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SUSTAINABLE MOBILITY REPORT

VANADZOR and GYUMRI

STOP

Yerevan, Armenia
2024

SUSTAINABLE MOBILITY REPORT

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1 Background

In recent years, the global discourse on sustainability has gained momentum, underscoring the critical need for environmentally conscious practices across all sectors, including transportation. For small countries like Armenia, nestled in the Caucasus region, sustainable mobility is not merely a choice but an imperative for fostering economic resilience, environmental stewardship, and societal well-being. This report elucidates the significance of sustainable mobility for Armenia, emphasizing its multifaceted benefits and the pathways toward its realization.

Armenia, endowed with rich cultural heritage and breathtaking landscapes, relies heavily on its tourism sector for economic sustenance. Sustainable mobility initiatives, such as promoting electric vehicles (EVs) and enhancing public transportation networks, not only reduce carbon emissions but also bolster the country's attractiveness as a tourist destination. Investing in eco-friendly transportation infrastructure not only stimulates economic growth through job creation but also cultivates resilience by diversifying revenue streams and reducing dependency on fossil fuels. The compact size and geographical constraints of Armenia accentuate the urgency of sustainable mobility initiatives to mitigate environmental degradation. Embracing electric vehicles, cycling lanes, and pedestrian-friendly infrastructure diminishes air pollution and mitigates the adverse impacts of climate change, safeguarding the nation's natural ecosystems and public health. By transitioning to renewable energy sources to power transportation, Armenia can curb greenhouse gas emissions, aligning with global climate objectives while preserving its pristine landscapes for future generations.

Sustainable mobility transcends environmental and economic dimensions, extending its benefits to social equity and inclusivity. In a country where accessibility to transportation can delineate opportunities, prioritizing public transit, walking, and cycling infrastructure ensures equitable access to essential services, education, and employment opportunities. Moreover, investing in sustainable mobility fosters community cohesion, as shared spaces promote social interaction and reduce urban sprawl, enhancing the quality of life for all citizens, particularly marginalized communities.

As a small country, Armenia possesses inherent agility and adaptability conducive to innovation and collaboration in sustainable mobility endeavors. Leveraging its burgeoning tech sector, Armenia can spearhead advancements in electric vehicle technology, battery storage, and smart transportation solutions, positioning itself as a regional hub for sustainable mobility innovation. Moreover, partnerships with international organizations and neighboring countries facilitate knowledge exchange and resource sharing, amplifying the impact of sustainable mobility initiatives while fostering diplomatic ties and regional integration.

Realizing the full potential of sustainable mobility in Armenia necessitates robust policy frameworks and institutional support. Government incentives such as tax breaks for EV purchases, subsidies for renewable energy adoption, and infrastructure investments are pivotal in catalyzing the transition towards sustainable transportation. Furthermore, collaboration between governmental agencies, private sector stakeholders, academia, and civil society engenders a holistic approach to sustainable mobility planning, ensuring alignment with national development priorities and stakeholder interests.

2 Context

One of the primary hurdles encountered by societies worldwide today revolves around the advancement and regulation of their transportation systems. Transportation not only facilitates mobility but also fosters social interaction by connecting people. Inadequate management of transportation can lead to substantial issues and expenses. Armenia shares this challenge with other nations, exacerbated by an excessive reliance on individual vehicles. A natural question arises whether the current transportation systems in Armenia is truly effective and efficient in meeting the needs of its population.

The theme of smart, green and integrated transport has been identified as one of the major societal challenges addressing new mobility concepts, transport organisation, logistics, transport systems safety and security, environmental issues (reduction of greenhouse gases, air pollution and noise), and urban planning (new concepts for bringing work and living closer together). It has an important impact both at the economic and social levels (new companies' creation, employment, social inclusion, housing and logistics). The overarching aim is to improve the quality of life of Armenian citizens the majority of whom live in urban areas where much of country's economic performance is generated. To address liveability in cities, urban mobility plays a crucial role due to its cross-sector nature. It affects quality of life, public health, and urban environment. But sustainable urban mobility can only be achieved if breakthrough innovations leading to greener, more inclusive, safer and smarter solutions are found. Failing to achieve this will – in the long run - result in high societal, ecological, and economic costs. However, new innovative mobility concepts – in particular when individual means of transportation are to be replaced by public and collective means of transport – should be accepted by citizens. Bringing about behavioural changes with no disadvantages for the quality of life and the cost of living in urban areas is one of the great challenges to be addressed in this area. Failure to do so could lead to significant long-term societal, ecological, and economic consequences. Nevertheless, the acceptance of new, innovative mobility concepts—particularly those transitioning from individual to public or collective transportation—by citizens is essential. Overcoming behavioral resistance while maintaining or improving urban quality of life and cost of living is a major challenge in this field.
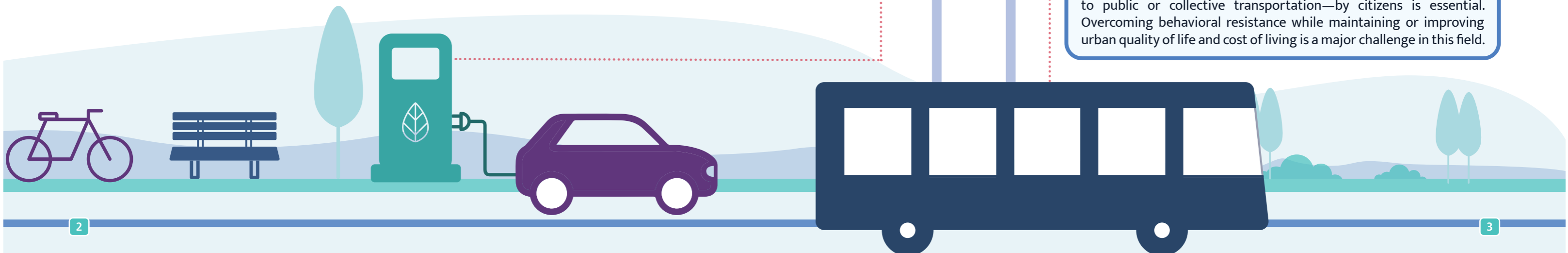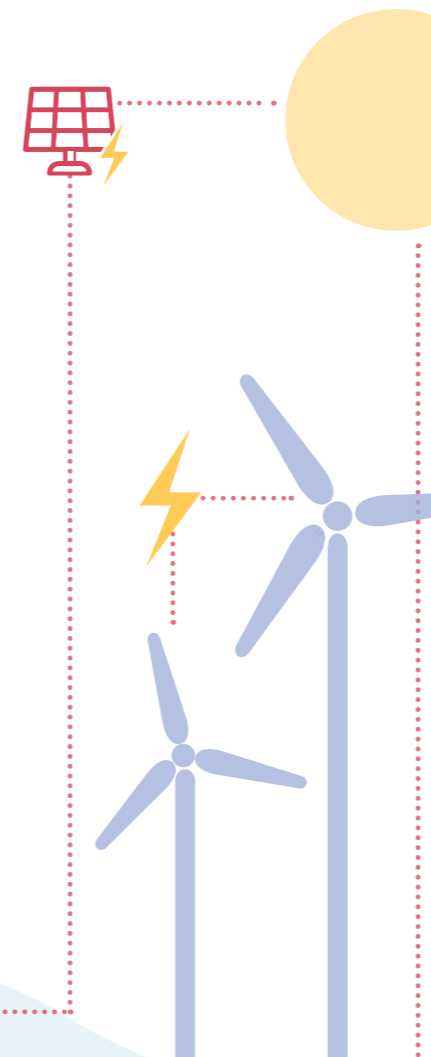
Within the framework of this assignment, a primary objective involves raising awareness about sustainable mobility and its advantages for citizens' quality of life. The goal is to inspire various stakeholders, including public transport users, to adopt sustainable travel habits, particularly by making the mobility patterns safer and more appealing in peripheral areas. Focus groups discussions in Gyumri and Vanadzor were conducted, targeting different citizen groups and decision-makers, with a particular emphasis on improving sustainable mobility behavior. The overarching aim of discussions was to shift people's perceptions. A key challenge for all involved was engaging participants in these events and fostering dialogue to identify their primary mobility needs and constraints.

During the initial phase of research and planning a list of stakeholders was compiled. The objective was to encom pass all individuals and groups who hold sway over decision-making processes and influence public sentiment across the entire cities of Gyumri and Vanadzor. In both cities transportation experts and ordinary citizens lacked awareness regarding sustainable mobility and its significance in enhancing quality of life.

