Interreg
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ENERGY TRANSITION
CommitClimate

CommitClimate Citizen Survey

2024

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The CommitClimate Citizen Survey Report was prepared in 2024 within the Interreg Baltic Sea Region Programme project CommitClimate – Towards Energy Transition and Climate Neutrality in the BSR Municipalities, project No. #C026. The survey was coordinated and analysed by the Institute of Energy Systems and Environment of Riga Technical University in cooperation with the CommitClimate project partners. Data collection was supported by the participating project partners and municipalities in Latvia, Estonia, Sweden and Poland.

COMMITCLIMATE CITIZEN SURVEY

Ten surveys were carried out as part of the project, two each in Latvia (Riga and Cēsi municipalities, as well as at the national level), Estonia (national level), Sweden (Jokkmokk, Pajala, Gallivare, and Kiruna municipalities), and Poland (Pałecznica and Raciechowice municipalities). The participants were queried regarding their evaluation of the extent to which their municipality encourages a greener way of life among its inhabitants, as well as the modifications that must be made to implement climate mitigation strategies. Various questions were posed to the respondents, including rating questions that required evaluating the present state of affairs and questions that required one or more choices, such as those concerning the respondents' residence. Respondents were also permitted to share their opinions on the survey's topics (transport, waste management, and energy). The poll was divided into four sections overall, where

- Section 1 collected socio-demographic information about respondents (place of residence, age, occupation, number of persons in the household, and area of the home);
- Section 2 collected data on respondents' transportation patterns (including reasons for transportation, preferred mode of transportation, distance traveled per week, and variables influencing mode of movement selection).
- In section 3, residents had to assess the municipality's actions in the transport sector and pick which steps the responder would be ready to support in their municipality to lessen the environmental effect of the transport sector.
- In section 4, residents described their waste management habits and factors that influenced the respondent to reduce the amount of waste, they had to evaluate their municipality's performance in promoting environmentally friendly waste management, as well as choose which measures the respondent would be willing to support in their municipality to reduce the waste sector's environmental impact.;
- In section 5, respondents shared their energy and water consumption habits. Respondents also evaluated their municipality's efforts to reduce energy resource consumption and chose which measures they would support.
- In section 6, respondents shared their views on environmental protection.

1. Characteristics of respondents

A total of 1151 respondents were surveyed, whose characteristics are available in Table 1. The results of 258 respondents from Sweden, 500 from Estonia, 308 from Latvia, and 85 from Poland are summarized below. A small number of respondents from Poland indicates a data gap that should be considered during further analysis.

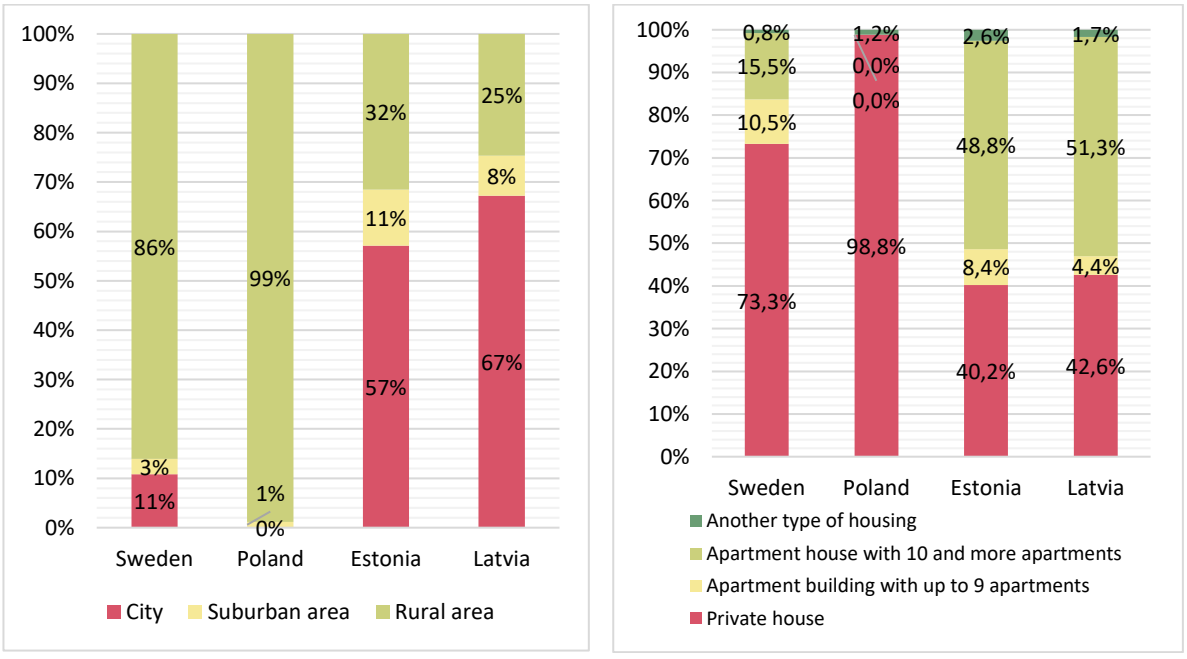
Table 1. Sociodemographic information about the respondents

	Sweden	Poland	Estonia	Latvia	All countries
Respondent's age					
18 – 24 years	1,6%	4,7%	7,4%	10,4%	6,7%

25 – 34 years	11,2%	23,5%	16,2%	23,4%	17,5%
34 – 44 years	19,0%	37,6%	18,4%	22,7%	21,1%
45 – 54 years	22,1%	21,2%	16,8%	19,2%	18,9%
55 – 63 years	30,2%	8,2%	15,8%	17,5%	18,9%
64 – 75 years	12,8%	2,4%	13,8%	6,5%	10,8%
75 and more	3,1%	2,4%	11,6%	0,3%	6,0%
Current employment status					
Full-time employee	79,5%	60,0%	51,2%	79,2%	65,7%
Part-time worker	4,3%	4,7%	9,8%	3,9%	6,6%
Student	1,9%	3,5%	4,6%	4,9%	4,0%
Retired	11,2%	8,2%	24,0%	6,2%	15,2%
Home duties	0,8%	18,8%	6,0%	2,3%	4,8%
Other	2,3%	4,7%	4,4%	3,6%	3,7%
Number of people in the household					
1	20,5%	2,4%	20,4%	21,8%	19,5%
2	37,6%	7,1%	38,6%	33,1%	34,6%
3	19,8%	17,6%	19,6%	19,5%	19,5%
4	17,1%	32,9%	12,2%	17,9%	16,3%
5	3,9%	20,0%	6,2%	4,2%	6,2%
6	0,8%	9,4%	2,0%	2,9%	2,5%
7	0,0%	9,4%	0,8%	0,0%	1,0%
8	0,0%	1,2%	0,0%	0,3%	0,2%
8 and more	0,4%	0,0%	0,2%	0,3%	0,3%
Number of children and teenagers (<16 years) in the household					
0	66,7%	24,7%	70,8%	62,7%	64,3%
1	17,1%	24,7%	14,2%	21,1%	17,5%
2	13,6%	40,0%	10,2%	13,3%	14,0%
3	1,9%	8,2%	4,0%	2,6%	3,5%
4	0,8%	1,2%	0,4%	0,0%	0,4%
4 and more	0,0%	1,2%	0,4%	0,3%	0,3%
Housing location					
City	10,9%	0,0%	57,1%	67,2%	45,1%
Suburban area	3,1%	1,2%	11,3%	8,1%	7,8%
Rural area	86,0%	98,8%	31,5%	24,7%	47,1%
Type of housing					
Private house	73,3%	98,8%	40,2%	41,2%	52,2%
Apartment building with up to 9 apartments	10,5%	0,0%	8,4%	7,5%	8,0%
Apartment house with 10 or more apartments	15,5%	0,0%	48,8%	49,7%	38,0%
Another type of housing	0,8%	1,2%	2,6%	1,6%	1,8%
Homeowner					
For you/your family member	73,6%	95,3%	90,8%	75,0%	83,1%
Privately rented	7,8%	0,0%	7,0%	22,4%	10,8%
Rented by the municipality	16,3%	0,0%	0,2%	1,0%	4,0%
Other	2,3%	4,7%	2,0%	1,6%	2,2%
Type of heating					
Centralized heat supply	33,2%	0,0%	35,8%	48,9%	35,8%
Biomass boiler, stove	16,6%	20,0%	29,2%	24,8%	23,9%
Gas boiler	0,0%	8,9%	0,0%	10,8%	2,9%
Solar collector	1,1%	3,3%	0,5%	0,9%	0,9%
Electricity	16,6%	4,4%	6,2%	5,3%	8,3%

Air source heat pump	14,7%	13,3%	12,9%	2,5%	10,5%
Another type of heat pump	9,5%	6,7%	9,6%	1,9%	7,5%
Another type of heating	8,4%	43,3%	5,9%	12,1%	10,0%
Housing area					
Average value	*118*	*157*	*91*	*96*	*103,5*
Up to 50 m2	3,5%	2,4%	19,6%	22,3%	15,4%
From 50 to 100 m2	31,4%	15,5%	47,8%	44,0%	40,7%
More than 100 m2	65,1%	82,1%	32,6%	33,7%	43,9%

Table 1 shows that, although individuals from all of the specified age categories participated in the survey, the average age of the population in Poland and Latvia is 42 and 43 years, respectively, which is younger than in Estonia and Sweden where the average age was 51 and 52 years, respectively. A noteworthy distinction between these four nations is that inhabitants of communities completed the Poland and Sweden questionnaires where individuals are more likely to live outside of cities. In Poland, all responders reside outside of cities. Figure 1 (a) illustrates this more clearly. As a result, there is a clear variation in housing preferences: in these nations, private residences are favored, but in Latvia and Estonia, where the bulk of the population lives in cities and suburbs, multi-apartment complexes are more often chosen. A substantial difference may be noted in Polish municipalities regarding household population, with an average of 4.3 persons per home, while in other countries the average is 2.5 - 2.6.



