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Report of the High-level Meeting on Transport, Health and Environment and of the special session of the Steering Committee of the Transport, Health and Environment Pan-European Programme

Addendum

Vienna Declaration

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Vienna Declaration: Building forward better by transforming to new, clean, safe, healthy and inclusive mobility and transport

We, the ministers and heads of delegations of member States of the United Nations Economic Commission for Europe (ECE) and the World Health Organization in the World Health Organization European Region, convening the Fifth High-level Meeting on Transport, Health and Environment in Vienna and online on 17 and 18 May 2021,

Preamble

Recognizing that the pan-European region is at the beginning of a new decade when future-looking decisions have to be taken regarding transport, health and the environment,

Recognizing also that the region continues to face multiple challenges as described in annex I to the present Declaration, including ambient air pollution, traffic noise, greenhouse gas emissions, physical inactivity, sedentary lifestyles and obesity, socioeconomic disparities, environmental health inequities, road traffic injuries, economic inefficiencies and urban sprawl, land take and loss of biodiversity, that, together with incoherent policymaking and a lack of cross-sectoral coordination, need to be addressed urgently through a new holistic approach encompassing integrated policies and behavioural changes,

Highlighting that the coronavirus disease (COVID-19) pandemic has brought additional challenges and has revealed the important role of transport and mobility in public health and the necessity of strengthening their resilience to crises and disasters and that post-COVID-19 pandemic recovery packages focusing on innovative approaches are needed to address clean, safe, healthy and inclusive mobility and transport,

Committing to leverage the 2014 Paris Declaration – "City in Motion: People First!"[1] and to work together to implement the Transport, Health and Environment Pan-European Programme (THE PEP) in order to achieve sustainable, affordable and inclusive, safe and healthy, resilient, green and clean transport and mobility,

Committing also to strengthen THE PEP as a unique intergovernmental, cross-sectoral, tripartite pan-European policy platform for policymakers and stakeholders of the countries of the pan-European region for accelerating the transformation towards clean, safe and healthy mobility and net-zero emission transport,

Building upon the momentum achieved under THE PEP, while also recognizing the urgent need for intensified action to achieve the objectives of the 2030 Agenda for Sustainable Development, the New Urban Agenda and the Paris Agreement,

Appreciating the efforts made by member States and other stakeholders towards achieving THE PEP Priority Goals, particularly through THE PEP Partnerships, the holding of relay-race workshops and symposiums, THE PEP Academy and the development of strategic and practical tools,

Welcoming the outcomes, declarations and commitments relevant for transport, health and environment at the international level, in particular the 2018 Ministerial Declaration of the Economic and Social Council,[2] the 2017[3] and 2019[4] Ministerial Resolutions of the Inland

[1] United Nations publication, ECE/ENV/NONE/2014/3.

[2] Ministerial Declaration of the high-level segment of the 2018 session of the Economic and Social Council on the annual theme "From global to local: supporting sustainable and resilient societies in urban and rural communities" (E/2018/L.20–E/HLPF/2018/L.2).

[3] Ministerial Resolution on embracing the new era for sustainable inland transport and mobility (ECE/TRANS/270, annex I).

[4] Ministerial Resolution on enhancing cooperation, harmonization and integration in the era of transport digitalization and automation (ECE/TRANS/288, annex I).

Transport Committee, the 2017 Ostrava Declaration,[5] the 2018 Graz Declaration[6] and the International Transport Forum,

Emphasizing that we will strengthen our joint efforts and take additional actions to resolve these multiple challenges, building upon intensified cooperation and partnerships in the pan-European region and an integrated, holistic, strategic approach, uniting the forces of the transport, health and environment sectors, complemented by cross-sectoral planning and policy coherence,

Our vision

1. *Adopt* our ambitious vision of "clean, safe, healthy and inclusive mobility and transport for happiness and prosperity for all";

2. *Commit* to leading the transformation of transport and mobility to achieve our vision, while involving stakeholders, including national, subnational and local authorities, communities, companies and civil society, especially youth and children, in this transformation towards green and healthy mobility and transport, taking into account the recommendations set out in annex II to the present Declaration, focusing on:

(a) Ensuring the resilience of transport systems to climate change, pandemics and other disasters;

(b) Improved living conditions in cities and regions by integrating environmental and health policies and objectives into coordinated transport and spatial planning;

(c) Clean, safe, low-noise and net-zero emission transport by implementing policies and actions for healthy, active and safer mobility;

(d) The social inclusivity of access to mobility and transport;

(e) Directing investments, fiscal incentives and green finance initiatives towards sustainable transport to stimulate job creation and the economy;

(f) Making the best use of the benefits of the digitalization of transport and mobility services;

(g) Implementing sustainable mobility management and services, employing appropriate technologies for clean, efficient, healthy and safe transport systems;

(h) The promotion of solutions to implement sustainable urban mobility, including a wide range of electric urban public transport modes and cycling and walking, and consideration of these forms of mobility in transport and spatial planning;

Strategy and actions for achieving our vision and accelerating the transformation towards sustainable transport and mobility

3. *Also commit* to developing a comprehensive pan-European strategy on transport, health and the environment, including a clear pathway for its implementation, to achieve the agreed vision and guide the further work of THE PEP, for adoption in 2023, and use this strategy to:

(a) Strengthen our commitment to further developing and implementing THE PEP to ensure that it helps to improve living conditions in our urban, peri-urban, rural and mountainous areas, making them healthier, safer, better connected and accessible, in a perspective of social equity with no one left behind;

[5] Declaration of the Sixth Ministerial Conference on Environment and Health (Ostrava Declaration), available at www.euro.who.int/__data/assets/pdf_file/0007/341944/OstravaDeclaration_SIGNED.pdf.

[6] Graz Declaration "Starting a new era: clean, safe and affordable mobility for Europe" of an informal meeting of environment and transport ministers (Graz, Austria, 29 and 30 October 2018), available at www.eu2018.at/latest-news/news/10-30-Graz-Declaration.html.