GYUMRI

VANADZOR

3

Methodology
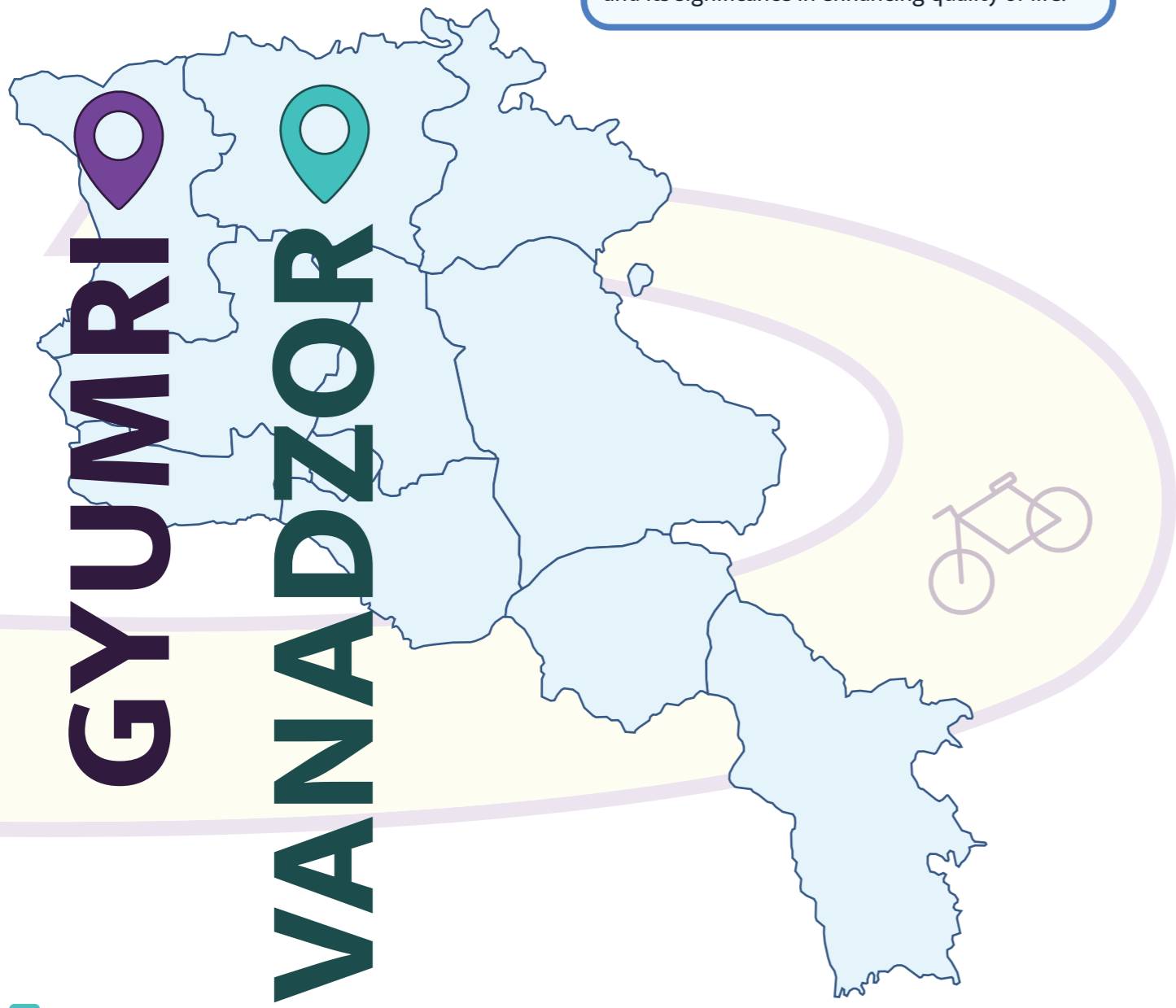
A human-centric approach to the sustainable mobility of goods and people, highlighting participatory design and feedback collection was applied. This allowed not only to address the existing challenges within sustainabl e mobility within the target cities, but also set a frame to further discuss the issue with wider public, both general and professional in a more inclusive and collaborative modality. This human-centric model holds the potential to initiate a positive feedback loop, strengthening the relationship between the decision makers and the citizens.

This approach implies involvement of the citizens in the design process of any reforms to ensure their needs and preferences are duly considered.

Town hall meetings facilitate open discussions with representatives from the target community who form a participatory focus group, representing specific segments of the population with the aim of collecting insights and feedback directly from citizens who are willing to participate in policy development and provide recommendations. As a result of the discussion the concerns of representatives of the target layers of the public were captured and addressed. Issue specific target groups were be engaged considering an age-gender breakdown.

Focus group discussions through town hall format were planned for this intervention. The following scenario of focus group discussions were applied:

Section 1
Introduction / objective of town hall meeting

This introductory section sets the stage for the community gathering and outlines the purpose of the discussion. It included
- **Welcome message**
- **Purpose Statement:** clearly states the aims and objectives of the town hall meeting, emphasizing the importance of community involvement in the community dynamics in regard to the sustainable mobility,
- **Overview of the agenda:** provides a brief overview of the topics and discussions planned for the meeting, ensuring participants know what to expect,
- **Instructions:** Outlines guidelines for participation, encouraging respectful dialogue and explaining how participants can contribute their thoughts and opinions.

Section 2
Awareness and Understanding of Sustainable Mobility Issues in the Community

This section focuses on gauging participants' awareness and comprehension of the already existing issues related to the involvement of citizens in decision making process.

Section 3
Prioritization of Sustainable Mobility

This section delves into participants' priorities regarding sustainable mobility.

Section 4
Feedback on Specific Proposals

This section seeks detailed feedback on specific reform/recommendation proposals. Here the participants were prompted to share their thoughts and opinions on specific proposals, providing a nuanced understanding of community sentiment. Additionally, the moderator encouraged participants to propose improvements or alternative solutions to the presented proposals, fostering a collaborative approach to decision-making.

Section 5
Participatory Mechanisms

This section focuses on how participants prefer to be involved in the decision-making process. It involves:
- **Preferred Participation Methods:** Participants were asked to choose from a set of options such as town hall meetings, existing online platforms, online surveys, citizen advisory panels, or provide any other idea indicating their preferred mechanisms for engagement.
- **Barriers to Participation:** Participants were invited to share any obstacles they perceive in their participation in decision-making processes, helping organizers address potential challenges.
- **Ensuring Inclusivity:** Aims to create mechanisms that actively include diverse voices and overcome potential participation barriers within the community.
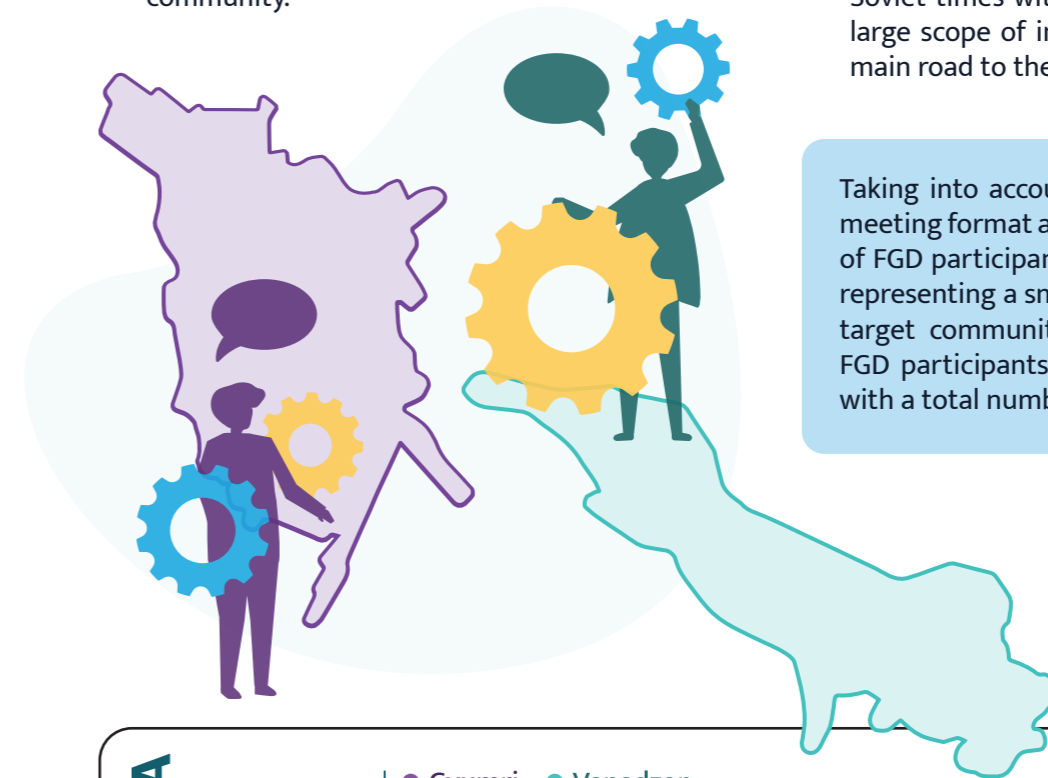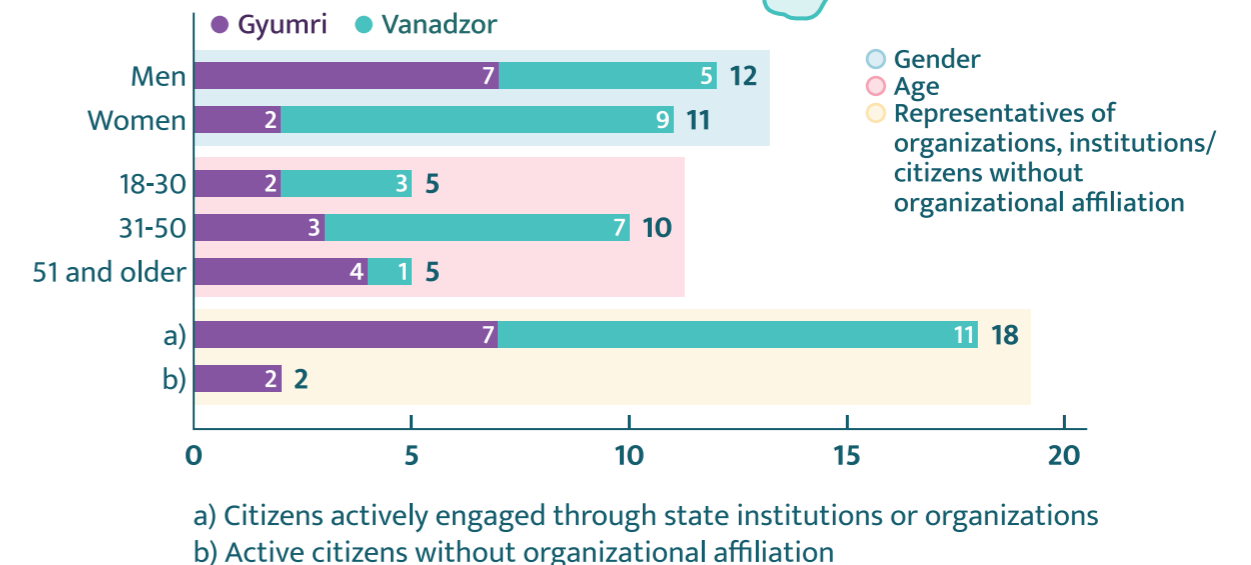
SAMPLING

