. Municipalities prepare comprehensive plans and detailed plans. The comprehensive plans are strategic and they should consider both neighbouring municipalities and the regional perspective. Municipalities issue building permits based on those plans and other relevant regulations. Municipalities are also responsible for the provision of housing (through publicly owned companies) and provide the major share of all apartments for rent in the country. They provide the technical infrastructure required to develop land (streets/roads, water and sewage, garbage disposal, public space etc). Such services are provided either through municipal companies or through inter-municipal companies or associations.</p> <p>In general, Swedish municipalities own a lot of land. As landowners they can decide how to use the land in the most strategic way and act on new opportunities (developing the land on their own or selling lots to private developers).</p>
Multilevel coordination	<p>All planning in Sweden includes mandatory public consultations, often in two stages - informal consultations (samråd) and formal consultations (utställning). The main formal co-ordination mechanisms between levels of government and other stakeholders are mandatory consultations that occur in the plan-making process and before granting building permits. The County Administrative Boards are responsible for co-ordinating different national interests in the planning processes, especially important where two national interests have diverging opinions.</p>
Types of spatial plans	<p>There are no formal land use plans on national level in Sweden. However, the Government elaborates a "National strategy for sustainable regional development in the whole country" that works as a guideline for the regions.</p> <p>On regional level, besides from the "Regional development strategy", regions can also prepare regional spatial plans (Regionplan). This is mandatory for Stockholm and Skåne (south Sweden).</p> <p>All municipalities prepare a comprehensive plan (Översiktsplan). It is strategic and forms the basis for decisions related to the use of land and water areas. That plan is not legally binding, but it is regarded as a "contract" between the national government and the municipality on how national interests should be considered in the local planning. A written statement from the County Administrative Board is a compulsory annex to the municipal comprehensive plan.</p>

Sweden	
Theme	Description
	<p>Detailed plans (Detaljplan) are only prepared in areas where it is necessary to control a change in land use with regard to the public interest.</p> <p>Special Area Regulations (Områdesbestämmelser) are a simplified planning instrument. They are also binding and are primarily used outside densely populated areas.</p>
Legislation	The Planning and Building Act (Plan- och Bygglagen - PBL) is the legal framework for the land-use planning system. PBL is complemented by the Environmental Code (Miljöbalken) with regulations related to the use of land and water areas.
Reforms to the spatial governance system (recently or planned)	Regional spatial planning has lately received higher attention in Sweden, mainly due to the fact that many future challenges have a spatial logic that goes beyond administrative municipal boundaries. While the regional plan (Regionplan) is only compulsory in two regions, many regions are working with structural images (Strukturbilder) where functional dependencies are visualised on maps. This has become an important tool to understand and interpret the spatial dimensions and consequences of sustainable regional development. Such images are prepared in close cooperation between the regions and the municipalities and they have greatly improved the multilevel dialogue on spatial development in Sweden.
Good practices	<ul style="list-style-type: none"> • The multilevel strategies and policymaking on sustainable development • The national level coordinates and prioritises between different national interests in spatial planning or building permit processes. • Simplified planning process outside densely populated areas (Områdesbestämmelser) • Structural images (Strukturbilder) • With the strong autonomy for municipalities in law, they can veto national ambitions for example for wind power plants.

Finland

Finland	
Theme	Description
Current trends in spatial development	In comparison with mainland Europe, Finland is very sparsely populated. Finland has a polycentric structure with several strong urban clusters outside the Helsinki capital region. Finland is almost half as densely populated as Estonia.
Planning system	<p>NATIONAL LEVEL</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p>NATIONAL LAND-USE OBJECTIVES</p> <ul style="list-style-type: none"> - Policy framework used by the government to steer policies on land-use issues important for the whole country - Binding for all land-use plans and all state authorities </div> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p>A RENEWABLE AND ENABLING FINLAND</p> <ul style="list-style-type: none"> - Long term vision (2050) for the development of the spatial regional structure and transport system in Finland - Not binding </div> </div> <p style="text-align: center;">↓</p> <p>REGIONAL LEVEL</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>REGIONAL LAND-USE PLANS</p> <ul style="list-style-type: none"> - Policy framework that guides land-use planning and regional development - Can have regulations for land-use for specific areas if required by national or regional goals or needed for planning coordination between municipalities. - Binding </div> <p style="text-align: center;">↓</p> <p>MUNICIPAL LEVEL</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>MASTER PLANS</p> <ul style="list-style-type: none"> - Land-use plans that provide a general outline of the urban structure of the whole or parts of a municipality - Binding </div> <p style="text-align: center;">↓</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>DETAILED PLANS</p> <ul style="list-style-type: none"> - Detailed land-use plans with building arrangements and permitted types of land use - Used primarily in urban areas and other densely built areas - Binding for public and private landowners </div>
Roles in spatial development of different levels of government	<p>Finland has three levels of governance: national, regional (18 and 309 municipalities (2022)). The regional level in mainland Finland (Åland islands are autonomous with strong self-governance) have limited self-governing powers while the municipalities have a strong self-governance.</p> <p>On the national level, the government adopts the framework legislation that structures the planning system, environmental laws and other relevant legislation. The national government can also adopt national objectives regarding land use and the regional spatial structure. The Ministry of Environment is responsible for the drafting of national land-use objectives and provides guidance on the land-use planning process as well as the regulation of building activities.</p> <p>Central government agencies are responsible for developing specific sectors and for making the information produced by the sectors publicly available. The Elinkeino-, liikenne- ja ympäristökeskus (Centres for Economic Development, Transport and the Environment) promote regional development by managing the enforcement and development tasks of state</p>