(a) (b)

Figure 1. Place of residence; (a) housing location; (b) type of housing

Table 2 summarizes data on respondents' average area of residence. The table data shows that Sweden and Poland have the greatest locations of residence, with the bulk of respondents living outside of cities. Also in Estonia, people who live outside of the city have bigger dwellings on average.

Table 2. Area of residence of respondents

	Sweden	Poland	Estonia	Latvia	All countries
Average value, m2	118,26	156,652		96,26	
Up to 50 m²	3,5%	2,4%	19,6%	22,3%	15,4%
From 50 to 100 m²	31,4%	15,5%	47,8%	44,0%	40,7%
More than 100 m²	65,1%	82,1%	32,6%	33,7%	43,9%

2. Survey results

The views of respondents from each nation on each sector outlined in section 1 are summarized below.

2.1. Transport sector

Initially, respondents were questioned about resettlement measures. Figure 2 depicts the frequency of relocations reported by respondents. The data suggest that the majority of respondents from Latvia and Sweden move every day, accounting for 75.6% and 71.3%, respectively. Similarly, in Poland, the majority of respondents (64.7%) move every day. Meanwhile, 37% of Estonian respondents chose to move every day, while 25.2% decided to move 3-5 times per week. Estonian respondents reported moving more frequently (18.2%) or very infrequently (3.6%), compared to those from other countries. Polish respondents moved infrequently (10.6%) and very seldom (2.4%), while Swedish respondents moved 1.9% and 1.2%, respectively.

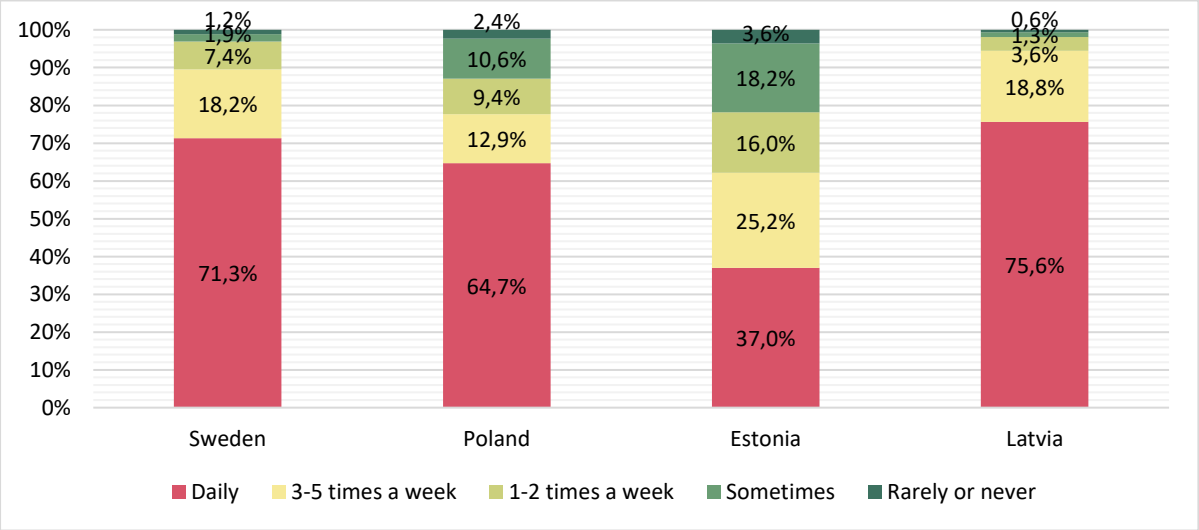
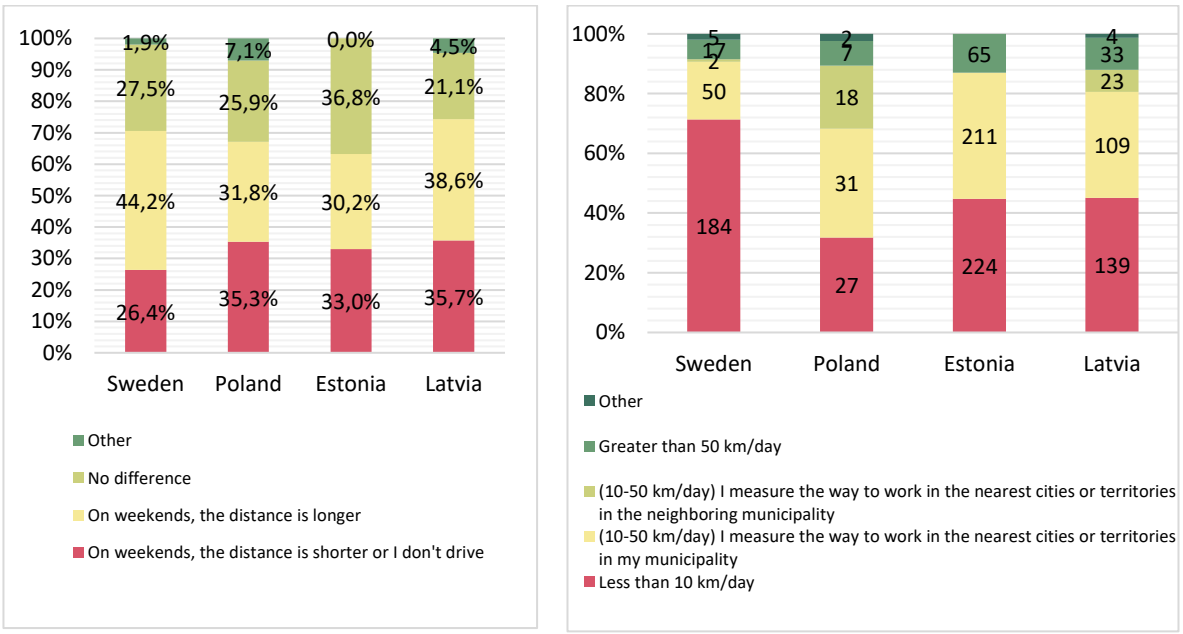


Figure 2. Frequency of movement outside the house

A comparison of the results within the country revealed a trend in Estonia, with the share of persons who move daily increasing as respondents' ages increased to 35-44. Thus, just 30% of respondents aged 18-24 move every day, but their share climbs to 53% between the ages of 35 and 44, before decreasing again until 17% of the population moves daily after the age of 75. In Poland, a similar tendency can be seen, with 50% of respondents moving every day between

the ages of 18 and 24, 78% between the ages of 35 and 44, and 57% between the ages of 55 and 63. In Estonia, 0% of respondents reported moving daily after the age of 64. Meanwhile, a tendency among Swedish respondents shows that the younger they are, the more they walk regularly. Thus, the percentage of people who move daily is 100% between the ages of 18 and 24, but it drops to 25% after the age of 75.

Next, the respondents were asked to explain their commute, including the average distance they walk per day (see Figure 3 (a)) and how the commuting distance varies based on the day of the week. In all nations, the percentage of respondents who commuted more than 50 kilometers per day ranged from 5% to 10%. A significant difference can be observed in the answers of Swedish respondents, who mostly cover a distance of less than 10 km per day (71%), and Estonian respondents, who mostly cover a distance of less than 10 km per day (45%), while respondents in other countries more often chose to move distances from 10-50km (43% in Latvia, 42% in Estonia, and 58% in Poland), while in Poland, a substantial part of respondents 21% indicated that they travel 10-50km/day in neighboring municipalities. The association between travel and day of the week reveals that in Sweden and Latvia, people travel further on holidays, whereas in Poland and Estonia, people travel farther on weekdays. It should be emphasized that in all nations, the difference between respondents who travel more frequently on holidays and those who travel more frequently on weekdays was less than 3%. Sweden is an irregularity, with 19.8% more responders traveling longer distances on vacations than on weekdays.