In order to ensure representation across different demographics and distribution by region of the town hall meeting participants the Lab used the following approach for stratification of the FGD participants:

Stratification by region: Gyumri of Shirak Marz and Vanadzor of Lori Marz are sampled for this intervention based on the following considerations:
- **Gyumri** is the second largest city after the capital of Yerevan. It is both a local and foreign tourist destination throughout the year with different density upon seasons. It is also known as the arts and crafts city attracting influx of people for large scale events.
- **Vanadzor** is the third largest city after the capital of Yerevan. It used to be an industrial city during the Soviet times with major factories that embraced large scope of industries. The city lies within the main road to the border with Georgia.

Taking into account the peculiarities of town hall meeting format a diversified approach for selection of FGD participants was applied. Each FGD aims at representing a small structure of the society in the target communities. A detailed sampling of the FGD participants is presented in the table below, with a total number of FGD 30 participants.

SELECTION CRITERIA

Legend: ● Gyumri ● Vanadzor

	Gyumri	Vanadzor	Total
Men	7	5	12
Women	2	9	11
18-30	2	3	5
31-50	3	7	10
51 and older	4	1	5
a)	7	11	18
b)	2		2

○ Gender
○ Age
○ Representatives of organizations, institutions/citizens without organizational affiliation

a) Citizens actively engaged through state institutions or organizations
b) Active citizens without organizational affiliation

The proposed selection criteria helped differentiating participants based on their gender, age and level of engagement and affiliation. Particularly, citizens actively engaged through state institutions or organizations could be invited form the following institutions:

1. **Representatives of public councils** attached to different ministries and state institutions,
2. **Members of Council of Elders of communities**,
3. **NGO representatives:** Members of local NGOs contributing to the discussion based on their organizational expertise and community involvement.
4. **Representatives of educational institutions:** Individuals associated with local schools, colleges, or educational community centers actively involved in community development.

Participation of active citizens without organizational affiliation was also very important. Particularly the following groups could be invited:

1. **Community advocates:** Individuals who have demonstrated a commitment to community issues and advocacy but are not formally affiliated with any organization.
2. **Concerned residents:** Residents who have expressed interest in the town hall meeting and its objectives but are not representing any formal group.
3. **Independent Activists:** Individuals with a history of grassroots activism or community involvement, operating independently of organizational affiliations.
4. **Youth Representatives:** Young citizens actively engaged in community affairs, contributing a youth perspective to decision-making.
5. **General Public Participants:** Open participation for any resident interested in contributing to the discussions, irrespective of organizational ties.
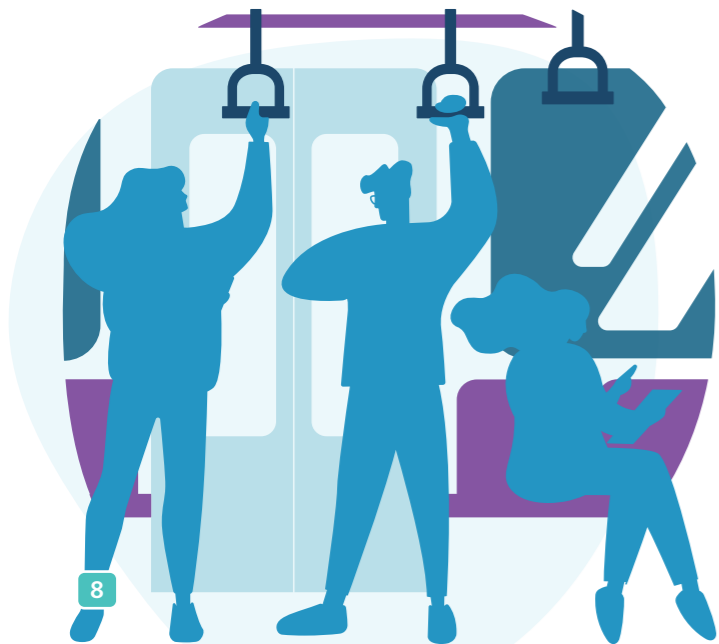
SELECTION AND RECRUITING OF THE FGD PARTICIPANTS

The following methods for recruiting FGD participants were applied:

1. **Recruitment through local community representatives (community centers),**
2. **Recruitment from a pool of potential participants within organization or network,**
3. **External recruitment:** To reach a broader audience through channels like social media platforms, online communities, etc.

The team used different channels and a snowball method in selection of the FGD participants via phone communication, social media, etc. In order to properly organize FGDs and increase willingness for participation, the local community centres were informed on the importance and objectives of the upcoming FGDs with providing necessary information related to sustainable mobility system.

QUANTITATIVE SURVEY

In addition to the applied qualitative methods, a structured questionnaire was used to capture the use of public transportation in Gyumri and Vanadzor. 211 and 182 respondents respectively took part in the survey at the bus stops at 08.00-10.00, 13.00-15.00 and 18.00-20.00.

> Limitations: the public opinion survey at the bus stops does not qualify for a representative survey due to the sampling size. This was an attempt to pilot the research for prospective future interventions.
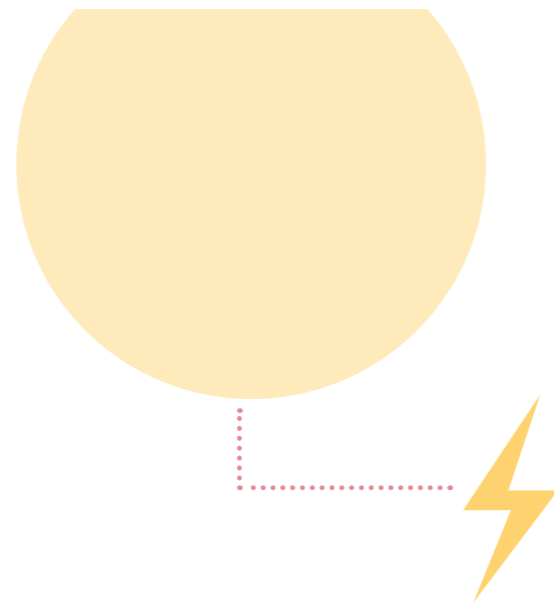
4
Sustainable Mobility Index (Perceptions)

AWARENESS AND UNDERSTANDING OF SUSTAINABLE MOBILITY ISSUES IN THE COMMUNITY

The overwhelming majority of FG discussion participants in Gyumri and Vanadzor agreed that sustainable mobility encompasses a diverse array of public domains. This complexity extends beyond just public transportation and individual vehicles; it includes aspects such as road safety measures, education on road behavior and literacy, as well as the integration of online tools and artificial intelligence into mobility systems. Each component is interlinked within the ecosystem of transportation, and the failure of any one element can lead to the collapse of the entire system.

Central to the success of sustainable mobility is the education and awareness of the general public. This education extends beyond formal schooling and delves into cultivating a culture of co-existence and cooperation among all stakeholders involved in the mobility ecosystem. Collaboration between citizens, policymakers, businesses, and transportation authorities is essential for creating effective and sustainable mobility solutions.

Furthermore, sustainable mobility initiatives also address environmental concerns, aiming to reduce carbon emissions and mitigate the impact of transportation on the planet. By promoting the use of clean energy sources, encouraging the adoption of alternative transportation modes such as cycling or walking, and implementing policies that prioritize environmental sustainability, cities can work towards achieving a more eco-friendly transportation system.

GYUMRI

In Gyumri, it appears that the challenges and opportunities associated with mobility have reached a critical juncture. The city's infrastructure, policies, and cultural attitudes towards transportation are undergoing significant changes as they strive to meet the demands of a growing population while simultaneously addressing environmental concerns. Sustainable mobility efforts in Gyumri serve as a microcosm of the broader global movement towards more efficient, equitable, and environmentally conscious transportation systems.

VANADZOR

In the Vanadzor Focus Group (FG) discussion, the concept of "do no harm" was intricately tied to the idea of sustainable mobility. This principle underscores the necessity of minimizing negative impacts on the environment, society, and economy while striving to improve transportation systems. Sustainable mobility transcends mere transportation infrastructure; it encompasses a holistic understanding of interconnected factors such as environmental sustainability, social equity, economic viability, and public health.