Finland	
Theme	Description
	<p>administration in their own regional areas. They promote the development of a good living environment and economic competitiveness. Their tasks also include environmental protection, direction of land use and construction, nature conservation and use and management of water resources. The State Department of Åland acts as the regional state administrative authority in the autonomous region of Åland.</p> <p>At the regional level, the Maakunnan liitto (regional councils) is a statutory joint municipal authority. The regional councils have two main functions related to spatial development - regional development and regional land use planning (Regional Plan. Regional councils are also mainly responsible for implementing programs supported by EU structural funds and can use them to affect the spatial structure of the region.</p> <p>The municipal level is responsible for preparing Local Master Plans and Local Detailed Plans and they are responsible for issuing planning permissions and building permits. Municipalities also provide technical services, such as building supervision, environmental protection, construction of roads and other infrastructure, water services and waste management.</p>
Multilevel coordination	<p>The regional Elinkeino-, liikenne- ja ympäristökeskus (Centres for Economic Development, Transport and the Environment) oversee regional and local land-use policies and their implementation to ensure that national objectives are taken into account. The Ministry of Environment is responsible for cross sector co-ordination and harmonises regulations concerning building activities that are issued by other government authorities.</p>
Types of spatial plans	<p>There are no formal land use plans on national level in Finland. However, the government develops national land-use objectives to steer policy on land use and regional spatial structures that are important for the whole country. Lower levels of government are required to take them into account in their planning process. The Ministry of Environment has developed a national vision (not binding) for the regional structure and transport system ("<i>A renewable and enabling Finland 2050</i>"), based on a polycentric regional structure for Finland.</p> <p>On regional level, Regional Plans (Maakuntakaava) set out principles for land use and spatial structure. They can also include the identification of areas that are needed for regional development, if required by national or regional land-use objectives or to harmonise the land use in several municipalities.</p> <p>All municipalities prepare Local Master Plans (Yleiskaava) that describe the spatial structure of the municipality and contain general objectives for local development. They also provide zoning regulation for the entire territory of a municipality and specify the areas for which Local Detailed Plans are required.</p> <p>Local Detailed plans (Asemakaava) are only prepared in areas where it is necessary to control a change in land use with regard to the public interest and they include detailed regulations on permitted development for individual plots.</p>
Legislation	<p>The Land Use and Building Act (LUBA) and the Local Government Act (LGA) form the legal framework for the spatial planning system. The LUBA has provisions to ensure the sustainability aspects of planning. The LGA describes the responsibilities of municipalities and forms the framework legislation for land-use planning. Provisions regarding the planning process can also be made by decree, ministerial decision and local building ordinances. The Nature</p>

Finland	
Theme	Description
	Conservation Act and the Environmental Protection Act also have restrictions on land use.
Reforms to the spatial governance system (recently or planned)	The current spatial planning system in Finland underwent a major reform in 1999 and has been followed by reforms in 2004 and 2014 to promote regional and local economic development. A large reform of the LUBA legislation is currently under way and is supposed to come into force in 2024. It was approved by the Finnish Government in September 2022. The main aims of the reform are to adjust the legislation more towards a climate neutral society, biological diversity, an increased quality of the built environment and to promote digitalisation. It also pays attention to promotion of the public participation in planning processes. For more detail, go to: https://ym.fi/en/-/government-s-legislative-proposals-to-parliament-aim-to-reduce-emissions-from-building-and-promote-digitalisation
Good practices	The current reform of the Land use and building act (see above) is very interesting, since it is directed towards many areas for the living environment that have been identified as critical in Estonia. Many suggested amendments could be of interest in the context of the current project, for policy recommendations as well as for more detailed suggestions.

Denmark

Denmark	
Theme	Description
Current trends in spatial development	In comparison with its Nordic neighbours, Denmark is relatively densely populated country (four times denser than Estonia) and dominated by agricultural land (3/4 of the total land mass). While the Greater Copenhagen region and Eastern Jutland dominate the national development, due to the geographical specifics (land masses separated by water) the different regions have different spatial structures.
Planning system	<p>NATIONAL LEVEL</p> <p>NATIONAL PLANNING REPORT</p> <ul style="list-style-type: none"> - Directives and high-level objectives for long-term spatial development in Denmark - Is prepared every four years after each election by the Minister for the Environment - Binding <p>WATER RESOURCE PLAN</p> <ul style="list-style-type: none"> - Binding <p>NATURA 2000 PLAN</p> <ul style="list-style-type: none"> - Binding <p>REGIONAL LEVEL</p> <p>FINGER PLAN FOR COPENHAGEN</p> <ul style="list-style-type: none"> - National Planning Directive for the urban development of the greater Copenhagen area - Binding <p>REGIONAL GROWTH AND DEVELOPMENT STRATEGIES</p> <ul style="list-style-type: none"> - Strategies for regional development, growth and employment - Binding <p>REGIONAL RAW MATERIALS PLAN</p> <ul style="list-style-type: none"> - Binding <p>MUNICIPAL LEVEL</p> <p>PLANNING STRATEGY</p> <ul style="list-style-type: none"> - Focused on strategic land-use planning but can include local strategies for economic and social development. - Binding <p>MUNICIPAL PLANS</p> <ul style="list-style-type: none"> - Comprehensive, small-scale plans for land-use - Includes important, strategic elements for the local development - Binding <p>LOCAL LEVEL</p> <p>LOCAL PLANS</p> <ul style="list-style-type: none"> - Detailed plans with regulations for development of land and land-use - Created only for larger developments or when necessary to meet the intentions of the Municipal Plan

Denmark	
Theme	Description
Roles in spatial development of different levels of government	<p>Denmark has three levels of governance: national government, 5 regions and 98 municipalities (2022). Through the local government reform in 2007, the former 271 municipalities transformed into 98 larger municipalities and the former regions were replaced by five administrative regions. The competences of the state and the municipal level were strengthened, while the regions were given a strategic function without any direct planning competences.</p> <p>The Minister for the Environment is responsible for the comprehensive framework for regional spatial development planning and municipal planning through national planning reports, overviews of national interests in municipal planning, national planning directives, dialogue and other means. The Minister can veto municipal planning proposals if they do not comply with overall national interests.</p> <p>The five regional councils prepare regional spatial development plans that outline the vision for the region. These strategic plans portray the overall spatial development of the region and are closely linked with the Regional Growth and Development Strategies prepared by the regional economic growth forums. Regional counties also prepare Regional raw materials plans.</p> <p>In the municipal plan, the municipal councils summarise their objectives and strategies for local development. The municipal plan forms the framework for detailed local plans and for the permits given in accordance with the Planning Act and other acts governing different sectors.</p>
Multilevel coordination	<p>In Denmark, the multilevel co-ordination is very strong and characterized by the legal requirements that lower-level plans must follow the guidelines in higher level plans. The municipalities shall align their planning documents with national planning directives, water resource planning, Natura 2000 planning and raw materials planning. Furthermore, municipal plans cannot contradict the visions for spatial development outlined in the Regional Growth and Development Strategies.</p> <p>Horizontal sector co-ordination is required by the Planning Act. Municipal plans must take different themes and policy sectors into account in a comprehensive manner but how this is supposed to be achieved in planning processes is not regulated.</p>
Types of spatial plans	<p>Denmark has a hierarchical framework for spatial planning with a three-tier system of development plans and strategies and a two-tier system of land-use plans.</p> <p>Each level of government prepares a strategic plan. The National Planning Report provides a vision for spatial development in Denmark. Regional Growth and Development Strategies focus on economic development with a focus on the involvement of important stakeholders. Municipal Strategies for Planning can have different characteristics. Some are more traditional and strictly focused on land use. However, more and more municipalities use these plans as a basis for more holistic, local development strategies.</p>