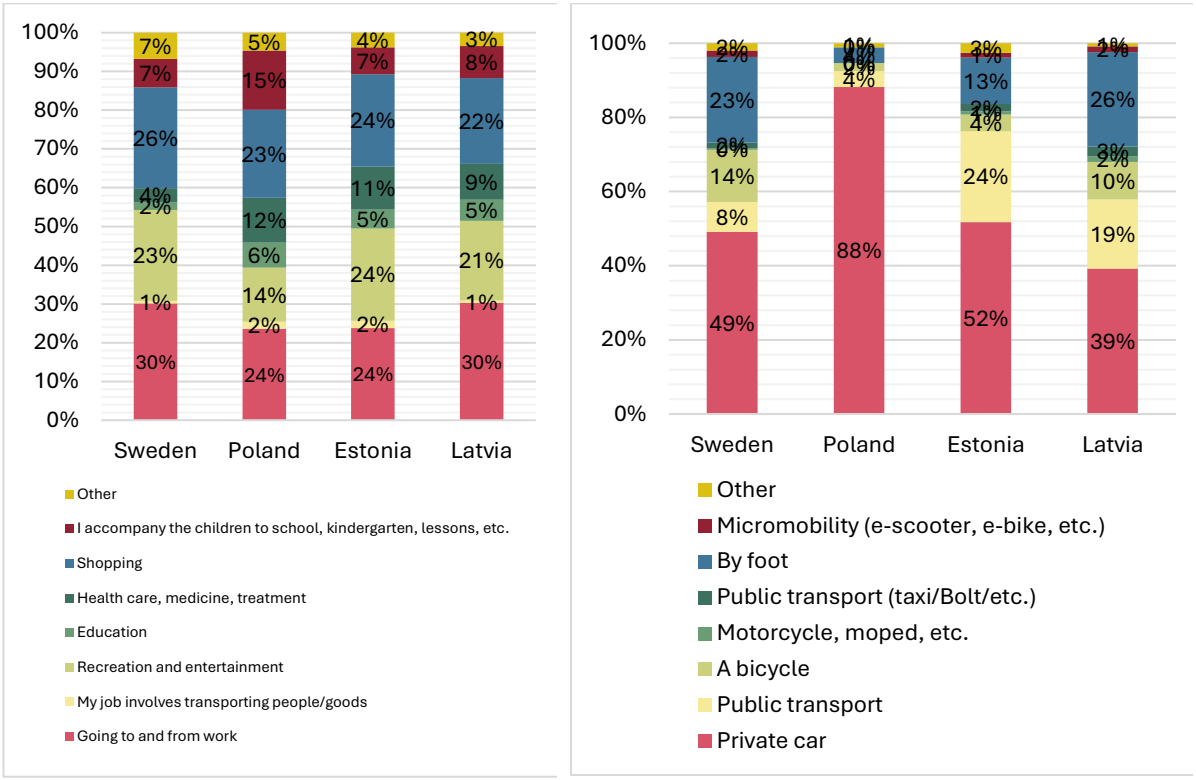


(a) (b)

Figure 3. Commuting habits of respondents (a) working days vs weekends; (b) distance per day in km

The poll also determined the reason for relocating, and the findings suggest that the majority of individuals in Latvia and Sweden migrate to and from job (30%), to shop (22% in Latvia and 26% in Sweden), and for amusement and entertainment (21% in Latvia and 23% in Sweden). These reasons for relocation were likewise the most common in Estonia, with 24% mentioning all of them. In Poland, the most common replies for the first two reasons were 24%

and 23%, respectively, while relaxation and entertainment were picked by 1% less (14% in total) than the argument that children must be accompanied to educational institutions (15%). Figure 4(a) depicts a comparison of the causes. Figure 4 (b) depicts the preferred transportation mmode, demonstrating that private road transport is the most popular form of transport mode in all countries. The findings also emphasized the disparity in the usage of public transportation, which is less common in the Polish and Swedish municipalities questioned. Residents of these municipalities complained more frequently than residents of other municipalities about the insufficient use of public transportation, citing the fact that it rarely arrives or does not run on the necessary routes, as well as the fact that it takes too long to use. Furthermore, Figure 4 (b) demonstrates that bicycle transportation is more popular in Sweden and Latvia than in other municipalities studied.



(a) (b)

Figure 4.(a)comparison of the transportation causes; (b) preffered transport mode

Figure 5 depicts the elements influencing respondents' choices. These findings reveal that, while it is widely assumed that people's activities are often motivated by prices when it comes to relocation, people have more frequently highlighted considerations such as distance, journey time, comfort and convenience, transportation availability, and season of the year.

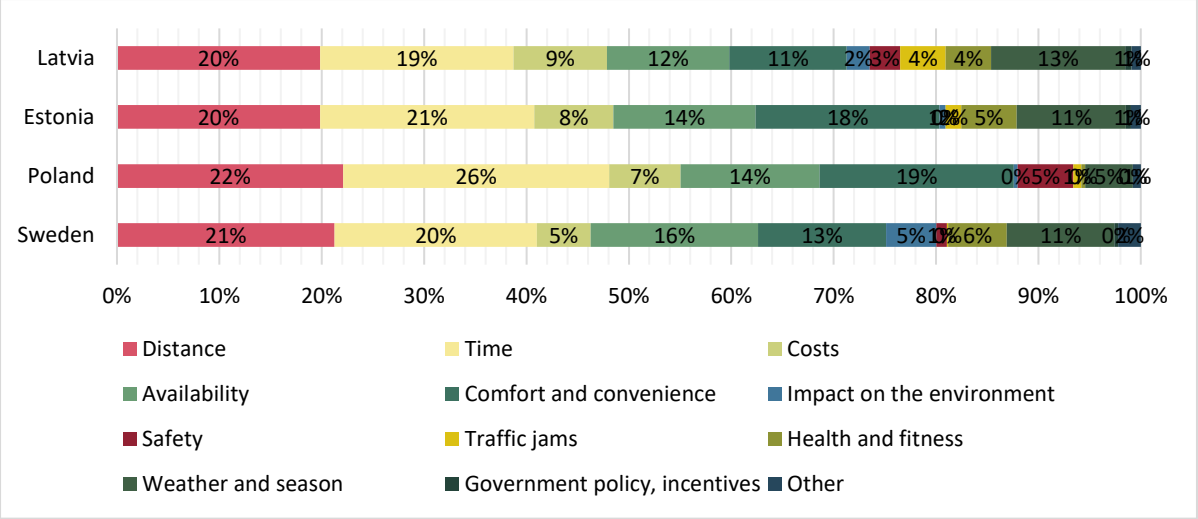


Figure 5. Transportation mode choice influencing factors

When asked to rate their municipality, respondents gave harsher ratings in the transportation sector than in other sectors. This is particularly evident in the comments of respondents from Poland and Sweden, where individuals perceive a lack of support for the development of public transportation and active modes of transportation.

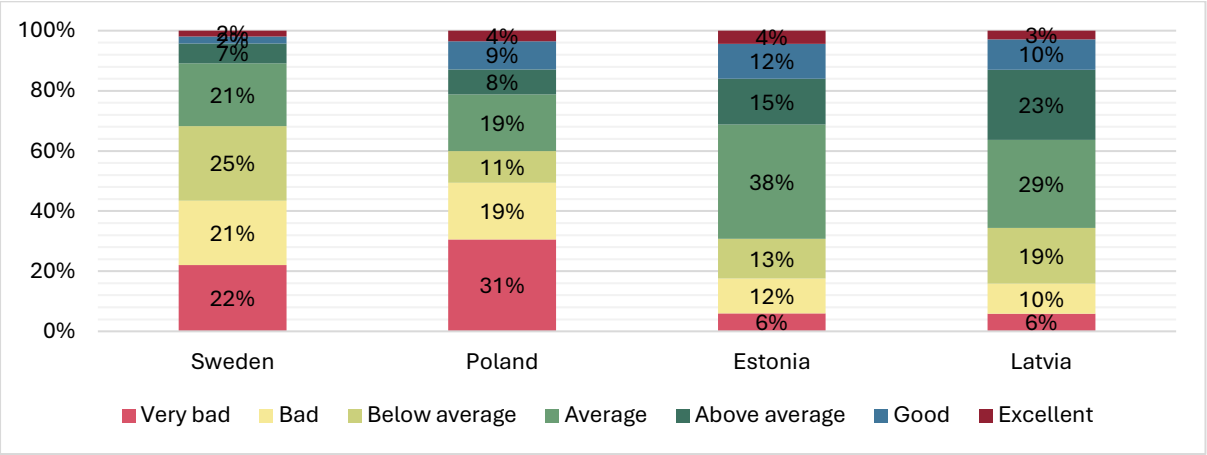


Figure 6. Respondents answer the question "To what extent the availability of services, infrastructure, municipal initiatives, etc. promote environmentally friendly movement in your municipality, what assessment would you give?"

To improve the existing rating, respondents were offered 20 policies, as well as the opportunity to propose their initiative. The results are shown in Figure 6. It can be seen that the most frequently chosen policies were Improving public transport, Improving cycling infrastructure, pedestrian-friendly urban planning, and promoting remote work options to reduce the need for daily commuting to and from work. Respondents in Estonia and Latvia were more supportive of smart solutions (implementation of intelligent traffic management systems to reduce congestion, use of data and technology to optimize transportation services, and promotion of the use of mobile applications on smart devices to find the best route) than in other countries, where the number of respondents supporting such measures did not exceed 5%. When comparing the number of supported policies in other nations, it was discovered that in Poland,

each respondent chose an average of 2.8 replies, whereas in Estonia and Sweden, respondents chose more support mechanisms, 3.9 and 6.5, respectively. Furthermore, in both of these countries, respondents under the age of 45 chose around one support measure more than those over 45.

Table 3. The most supported policies by respondents in the transportation sector.