Addressing sustainable mobility requires a nuanced approach that acknowledges the intricate web of factors at play. It involves careful consideration of various elements including urban planning, public transit systems, active transportation modes like walking and cycling, vehicle emissions, land use patterns, and accessibility for all members of society, including those with disabilities. Additionally, it involves recognizing the disparities in access to transportation and ensuring that mobility solutions are inclusive and equitable for all communities.

By linking the "do no harm" principle with sustainable mobility, the discussion in Vanadzor underscored the importance of adopting strategies that not only mitigate negative impacts but also actively promote positive outcomes for both present and future generations. This approach requires thoughtful planning, collaboration among stakeholders, and a commitment to long-term sustainability.

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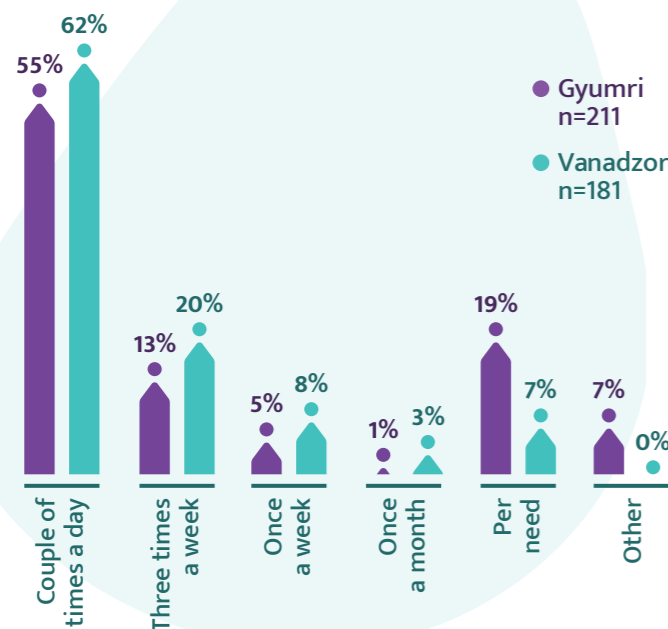# Prioritization of Sustainable Mobility

PUBLIC TRANSPORTATION

In today's urban landscape, the choice between individual vehicle usage and reliance on public transportation is a critical factor in shaping the efficiency and sustainability of cities. The crux of the matter lies in the functionality of public transportation systems. When public transit is robust and reliable, individuals are more inclined to opt for it over private vehicles, thereby alleviating congestion and reducing environmental impact.

Currently, the prevalent scenario sees many individuals resorting to individual vehicles for their daily commutes, only to leave them parked for extended periods during the workday. This practice not only strains the infrastructure, particularly in densely populated city centers but also poses logistical and environmental challenges. The congestion resulting from an abundance of parked vehicles not only impedes traffic flow but also contributes to pollution and inefficiency.

USE OF TYPE OF TRANSPORTATION

- Gyumri n=197
- Vanadzor n=182

Minibus
45% 77%

Taxi
33% 19%

Bus
8% 2%

Trolleybus
0% 0%

Other
14% 2%

A fully operational and efficient public transportation system holds the key to addressing these challenges. By providing a convenient and viable alternative to private vehicles, public transit can significantly alleviate traffic congestion, especially in urban hubs. Gyumri serves as a pertinent example, boasting a functional public transportation network designed to cater to the entire city through various modes of transit.
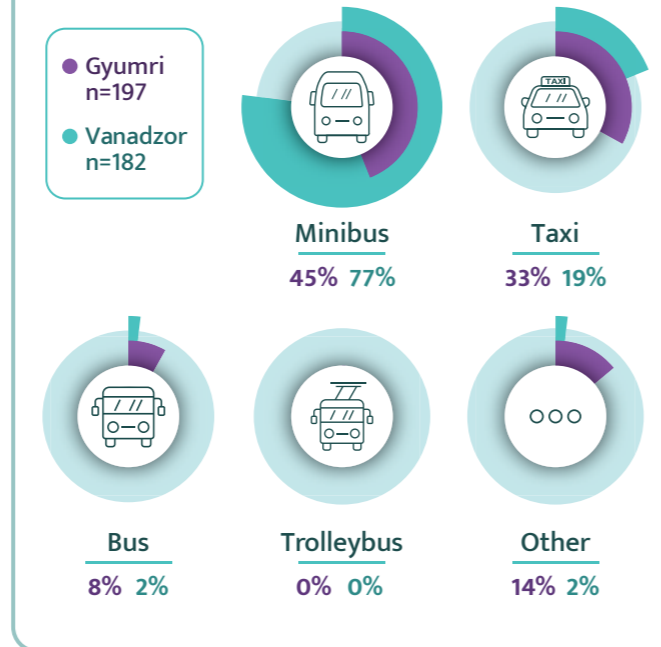
HOW FREQUENT DO YOU USE PUBLIC TRANSPORTATION?

- Gyumri n=211
- Vanadzor n=181

- Couple of times a day: 55% / 62%
- Three times a week: 13% / 20%
- Once a week: 5% / 8%
- Once a month: 1% / 3%
- Per need: 19% / 7%
- Other: 7% / 0%

While strides have been made in improving Gyumri's public transportation infrastructure, there remains room for enhancement. Additional bus routes and services can further expand coverage and accessibility, ensuring that residents have convenient transit options available throughout the city. Moreover, public awareness campaigns focusing on the benefits of sustainable mobility can foster a cultural shift towards prioritizing public transportation over private vehicles.

In essence, the optimization of public transportation systems is essential for mitigating congestion, reducing environmental impact, and enhancing the overall livability of urban centers like Gyumri. Through concerted efforts to bolster infrastructure and promote sustainable commuting practices, cities can cultivate environments where public transit becomes the preferred mode of transportation for residents and visitors alike.
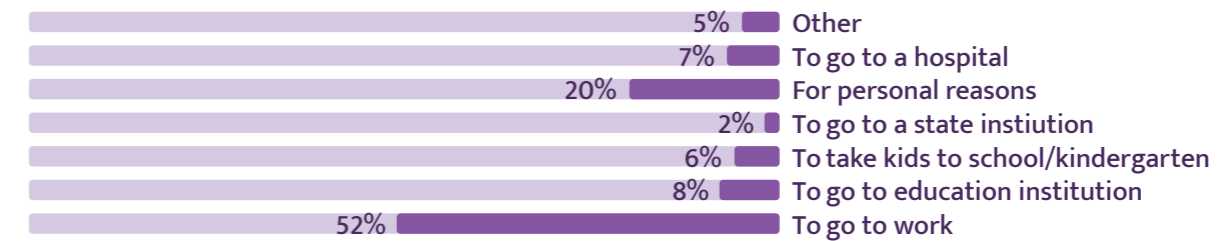
The public transportation situation in Vanadzor presents a multifaceted challenge, stemming from both objective geographical factors and subjective operational considerations. Delving into these complexities, it becomes evident that a comprehensive understanding is necessary to address the pressing issues facing the city's transportation system.

Geographically, Vanadzor's expansive layout poses a significant hurdle for establishing an efficient and comprehensive bus rout e network. With the city stretching across considerable distances, implementing a single bus route capable of serving the entire urban area becomes logistically challenging. The sheer size of the city demands a flexible and adaptive approach to public transportation planning, one that accounts for the diverse needs of its residents across various neighborhoods and districts.
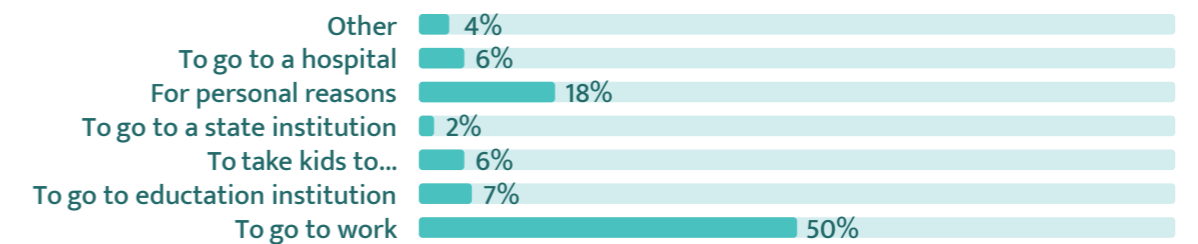
Moreover, the narrow width of the streets exacerbates the transportation conundrum in Vanadzor. These constraints limit the feasibility of accommodating large buses, thereby necessitating reliance on minibuses operated by private companies. While minibuses offer a degree of flexibility in navigating through the city's intricate netw ork of streets, they also introduce complications regarding oversight and regulation. Unlike public agencies managing conventional bus services, private minibus operators may not be subject to the same level of scrutiny, potentially compromising the quality and reliability of transportation services for passengers.

FOR WHAT DO YOU USE PUBLIC TRANSPORTATION

GYUMRI n=211

- 5% Other
- 7% To go to a hospital
- 20% For personal reasons
- 2% To go to a state instiution
- 6% To take kids to school/kindergarten
- 8% To go to education institution
- 52% To go to work

n=182 VANADZOR

- Other: 4%
- To go to a hospital: 6%
- For personal reasons: 18%
- To go to a state institution: 2%
- To take kids to...: 6%
- To go to eductation institution: 7%
- To go to work: 50%

The proliferation of parked vehicles and the prevalence of taxi traffic further compound the challenges associated with narrow streets in Vanadzor. With limited space available for maneuvering, the congestion caused by parked cars and taxis exacerbates traffic flow disruptions, impeding the smooth operation of public transportation services. The spatial constraints imposed by the city's infrastructure underscore the need for innovative solutions that can alleviate congestion and optimize the utilization of available road space.