(b) Develop further synergies between THE PEP activities and the implementation of the 2030 Agenda, the Paris Agreement and other relevant intergovernmental processes through the activities set out below aimed at assisting member States in achieving the Sustainable Development Goals and climate action targets;

(c) Strengthen our commitment to national action and international cooperation on policies to achieve our vision, including by integrating public transport, efficient intermodal connections and infrastructure for active mobility, for all users, with a view to reducing inequalities;

(d) Consider the specific needs of children, youth, the elderly and persons with disabilities;

(e) Develop effective monitoring by strengthening the collection of national and international data in the fields of transport, health and environment;

4. *Establish* an ad hoc working group to analyse different legal options to give effect to our vision and strategy, and elaborate draft proposals for possible legal instruments and present them for consideration by the Steering Committee, which will agree on a proposal for adoption at the Sixth High-level Meeting on Transport, Health and Environment;

5. *Support* the implementation of mobility management programmes for cities, regions, companies, tourism and schools, which combine in particular clean vehicle technologies, the efficient use of infrastructure and green logistics for both passengers and freight, the expansion of public transport, flexible mobility services for the first/last mile, active mobility and the strengthening of shared mobility and multimodality;

6. *Commit* to ensuring that transport, health, the environment and spatial planning are considered together to achieve policy coherence with regard to reducing urban sprawl and the demand for transport and improving resilience, energy efficiency and access to public transport and active mobility;

7. *Decide* to establish coordination mechanisms at the national level between the transport, health, environment and spatial planning sectors, including subnational and local authorities and involving other relevant stakeholders;

8. *Agree* to promote the mobilization of financial resources, including from international financial institutions, green finance instruments and the public and private sectors, and through public-private partnerships, while applying the relevant social and environmental criteria, to invest in sustainable mobility and transport systems;

9. *Decide* to establish close cooperation between THE PEP and international financial institutions to develop green finance instruments, with a focus on the introduction of safe and high-quality public transport services, clean public transport fleets and the promotion of active mobility and mobility management;

10. *Call on* ECE member States to include in relevant international legal instruments the use of remote emission control systems and technical inspection provisions for used vehicles being exported, so as to reduce the environmental and health effects of these vehicles and improve their safety;

11. *Decide* to accelerate the introduction of low- and zero-emission vehicles, electromobility and related infrastructure through financial incentives and other support programmes and promote the use of sustainable low carbon fuel options, increasing the share of renewable energy powering transport, and also ensure that only fossil fuels that comply with high environmental standards are available on the market;

12. *Also decide* to boost active mobility as an important element of the transformation and ensuring resilience to pandemics;

Resilience of transport and mobility systems

13. *Acknowledge* the need for strategic concerted actions to address the negative impacts of pandemics such as the COVID-19 pandemic on social life and healthcare, the

economy and mobility and transport systems, also taking into account new trends, in particular with regard to people's mobility behaviour, the use of clean technologies and digitalization;

14. *Take* action to reallocate and redesign public space and transport infrastructure to provide conditions favourable for walking and cycling and ensure the resilience of our livelihoods, social life and local economy in pandemic crisis situations;

15. *Also take* action to restore trust in public transport, in particular by providing sufficient sanitary and hygiene measures, ensuring personal protection and physical distancing, and providing sufficient public transport services;

16. *Commit* to establishing guidelines and action plans to manage lockdown situations and the reopening of the transport and mobility sector, building forward better and supporting a green mobility reset;

Paving the way for healthy and active mobility in the pan-European region

17. *Adopt* the Pan-European Master Plan for Cycling Promotion, as included in annex III to the present Declaration and developed by THE PEP Partnership on Cycling Promotion at the request of the Fourth High-level Meeting, as a means of achieving the objectives set out below in relation to cycling, and promote the implementation of its set of recommendations, in particular regarding the improvement of infrastructure and incentive frameworks to promote cycling;

18. *Commit* to achieving the following objectives by 2030:

(a) Significantly increase cycling and walking in every country and contribute to the overall target of doubling cycling in the region as a whole;

(b) Extend and improve infrastructure for safe cycling and walking in every country in the region, including safe mobility for children and youth to kindergartens and schools, as well as in neighbourhoods;

(c) Develop and implement national cycling and walking policies, supported by national cycling and walking plans, strategies and programmes, including the setting of national targets, in every country in the region, and also promote their implementation in relevant subnational plans and policies;

(d) Significantly improve the safety of cyclists and pedestrians in every country in the region and significantly reduce the number of fatalities and serious injuries amongst these road users in the region as a whole;

(e) Integrate cycling and walking into health policies, as well as transport infrastructure and land-use planning;

19. *Acknowledge* cycling and walking as equal modes of transport contributing to sustainable and resilient livelihoods and encourage education and awareness-raising on active mobility, road safety – specifically for cyclists and pedestrians – and the related socioeconomic benefits;

20. *Also acknowledge* that children, the elderly and persons with disabilities will often have to be transported, and recognize the need to find creative and environmentally sound mobility solutions in, for example, cities, so that no groups are left behind in the adaptation to climate change;

21. *Take* measures to shift from motorized mobility to active mobility, in particular considering the large number of short trips in urban and suburban areas, and provide adequate infrastructure for cycling and walking to reduce accidents between motorized and non-motorized road users;

22. *Request* ECE to take the necessary steps to develop and establish, based on the elements and principles of the Pan-European Master Plan for Cycling Promotion, a trans-European cycling network;

23. *Decide* to support the work of the Partnership on Cycling Promotion and extend its focus to walking and other forms of active mobility, making it a Partnership on Active Mobility that should develop a pan-European master plan on active mobility, which would include guidelines and tools, and establish a pan-European competence centre on active mobility to support capacity-building, the sharing of good practices and implementation initiatives;

THE PEP: fostering the transformation to achieve our vision

24. *Also decide* to launch new THE PEP partnerships as platforms for cooperation between member States and other stakeholders for the implementation of the present Declaration;

25. *Endorse* the practical results and recommendations achieved in the Partnership on Eco-driving, as set out in annex IV to the present Declaration, including THE PEP Guidelines for Eco-driving, the studies on green and healthy jobs in transport, the TRANSDANUBE Partnership for sustainable mobility in the Danube region, as well as the conclusions of the Handbook on Sustainable Urban Mobility and Spatial Planning as set out in annex V to the present Declaration, and decide to further develop these partnerships by:

(a) Requesting the Partnership on Eco-driving to explore the extension of eco-driving to electric vehicles and other forms of transport and non-road mobile machinery;

(b) Requesting the Partnership on Green Jobs to continue the work to support the development of policies to stimulate the creation of green jobs;

(c) Establishing THE PEP Partnership on Sustainable Tourism Mobility, with a view to sharing good practices and developing respective guidelines and tools;

(d) Intensifying the work of the relevant partnership to promote coordination and the integration of sustainable transport, in particular public transport, shared and active mobility, spatial planning, health and the environment;