	Sweden	**Poland**	**Estonia**	**Latvia**	**All countries**
Improving public transport (expanding accessibility, introducing special public transport lanes, etc.)	**36%**	**42%**	**38%**	**24%**	**34%**
Improvement of cycling infrastructure (construction of cycle paths and parking spaces, bicycle sharing programs, promotion of safe cycling, etc.)	**24%**	**29%**	**23%**	**31%**	**26%**
Pedestrian-friendly urban planning (providing compact and mixed land use to reduce the need for car travel, creating pedestrian areas, etc.)	**21%**	**19%**	18%	**23%**	**20%**
Promoting remote work options to reduce the need for daily commuting to and from work	19%	9%	**21%**	22%	**20%**
Initiatives for citizens to support the purchase of economical and low-emission vehicles	10%	4%	18%	10%	13%
Creation of park-and-ride parking spaces at transport hubs to promote the use of public transport, cycling, micro-mobility	7%	9%	15%	15%	12%
Electrification of municipal vehicles, including buses	13%	3%	16%	9%	12%
Launching public awareness campaigns to promote walking, cycling and public transport	15%	11%	10%	12%	12%
Implementation of intelligent traffic management systems to reduce congestion	2%	5%	15%	17%	11%
Installation of charging infrastructure for electric vehicles	11%	5%	12%	8%	10%
Using data and technology to optimize transport services	4%	3%	16%	10%	10%
Promoting the use of mobile applications on smart devices to find the best route	5%	5%	12%	11%	9%
Promotion of sharing and ride-sharing services to reduce the number of vehicles on the road (e.g. development of local sharing apps and platforms)	11%	5%	7%	9%	9%
Organization of "Car Free" days or other events to promote alternative forms of transport	7%	6%	6%	14%	9%
Implementation of measures to reduce vehicle speed (e.g. speed humps) and thereby improve pedestrian safety and promote cycling	6%	5%	10%	9%	8%
Organization of training on economical driving (eco driving)	6%	5%	5%	6%	5%

Higher tax on polluting vehicles with higher emissions	2%	5%	5%	6%	4%
Organizing educational campaigns and seminars to raise public awareness of transport-related CO2 emissions	5%	3%	3%	5%	4%
Creation of low-emission zones where only low-emission or electric vehicles would be allowed	2%	3%	3%	4%	3%
Other	5%	5%	0%	5%	3%
The introduction of a congestion tax to discourage the use of private vehicles during peak hours	1%	2%	3%	4%	3%

2.2.Energy

The first energy-saving question asked respondents to rate how much attention they pay to saving energy and water in their household daily, ranging from not at all to considerably (see Figure 7). In Poland, the majority of respondents claim they place a high (40%) and extreme (36.5%) value on energy conservation. Meanwhile, in Latvia, a greater proportion marked "moderately" (36.5%) and "very" (32.1%). The findings suggest that respondents from Latvia and Poland rate their level of energy conservation higher than those from Sweden and Estonia. In Estonia, 9.6% of respondents have never considered energy squatting, compared to 18.6% in Sweden.

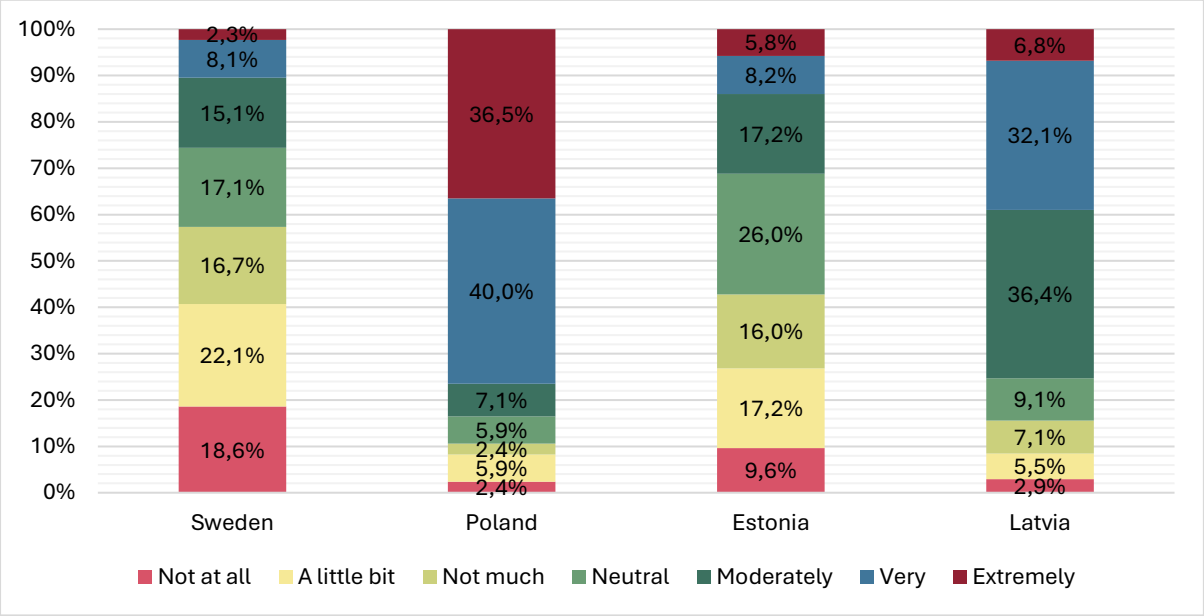


Figure 7. Respondents assessment on how much attention they pay to saving energy and water in their household daily

Later, respondents had to specify what measures they take to reduce energy and water consumption in their household. 16 options were offered, from which it was possible to mark several answer options, as well as the option to choose the answer option "other". The results are summarized in Table 4. The top 3 measures of each country's respondents are highlighted in bold. For the most part, the most supported measures were the use of energy-efficient light bulbs, the purchase of energy-efficient electrical appliances, as well as washing clothes in the coldest water. In Sweden, without the measures mentioned, a large part of the population highlighted the importance of using natural daylight when possible, while in Poland respondents highlighted that they pay attention.

Table 4. Measures that respondents take to reduce energy and water consumption in their household.

	All countries	Sweden	**Poland**	Estonia	Latvia
Replace incandescent bulbs with energy-efficient LED or CFL bulbs	**82,5 %**	**88,0 %**	**88,2 %**	**78,8 %**	**82,1 %**
When purchasing new electrical equipment, you prefer devices with higher energy efficiency	**55,3 %**	**62,4 %**	41,2 %	**48,8 %**	**63,6 %**
Wash your clothes in 40°C or cooler water	**55,1 %**	48,1 %	**44,7 %**	**55,0 %**	**64,0 %**
You take advantage of natural light to reduce the need for artificial lighting	46,8 %	**59,3 %**	36,5 %	44,0 %	43,8 %
You use energy-efficient kitchen appliances	34,2 %	35,7 %	38,8 %	32,2 %	35,1 %
Make sure your house is properly insulated to prevent drafts and you close any gaps around windows and doors to maintain a constant temperature	33,1 %	33,3 %	**43,5 %**	37,8 %	22,4 %
Unplug electrical appliances or use smart switches to prevent power consumption in standby mode	32,9 %	45,3 %	35,3 %	23,4 %	37,3 %
You install energy-efficient windows	31,6 %	24,8 %	32,9 %	29,0 %	41,2 %
You choose the dynamic electricity tariff and use electrical appliances during off-peak hours at a cheaper price	23,0 %	16,3 %	12,9 %	30,8 %	18,8 %
You use water-saving equipment (such as low-flow shower heads and faucets)	22,6 %	23,6 %	22,4 %	22,2 %	22,4 %
You use programmable thermostats to regulate heating and cooling (for example during night hours or when you are away)	17,0 %	16,3 %	24,7 %	14,6 %	19,5 %
You use lighting control sensors	13,1 %	20,5 %	7,1%	12,8 %	9,1%
You install solar panels to generate renewable energy in your home	8,5%	6,6%	34,1 %	5,6%	7,8%
You use home automation systems to manage energy consumption more efficiently	8,3%	13,2 %	7,1%	7,8%	5,2%
Buy 'green' electricity from a renewable energy supplier if installing solar panels is not an option	7,4%	15,1 %	3,5%	6,8%	2,9%
You have had a professional energy audit of your home to identify areas where energy efficiency can be improved	3,3%	2,3%	5,9%	2,8%	4,2%
Other	2,5%	6,6%	2,4%	0,0%	3,2%

Reporters were able to evaluate the extent to which the availability of services, infrastructure, municipal and private efforts, and so on encourage ecologically responsible energy and resource consumption practices in their municipality. The energy industry had a higher average

score than the transport sector. Polish respondents had more "ok/good" ratings, but they also had the highest number of "very bad" answers. Swedish respondents most frequently chose the rating "average" (42.6%), with a considerable proportion selecting ratings that depict the situation as below average or worse. In Estonia and Latvia, the most common rating was "average" (53.4% in Estonia and 42.2% in Latvia). Latvia, among other countries, had the highest percentage of respondents who chose "above average" (18.5%).

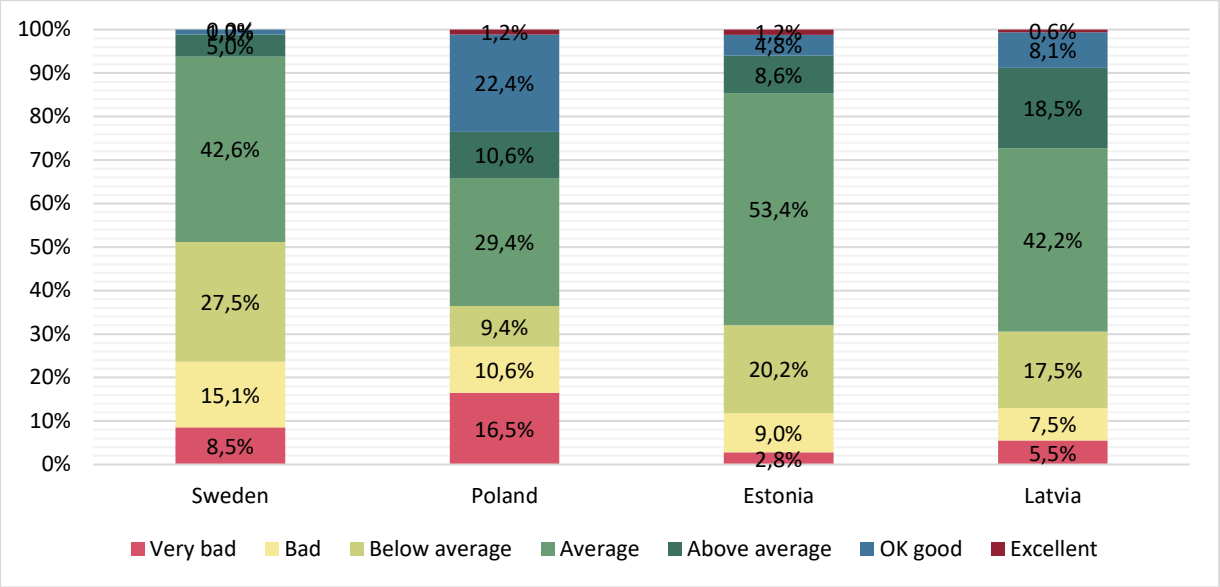


Figure 8. Respondents' evaluation of their municipality's effort to handle energy in an environmentally responsible manner.