To address these formidable challenges, a holistic approach to urban transportation planning is imperative. This entails collaboration between municipal authorities, transportation experts, private stakeholders, and community representatives to devise strategies that enhance accessibility, efficiency, and sustainability within Vanadzor's transportation network. Such efforts may involve the implementation of traffic management initiatives, the expansion of alternative transportation modes such as cycling lanes or pedestrian zones, and the introduction of technological innovations to optimize route planning and scheduling.

Furthermore, fostering greater transparency and accountability in the operation of public transportation services is paramount. This could entail establishing mechanisms for monitoring and evaluating service quality, imposing regulatory standards on private operators, and enhancing public oversight through participatory governance mechanisms. By promoting greater accountability and responsiveness within the transportation sector, Vanadzor can strive towards a more inclusive and equitable urban mobility landscape that meets the diverse needs of its residents while mitigating environmental impacts and enhancing overall quality of life.

USE OF TAXI

- Couple of times a day
- Three times a week
- Once a week
- Once a month
- Per need
- Do not use
- Other

GYUMRI n=211

18% | 12%
14%
11%
40% | 5%

VANADZOR n=181
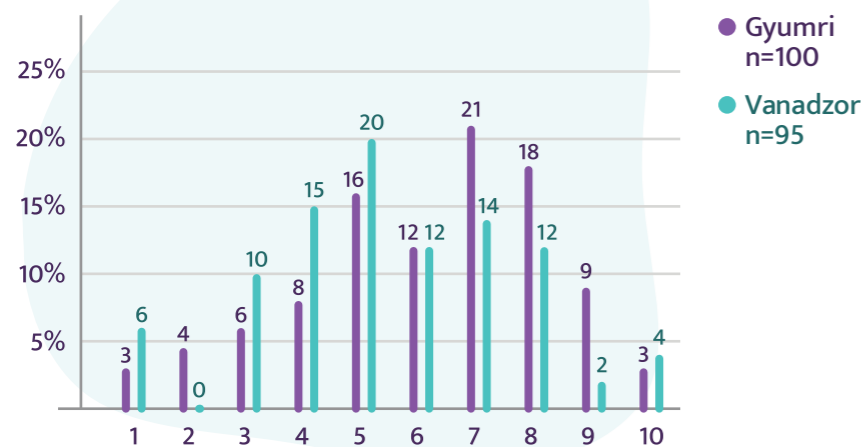
6% 7%
8% | 17%
35% | 13%
14%
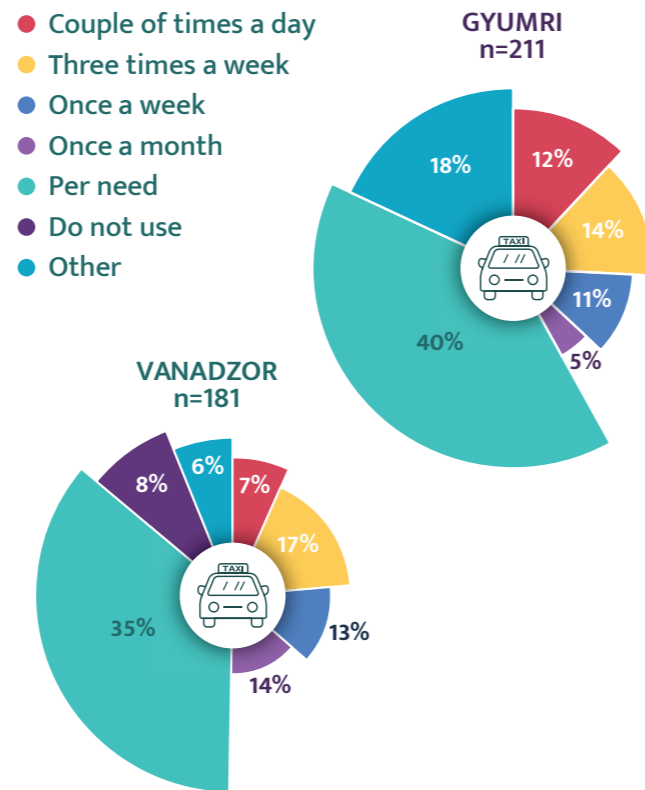
To resolve the existing issues with public transportation, municipalities have implemented various channels for citizens to address their concerns effectively. One such measure is the establishment of dedicated hotlines accessible to the public. These hotlines serve as direct points of contact where individuals can report issues such as delays, route discrepancies, cleanliness concerns, or any other problems encountered during their commute.

Moreover, municipalities have also facilitated physical visitation options, allowing citizens to personally convey their complaints or suggestions regarding public transportation services. By providing face-to-face interaction, this approach enhances transparency and fosters a sense of accountability within the transportation authorities.

HOW SATISFIED ARE YOU WITH THE PUBLIC TRANSPORTATION?

- Gyumri n=100
- Vanadzor n=95

Rating	1	2	3	4	5	6	7	8	9	10
Gyumri	3	4	6	8	15	12	21	18	2	3
Vanadzor	6	0	10	16	20	12	14	12	9	4

These initiatives underscore the commitment of local governments to improve the quality and reliability of public transportation systems. By actively soliciting feedback and addressing citizen concerns promptly, authorities can identify recurring issues, implement targeted solutions, and ultimately enhance the overall commuting experience for residents. Through effective communication channels and responsive governance, municipalities strive to create transportation networks that are efficient, accessible, and responsive to the needs of the community.

"It is also because of the taxis that the public transport is not so popular. They are everywhere in the city, and the prices are affordable, especially, when shared"

— 50 years old man
📍 Vanadzor

"We usually use a shared taxi as the price per person is the same as for the minibuses, and it is more comfortable and faster"

— 33 years old woman
📍 Vanadzor

EDUCATION

The statement emphasizes the crucial role that both formal and informal education institutions play in shaping individuals' understanding and behaviors towards sustainable mobility. Sustainable mobility refers to transportation practices that minimize environmental impact while promoting social equity and economic efficiency. By prioritizing education on sustainable mobility from early childhood through all levels of education, institutions can instill values and knowledge that contribute to building a more sustainable transportation ecosystem.

At its core, sustainable mobility is about more than just the physical infrastructure of public transportation systems or the efficiency of individual vehicles. It encompasses a broader understanding of transportation as a system that involves the collaboration and responsible behavior of various stakeholders, including commuters, pedestrians, law enforcement agencies, and policymakers. Therefore, educating people from kindergarten onwards about sustainable mobility involves fostering a holistic understanding of transportation and its impacts on society and the environment.

In formal education settings, such as schools and universities, integrating sustainability principles into curricula can help students develop critical thinking skills and an awareness of the interconnectedness between transportation, environmental sustainability, and social justice. For example, incorporating lessons on urban planning, environmental science, and ethics into various subjects can provide students with the tools to analyze transportation issues from multiple perspectives and propose innovative solutions.

Similarly, informal education institutions, such as community organizations and non-profit groups, can play a vital role in raising awareness and promoting sustainable mobility initiatives. Through workshops, community events, and advocacy campaigns, these institutions can engage people of all ages in discussions about the importance of sustainable transportation practices and empower them to take action in their communities.

By making sustainable mobility education a priority across formal and informal education settings, society can foster a culture of responsible transportation behavior and support the transition towards more sustainable and equitable transportation systems. This approach not only benefits the environment but also enhances public health, social cohesion, and economic prosperity for current and future generations.

"I remember that the Road Police would come to our school and have some classes on the road traffic literacy. That was during the Soviet times, but it might be good to revive the tradition"

— 50 years old woman
📍 Gyumri

ENVIRONMENTAL CHALLENGES

Sustainable mobility is crucial for addressing environmental challenges, yet it also presents its own set of environmental issues that need to be carefully managed. While sustainable mobility aims to reduce greenhouse gas emissions, minimize air and noise pollution, and preserve natural habitats, it can still have negative environmental impacts if not implemented and managed correctly. Here are some key environmental issues associated with sustainable mobility:

One of the primary goals of sustainable mobility is to reduce the carbon footprint of transportation. However, the widespread adoption of electric vehicles (EVs) and other low-emission technologies may still rely on energy sources with significant carbon emissions, such as coal-fired power plants. Additionally, the production and disposal of EV batteries can have environmental consequences if not managed properly. Moreover, the manufacturing processes for vehicles, infrastructure, and alternative fuels can also generate greenhouse gas emissions.

Building infrastructure for sustainable mobility, such as bike lanes, pedestrian walkways, and public transportation networks, can require land use changes that impact natural habitats and biodiversity. Infrastructure projects may lead to deforestation, wetland drainage, and fragmentation of wildlife habitats, threatening the survival of vulnerable species and disrupting ecosystem services. Careful planning and mitigation measures are necessary to minimize the environmental footprint of transportation infrastructure projects.