26. *Welcome* the establishment of a new partnership on child- and youth-friendly mobility and highlight the importance of incorporating the perspectives of future generations into the work of THE PEP;

27. *Decide* to intensify the activities of THE PEP Academy by fostering interaction between scientists, practitioners and policymakers; inviting universities and other education institutions to contribute to the Academy; recommending the introduction of courses addressing transport, health, the environment and spatial and urban planning issues in an integrated way; considering measures to provide budgetary support for students' education in the relevant academic programmes; and requesting the Steering Committee to develop a procedure for awarding a certificate to graduates of THE PEP Academy;

28. *Welcome* and support the organization of relay-race workshops on transport, health and the environment in member States to showcase THE PEP, enable the sharing and compilation of good practices and the elaboration of policy recommendations and their implementation, and promote cooperation between relevant sectors;

29. *Endorse* the Health Economic Assessment Tool for walking and cycling and the For Future Inland Transport Systems tool and promote their application in decision-making on spatial and transport infrastructure planning;

30. *Harmonize* cycling signs and signals across the ECE region to enhance road safety for cyclists and pedestrians, acknowledge the rights of pedestrians and cyclists and therefore encourage member States that are Contracting Parties to the Convention on Road Signs and Signals and the Convention on Road Traffic to suggest corresponding amendments thereto;

31. *Request* the Steering Committee to develop THE PEP honorary award;

32. *Request* ECE and the World Health Organization Regional Office for Europe to continue to provide secretariat services to THE PEP and agree to continue supporting them in that endeavour;

33. *Adopt* THE PEP workplan for the period 2021–2025, as set out in annex VI to the present Declaration, for the implementation of this Declaration, and agree to develop further and monitor the workplan's implementation through the Steering Committee at its annual sessions and to allocate the necessary financial and/or in-kind resources, including for staff support to carry out the tasks identified in the present Declaration, including through a system of voluntary contributions;

34. *Request* the Steering Committee, in cooperation with the secretariat, to prepare specific proposals to facilitate the mobilization of additional funds from other sources to support the implementation of the workplan for the period 2021–2025;

35. *Commit* to providing support for the implementation of THE PEP and its workplan, with a focus on building centres of competence and capacity development, sharing of good practices and the facilitation of joint initiatives and partnerships;

36. *Request* the Steering Committee to elaborate a communication strategy to disseminate the results of THE PEP in order to raise awareness among stakeholders and citizens;

37. *Invite* the Steering Committee to consider the organization of an event on the occasion of the twentieth anniversary of THE PEP in 2022 and a midterm review in 2023;

38. *Decide* to convene a Sixth High-level Meeting in 2025 and thank the Government of the Russian Federation for the initiative to host this event;

39. *Express* our gratitude to the Government of Austria for having hosted the Fifth High-level Meeting and thank both it and the people of Austria for the warm hospitality received.

Annex I

Key facts and figures on transport, health and environment[1]

1. The present annex highlights key facts and figures to provide a solid basis for member States of the United Nations Economic Commission for Europe (ECE) and World Health Organization (WHO) European region to support their efforts in advancing the transport system in their own countries for the better and to accelerate the transformation towards sustainable transport and mobility, building forward based on an "Avoid–Shift–Improve" strategy in mobility and transport policies.

2. Despite the technological progress made, current transport system and mobility patterns remain unsustainable. Traffic is still the source of several challenges in many countries, while mobility and transport play an essential role in our societies and economies. The sector provides access to jobs, education, services, amenities and leisure, while contributing to economic growth, jobs and trade. At the same time, it has a growing impact on the environment and human health.

3. THE PEP builds its objectives, strategies and actions on the latest scientific evidence and data available by analysing and highlighting the current state of mobility- and transport-related environmental and health effects in the region. This information should serve as a starting point for the further transformation of the sector towards zero emissions, health promoting mobility and safe and efficient transport in the decade to come. There is an urgent need for this transformation, as global increases in population, overall welfare and trade are expected to induce growing volumes of transport and mobility.

4. Across the ECE and WHO European region, motorized vehicles continue to play a significant role in transport. Considerable differences exist across the region but also between urban areas, where the share of trips carried out by walking, cycling and in public transport is increasing, and rural areas, where the car is still dominant and, all too often, no multimodal mobility option is provided.

5. Due to the COVID-19 pandemic, contrasting trends can be observed. On the one hand, rapid integration of new digital services may lead to less transport and the modal share of active mobility has increased. On the other hand, public transport has come under pressure and suffered significant decreases in passenger numbers and modal share.

6. Traffic-related air pollution, noise and road traffic accidents significantly contribute to the disease burden in the region, with a disproportionate burden concentrated in certain geographic areas and among less affluent social groups. Cars and related infrastructure such as parking spaces use up a large amount of the already very limited space available in urban areas.

7. Emissions of the main air pollutants have declined in recent decades, resulting in generally improved air quality. However, a large proportion of the European urban population remains exposed to levels of air pollution that exceed WHO Air Quality Guidelines. This makes air pollution the single largest environmental risk in Europe. For the whole of the European region, WHO estimates that 509,000 premature deaths per year are attributable to ambient air pollution, measured as particulate matter of 2.5 microns or less in aerodynamic diameter ($PM_{2.5}$) in 2016. Another pollutant of concern typically associated with vehicle exhaust emissions is nitrogen dioxide (NO_2). The European Environment Agency estimates that 417,000 premature deaths and over 4.8 million years of life lost are attributable every year to $PM_{2.5}$, while 55,000 premature deaths and 624,000 years of life lost are attributable to NO_2 based on data from 2018 covering 41 countries. Policies to address transport-related air pollution should focus not only on limiting exhaust emissions, but also

[1] For a full description, see National Institute for Public Health and the Environment, Netherlands, *THE PEP Facts and Figures: How healthy and environmentally friendly is our mobility and road transport today?* (Bilthoven, The Netherlands).

on reducing non-exhaust emissions (such as tyre and brake abrasion), which are also a significant cause of air pollution mostly through the production of particles.

8. At least 20 per cent of the inhabitants of the ECE and WHO European region live in areas with road traffic noise levels that are harmful to health. In urban areas in most countries, this figure exceeds 50 per cent.

9. More than 110,000 people are killed on the roads every year in the ECE and WHO European region. On average, this means that one person dies every five minutes. Millions more are seriously injured in road accidents. Road traffic injuries are the number one cause of death globally among young people aged between 5 and 29 years.