Denmark	
Theme	Description
	<p>Two different types of land-use plans are elaborated by the municipalities.</p> <ul style="list-style-type: none"> • The Municipal Plan integrates the objectives of higher-level strategic plans into a comprehensive policy document that specifies the overall aims and strategies for local development. It also includes guidelines for land use and provides a general land-use framework for the municipality. Hence, the municipal plan is the most complex planning instrument in the Danish planning system; • Local Plans are the second type of municipal land-use plans in Denmark, and they are compulsory for all larger development projects where they provide detailed regulations on land-use. <p>Finally, three other types of sectoral plans are elaborated on national or regional levels in the addition to the above-mentioned plans - the Water Resources Plan, the Natura 2000 Plan and the Regional Raw Materials Plan. They contain sector specific strategic objectives and zoning regulations for selected areas.</p>
Legislation	<p>The Danish Planning Act defines the framework legislation for the spatial planning system. It was reformed back in 2005 in connection with the amalgamation reform of the local government structure.</p> <p>The Building Act Further contains detailed regulations regarding planning and development and specifies requirements for building permits.</p> <p>Other important legal acts are the Nature Protection Act (the main environmental law) and the Land Registration Act (besides regulations on property ownership and registration it also specifies that a local plan must be registered in the land registry for each individual property).</p>
Reforms to the spatial governance system (recently or planned)	<p>An important addition to the Danish planning system was made in 2007 and then again 2013, with the introduction of the Finger Plan. It is a legally binding National Planning Directive for the Greater Copenhagen area that contains a strategy for the economic growth and urban development in the capital region. Planning in the Greater Copenhagen area must not conflict with the Finger Plan. Municipal plans in the Finger Plan area must ensure that spatial development is planned with respect to a core urban region, the peripheral urban region, the green and blue structure (“green wedges”) and the rest of the Greater Copenhagen Area. Special attention is given to the opportunities to strengthen public transport services and how to avoid urban sprawl into the “green wedges”.</p>
Good practices	<ul style="list-style-type: none"> • Danish spatial planning pays a great attention the regional context and despite the lack of land-use plans, the regional level still plays a key role for the spatial development. Their strategies shall be followed in all spatial planning on local level. The logic of sustainable development often follows other geographical borders than the municipal borders. This sets the light on consequences of the lack of a regional planning level in Estonia, that is well illustrated by the Danish example. • The Finger Plan for the Greater Copenhagen Area, introduced ten years ago, could provide inspiration to the spatial development governance for the Tallinn/Harju Region. It addresses the lack of intermunicipal coordination in the Estonian capital region, the lack of cross sector, holistic

Denmark	
Theme	Description
	<p>approach on efficient land use and sustainability and it creates an image of the desired, common future for the regions transport network, land use and preservation. Furthermore, it gives the national level a say on the development of the dominating economic development node in Estonia.</p> <ul style="list-style-type: none"> • The comprehensive approach to horizontal coordination that we see in Denmark, and so important for the creation of a good living environment, is lacking in Estonia with its strong sector-by-sector planning and investment tradition.

Luxembourg

Luxembourg	
Theme	Description
Current trends in spatial development	<p>The Grand Duchy of Luxembourg is the second-smallest member state of the European Union (EU) with a population of about 620 000 inhabitants (2022). Luxembourg’s socio-economic interdependency with its neighbouring regions in Belgium, Germany and France has increased since the end of the 1980s due to the high rise in cross-border labour flows that contribute to one of the highest GDPs per capita worldwide. Luxembourg’s spatial structure is dominated by low density and dispersed small-town and rural settlements. The capital city region accounts for more than a quarter of the total number of residents. The population density is about eight times higher than in Estonia.</p>
Planning system	<div style="text-align: center;"> <p style="text-align: center;">Planning system of Luxembourg</p> </div> <p style="text-align: center;">Source: ARL, Academy for Territorial Development in the Leibniz Association, https://www.arl-international.com/knowledge/country-profiles/luxembourg</p>
Roles in spatial development of different levels of government	<p>Luxembourg is a highly centralised, unitary state with no regional level and 102 municipalities with strong territorial and fiscal autonomies. The districts and cantons (regional subdivisions) do not play any significant role in spatial policy or planning. However, voluntary municipal cooperation platforms have been set up in recent times, to (partly) compensate for the non-existence of regional authorities in spatial policy and planning.</p> <p>Land-use planning and land allocation is an important tasks of Luxembourg municipalities, for which they have the sole authority and is only supervised in more formal regards by the national government. However,</p>