While sustainable mobility aims to reduce air and noise pollution compared to traditional transportation modes, certain practices and technologies may still contribute to environmental degradation. For example, biofuels derived from agricultural crops may lead to deforestation and increased emissions of particulate matter and nitrogen oxides. Moreover, congestion and inefficient traffic management can result in localized air pollution hotspots in urban areas, compromising air quality and public health.

The lifecycle of vehicles, infrastructure, and transportation-related products generates waste that needs to be managed effectively. This includes end-of-life disposal of vehicles, recycling of materials, and proper handling of electronic components and batteries. Inadequate waste management practices can lead to pollution of land, water, and air, as well as potential health risks for communities living near disposal sites.

Addressing these environmental issues requires a holistic approach that considers the entire lifecycle of sustainable mobility solutions, from raw material extraction to end-of-life disposal. Strategies for mitigating environmental impacts include promoting renewable energy sources, optimizing resource use and recycling, protecting natural habitats, and incorporating environmental considerations into transportation planning and policymaking. By integrating environmental sustainability principles into sustainable mobility initiatives, society can achieve the dual objectives of reducing transportation-related emissions and safeguarding the health and integrity of ecosystems for future generations.

HOSPITALS AND MEDICAL INSTITUTION

Reaching hospitals and medical institutions in urban areas presents several challenges that affect accessibility and convenience for individuals seeking medical care. The relocation of major hospitals to the outskirts of the city is a primary obstacle. In many cases, these hospitals have been centralized or moved to suburban areas, requiring patients to undertake additional transportation measures to reach them. This shift imposes an extra burden on patients and their families, who must now navigate longer distances and potentially more complicated travel routes to access essential medical services.

Moreover, the limitations of public transportation exacerbate the issue. The cessation of public transportation services in the early evening, typically around 8-9pm, further compounds the difficulty of reaching hospitals within the city. This cessation effectively creates a transportation barrier for those needing medical attention during later hours. Patients facing medical emergencies or requiring urgent care after these hours may find themselves without viable transportation options, which can significantly impact their ability to receive timely treatment.

These challenges underscore the importance of addressing transportation infrastructure and accessibility issues in urban healthcare systems. Efforts to improve transportation options, such as extending the operating hours of public transit or implementing alternative modes of transportation, could help alleviate some of the difficulties faced by individuals trying to reach medical facilities. Additionally, there may be opportunities to enhance collaboration between healthcare providers and transportation authorities to develop solutions tailored to the unique needs of patients, particularly those living in urban areas.

Overall, addressing the challenges associated with reaching hospitals and medical institutions in cities requires a multifaceted approach that considers both the physical location of healthcare facilities and the accessibility of transportation options. By addressing these issues, policymakers and healthcare stakeholders can work towards ensuring equitable access to medical care for all individuals, regardless of their geographical location or the time of day.
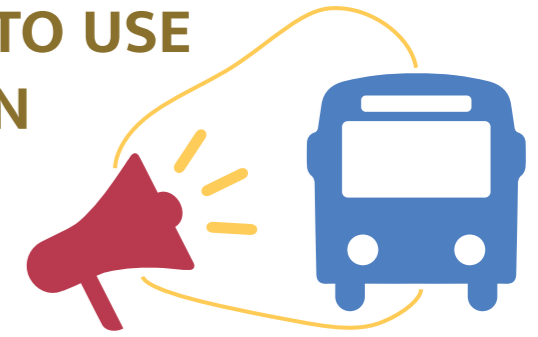
6

Feedback and Participatory Mechanisms

PUBLIC OUTREACH ON HOW TO USE THE PUBLIC TRANSPORTATION

Sustainable mobility is pivotal for the well-being of both the environment and the community. As a small city municipality, it is imperative to spearhead initiatives that promote sustainable transportation options to reduce congestion, emissions, and foster healthier lifestyles. This outreach strategy aims to engage citizens, businesses, and stakeholders in embracing sustainable mobility practices for a greener and more livable city. The FG discussion in Gyumri and Vanadzor identify the following steps to be undertaken for more informed public policies on sustainable mobility.

Define the Audience Needs

- Conduct surveys and data analysis to understand current transportation habits, preferences, and challenges.
- Identify key stakeholders, including residents, local businesses, schools, and community organizations.

Crafting the message

- Develop a clear and compelling message emphasizing the benefits of sustainable mobility: reduced pollution, improved public health, and enhanced quality of life.
- Highlight the municipality's commitment to sustainability and its role in providing accessible, efficient, and eco-friendly transportation options.

Multi-channel communication

Utilize a variety of communication channels to reach diverse audiences:

- **Social Media:** Regular posts, updates, and campaigns on platforms like Facebook, Twitter, and Instagram.
- **Community dashboard:** Create a dedicated section on the municipal website with resources, tips, and updates related to sustainable mobility.
- **Community Events:** Host workshops, seminars, and public forums to raise awareness and gather feedback.
- **Local Media:** Collaborate with newspapers, radio stations, and TV channels to feature stories and interviews on sustainable mobility initiatives.
- **Newsletters:** Distribute printed material at the bus stops, have the leaflets in the buses and other public transportation means.

Education and awareness

- Develop educational materials such as brochures, infographics, and videos to inform the public about sustainable transportation options.
- Organize educational campaigns targeting schools, workplaces, and community centers to promote biking, walking, carpooling, and public transit.
- Partner with local schools to integrate sustainability and transportation topics into the curriculum.

Infrastructure improvements

Invest in infrastructure improvements to support sustainable mobility:

- Expand bike lanes and pedestrian pathways.
- Enhance public transit services, including frequency, coverage, and accessibility.
- Install smart bus stops (the plan for Gyumri to have about 150) and electric vehicle charging stations.

Partnerships

Collaborate with local businesses, non-profit organizations, and transportation agencies to amplify outreach efforts and leverage resources.

Feedback and Evaluations

- Solicit feedback from residents and stakeholders through surveys, focus groups, and public consultations.
- Continuously evaluate the effectiveness of outreach activities and adjust strategies accordingly based on feedback and data analysis.

The suggested outreach strategy will allow the small city municipality to effectively promote sustainable mobility and inspire residents to embrace eco-friendly transportation choices. Through education, incentives, infrastructure improvements, and collaboration, the municipality will get one step further towards a more sustainable and resilient future for all.

7 Conclusion

Sustainable mobility, often referred to as eco-friendly or green transportation, is a critical component of efforts to combat climate change and reduce environmental degradation. Several key factors contribute to sustainable mobility, encompassing technological advancements, infrastructure development, behavioral changes, and policy interventions.
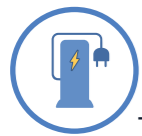
Alternative Fuel Sources
Transitioning away from fossil fuels is a cornerstone of sustainable mobility. This includes promoting electric vehicles (EVs), hydrogen fuel cell vehicles, biofuels, and other renewable energy sources to power transportation. The development of efficient battery technologies and charging infrastructure is crucial for the widespread adoption of EVs.

Urban planning and Land Use
Designing cities and communities to minimize the need for long-distance travel can significantly reduce transportation-related emissions. Compact, mixed-use developments that prioritize density, walkability, and access to amenities facilitate shorter trips and increase the viability of non-motorized transportation options.

Public Transportation
Investing in efficient, affordable, and accessible public transportation systems encourages people to opt for collective modes of travel over private vehicles. Bus rapid transit (BRT) systems, light rail, subways, and commuter trains help reduce traffic congestion and lower emissions per passenger kilometer.

Behavioral Shifts
Encouraging behavioral changes, such as carpooling, ride-sharing, telecommuting, and adopting eco-driving practices, can further reduce the carbon footprint of transportation. Public awareness campaigns and incentives for sustainable travel choices play a vital role in promoting these behavioral shifts.

Alternative Transportation
Encouraging walking and cycling not only reduces greenhouse gas emissions but also promotes healthier lifestyles. Building safe and well-connected pedestrian and cycling infrastructure, such as sidewalks, bike lanes, and dedicated paths, encourages people to choose active modes of transport for short trips.

Policies and Regulations
Implementing supportive policies and regulations is essential for fostering sustainable mobility. This includes measures such as fuel economy standards, emissions trading schemes, congestion pricing, vehicle electrification incentives, and investments in sustainable infrastructure.

Conclusion

In conclusion, sustainable mobility stands as a linchpin for the socio-economic development and environmental preservation of small countries like Armenia. By embracing eco-friendly transportation solutions, Armenia can fortify its economic resilience, mitigate environmental degradation, foster social equity, spur technological innovation, and enhance regional cooperation. As Armenia navigates the path towards a sustainable future, concerted efforts from policymakers, stakeholders, and citizens are imperative to realize the transformative potential of sustainable mobility and secure a prosperous and resilient tomorrow for generations to come.

8 Annex I

FGD guide (questionnaire) for town hall meeting

Section 1
Introduction / Objective of Town Hall Meeting
1. Welcome Message.
2. What brings you to this town hall meeting today, and what are your expectations?
3. How do you perceive your role and the role of community involvement in sustainable mobility, and what importance do you place on it?
4. Is there a specific topic or issue within the sustainable mobility agenda that particularly interests you or that you believe is crucial for the community?

Section 2
Awareness and Understanding on Sustainable Mobility
5. How would you describe your current level of awareness about existing sustainable mobility solutions related to citizen involvement in decision-making processes?
6. Where do you currently get information about governance reforms, and do you find it sufficient and reliable?