10. In addition, road transport is responsible for about a quarter of energy-related greenhouse gas emissions, thus contributing to climate change and global temperature rise.

11. Car dependency, restricted use of public space and lack of safety for cyclists and pedestrians contribute to physical inactivity and to a sedentary lifestyle, which increase the risk of non-communicable diseases and obesity. Physical inactivity is estimated to cause about 1 million deaths each year in the WHO European region alone. Obesity also causes approximately 1 million deaths each year. However, physical activity, for example cycling or walking, has very important health benefits.

12. The external costs of road transport are not reflected in current market prices. The total bill for traffic congestion, pollution and accidents, for example, has been estimated at €502 billion per year for States members of the European Union alone. The benefits of a shift towards more active mobility and public transport arise mainly from increased life expectancy, increased productivity and lower health-care costs related to non-communicable diseases. This shows that there is a strong case for investing in and promoting walking and cycling in cities and beyond.

13. Inequalities related to transport and urban sprawl can be found in exposure levels and negative health impacts from air pollution, noise and road safety hazards. Furthermore, the benefits from transport are also unequally distributed. Not all socioeconomic groups have equal access to healthy transportation, public transport networks and recreational or green areas.

14. The conditions and circumstances in which people live determine their state of health and level of physical activity. The settings in which people live (cities, workplaces, schools, etc.) should make healthy choices the easiest ones: active transport (walking and cycling) in this case.

15. Countries differ in economic and sociocultural circumstances, population density, local climate, geography and topography. These differences need to be taken into account when developing tailor-made approaches and solutions for the challenges posed by transport at the regional, national and local levels.

16. To allow for effective monitoring of the impacts of transport, harmonized data on transport, environment and health is crucial. There are significant gaps in data availability and quality, which need to be filled for a better understanding and comparison of data between countries.

17. Transforming the transport and mobility sector requires a multidisciplinary approach. Therefore, collaboration between decision-makers and experts in transport, environment, health, spatial planning and economy is crucial when designing transport-related policies that deliver benefits to environment, health and climate simultaneously. Moreover, international, cross-sectoral and multilevel (countries, regions and cities) cooperation is needed to drive the change to sustainable, environmentally friendly and healthy transport.

Annex II

Recommendations for Green and Healthy Sustainable Transport[1]

I. Introduction

1. At the meeting of Bureau of the Steering Committee of the Transport Health and Environment Pan-European Programme (THE PEP) in April 2020, member States discussed at length the COVID-19 situation and the impact that it was having on the transport environment in their countries and the need to take action. Participants agreed to establish a THE PEP Task Force on: "The Development of Green and Healthy Sustainable Transport Recommendations" to facilitate the return to a new normal with sustainable transport solutions at heart of decision making to ensure a green and healthy future for all.

2. The objective of the Task Force was to make a synthesis of the "main lessons" learned from the Covid-19 crisis and to propose a set of recommendations in order to support countries in making the transition to green and healthy sustainable transport through the development of principles related to sustainability and resilience, taking into account the feedback and the sharing experiences of COVID crisis.

3. The Task Force was composed of over 50 experts from national Ministries, International Organizations, City Authorities, Inter-governmental and non-governmental organizations, Academia and industry experts. The Task Force was chaired by the Chair of THE PEP Steering Committee, Mr. Robert Thaler – Austria.

4. The Task Force met virtually as a group over 8 monthly meetings and, based on an agreed term of reference:

(a) Exchanged experiences and best practice from national actions to counter the effects of COVID-19.

(b) Established a framework under which the Task Force would function.

(c) Developed common views on what the key themes for discussion in the recommendations should be.

(d) Agreed a set of recommendations for the final document.

5. During this period, smaller drafting groups were set up to address the key themes fundamental to the development of the Recommendations.

6. The first draft of the Recommendations was discussed at the eighteenth meeting of the Steering Committee of THE PEP (online, 25–27 November 2020) and, following further consultations in a task force meeting (online, 12 January 2021), it was adopted at the preparatory meeting to the Fifth High-level Meeting on Transport, Health and Environment (online, 25 January 2021). Participants in the preparatory meeting also agreed to include the Recommendations as annex II to the draft declaration. They also agreed to change the title of annex II to the draft declaration to reflect the content of the text. The revised title of annex II was to be "Recommendations on Green and Healthy Sustainable Transport – Building Forward Better".

II. Recommendations on Green and Healthy Sustainable Transport – Building Forward Better

7. Reflecting the analysis of the current situation and in addressing concerns raised during the COVID-19 pandemic situation, the following recommendations have been

[1] For full recommendations, see *Recommendations for Green and Healthy Sustainable Transport – "Building Forward Better"* (United Nations publication, ECE/AC.21/9).

developed, while considering the underlying framework of the "Avoid–Shift–Improve" approach. These recommendations are framed to focus firmly on the needs of the users for whom transport and mobility systems are designed and built, to ensure the accessibility to major population centres and suburban and rural areas. The recommendations have been developed within the context of the objectives of THE PEP[2], the Vienna Declaration of the Fifth High-level Meeting on Transport, Health and Environment, the Paris Climate Agreement and the SDGs.

1. Recommendation 1: Implementing sustainable urban and transport planning solutions ("Avoid"):

8. Introduce modern principles of and tools for spatial and urban planning in the urban, suburban and rural environments, ensuring accessibility to other people, goods, services and the main points of interest, while minimizing the generation of demand for transport and optimizing investments in infrastructure and services, including through:

(a) Ensuring an optimal density in urban development and promoting mixed-use urban areas and buildings, combined with appropriate green and healthy transport capacity, by integrating spatial and transport planning.

(b) Implementing urban planning initiatives to improve people's quality of life by providing safe access to goods and services and to "green" and "blue" areas within the "15-minute" neighbourhood, applying the principles of a short-distance city.

(c) Ensuring that spatial and urban planning guidelines and policies primarily focus on the accessibility needs of the entire population, including vulnerable users, in particular children and youth, as well as senior citizens and persons with reduced mobility.

(d) Ensuring the assessment of the impacts of major construction projects on transport and mobility, as well as on the economy, environment and health.

(e) Introducing new urban assessment methodologies that map access to "green", "blue" and quiet places as well as data on GDP and public health in order to inform future planning decisions.

(f) Orienting urban development towards high-capacity green, safe, healthy and high-quality public transport systems.

(g) Creating "green" corridors that combine the advantages of environmental corridors with opportunities for active mobility.