Luxembourg	
Theme	Description
	in Luxembourg's two-tier institutional system, both the national and the local level hold spatial planning competences.
Multilevel coordination	<p>Although Luxembourg has a two-tier institutional system, it does not guarantee multilevel cooperation. In fact, a system that was intended to secure the impact of national strategies on municipal level seems to have become not <u>one</u> system but <u>two parallel</u> systems.</p> <p>On horizontal level, municipalities in Luxembourg City, the South Region and the Nordstad (core functional urban areas) are encouraged to engage in strategic planning through informal and voluntarily forms of inter-municipal cooperation (Conventions Etat-Communes). Although the set-up of these co-operations could work for strategic spatial planning they usually focus only on technical, infrastructure cooperation.</p>
Types of spatial plans	<p>The national level retains strategic competences via the Master Programme for Spatial Planning (Programme directeur de l'Aménagement du territoire', PDAT) and the Integrated Traffic and Territorial Development Concept (Integratives Verkehrs- und Landesplanungskonzept, IVL). The purpose of the two instruments is mainly to define development objectives for Luxembourg's future territorial structure and to coordinate various sectoral policies. They also address fundamental spatial issues such as growth and how the territory is structured by means of the so called primary sectoral plans for mobility, housing, economic activity zones and landscape.</p> <p>A set of secondary, sectoral plans (plans directeurs secondaires) are also elaborated to integrate different infrastructures into a territorial logic, three of which have entered into force so far. Furthermore, the ministry in charge of spatial planning at the national government can produce land-use plans (plans d'occupation du sol) for the municipal level. This is an intervention in municipal autonomy (municipalities, are responsible for urban development at the local level) but it is limited to cases of overriding national importance only (for example Luxembourg's international airport and surroundings). The aim of the national regulatory tools is to provide a link between various national strategic tools with spatial planning and to support their implementation at all levels of the planning system.</p> <p>The local municipalities are responsible for, and have a strong autonomy within, land-use planning on their territory. They produce a General and detailed land-use plan (Plans d'aménagement general), Accompanying Master plans (plans d'aménagement particuliers) and General planning schemes (schémas directeurs). The municipal plans are the only legally binding land-use planning instruments in Luxembourg (only a few nationally produced and binding land-use plans exist). From a legal point of view, the municipal plans do not have to follow the national strategic plans and efforts to give national planning documents a binding status have been overturned.</p>
Legislation	In comparison to other European countries, Luxembourg's planning system is still relatively young and until the 1970's, spatial planning was considered as of secondary importance. The 1999 Spatial Planning Law has modernised the legal basis of spatial planning in the and led to a change of paradigm both in terms of planning instruments and institutions. The new law was highly influenced by the European Spatial Development Perspective (ESDP) and the Territorial Agenda (TA) It implemented a

Luxembourg	
Theme	Description
	redistribution of competences and encourages interdepartmental coordination. Furthermore, it emphasises the importance of professional and administrative resources to manage a modern spatial development system.
Reforms to the spatial governance system (recently or planned)	During the last 20 years, Luxembourg has reformed the legislation towards a spatial planning system where the national level tries to get more influence better control of land-use decisions taken at the municipal level. When this ambition meets municipalities with a planning sovereignty defined by law, then conflict occur. Municipalities that are required to adapt their formal land-use plans to strategies defined at the national level and sometimes even completely redraft them, refuse to give up any of their municipal autonomy. Hence, the ambition on national level to change the division of spatial planning power has caused major conflicts. It is likely that until national and municipal levels are sure that they can meet on an equal footing such conflicts will continue to occur.
Good practices	<ul style="list-style-type: none"> • The overall ambition in Luxembourg to achieve a more holistic planning system, inspired by the European Spatial Development Perspective (ESDP) and the Territorial Agenda, could provide food for thought in Estonia. Especially the ambition to include sectoral interest plans in the system. • The two-tier planning system applied in Luxembourg underlines the importance to secure that two parallel systems are not created. It also illustrates the need for a multilevel governance system where all parties feel that they cooperate and contribute to synergies rather than compete. • The national ambition to “interfere in local land-use decisions” has caused conflicts between national and local levels that are likely to occur in Estonia as well, should a more centralized system be proposed. The experiences from the recent amalgamation reform in Estonia indicate that a top-down planning system (even if only perceived as a top-down system) will face a serious debate and resistance. Estonia’s recent history of central planning combined with a planning system built on a Nordic model with strong autonomy for municipalities in land-use planning would make the introduction of a centralised model difficult.

Belgium

Belgium	
Theme	Description
Current trends in spatial development	Belgium is a small country in size. It is located in the economic, political and urban core of Europe. Due to the federal governance system of the country, the planning system is based on both national and regional law, where the regions have almost total autonomy on land-use decisions. This very strict decentralisation of land-use planning mainly occurred in the last two decades of the 20 th century. The local responsibility for land-use decisions has been strengthened in the Flanders region in recent years. In Wallonia less emphasis is placed on local autonomy and integrated planning for functional areas plays a more important role. The population density in Belgium is about ten times higher than in Estonia.
Planning system	<p>The diagram illustrates the planning system in Belgium across four levels:</p> <ul style="list-style-type: none"> NATIONAL LEVEL: REGIONAL ZONING PLANS (Historical zoning plans still regulate the use of 80% of the land in Belgium; Based on state law and subsequently incorporated into regional legislation; Binding). REGIONAL LEVEL: REGIONAL SPATIAL DEVELOPMENT PLANS (Provide strategic land-use policies for the development of a Region; Binding) and REGIONAL IMPLEMENTATION PLANS (Implement the Spatial Development Plan in areas of regional importance; Only in Flanders; Not binding). INTERMEDIATE REGIONAL LEVEL: PROVINCIAL STRUCTURE PLANS (In Flanders region only; Outlines the long-term vision for the spatial development of the provinces; Can include local strategies for economic and social development; Binding) and PROVINCIAL IMPLEMENTATION PLANS (In Flanders region only; Plans for areas where it is necessary to override the Regional Zoning Plan strategies for economic and social development; Binding). MUNICIPAL LEVEL: MUNICIPAL STRUCTURE PLANS (Comprehensive plans with strategic management policies for the development of the whole municipal territory (all municipality do not have a municipal structure plan); Municipalities that decide to develop a Spatial development plan may receive financial incentives from their region) and MUNICIPAL IMPLEMENTATION PLANS (Detailed regulatory zoning plans; All municipalities have not adopted a Municipal implementation plan). <p>Arrows indicate the flow of influence and binding nature between these levels. Green arrows point upwards, indicating that higher-level plans are binding on lower-level plans. Grey arrows point downwards, indicating that lower-level plans implement higher-level plans. A horizontal arrow points from Regional Spatial Development Plans to Regional Implementation Plans, and from Provincial Structure Plans to Provincial Implementation Plans. Similar horizontal arrows point from Municipal Structure Plans to Municipal Implementation Plans.</p>
Roles in spatial development of different levels of government	Belgium is a federal country. It has four levels of government: the national level, three regions (Flanders, Brussels and Wallonia), ten provinces and 589 municipalities. No spatial planning exists at the national level in Belgium and the Regions enact the framework legislation that structures spatial planning. However, many tasks are delegated to lower levels of government.