Finally, respondents were asked to select which steps they would support in their municipality to reduce the total environmental impact of energy resource consumption. The findings are summarized in Table 5. In all nations, the most popular measure was the modernization of street lighting, and in all countries except Poland, voters preferred the installation of smart lighting systems. In Poland, the second most popular solution was similar to the third most popular solution in other countries: provide incentives to businesses and individual homeowners to implement energy-efficient measures. In addition to the aforementioned measures, in Poland and Latvia, the measure "Promoting access to cheap or subsidized energy audits of buildings" was frequently selected.

Table 5. The most supported policies by respondents in the energy sector.

	Sweden	Poland	Estonia	Latvia	All countries
Upgrade street lighting to energy-efficient LED lighting, which consumes less energy and has a longer lifespan.	**80,6 %**	**38,8 %**	**60,8 %**	**66,2 %**	**65,1 %**
Install smart lighting systems that alter brightness based on real-time conditions.	**61,2 %**	20,0 %	**58,4 %**	**55,2 %**	**55,3 %**
Provide incentives to businesses and private homeowners to implement energy-saving measures.	**50,0 %**	**38,8 %**	**52,8 %**	**51,6 %**	**50,8 %**
Promoting the use of renewable energy sources like solar, wind, and geothermal in municipal infrastructure and encouraging citizens to do the same.	45,7 %	36,5 %	33,4 %	34,4 %	36,7 %
Encourage access to affordable or subsidized building energy audits.	28,7 %	**37,6 %**	29,8 %	49,7 %	35,4 %
Offering cash incentives, rebates, and tax breaks to businesses and individuals who employ energy-efficient technologies and practices.	35,7 %	28,2 %	33,0 %	34,4 %	33,6 %
Increasing the availability of centralized heat supply systems (building new pipelines and boiler houses).	35,3 %	14,1 %	30,0 %	34,1 %	31,1 %
Fuel switching projects are being implemented to replace fossil fuels with renewable energy sources in centralized heat supply systems.	32,6 %	14,1 %	24,0 %	35,1 %	28,1 %
Implement public awareness programs to educate residents and companies about energy conservation, energy efficient practices, and the benefits of decreasing energy consumption.	30,2 %	17,6 %	21,4 %	32,5 %	26,1 %
Promoting the development of renewable energy projects, such as solar energy parks or wind turbines, on the municipality's territory (attracting investors).	22,1 %	21,2 %	24,8 %	23,7 %	23,6 %
Creating preparedness measures to assist residents reduce energy use during power outages or extreme weather	25,6 %	9,4 %	30,8 %	14,3 %	23,6 %
Implementing and promoting green building standards for new and refurbished buildings to ensure energy efficient solutions.	27,5 %	10,6 %	18,0 %	26,9 %	22,0 %
Invest in data collection and analysis systems that help monitor energy usage and emissions in the corporate and governmental sectors to improve decision-making processes, set goals, and preserve transparency.	21,7 %	12,9 %	9,2 %	20,1 %	15,2 %
Establishing building energy labeling programs and benchmarking policies, assisting homeowners in understanding energy use and identifying chances for	15,1 %	5,9 %	15,0 %	13,0 %	13,8 %

improvement, allowing households to benchmark their consumption against others					
Organizing workshops and community activities about energy efficiency, renewable energy, and sustainable living	19,0 %	7,1 %	10,0 %	14,9 %	13,1 %
Creating one-stop agencies throughout the regions to provide citizens with information and practical guidance on energy efficiency.	8,9 %	10,6 %	13,4 %	15,6 %	12,8 %
Encourage the development of community activities, local energy-saving efforts, and contests.	19,0 %	12,9 %	9,4 %	13,0 %	12,8 %
Increasing tariffs on buildings with excessive energy use to encourage the deployment of energy-saving measures	17,1 %	2,4 %	8,4 %	11,7 %	10,8 %
Other	6,2 %	4,7 %	0,0 %	3,6 %	2,7%

2.3. Waste management

To assess waste management in municipalities, respondents were first asked to rate how much they thought about the quantity of waste generated in their household daily (see Figure 9), with answers ranging from "not at all" to "extremely". In Latvia, the majority of respondents assessed "moderately" or higher, making their responses stand out from those in other nations. 7.1% of Latvian respondents evaluated it as extremely good.

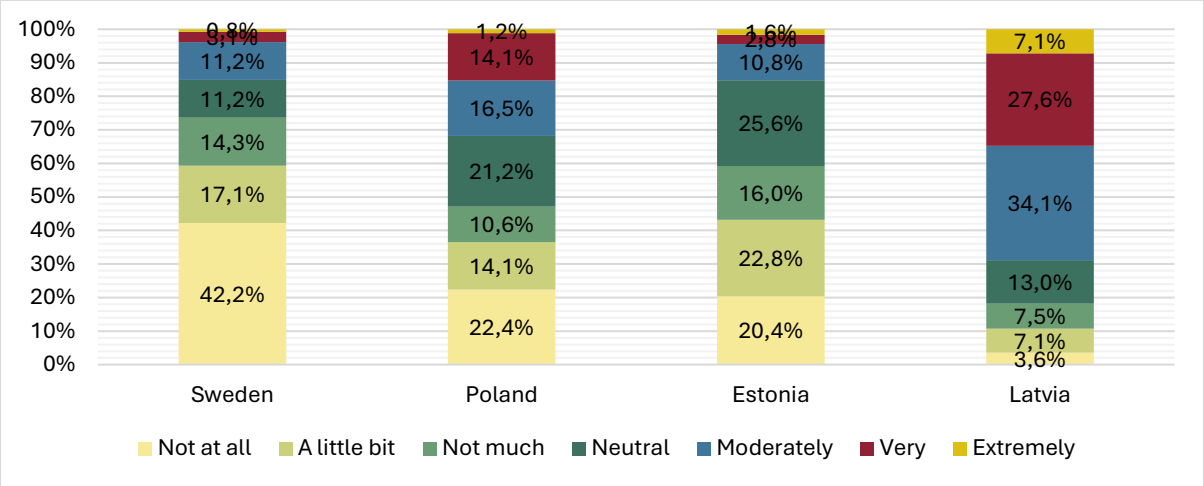


Figure 9. Respondents' evaluation of how much waste is generated in their household daily.

When asked what efforts they take to limit their waste (see Figure 10), practically all Swedish respondents admitted to sorting reusable products for recycling (95%) and using the packahe deposit system (93%). Package deposit systems were the most popular choice among Latvian (80%) and Estonian (85%) respondents, whereas just 21% of Polish respondents admitted to using a deposit system.

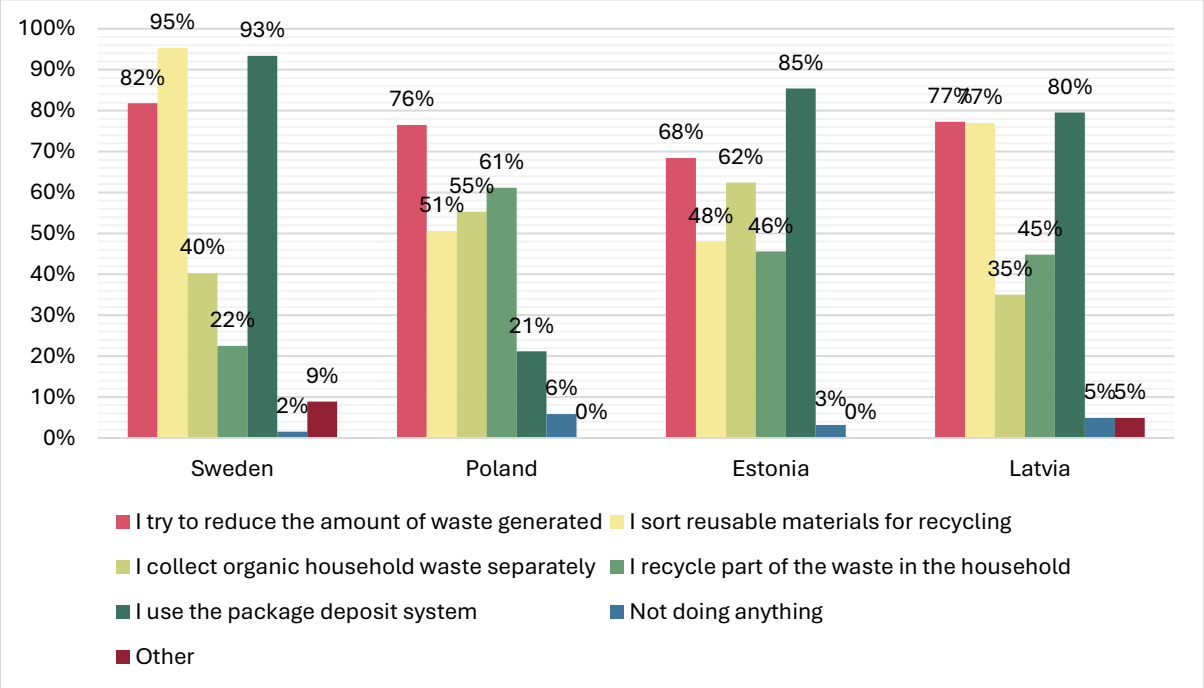


Figure 10. Respondents' assessment of the steps they take to limit the amount of waste they dispose of.