(h) Developing engagement and communication programmes to involve people, engage users and generate public support, particularly during the planning phase, to help ensure public buy-in for the solutions proposed.

(i) Implementing the recommendations of the UNECE and THE PEP Handbook on Sustainable Urban Mobility and Spatial Planning[3] in line with the goal of THE PEP to integrate transport, health and environmental objectives into urban and spatial planning policies.

2. Recommendation 2: Putting effective, high-quality and safe public transport at the centre of mobility ("Shift" and "Improve")

(a) Prioritize the development of public transport. The provision and use of high quality and attractive public transport services should be an integral part of wider planning for recovery, resilience and sustainable urban mobility, in line with the goal of THE PEP to

[2] UNECE and WHO Regional Office for Europe, "Transport Health and Environment Pan-European Programme: From Paris 2014 to Vienna 2019" (United Nations, Geneva, October 2015). Available at https://thepep.unece.org/node/87, 2015

[3] UNECE, "A Handbook on Sustainable Urban Mobility and Spatial Planning" (United Nations, Geneva, October 2020). Available at https://thepep.unece.org/node/815, 2020

integrate transport, health and environmental objectives into urban and spatial planning policies.

(b) Plan public transport services around passenger needs and expectations to ensure a system that is attractive to users and that integrates services, ticketing and modes to provide a reliable, affordable, easily accessible, safe and comprehensive door-to-door network. At the same time, ensure that these services provide an environmentally-friendly solution to mass mobility, for example, through the use of electric public transport fleets and the provision of appropriate, dedicated public transport infrastructure.

(c) Support public transport services with public information campaigns that reverse the current negative language and highlight the benefits of public transport for its users and society (with a particular focus on the positive safety elements of public transport in the current and post-COVID-19 pandemic era) to entice passengers back to such services. A fundamental part of this support should be easy access to timely, personalized journey information and integrated ticketing.

(d) Ensure that public transport service providers can rely on the assurance of multi-annual funding arrangements, notably in the context of COVID-19 pandemic recovery plans.

(e) Enable public authorities to explore new sources of funding for public transport such as green bonds, public-private partnerships, land development levies and revenue from incentives introduced to encourage modal shift, etc. Furthermore, funding decisions should be based on the full range of full cost-benefit and impact assessments that also consider land value capture.

3. Recommendation 3: Capitalizing on micromobility ("Shift" and "Improve")

(a) Establish legal certainty with regard to micromobility for service providers and users, with effective enforcement of safety standards (building on, for example, the international standards developed by the industry for pedal-assist electric bicycles), and clarity regarding the use of micromobility vehicles. Disseminate this information through large-scale public information campaigns.

(b) Carry out comprehensive assessments of the large-scale implementation of electric micromobility solutions to better understand the impacts on:

(i) Pollutant emissions and material use (both in terms of end-use emissions, for which tools such as urban transport roadmaps can be used, and in terms of emissions and material use in the life cycle of the solutions).

(ii) Health (for example, in terms of physical (in-)activity and safety of users).

(iii) Modal shift, with a focus on the means of transport replaced by micromobility vehicles.

(iv) Congestion of street and road networks (for example, in terms of modal shift and traffic generation effects).

(c) Promote micromobility including related sharing solutions, in particular for the first and last mile, for example, through infrastructure investments, cooperation schemes between local authorities and mobility providers or financial incentives, based on robust data on the health and environmental benefits of this type of mobility and considering the safety implications for other users. Micromobility needs to be supported by better infrastructure (both digital and technical) to encourage sharing solutions, such as bicycle and electric scooter sharing systems, and pre-empt issues that might emerge in relation to charging and parking.

(d) Collect, manage and make best use of data collected in order to:

(i) Identify gaps in the transportation network.

(ii) Monitor equitable service standards.

(iii) Offer multi-modal real-time transport information.

(iv) Evaluate respective policies.

(e) When establishing, expanding and promoting micromobility solutions, take into account social inclusion and equity issues such as low-income affordability or digital impoverishment, and the needs of disadvantaged groups.

4. Recommendation 4: Introduce effective mobility management ("Shift")

(a) Prepare national mobility management strategies, to be developed in coordination with other member States under THE PEP. These strategies should provide guidance and support aimed at offering sustainable mobility choices and options at the national, sub-national and local levels, involve also the private sector and cover both passenger and freight initiatives. These strategies should focus on the following key elements:

(i) Strengthening the efficient and smart management of mobility needs and transport demand to ensure inclusive access to mobility and the efficient use of multifunctional infrastructure and transport systems.

(ii) Implementing measures to make public transport and active mobility the preferred option particularly in cities, including by implementing effective parking policies and other fiscal, regulatory and physical measures that incentivize people to switch away from using private cars.

(iii) Making the best possible use of the potential of new transport technologies and zero-emission vehicles by combining them with climate-friendly mobility services and logistics, in particular to ensure the quality and safety of public transport services.

(iv) Embedding digitization and mobility, smartly and cost-efficiently, as service approaches, and incorporating automated vehicles into the mobility system, while ensuring transparent data-sharing practices, the incorporation of the user's perspective and adaptation to the post-pandemic situation.

(v) Identifying targeted incentives and developing support programmes aimed at multimodal, clean, safe and inclusive mobility management and planning for cities, regions, companies, tourism, schools and youth, by placing the needs of the user at the centre of potential solutions.

(vi) Supporting awareness-raising, sustainable mobility planning and land-use policies to counteract urban sprawl, and providing incentives for modal shift and environment- and climate-friendly connectivity and accessibility in cities and regions.

(b) Building on the national strategies, facilitating the development of sustainable regional and urban plans for mobility management and mobility planning, including through the introduction of Sustainable Urban Mobility Plans (SUMPs) or similar planning tools, the exchange of good practice in this area and the identification of common frameworks, based on which individual authorities can customize their systems.

(c) Promoting the development of urban logistics hubs outside the city centres in combination with the implementation of CO2-neutral delivery and city logistics.

5. Recommendation 5: Innovate to make transport green and healthy ("Improve")

9. Innovation is the key means by which current modes of travel can be improved to create more sustainable transport networks, services and mobility options. Promote more secure, safer and greener travel, by increasing active travel, introducing more integrated networks and reducing harmful emissions through technological advances in engineering, and the digital enhancement of transport services and efficient infrastructure by taking the following actions:

(a) Further develop the digitalization of society and transport through the expansion of integrated mobility-as-a-service platforms, combining modes of transport with potential consumer, State and business interests.