Belgium	
Theme	Description
Multilevel coordination	Belgium's federal system with four levels of government complicates coordination and in general coordination for the entire country is weak. Very little or no co-ordination seems to be present between the three different Belgian regions and/or national government.
Types of spatial plans	<p>The three regions prepare Regional Spatial Development Plans that provide strategic guidance for land-use planning. However, the older Regional zoning plans from the 1970's and 1980's still regulate the land-use for 80 percent of the country. The regions are also responsible for other important policy fields related to spatial planning, such as environmental legislation as well as energy and building code regulations.</p> <p>At the intermediate level of government in Belgium, provinces are active in spatial policy areas that require inter-municipal coordination. In Flanders, provinces are responsible for the preparation of the Provincial Structure Plan and the Provincial Implementation Plan, while in Wallonia the provinces do not make spatial plans for the province. Hence, they can only affect land use indirectly, through their responsibility for provincial infrastructure, housing etc.</p> <p>A significant amount of spatial planning authority is delegated to municipalities. In all regions, municipalities can prepare Municipal Structure Plans and detailed Municipal Implementation Plans.</p>
Legislation	In comparison to other European countries, Belgium's planning system has not undergone any recent reforms. It is relatively undeveloped and based on legislation from before the introduction of a holistic, spatial perspective in the academic and practical discourse. The Civil Code is the only national law that has direct on planning and land-use. Each region has its own framework legislation for planning and land-use.
Reforms to the spatial governance system (recently or planned)	There has been no major reforms of the planning and land-use system since 1980, when responsibilities were transferred from national level to the regions. The general trend since then has been further decentralization. One example is when in 2014, the Law on retail locations transferred further powers to the regions. Some smaller reforms have taken place within the individual regions at various points in time.
Good practices	<ul style="list-style-type: none"> • A general take away from Belgium is that a fragmented system with too many levels of government makes the important coordination between levels of government as well as between sectors very complicated. • However, in case there is an issue at municipality level (e.g., on a decision taken by the spatial administration), this can be brought to a higher level (e.g., province level), which should be more neutral in judging the matter • This underlines the important connection between spatial planning, sustainable development for a good living environment and governance. • With the complex issues facing Estonia, a modern planning system needs to take a holistic approach on multilevel government, governance and spatial planning. This does not mean a totally centralised system (see Luxembourg takeaways).

7 Conclusions and takeaways for Estonia

This chapter is divided in two parts. The first part summarises the main findings regarding the state of the living environment in Estonia, highlighting the existing opportunities that could be used in order to improve it, but also the challenges and barriers that must be overcome in order to create a sustainable and high-quality living environment. The second part presents the main take-aways from the international practices that could be used to address at least some of the challenges highlighted.

7.1 Conclusions on the state of play

Opportunities

Political

The Estonian politics have long been **preoccupied with sustainability**. The country has had a Sustainable Development Act since 1995, being one of the first countries in Europe and the world to adopt such a law. These documents and the ones that followed, among other things, have been concerned with providing the main directions of spatial planning for a balanced development of the living environment. In doing so, the resulted strategies and plans have regarded people and their interaction with both the natural and artificial environment as a central element for creating a high-quality living environment. Moreover, in Estonia, the living environment in terms of living conditions is diverse, and this is itself considered a value.

Thus, in the past decade Estonia has seen a **number of public and private initiatives** to improve the quality of life and living environment in terms of housing, infrastructure, services etc. of its citizens. The public initiatives have materialised mainly in regulations and several long-term national development plans and strategies. Such initiatives have **pushed for a more coherent and implementation-oriented approach** to spatial planning than before. Moreover, there is a momentum in the last decade and a half in **accounting for the opinions of the local residents** in planning the living environment of specific communities.

Governance

According to the European Construction Sector Observatory analytical report released in 2021, Estonia is one of **the most digitalised countries in the EU**. In response to corruption occurrences in the field of spatial planning, Estonia has increased digitalisation and more uniform requirements in spatial planning in the past few years. This has increased transparency and has significantly reduced corruption. As such, endeavours to collect and aggregate spatial data in Estonia has obtained a significant momentum in the last five years, with the ambition of establishing an integrated platform for a **Digital Twin on the national level**.

Structural

Estonia is **rich in greenery and wildlife**. With more than half of its territory being covered by forests, the country ranks the 6th in Europe in forest coverage. Moreover, Estonians value natural areas which serve well as carbon sinks such that the country has, in general, **no pollution problems**, except for a few cities. Additionally, Estonia has about one **million hectares of agricultural land** which is largely managed in an **environmental-friendly fashion** and is a reliable source of food for internal consumption

and export. Estonia should preserve and enhance this advantage that is a significant contributor to a sustainable life.

Estonia is also **rich in mineral resources** and the sector is able to offer employment to thousands of people. The country has also put in place a Registry of Mineral Resources, which is a comprehensive database of resources on the land, sea, lakes and rivers, as well as the economic land. Thus, as of January 2022, 953 deposits were recorded in the registry, including oil shale, peat, and natural construction materials such as crystalline rocks, gravel, sand, clay, dolostone, limestone, sea mud etc.

Another significant structural opportunity for Estonia is the **considerable progress regarding its infrastructure since gaining** its independence from the Soviet Union in 1990. This progress has resulted in convergence towards the EU average, even though the country is still lagging behind its more advanced neighbours and other advanced economies. The most notable progress has occurred in **transport infrastructure, especially roads, and electricity**. However, looking at the perceived quality of infrastructure, there is room for improvement. Under the “Estonia 2035” Strategy, the Estonian government is committed to build sustainable mobility services across the country and internationally, that rely on new technologies, such as hydrogen, and account for the socio-economic and environmental factors, at the same time promoting the use of public and shared transport.

Challenges and barriers

Political

The country has **lacked a common understanding** and an agreement between authorities about what it means and what it takes to build a high-quality space and living environment, though the idea of improving the living environment in Estonia has been discussed for the past ten years, with little progress on reaching a consensus. This state of facts is reflected in the fact that the statutes of government agencies, state foundations and companies, including RKAS, the Land Board, the Road Administration, Tallinn Port, etc., do not include the objective of creating a high-quality space. Instead, the **decisions are made “in silo”**, which are focused on achieving key **sectoral objectives**. Without reflection on the space as a whole, these do not guarantee the development of a coherent space.