Later, respondents were asked to describe what incentives motivate them to reduce the quantity of waste they generate. There were 14 alternatives available, from which numerous answer options might be marked, as well as the option to select "other". The findings are summarized in Table 6. The top three variables reported by respondents from each country are underlined in bold. The most popular reasons given by all polled respondents were the deposit system, the availability of waste bins, and awareness of one's responsibility as a citizen. These were the primary reasons in Estonia and Sweden, respectively. In Sweden, the majority of respondents indicated a dedication to a sustainable lifestyle and a desire to preserve resources. In Latvia, the majority of inhabitants chose environmental protection, whereas half of the respondents in Poland chose cost-cutting measures.

Table 6. Summary of the incentives that encourage respondents to limit the amount of waste they generate

	Sweden	**Poland**	**Estonia**	**Latvia**	**All countries**
Deposit systems that offer refunds for container and packaging returns	**57,8%**	23,5%	**59,2%**	**61,7%**	**56,9%**
Easy access to sorting containers	**70,5%**	18,8%	**44,8%**	**51,0%**	**50,3%**
Awareness of the duty as a responsible citizen to participate in waste sorting programs and initiatives	**57,8%**	**31,8%**	**40,4%**	45,1%	**44,9%**
Caring for the environment	24,4%	**43,5%**	35,4%	**65,9%**	41,7%
A commitment to a sustainable lifestyle and a desire to contribute to waste reduction and climate change mitigation	**68,2%**	25,9%	32,2%	37,3%	41,2%
Limitation of natural resources, desire to save resources through recycling and responsible waste management	**57,8%**	20,0%	29,6%	37,7%	37,4%
The possibility of reducing the costs of the disposed waste	31,4%	**50,6%**	31,8%	44,5%	36,5%
Knowledge of energy and raw material savings associated with resource recycling	46,5%	24,7%	25,0%	27,3%	30,4%
Compliance with legislative requirements that determine waste sorting and recycling	21,3%	22,4%	28,0%	8,4%	20,9%
The possibility of generating revenue from the sale of recyclable materials	19,4%	21,2%	20,4%	20,8%	20,3%
Availability of information (news, social media content) that highlights waste-related issues and promotes responsible waste management	10,9%	9,4%	13,8%	20,8%	14,7%

Municipal initiatives (e.g. handing over fallen leaves in autumn)	5,0%	7,1%	13,8%	18,8 %	12,7%
Fear of possible penalties for non-compliance with waste sorting rules	2,3%	11,8%	7,6%	4,2%	5,8%
Social pressure and the influence of friends, family and neighbours	5,4%	8,2%	3,8%	5,2%	4,9%
Other	4,3%	7,1%	0,0%	3,6%	2,4%

Respondents were also asked to rate their municipal garbage management initiatives. The rating of municipalities is displayed in Figure 11. The majority of citizens evaluate the municipality's initiative as "above average" or higher. The lowest scores were recorded in Sweden, where 46% of the population evaluated their municipality as "below average" and below, and 7% ranked it as "very bad," and in Poland, where 12% of respondents rated their municipality as "very bad".

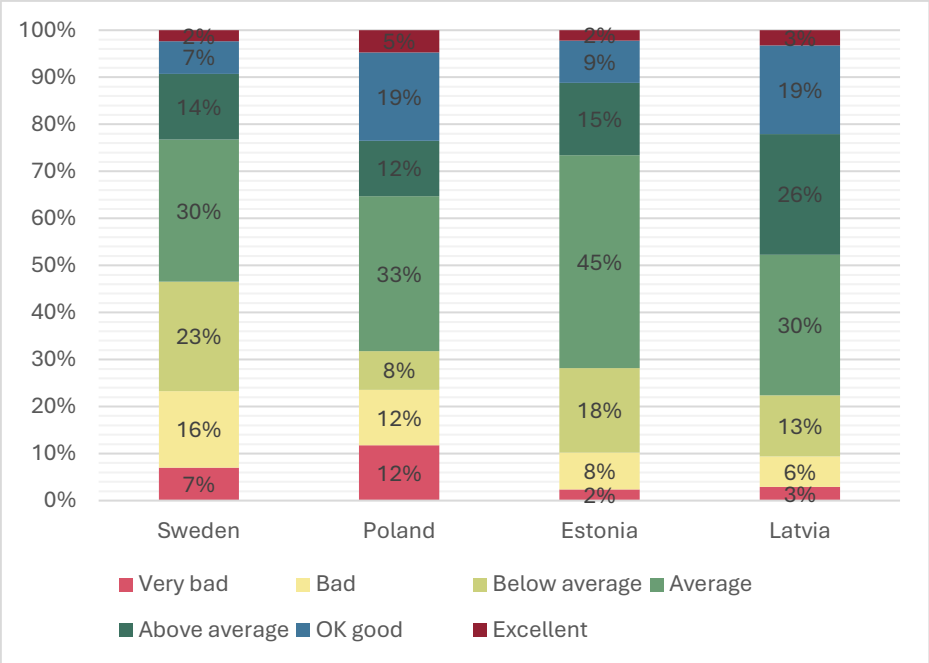


Figure 11. Respondents' evaluation of their municipality's environmentally friendly waste management.

Finally, respondents were given the option of selecting one of several methods to assist lessen the environmental impact of the waste management sector. The findings are summarized in Table 7. One of the most widely approved measures was to create and expand recycling and composting services. Other popular efforts included providing local incentives for organic trash collection and educating locals about good waste management techniques. More than half of Swedish respondents chose the event "support for companies and initiatives that promote product repair and reuse to extend the life of items and reduce waste," while a significant number of Latvian and Estonian respondents chose the event "providing local incentives for specific categories of waste".

Table 7. The most supported policies by respondents in the waste management sector.

	Sweden	Poland	Estonia	Latvia	All countries
Implementation and expansion of recycling and composting options	**72%**	**41%**	**45%**	**55%**	**53%**
Providing local incentives for organic waste collection	40%	**41%**	**49%**	**49%**	**47%**
Educating citizens about good waste management practices	**45%**	**36%**	42%	**51%**	**45%**
Providing local incentives for specific categories of waste (eg garden waste, bulk waste, hazardous waste collection etc.)	36%	29%	**47%**	44%	43%
Organization of educational campaigns and seminars to raise public awareness of the importance of waste reduction and its relation to CO2 emissions reduction	23%	15%	10%	20%	16%
Investing in waste recycling facilities that can turn non-recyclable waste into energy, reducing the need for fossil fuels	37%	22%	39%	42%	38%
Support for companies and initiatives that promote product repair and reuse to extend the life of items and reduce waste (e.g. local exchange points, etc.)	**54%**	18%	36%	37%	39%
Introduction of PAYT programs ('Pay as You Throw') where residents are charged based on the amount of waste they generate, providing a financial incentive to reduce waste	22%	8%	12%	19%	16%
Promoting EPR (Extended Producer Responsibility) programs that require manufacturers to take responsibility for the life-cycle management of their products, including recycling and disposal	41%	19%	25%	27%	28%
Implementation of a green procurement policy that prioritizes environmentally friendly and recyclable products, reducing the generation of waste in municipal institutions	31%	14%	15%	30%	22%
Adopting regulations that require businesses and residents to implement certain waste management practices (such as organic waste collection)	21%	12%	22%	27%	23%
Organizing community waste reduction initiatives such as cleanups, recycling campaigns and environmental stewardship programs	33%	25%	23%	26%	26%
Other	6%	5%	0%	5%	3%

2.4.Personal beliefs

Respondents were also asked about their personal beliefs toward climate change; the results are given below.

At first, respondents were asked about their environmental awareness and concerns. From these results, it's evident that there is a range of attitudes across different countries, with varying levels of strong agreement, agreement, neutrality, disagreement, and strong disagreement.

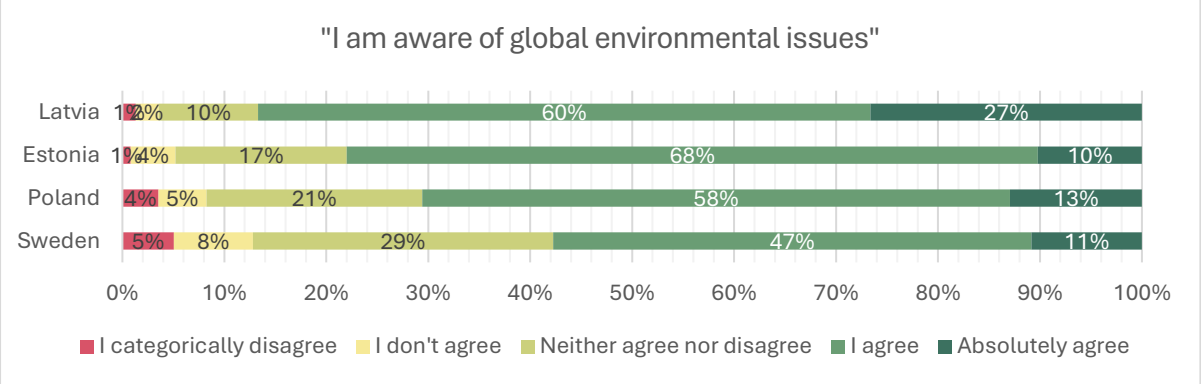


Figure 12. Respondents' evaluation of the statement “I am aware of gobal environmental issues”.