(b) Replace internal combustion engine vehicles with zero-emission ones, supported by the investment in the necessary infrastructure, encouraging active mobility and maximizing the positive health effects of emission reductions and physical activity.

(c) Implement "Vision Zero"[4] by improving road safety, taking into account the possibilities created by digitalization, such as the communication between vehicles and between vehicles and their environment, to ensure appropriate driving and compliance with speed limits to significantly reduce the number of road crash injuries and deaths.

(d) Support the evolution of monitoring and enforcement systems. Improved digitization of networks and travel patterns generates anonymized data, while protecting privacy and greater knowledge to provide more responsive, efficient and adaptable management of public and private modes of transport.

(e) Ensuring the adoption of flexible, responsive, integrated, affordable and fair pricing, ticketing and revenue management systems that facilitate equity in access to transport.

6. Recommendation 6: Encourage active mobility ("Shift")

10. During the pandemic, the role of cycling and walking became even more important as they emerged as viable mobility options for essential trips, while supporting physical distancing and relieving the burden on public transport. To support safe cycling and walking as means of making cities more liveable and resilient, the countries of the pan-European region are encouraged to act according to the following principles:

(a) Build strong and long-term political consensus, including on investment strategies and fiscal measures to promote active mobility, and ensure coordination and cooperation across all levels of Government and other key stakeholders.

(b) Accelerate the implementation of the Pan-European Master Plan for Cycling Promotion (Annex III to the Vienna Declaration) and develop and implement an equivalent plan for walking.

(c) Address the following three pillars to promote active mobility:

(i) Improve infrastructure by, for example, adapting street design and amending traffic regulations and ensure adequate financing to facilitate the creation of safe infrastructure and spaces for cyclists and pedestrians, while also ensuring attractive multimodal solutions with public transport.

(ii) Raise awareness and skills by, for example, communicating the benefits of cycling and walking, and encourage children's training in safe walking and cycling, including by developing appropriate manuals.

(iii) Improve governance and accountability by, for example, ensuring clear attribution of responsibility, resources and accountability for walking and cycling to specific authorities at the national and/or local levels, and create "knowledge hubs" to facilitate the exchange of good practices among all relevant stakeholders.

(d) Link decisions on infrastructure development in emergency conditions with long-term goals formulated in relevant strategic documents (national transport, cycling, active mobility and health plans) and integrate cycling and walking into emergency, recovery and resilience plans when they deal with transportation measures.

(e) Change urban planning, land-use and transportation policies, building on the principle of the fair allocation of public space and ensuring that people and essential services and goods are accessible, safely and healthily, by walking and cycling.

[4] http://www.welivevisionzero.com/vision-zero/

7. Recommendation 7: Leave no one behind (“Improve”)

11. Whilst keeping in mind the overall long-term goal of achieving SDG targets 11.2, 11.3, 11.7 and 11.a, the following measures should be taken into consideration when rebuilding the transport system in a fair and inclusive way:

(a) Collect data to assess the level of transport inequalities and reduce transport poverty.

(b) Plan:

(i) Transport networks to avoid creating disadvantaged neighbourhoods and transport-isolated areas.

(ii) New developments by keeping in mind accessibility and public transport.

(iii) New developments and transport infrastructures so that various actors, especially grassroots and community initiatives, are involved, in order to understand and address social disparities in communities affected by poor transport services.

(iv) Public transport with vulnerable groups in mind.

(c) Focus on:

(i) Future transport investments in multifunctional infrastructure for sustainable development, paying particular attention to developments in deprived areas and areas with low levels of transit accessibility.

(ii) Implementation of urban planning initiatives aimed at improving the quality of life of people (socially, economically, environmentally, medically and through transport) by providing efficient access to essential services and goods.

(iii) Making public transport, transport infrastructure and related services more accessible with vulnerable groups in mind, for instance by implementing guiding systems for persons with visual impairments and barrier-free stations or adapting trains and buses for persons with reduced mobility.

Annex III

Pan-European Master Plan for Cycling Promotion[1]

Contents

[1] The “Pan-European Master Plan for Cycling Promotion” and the “Toolbox of Action for Cycling Promotion based on best available experience from the countries of the Pan-European Region” are also available as publications on THE PEP website https://thepep.unece.org/publications.

We, the Ministers of Transport, Health and Environment of the States in the pan-European region, gathered in Vienna on the occasion of the fifth High-level Meeting on Transport, Health and Environment, have adopted this pan-European Master Plan for Cycling Promotion.

I. Vision and objectives

1. Our vision is to promote cycling, which will contribute to sustainable livelihoods, a better environment, improved health and safety, greater social inclusion and economic prosperity, and overall improvement in the quality of life of our citizens. To that end, we acknowledge cycling as an equal mode of transport and have developed this pan-European Master Plan for Cycling Promotion.

2. By promoting cycling, the Master Plan will contribute to the goals identified under the Transport, Health and Environment Pan-European Programme (THE PEP) by:

- Contributing to sustainable economic development and stimulating job creation. The cycling industry and cycling tourism have high economic potential. In the pan-European region, an estimated 750,000 jobs are connected to cycling;[2]
- Promoting a more efficient transport system. Some 131 billion passenger-kilometres, replacing 42 billion passenger-car-kilometres, are cycled annually in the region (Box 3);
- Reducing emissions of transport-related greenhouse gases. Doubling the current level of cycling would reduce greenhouse gas (GHG) emissions by 8 million tons of carbon dioxide equivalent (CO_2e) with indirect economic benefits of €1.1 billion per year in the region (Box 4);
- Promoting policies conducive to healthy and safe modes of transport. Doubling the current level of cycling would prevent 30,000 premature deaths with indirect economic benefits amounting to €78 billion per year (Box 5);
- Integrating transport, urban and spatial planning policies. Cyclists' needs can be met by providing seamless infrastructure and enabling connectivity, accessibility and multimodality when integrating transport, health and environmental objectives into urban and spatial planning policies.

3. To achieve our vision, we have established the following objectives to be implemented by 2030 in the pan-European region:

(a) To significantly increase cycling in every country to contribute to the overall target of doubling cycling in the region as a whole;

(b) To increase the overall transport system's resilience by providing appropriate space in favour of cycling and walking;

(c) To extend and improve the infrastructure for cycling and walking in every country in the region;

(d) To develop and implement national cycling policies, supported by national cycling plans, strategies and programmes including the setting of national targets in every country in the region;

(e) To significantly increase cyclists' safety in every country in the region and to significantly reduce the number of fatalities and serious injuries in the region as a whole;

(f) To integrate cycling into health policies, including those tackling non-communicable diseases and obesity;

[2] WHO Regional Office for Europe, "Riding towards the green economy: cycling and green jobs. Key findings of the forthcoming joint report by UNEP, WHO and UNECE" (World Health Organization, 2016). Available at https://thepep.unece.org/node/86.