Thus, so far Estonia has **not had a comprehensive and coherent spatial policy at country level**, which could serve as a basis for regional planning and policy that would cover both the natural and the built environment. There is also a lack of a unity at the state level that could bring together competencies of the various spatial fields. Nevertheless, even if the democratic process of spatial planning has improved, specific city plans are not coherent and comprehensive and **do not take into account the neighbouring regions and municipalities**. Moreover, **private ownership of land is high** in Estonia. This limits what government can do. This lack of a comprehensive and coherent spatial planning has led to the development of **urban sprawl** which has severe effects on the transportation network and habits, with obvious effects on the environment.

Governance

Estonian planning follows a narrow scope of **highly regulative land-use planning** and lacks a comprehensive viewpoint. Because “spatiality” is weakly defined, plans are not so much seeking the options for development but rather set strict preconditions for any development. As explained above, a large number of spatial decisions are made in **bureaucratic silos**, without any links to spatial planning

or to the building regulations. For this reason, they can be characterised as “spatially blind.” Currently, the priority is to achieve key sectoral objectives. These include, for instance, decisions related to some transport issues, forestry, mining, access to services. Further, there is **a weak division of tasks** (not clear roles in reality) between professional planners and the politicians at the local level. Hence, politicians tend to micromanage and interfere in legal issues and question professional knowledge while civil servants tend to back off from their professional roles. The dependency on politicians’ interference in details undermines the planning profession since it does not safeguard professional continuity.

Planning instruments are overly bureaucratic, time consuming and ineffective. Spatial planning is seen more as a necessary bureaucratic procedure than a tool for finding best solutions. Very often, detailed planning is made for one single lot without any consideration for the overall urban landscape or content. Since there is often a lack of competence on local level, it is easier to fulfil bureaucratic requirements than to work with planning professionally. Private companies dominate the planning arena which also makes the public level involvement weak.

Structural

Estonia is a **sparsely populated country with concentrations in a few large urban** areas such as Tallinn, Tartu or Pärnu and with low density in the rest of the territory. This leaves a significant number of the dwellings uninhabited. Most of them originate from the era of mass-construction of the Communist regime and they are found primarily in small towns and villages. Simultaneously with the inter-migration to the densely populated areas, Estonia is also experiencing declining population. Intermigration to Tallinn and other major cities is changing the economy and the built environment. This means that the population is migrating towards urban areas where the economic activity (jobs and education) and services are concentrated. The parallel expansion of Tallinn and the shrinkage of the population in the rest of the country has given rise to what is known as **the two Estonias**, with a clear division of spatial structure and administration between Tallinn and the other regions. This has led to **fragmentation in planning**.

The Tallinn region is a good example of the fragmentation mentioned above. There is no common regional planning involving all municipalities in the capital region and that leads to sub-optimal use of resources, poor public transport network, competition between municipalities rather than cooperation. Hence, it is almost impossible to achieve a holistic approach to the urban development.

In addition, strategic spatial planning for renovation and demolition are particularly important in the less populated regions. The population left behind in rural areas have inadequate services, such as health services which is an acute issue especially for the elderly left behind in these regions. Because transportation is heavily reliant on private cars, **there is low density of public transport**. For instance, in the Tallinn region, car dependency is very high compared to what it would be with a proper regional planning combined with a functional regional public multimodal transport network. The two main reasons for this high usage of cars are: the amount of time needed to reach the destination and the **complexity of connections between means of transportation** needed to reach a destination.

Estonia ranks among the EU countries with the **lowest share of rail passenger transport** in total inland passenger transport. A **deficient transport connection with Europe** is also persisting and there was

made little progress to improve it (for example, the completion of the Trans-European Transport core network).

7.2 Lessons learnt from best practices for the Estonian context

A set of common themes as well as directions of spatial planning can be observed. While spatial planning has always dealt with complexity, the complexity is increasing with the need to mitigate climate change, tackle challenges to biodiversity, promote a sustainable economic development, create liveable and mixed-use living environments, reduce social exclusion etc. To deal with such complex issues, a traditional “silo approach” is no longer effective. This complexity is mirrored in an increased attention to place-based approaches, coordination (across sectors and administrative levels) and participation of private and public stakeholders. In most countries studied, this is often mirrored in a combination of decentralisation of responsibilities and multilevel governance.

Planning

- The use of “**structural images**” as a tool to engage and commit different sector interest towards a joint approach on the spatial structure on national and regional level. Such structural images would be a useful tool to achieve a more coherent and implementation-oriented approach to spatial planning than currently in Estonia. Furthermore, such images would contribute to sorting out the specific structural challenges observed in the Harjumaa region. The Finger Plan for the Greater Copenhagen Area, introduced ten years ago, could provide inspiration to the spatial development governance for the Tallinn/Harju Region. Structural images could also be used as (binding) guidance for land-use planning on local level.
- The **logic of sustainable development** often follows other geographical borders than the **municipal borders** while the sector-by-sector approach to Estonian planning lacks a comprehensive viewpoint. This sheds a light on the consequences of the lack of a regional planning level in Estonia. How this can be mitigated to some degree is well illustrated by the example from Denmark.
- **Increased skills and competencies on local level** - Our study shows that qualified skills are a prerequisite for good spatial planning. Despite the recent amalgamation reform, many Estonian municipalities are small and have difficulties to hire qualified staff in spatial planning.³⁹⁰ Consultants cannot fill that gap, since spatial planning is a legal and political instrument that cannot be delegated to private companies. Increased skills and competences would also help to address the lack of common understanding and an agreement between authorities about what it means and what it takes to build a high-quality space and living environment. Training and certification of skills should therefore be an important element, where the Association of Rural and Urban Municipalities could take a role (supported by its members and the government).
- **Delegation of responsibilities and mandates requires clarity** to manage those responsibilities. The current reform of the Land Use and Building Act in Finland is very interesting, since it is directed towards many areas for the living environment that have been

³⁹⁰ The qualification gap will likely resist despite any consolidation of municipalities, as the financing scheme of municipalities is poor. An alternative is to rely on semi-centralised resources. Additionally, cooperation between municipalities could be a way forward: When “sharing” one skilled person among three or four municipalities, they can both acquire the competence needed and afford it.

identified as critical in Estonia. Many suggested amendments could be of interest in the context of the current project, for policy recommendations as well as for more detailed suggestions.