Section 3
Prioritization of Sustainable Mobility Issues
7. From your perspective, what specific sustainable mobility issues do you believe should be prioritized, and why?
8. How do you believe sustainable mobility agenda can be tailored to address specific socio-economic challenges?

Section 4
Feedback on Specific Proposals
9. From your experiences, what are the challenges related to the sustainable mobility? How can these challenges be mitigated?
10. Are there specific sustainable mobility proposals that resonate with you, and if so, why? Alternatively, are there proposals you find challenging or unclear?
11. Can you suggest any improvements or alternative solutions to the presented sustainable mobility proposals?

Section 5
Participatory Mechanisms
12. Regarding the proposed public communication mechanism, what aspects do you think are crucial for its effectiveness in fostering public understanding and confidence?
13. In your opinion, what steps can be taken to elaborate an effective information policy that addresses the current agenda and priorities of sustainable mobility in Armenia?
14. What participation methods do you feel most comfortable with, and which do you think would be most effective for engaging the community in decision-making?
15. Are there any obstacles you foresee in your active participation in decision-making processes, and how do you think these could be addressed?
16. How do you believe mechanisms for ensuring inclusivity could be strengthened within the community?
17. What specific expectations do you have from the proposed public communication architecture in terms of its role in informing the public and promoting accountability?

Section 6
Overall Reflection
18. As we conclude this town hall meeting, what thoughts or reflections would you like to share regarding the discussions on sustainable mobility and citizen participation mechanisms?
19. Looking ahead, how would you suggest maintaining and enhancing citizen engagement in sustainable mobility initiatives beyond this town hall meeting?

Questionnaire for the public opinion survey
(at bus stops)

Questionnaire on Public Transport Usage

Hello! My name is _____, I represent the organization _____, which is currently studying the opinion of our fellow citizens on the use of transport. Please take a few minutes of your time to answer our questions. The survey is anonymous, your feedback will be presented in the final report without revealing your identity. Thank you in advance for your cooperation.

Date:	Time:	Part of the city:

1 Gender
1. Male
2. Female

2 Age _____

3 Education
1. Incomplete secondary
2. Secondary
3. Vocational Education
4. Higher Education

4 Marital status
1. Married
2. Divorced
3. Widowed
4. Single

5 How often do you use public transport?
1. Couple of times a day
2. Three times a week
3. Once a week
4. Once a month
5. Per needed
6. Other _____

6 Which type of public transport do you prefer?
1. Bus
2. Trolleybus
3. Minibus
4. Taxi
5. Other _____

7 For what purpose do you use public transport? (choose several answers).
1. To go to work
2. To go to an educational institution
3. To take kids to school/kindergarten
4. To go to state institutions
5. For personal reasons
6. To go to the hospital
7. Other _____

8 How often do you use taxis?
1. Couple of times a day
2. Three times a week
3. Once a week
4. Once a month
5. Per needed
6. Other _____

9 Do you have your own car?
1. Yes → go to question 10
2. No → go to question 11

10 Do you prefer to commute:
1. By own car
2. By taxi
3. By public transport
4. Other _____

11 Has there ever been a case when you could not get to the place you were going to due to the lack of transport?
1. Yes → go to question 12
2. No → go to question 13

12 How often were such cases?
1. Every day
2. Three times a week
3. Once a week
4. Several times a month
5. Once a month
6. Other _____

13 On a scale of 1-10, where 1 is extremely dissatisfied, 10 is extremely satisfied, please indicate how satisfied you are with public transport services
1 ●————————————— 10

STAR rating for schools – Vanadzor and Gyumri

The modern model of urban mobility is hard to imagine without heavy traffic flows, intersections where vehicles moving in and from different directions by crossing with other road users such as pedestrians, cyclists, and more recently, people using personal mobility devices.

Cities are traditionally characterized by high population density and a tangled network of roads, resulting in a high number of road traffic accidents. For example, data from the American Insurance Institute for Highway Safety (IIHS, https://www.iihs.org/topics/fatality-statistics/detail/urban-rural-comparison) shows that about 60 percent of fatal accidents occur in urbanized areas. This picture is even more evident in Armenia. As stated in the "National Road Safety Strategy of Armenia" drafted in 2023, the road traffic accidents data from 2019-2022 shows that the majority of fatal accidents (around 67%) occurred on urban streets (Chart 1.)

Chart 1: Road traffic accidents from 2019 to 2022 by road type and severity (fatalities, injuries)[1]
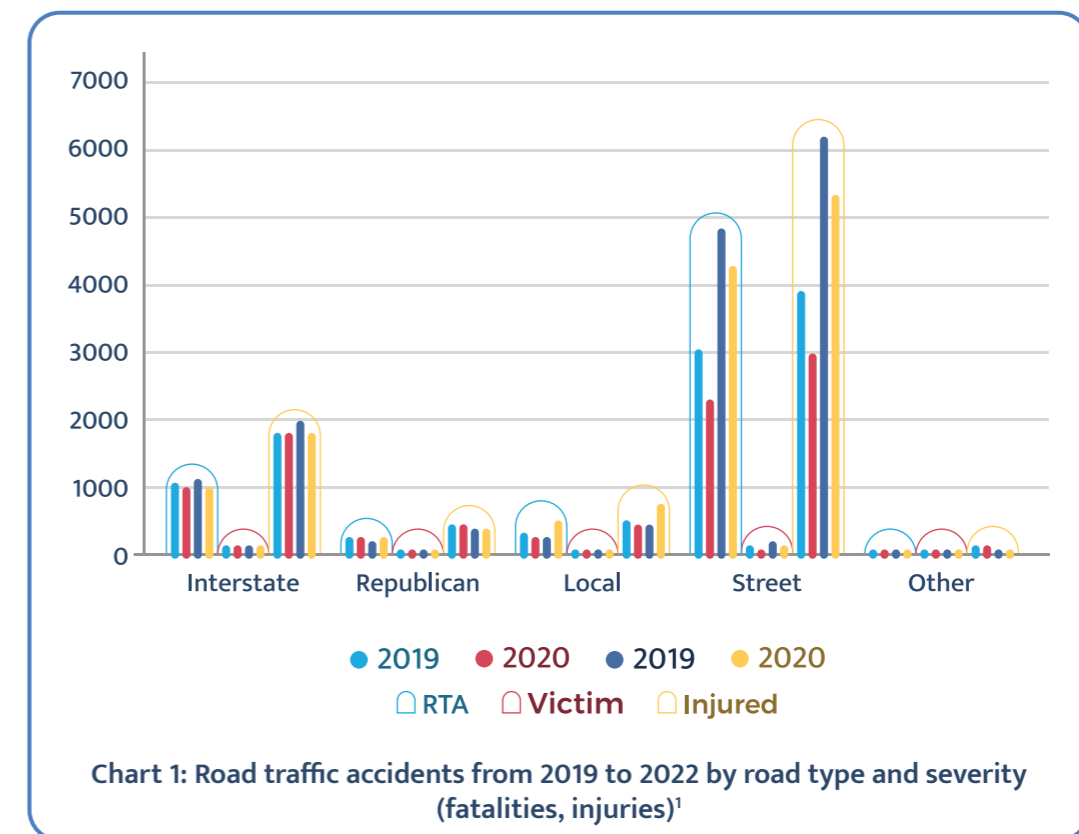
Since various educational institutions, primarily schools, are usually concentrated in cities, the likelihood of school-age children being involved in such accidents increases significantly. It is no coincidence that, although children are rarely classified as a vulnerable road users, ensuring the safety of children in heavy traffic conditions is one of the important parts of sustainable and safe urban mobility.

Based on these observations, the study on sustainable mobility in the cities of Vanadzor and Gyumri also included an assessment of the areas around about 40 schools using the globally recognized "Star Rating for Schools" program methodology. In this part of the project, the main partner of the "Association of Official Representatives of Automanufacturers" was the Armenian Automobile Federation (FAA, www.faa.am).

[1] Source from the traffic accident data of the electronic system of the Internal Affairs Ministry "Road Police" service.