(g) To integrate cycling, including cycling infrastructure, into land use, urban, regional and transport infrastructure planning.

4. In order to monitor progress towards these objectives, we will develop, improve and follow indicators such as the modal share of cycling, number of national cycling plans and number of fatalities and serious injuries of cyclists per kilometre cycled annually, using 2020 as the baseline year (see recommendation 8.1).

A. Political mandate

5. Our vision is based on the decision, adopted at the Fourth High-level Meeting on Transport, Health and Environment (Paris, 14–16 April 2014), "to initiate the development of a pan-European Master Plan for Cycling Promotion, supported by guidelines and tools to assist in the development of cycling promotion policies at the national level. This new initiative will be undertaken within the framework of THE PEP partnerships" (ECE/AC.21/2014/2−EUDCE1408105/1.6/4HLM/2, annex, para. 10).

6. We acknowledge the work carried out under THE PEP Partnership on cycling promotion, jointly coordinated by the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology of Austria and the Ministry for an Ecological Transition of France with the involvement of 25 countries, the European Cyclists' Federation (ECF) and the secretariats of the ECE Sustainable Transport and Environment Divisions and World Health Organization Regional Office for Europe (WHO/Europe).

B. Recommendations for action

7. The Plan includes recommendations (section IV) based on evidence and good practice from the region, collected in an annex presenting a toolbox of actions for cycling promotion (annexes are not included in this shortened version of the Master Plan). Member States can select those recommendations most applicable to their needs and requirements based on their administrative system, geographical conditions (including climate) and objectives with respect to cycling.

C. Cycling promotion requires the cooperation of all stakeholders

8. In many countries, responsibility for cycling has been devolved to the subnational level. Regional and local authorities can be highly effective as catalysts and engines of cycling promotion in the pan-European region and should receive as much financial, legislative and political support as possible from the national level. Therefore, despite the wide range of competences across the region, national authorities are the Plan's main target group. Cycling promotion requires cooperation (or inter-agency agreements) between the responsible and affected ministries (health, environment, transport and, in some cases, infrastructure, education, tourism, the interior and finance). The Plan addresses national authorities in their role as coordinators with other relevant authorities and stakeholders involved where appropriate.

9. Cycling fits perfectly within the scope of THE PEP as a unique policy platform that encourages transport policymakers and urban planners to consider the health and environmental impacts of transport and to address them through integrated policy approaches at the national level.

10. Some of the recommendations call on international, regional and supranational organizations, such as ECE, the European Union, WHO/Europe and the international financial institutions, to support national authorities by advocating for change. As members of these organizations and institutions, member States have a powerful voice in their decision-making and can also advocate for cycling at the international level.

11. The aforementioned authorities, institutions and organizations are both target groups and direct beneficiaries of activities under the Plan; however, civil society (including the private sector, and particularly the bicycle economy) is the ultimate beneficiary.

II. Cycling in the pan-European region

12. New bicycles sold in Europe outnumber new passenger car registrations.[3] As at the end of 2017, public bicycle-sharing systems have been implemented in more than 1,250 cities worldwide, operating more than 10 million shared bicycles and sustainably meeting the need for transport and access to services, jobs, education, amenities and leisure for an increasing number of citizens[4] (see Box 1 below).

13. Some countries in the region have a long cycling tradition, with a large proportion of their population cycling, whereas the importance of cycling for transport, health, environment and the economy is barely recognized in other countries.

14. The Netherlands is leading the ranking in the pan-European region with more than one quarter (27%[5]) if trips done by bicycle. Countries like Denmark (15%[6]), Belgium (12%[7]) and Germany (11%[8]) are already beyond the 10% threshold. Slovak Republic[9], Switzerland[10] and Austria[11] could be called climbing cycling nations with 7% of trips travelled by bicycle. Below 5% we find countries like Norway (4,3%[12]), Italy (3,3%[13]), France (2,7%[14]) and Luxembourg (2%[15]). Some of them report tremendous increases of bicycle usage due to Corona crises in 2020. As the methodologies applied to survey these figures as well as the year of surveying differ widely it is not possible to directly compare these figures nor to give a complete picture of bicycle usage in the countries of the pan-European region.

15. Exemplary approaches in cycling-oriented countries show that cyclists' needs should be promoted as an equal component of an integrated transport and mobility policy. This requires powerful political support at all levels in order to develop a national cycling culture. According to recent ECF research on national cycling policies and plans and on the ongoing updating of this information by actively involved members of THE PEP Partnership, 16 countries currently have national cycling plans or similar policy documents in place: Austria, Belgium (with Flanders, Wallonia and the Brussels-Capital Region each having their own plan), Czechia, Denmark, Finland, France, Germany, Hungary, Ireland, Luxembourg,