- There is a **need to professionalise the role of civil servants on local level** to reduce risk of corruption and secure well-informed decisions regarding spatial planning. The political independency of civil servants has been the norm in the neighbouring Nordic countries for decades.
- **Cross fertilisation with EU policies and funds** - steps need to be taken to use spatial planning more to improve the efficiency and outcomes from cohesion policy funding and to coordinate the territorial impacts of sectoral policies. Estonia is among the largest beneficiaries of European funds and largely dependent on those funds for its development. At the same time, cross fertilisation is among the weakest in Europe.

Regulations

Simplification - To better handle complexity, there is a need to move from a spatial planning system characterised by a formal driven approach of “fulfilling of formalities” towards a more “aims and objectives guided” driven approach. Here, one example is the simplified planning process used outside densely populated areas in Sweden (Områdesbestämmelser). Another Swedish example is the so-called preliminary assessment (Förhandsbesked) for building permits outside areas with detailed plans, where the preconditions for (or against) the exploitation of a certain plot are sorted out without an overly bureaucratic procedure.

Governance

Increased cross sector approach and multi-level governance - Most of the challenges facing Estonia cannot be handled through a bilateral and sector by sector approach that involves only central government and individual local authorities. Our study shows that in most countries the need for an increased cross sector approach and multilevel governance is identified. In Estonia, instruments for an increase cross sector approach are lacking. Although consultations with different sector interests take place, for instance in detailed planning processes, **the holistic role of spatial planning to prioritise among sector interests is weak**. Since Estonia does not have a regional level with a mandate to handle spatial issues, there is a need to create a regional platform with a mandate, possibly from a ministry, for spatial planning. In coordination with municipalities, the regional level planning could be agreed upon in terms of spatial extent and content - e.g. Tallinn and Tartu municipal areas. Here for example, the overall ambition in Luxembourg to achieve a more holistic planning system, inspired by the European Spatial Development Perspective (ESDP) and the Territorial Agenda, could provide food for thought in Estonia. Especially the ambition to include sectoral interest plans in the system.

8 Annexes

Annex A: List of reviewed documents

Name of document/data source	Publisher/ author	Year	Lang uage	Hyperlink	Type
Long-term strategy “Estonia 2035”	Government of Estonia	2021	EE and ENG	EE: https://valitsus.ee/strateegia-eeesti-2035-arengukavad-ja-planeering/strateegia ENG: https://valitsus.ee/en/estonia-2035-development-strategy/strategy/strategic-goals	Policy or strategies
Long-term strategy “Estonia 2035” working materials	Government of Estonia	2021	EE	EE: https://valitsus.ee/strateegia-eeesti-2035-arengukavad-ja-planeering/strateegia/materjalid	Policy or strategies
Green Paper on Estonian Spatial Planning	Ministry of Finance	2020	ENG	https://planeerimine.blogi.fin.ee/wp-content/uploads/2021/05/Green-Paper-on-Estonian-Spatial-Planning.pdf	Report
Estonian Human Development Report 2019/2020	Estonian Cooperation Assembly	2020	ENG	https://inimareng.ee/en/index.html	Report
Long-Term View on Construction 2035: 7 Big Steps	Ministry of Economic Affairs and Communication	2021	ENG	https://eehitus.ee/wp-content/uploads/2021/09/Ehituse-pikk-vaade-2035-v1_7en.pdf	Report
Working Group Final Report on Spatial Development 2019	Government of Estonia	2019	EE	https://www.rahandusministeerium.ee/et/system/files_force/document_files/ruumiloome_tooruhma_lopparuanne.pdf	Report
Expert Group Final Report on Spatial Development 2018	Government of Estonia	2018	EE	https://vv.riigikantselei.ee/sites/default/files/riigikantselei/strateegia_buroo/ruumiloome_lopparuanne_.pdf	

Name of document/data source	Publisher/ author	Year	Lang uage	Hyperlink	Type
Expert Group Final Report on Spatial Development additional materials 2018	Government of Estonia	2018	EE	https://riigikantselei.ee/valitsuse-too-planeerimine-ja-korraldamine/rakke-ja-ekspertruhmad	
Background document of developing the vision of e-construction platform	Ministry of Economic Affairs and Communication and TalTech	2018	ENG	https://eehitus.ee/wp-content/uploads/2019/07/e-construction-platform-background-ENG.pdf	Report
Long-term strategy for building renovation	Ministry of Economic Affairs and Communication	2020	ENG	https://ec.europa.eu/energy/sites/default/files/documents/ee_2020_ltrs_official_translation_en.pdf	Policy or strategies
Davos declaration on Baukultur	Conference of Ministers of Culture	2018	ENG	https://davosdeclaration2018.ch/davos-declaration-2018/	Report
Davos Baukultur Quality System and Tool	REPORT OF THE EU MEMBER STATE EXPERT GROUP/ EU Commission	2021	ENG	https://op.europa.eu/en/publication-detail/-/publication/bd7cba7e-2680-11ec-bd8e-01aa75ed71a1/language-en	Report
General Principles of Climate Policy until 2050	Gov of Estonia	2017	ENG	https://ec.europa.eu/clima/sites/lts/lts_ee_et.pdf	Regulatory and legislation
National Development Plan of the Energy Sector until 2030		2017		https://www.mkm.ee/media/99/download	
Estonia's 2030 National Energy and Climate Plan	Estonia's Communication to the European Commission under Article 3(1) of Regulation (EU) No 2012/2018.	2019	ENG	https://ec.europa.eu/energy/sites/ener/files/documents/ee_final_nec_p_main_en.pdf	Policy or strategies