According to the mentioned methodology, school areas were studied during peak hours on working days, collecting data based on about 40 criteria, including the road infrastructure and intersection adjacent to the school, the organization of traffic, the quality of road surface and markings, public transport and pedestrian flows, and several more (Images 1&2).
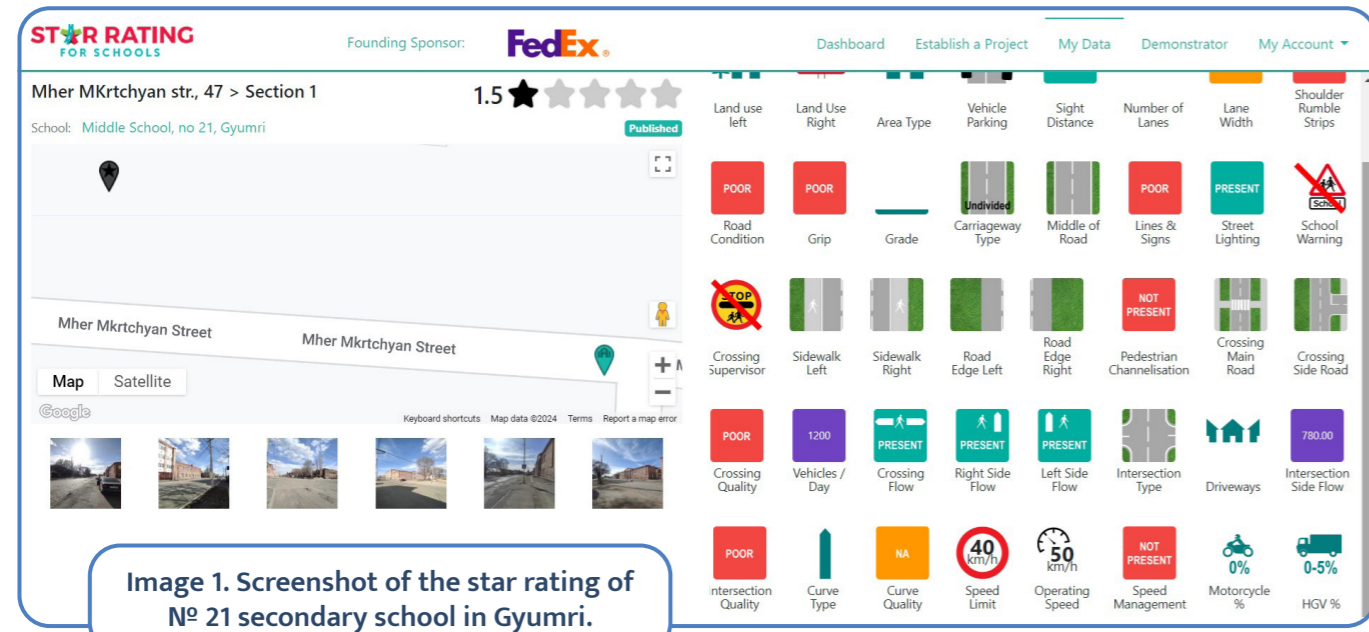

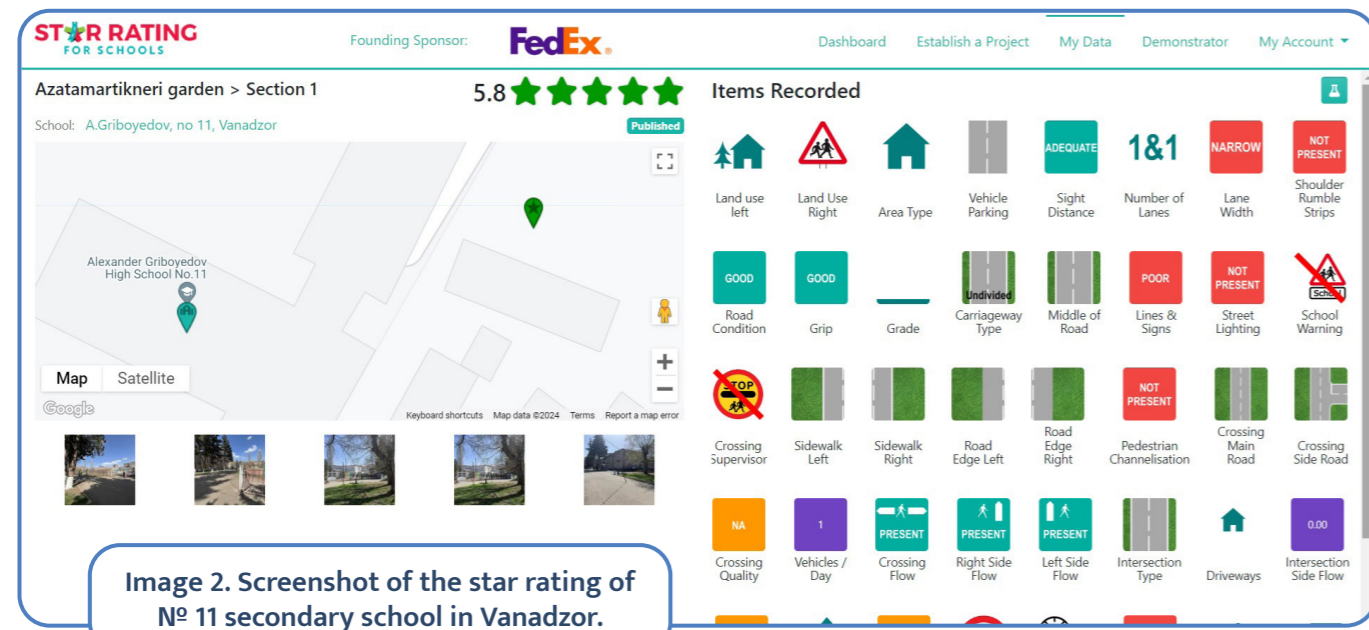**Image 1. Screenshot of the star rating of № 21 secondary school in Gyumri.**

Image 2. Screenshot of the star rating of № 11 secondary school in Vanadzor.

Overall, 39 schools have been assessed in both cities with the "Star Ratings for Schools" methodology, out of which 20 are in Gyumri, and 19 in Vanadzor. The Table 1 below includes the list of the assessed schools with their addresses.

GYUMRI

№ 4	Kamo 173	№ 18	Lazo 2	№ 29	Manushyan 7
№ 5	S. Matnishyan 301	№ 19	V. Sargsyan 13	№ 30	Shchedrin 7
№ 7	Aleq Manukyan 4	№ 20	Thatcher 1	№ 32	Komintern 1
№ 8	Lisinyan 6	№ 21	M. Mkrtchyan 47	№ 38	Bulvarayin 7
№ 11	A. Khachatryan 27	№ 23	Mush 2-2	№ 40	Verfel Square 4
№ 15	Esayan 34/1	№ 25	Pushkin 101	№ 41	Egh. Charents 4
		№ 26	Tigran Mets 27	№ 45	Aygabats, 3rd line, num. 36

VANADZOR

№ 1	Myasnikyan 10	№ 8	Mashtots 1	№ 17	Baghramyan 88
№ 2	Mkhitar Heratsi 17	№ 9	Zoravar Andranik 71	№ 22	Banaki 29
№ 3	Tigran Mets 35	№ 10	Aghayan 59	№ 24	Nersisyan 6
№ 4	Tigran Mets 23	№ 11	Azatamartikneri park	№ 25	V. Hambardzumyan 2
№ 5	Tigran Mets d. 2	№ 12	Anania Shirakatsi 17/23	№ 27	Zeytun 3/4
№ 6	Gr. Lusavorich 47	№ 15	Aghayan 69	№ 28	Taron 2 UBC-3 88/1-1 building
				№ 30	Ukrainian Ave, 10-2

Table 1. Assessed schools and their addresses in the cities of Vanadzor and Gyumri

According to the applied methodology, a score between 1-5 is given to assessed schools, where a school with a rating of 1 Star is considered the most dangerous, and one with 5 Stars is considered the safest.

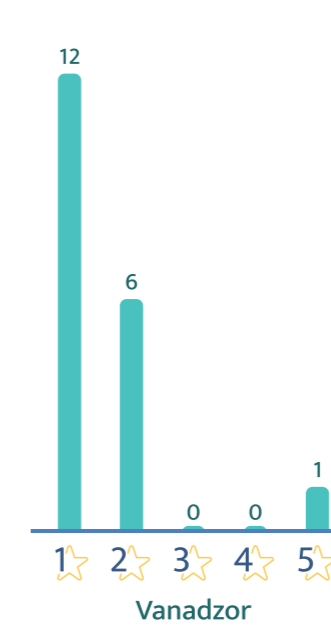The results are shown in Chart 2 (Vanadzor) and Chart 3 (Gyumri)

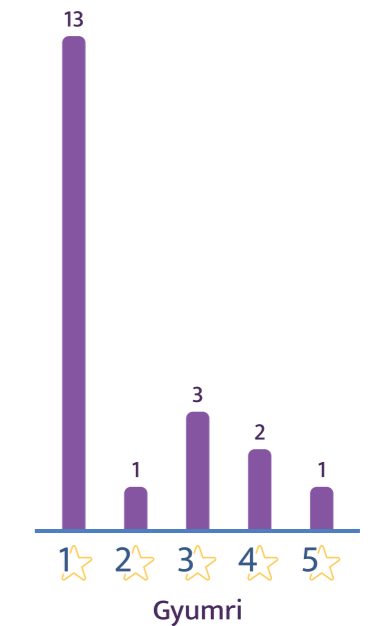**Chart 2. Star ratings of schools assessed in the city of Vanadzor**

Chart 3. Star ratings of schools assessed in the city of Gyumri

As can be seen from the graphs above, the level of safety of school areas in terms of traffic in both Vanadzor and Gyumri is, to put it mildly, alarming. At the time of the study, each city had only one school with a calculated rating of 5 Stars, while the total number of schools receiving only 1-Star ratings in both cities together is twenty-five, which counts approximately 60% of the assessed schools. According to the analysis of the collected data and the star rating calculation algorithm, this is primarily due to the specific features of traffic speed regulation in those areas. For example, the higher the allowed maximum speed limit, and therefore the actual average flow rate, the lower the calculated star rating for the given section of the school road.

That means the sustainable mobility vision obviously should also include appropriate safety interventions, primarily reasonable speed management.

The collected data, as well as the evaluation results, emphasize once again the importance of such studies, which should essentially be taken into consideration when it comes to developing of the sustainable mobility and road safety policies. Based on this the "Association of Official Representatives of Automanufacturers" aims to give a continuous nature to the "Star Rating for Schools" program, and by September 2024, will undertake interventions aimed at raising the star rating of at least 2 schools (one school in each of the cities of Vanadzor and Gyumri).

Thank You!