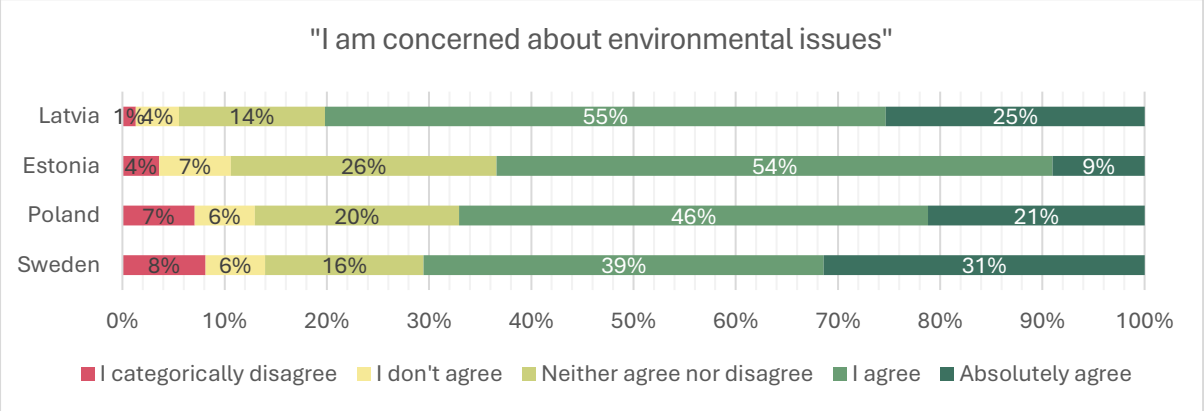


Figure 13. Respondents' evaluation of the statement “I am concerned about environmental issues”.

Comparing the two sets of results, it indicates that more people are aware of global environmental difficulties than those who are only concerned with environmental issues. This shows that, while global environmental challenges may be more widely known, levels of care may differ. However, there is a significant overlap between those who agree with environmental concerns and those who agree with global environmental awareness. Overall, the patterns indicate that a considerable proportion of respondents agree or strongly agree with both assertions in each country and across all countries. When respondents were asked if they believed that changing their behavior would not change anything, the majority of them disagreed. When asked if technological innovation will solve environmental problems and behavior change is not necessary, people expressed a similar point of view, with the exception of Poland, where more respondents believe in technological solutions.

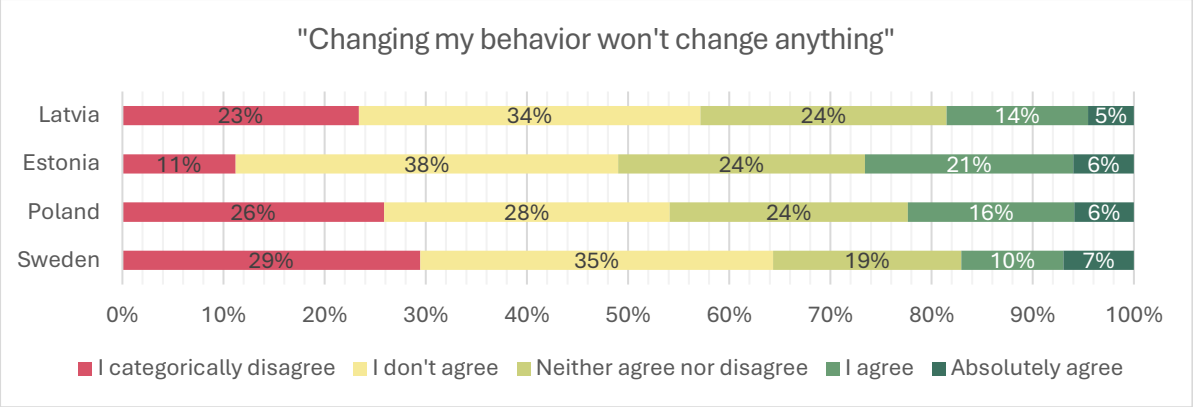


Figure 13. Respondents' evaluation of the statement “Changing my behavior won't change anything”.

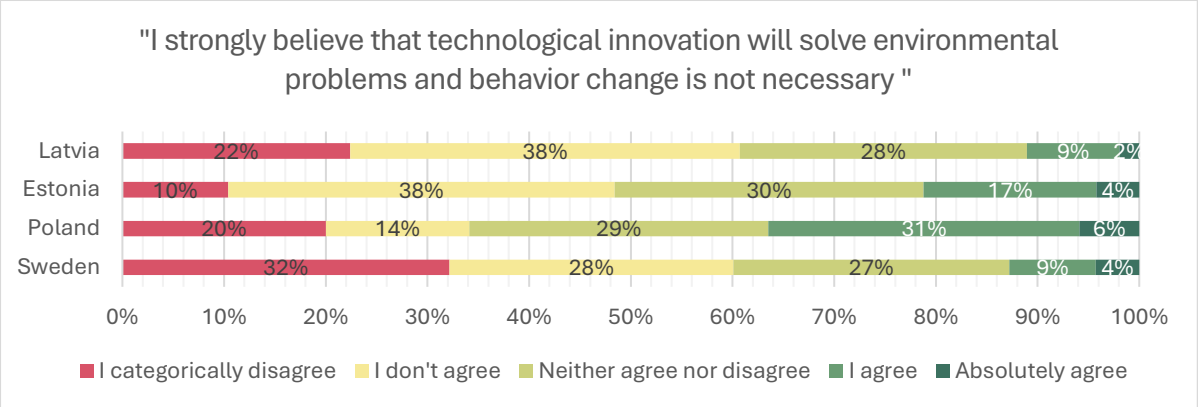


Figure 14. Respondents' evaluation of the statement “I strongly believe that technological innovation will solve environmental problems and behavior change is not necessary”.

Next, respondents were questioned about their sense of personal responsibility and readiness to act. Results demonstrate that most individuals believe it is their responsibility to reduce their impact on the environment; but, when asked if they would change their habits if it meant making sacrifices, respondents were less likely to act.

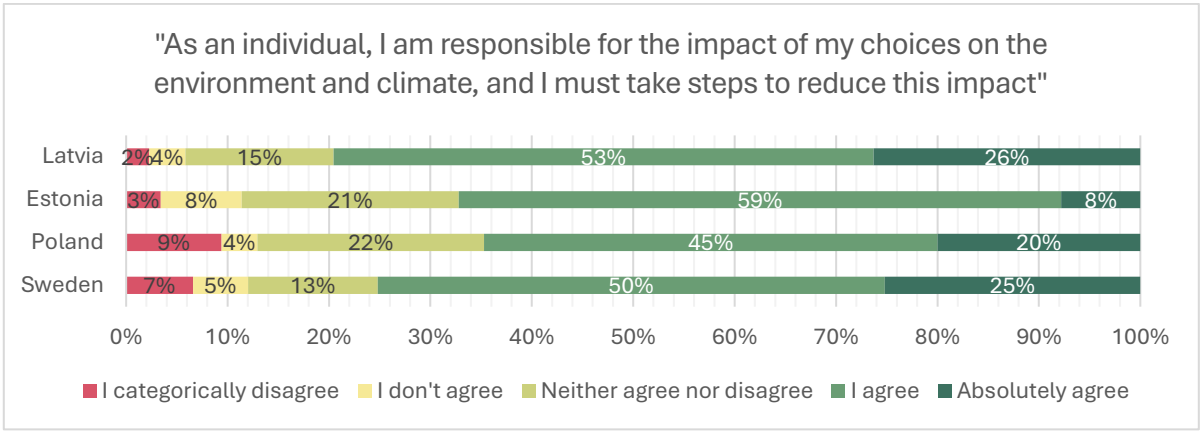


Figure 15. Respondents' evaluation of the statement “As an individual, I am responsible for the impact of my choices on the environment and climate, and I must take steps to reduce this impact”.

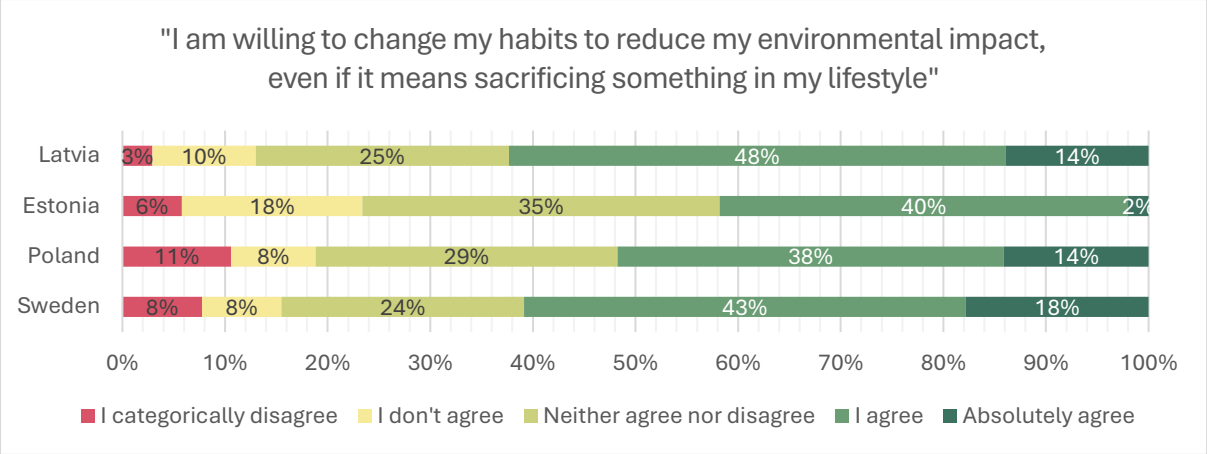


Figure 16. Respondents' evaluation of the statement "I am willing to change my habits, but there are external constraints holding me back".