Name of document/data source	Publisher/ author	Year	Lang uage	Hyperlink	Type
IMF. Republic of Estonia. Public Investment Management Assessment	IMF	2019	ENG	https://www.rahendusministeerium.ee/sites/default/files/Riigieelarve_majandus/estonia-pima-final-report.pdf https://www.imf.org/en/Publications/CR/Issues/2019/06/03/Republic-of-Estonia-Technical-Assistance-Report-Public-Investment-Management-Assessment-46963	Report
National Spatial Plan “Estonia 2030+”	Regional Ministry	2013	EE and ENG	https://www.rahendusministeerium.ee/et/ruumiline-planeerimine/uleriigiline-planeering https://www.rahendusministeerium.ee/sites/default/files/Ruumiline_planeerimine/eesti2030.pdf https://eesti2030.files.wordpress.com/2014/02/estonia-2030.pdf	Policy or strategies
European Commission Country Report Estonia 2019	European Commission	2019	ENG	https://ec.europa.eu/info/sites/default/files/file_import/2019-european-semester-country-report-estonia_en.pdf	Report
A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives	European Commission	2020	ENG	https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1603122220757&uri=CELEX:52020DC0662	Regulatory and legislation
Planning Act	Parliament of Estonia	2015	EE and ENG	https://www.riigiteataja.ee/en/eli/518022022002/consolide#	Regulatory and legislation
Spatial Data Act	Parliament of Estonia	2011	EE and ENG	https://www.riigiteataja.ee/en/eli/526102020002/consolide#	Regulatory and legislation
Building code	Parliament of Estonia	2015	EE and ENG	https://www.riigiteataja.ee/en/eli/509062022001/consolide	Regulatory and legislation
Overview of the National Planning “Estonia 2030+” implementation	Ministry of Finance	2020	EE	https://www.rahendusministeerium.ee/sites/default/files/Ruumiline_planeerimine/yrp_eesti_2030_ja_mp_ylevaade_2020.pdf (meanwhile broken) https://planeerimine.ee/wp-content/uploads/Eesti-2030-ulevaade-ja-tegevuskava-valitsusse-24.07.2020.pdf	Report
Climate Change Adaptation Development Plan until 2030	Ministry of the Environment	2017	ENG	https://envir.ee/media/912/download	Policy or strategies

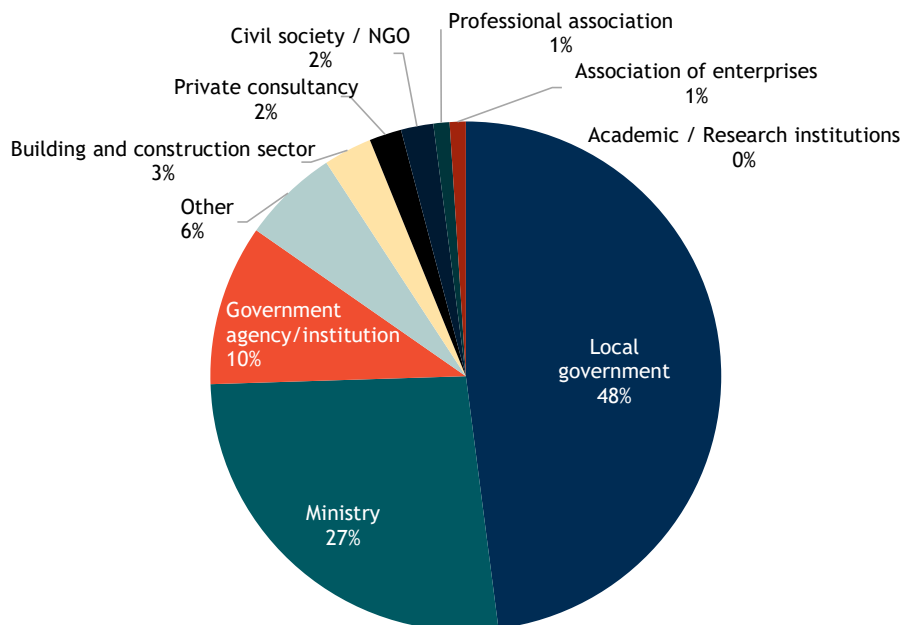
Name of document/data source	Publisher/ author	Year	Lang uage	Hyperlink	Type
Nationwide survey of housing depopulation patterns (will be completed in 2022)		2021	EE	https://riigihanked.riik.ee/rhr-web/#/procurement/3128692/general-info https://eehitus.ee/wp-content/uploads/2022/04/Tuhjenemise-mustrid_lopprapprt_2022_compressed.pdf	Statistical survey
Expert Group on Spatial Design	Estonian Government	2018	EE	https://www.kul.ee/media/799/download	Report
Report on basic principles of quality of space of Estonia	WORKING GROUP ON SPATIAL PLANNING	2019	EE	-	Report
Report “Shrinking smartly in Estonia”	OECD	2022	ENG	https://www.oecd.org/publications/shrinking-smartly-in-estonia-77cfe25e-en.htm Background description of the project: https://www.fin.ee/en/news/estonia-eu-and-oecd-find-new-ways-manage-shrinking-areas	Report
Estonian National Maritime Spatial Plan	Ministry of Finance	2022	ENG	https://www.fin.ee/en/state-local-governments-spacial-planning/spatial-planning/maritime-spatial-planning	Policy or strategies

Annex B: Details on the Survey

Table 8-1: List of stakeholders' organisations

Organisation
Ministry of Economic Affairs and Communications
Ministry of Finance
Estonian Chamber of Real Estate Agents
Estonian Association of Construction Entrepreneurs
Estonian Association of Spatial Planners
Estonian Association of Architectural and Consulting Engineering Companies
Estonian Association of Architects
Association of Estonian Cities and Rural Municipalities
Ministry of Environment
Ministry of Culture
Government Office
City of Tallinn
City of Tartu
Estonian Digital Construction Cluster
Estonian Land Board
Civil society
Ministry of Interior
Estonian Union of Landscape Architects
Estonian Union of Towns and Rural Municipalities
Local spatial development strategy units in Tallinn and Tartu, State agencies, i.e. Transport Administration, KredEx), State Board innovation team
At least 10 representatives of SMEs from planning and building sectors
Other representatives of local business sector, housing associations and civil society
Others (networks)

Figure 8-1: Distribution of the respondents by type of organisation (n=98)



Annex C: Questionnaire (English)

Please refer to the PDF document submitted.

Annex D: Questionnaire (Estonian)

Please refer to the PDF document submitted.