Then respondents were questioned about external obstacles that may prevent them from changing their habits. Many people agreed with this comment. When asked if the lack of collaboration of others in their household is one of them, the majority of respondents disagreed.

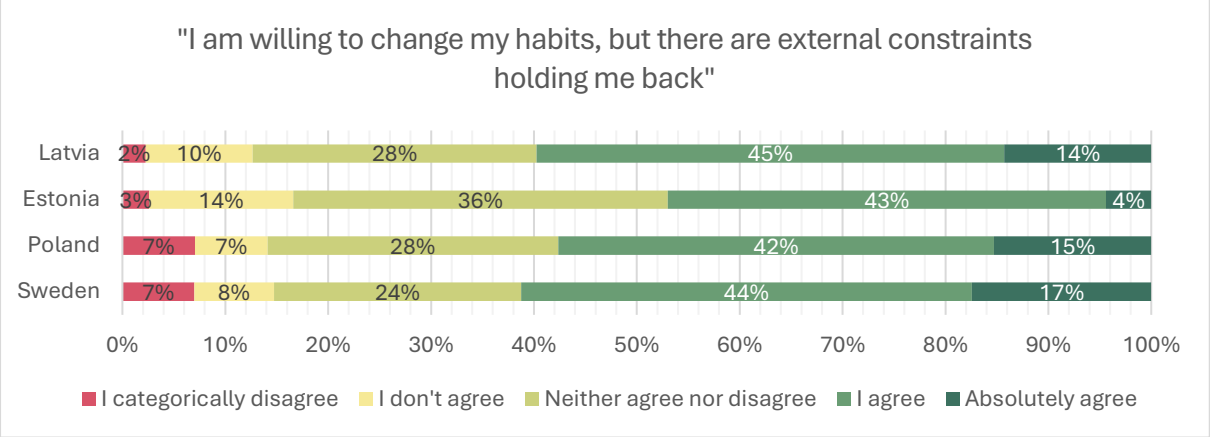


Figure 17. Respondents' evaluation of the statement "I am willing to change my habits to reduce my environmental impact, even if it means sacrificing something in my lifestyle".

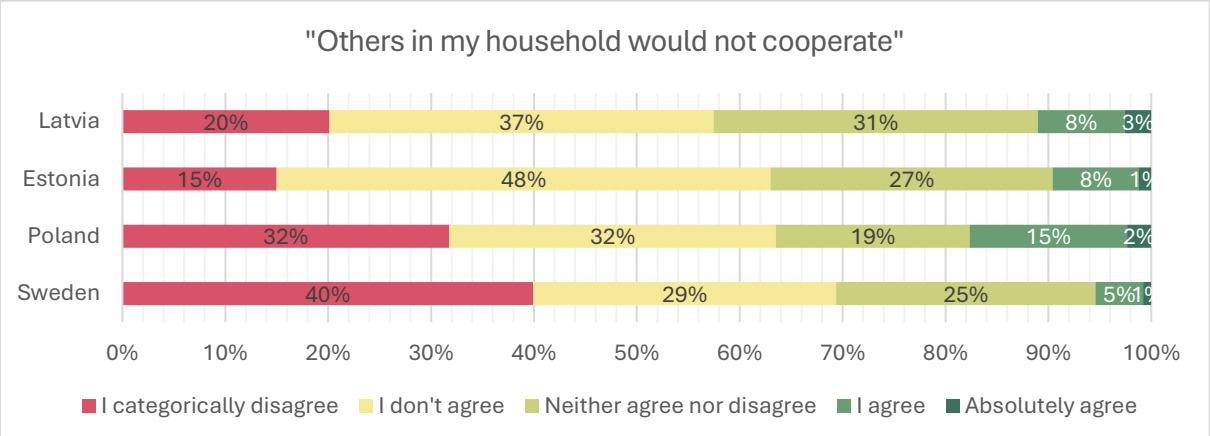


Figure 18. Respondents' evaluation of the statement "Others in my household would not cooperate".

Next, respondents discussed their perceptions of personal gain and community advantages. The findings revealed that most people saw benefits to both personal gain and the local community in the shift to climate neutrality.

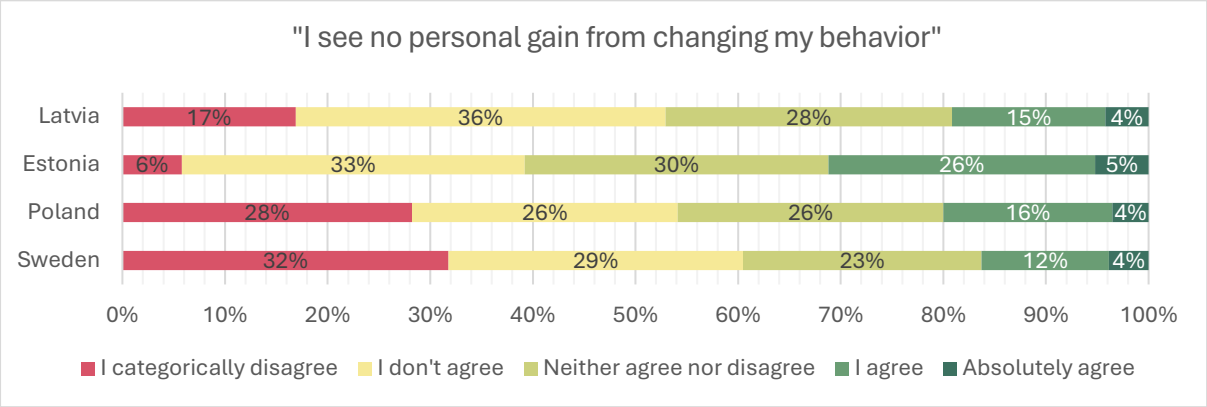


Figure 19. Respondents' evaluation of the statement “I see no personal gain from changing my behavior”.

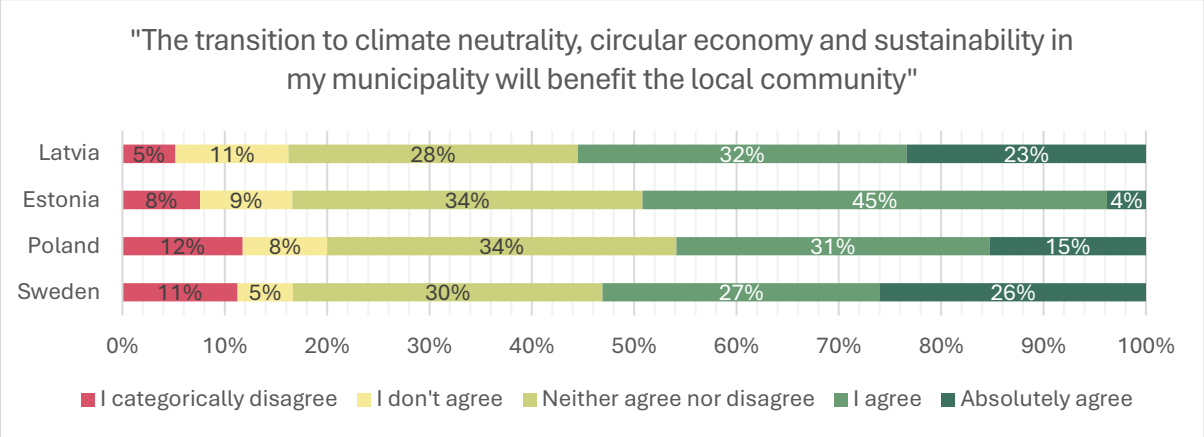


Figure 20. Respondents' evaluation of the statement “The transition to climate neutrality, circular economy and sustainability in my municipality will benefit the local community”.

3. Conclusions

The poll results shed light on a variety of perspectives on environmental awareness and personal ideas about climate change, as well as the features of people's habits and assessments of their municipalities across many countries. Residents rated their habits and municipal initiatives in the transportation, energy, and waste management sectors independently, as well as sharing their personal beliefs and specific problems with the municipality. These findings highlight the intricate interplay of individual ideas, societal attitudes, and perceived hurdles in tackling environmental concerns, as well as assisting specific municipalities in identifying the weak spots of their efforts and revising their future action plan.

It should be emphasized that the most of respondents to the survey were from the "Commitclimate" project's partner municipalities, which, together with the limited number of respondents, demonstrates that such data cannot be generalized within any country. The exception is Estonia, where 500 people were questioned, however, this number is still

insufficient to conclude the entire country. To collect more data, a larger study must be conducted, with more participants.

ACKNOWLEDGEMENT

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