[3] https://issuu.com/conebi/docs/european_bicycle_industry___market__8e7511a5a2e3fe.
[4] www.rolandberger.com/en/Publications/Bike-Sharing-Cornerstone-in-future-urban-mobility.html.
[5] Statistics Netherlands (CBS) (Netherlands Travel Survey (OViN) 2016 https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwj2zpPZ7pPvAhUQxYUKHShvAaQQFjAAegQIARAD&url=https%3A%2F%2Fwww.cbs.nl%2F-%2Fmedia%2F_pdf%2F2016%2F38%2F2016-transport-and-mobility.pdf&usg=AOvVaw2s9_yrKde-GRCBX3g-ibo5
[6] Transportvanaundersøgelsen 2019-2019" from DTU, Center for Transport Analytics https://www.cta.man.dtu.dk/transportvaneundersoegelsen/resultater
[7] Enquête Monitor sur la mobilité des Belges- FPS Mobility and Transport- Legal depot : D/2019/13.831/10; published Décembre 2019 » (data 2017) https://mobilit.belgium.be/sites/default/files/partie_mobilite_novembre_2019_final.pdf
[8] infas, DLR, IVT: Mobilität in Deutschland 2017, im Auftrag des BMVI http://www.mobilitaet-in-deutschland.de/pdf/MiD2017_Ergebnisbericht.pdf
[9] national mobility survey 2015 https://www.mindop.sk/ministerstvo-1/doprava-3/dopravne-modelovanie/dopravny-model-sr/dopravne-prieskumy/prieskum-mobility
[10] Mikrozensus Mobilität und Verkehr 2015 https://www.are.admin.ch/are/de/home/verkehr-und-infrastruktur/grundlagen-und-daten/mzmv.html
[11] National Travel Survey "Österreich Unterwegs" 2013/2014 https://www.bmk.gv.at/dam/jcr:fbe20298-a4cf-46d9-bbee-01ad771a7fda/oeu_2013-2014_Ergebnisbericht.pdf
[12] Norwegian National Travel survey 2019 http://nsddata.nsd.uib.no/webview/pdf?mode=ddiToPDF&executepdf=true&study=http://nsddata.nsd.uib.no/obj/fStudy/NSD2163&language=en
[13] Isfort, 17° Rapporto sulla mobilità degli Italiani, 2020 https://www.isfort.it/wp-content/uploads/2020/12/RapportoMobilita2020.pdf
[14] Ministère de la transition écologique, Enquête de mobilité des personnes 2019 https://www.statistiques.developpement-durable.gouv.fr/comment-les-francais-se-deplacent-ils-en-2019-resultats-de-lenquete-mobilite-des-personnes
[15] Nationale Mobilitätsstrategie MoDu 2.0 https://transports.public.lu/dam-assets/publications/contexte/strategie/modu2-de-brochure.pdf

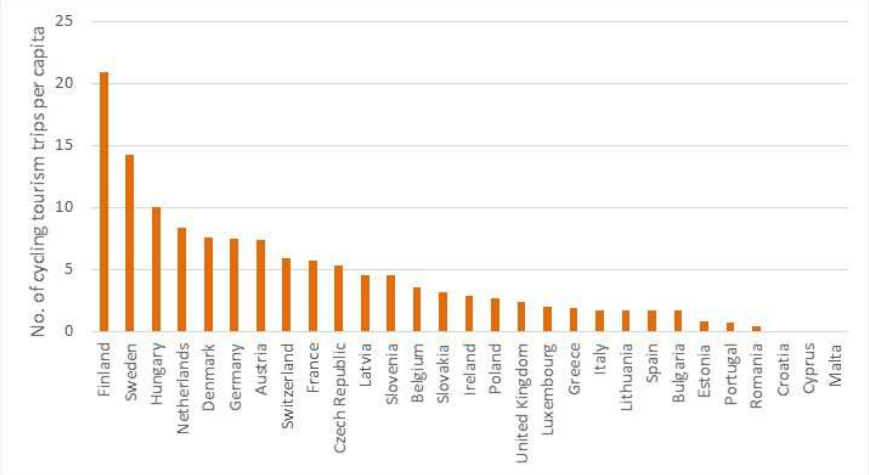
Netherlands, Norway, Slovakia, Sweden, Switzerland and the United Kingdom of Great Britain and Northern Ireland (with England, Northern Ireland, Scotland and Wales each having their own plan). Italy, Malta, the Russian Federation, Slovenia and Spain are currently developing such plans.

16. European Commission statistics show that in countries that have a national cycling plan in place, a higher percentage of people use the bicycle as their preferred transport mode.[16]

Box 1
Status of cycling

Cycling tourism has great promise, especially for peripheral regions, offering significant development potential for new touristic regions. In the European Union, tourists make over 2.2 billion cycle trips and 20 million overnight cycle trips each year, making such tourism an important factor in regional economic development.

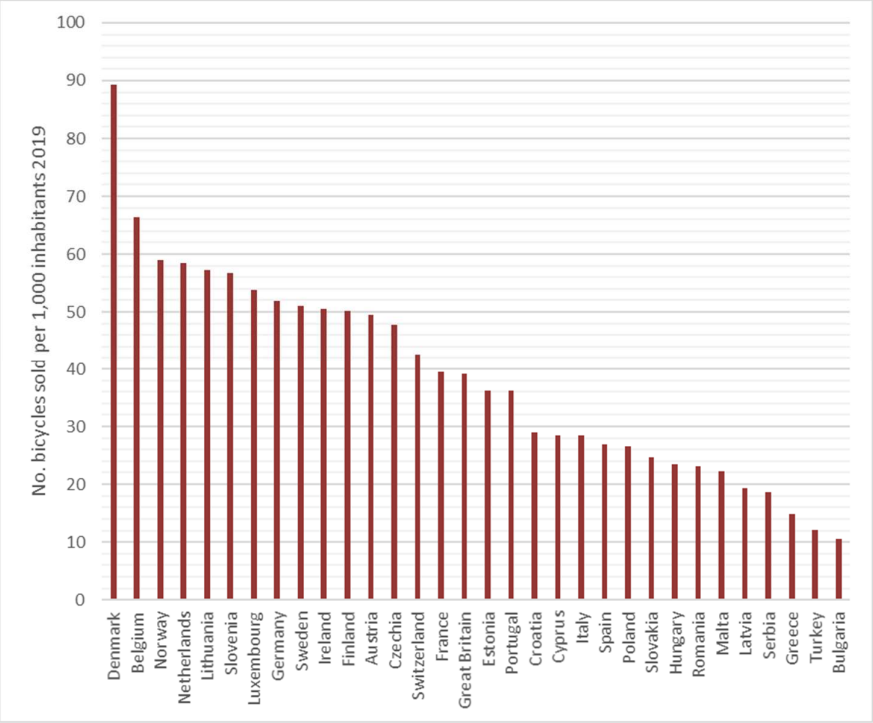
Figure I
Cycling tourism – Number of trips per capita



Source: European Cyclists' Federation, *Cycling Barometer 2013*; and Swiss Federal Roads Office, "Velofahren in der Schweiz 2014", in *Materialien Langsamverkehr*, vol. 132 (2015).

[16] https://data.europa.eu/euodp/data/dataset/S2017_82_2_422A_422B.

Figure II
Bicycle sales 2019



Source: For the European Union, Confederation of the European Bicycle Industry (CONEBI), *2020 European bicycle industry and market profile*, 2020 edition incl. Turkey; All other figures provided directly by member States part of the Partnership on Cycling Promotion: for Serbia Cycling Association of Serbia; for Switzerland Vélosuisse (Swiss Association of Bicycle Suppliers), for Norway Bicycle retailer's organization; population figures for EU 28 incl. Switzerland, Serbia, Norway, Turkey from EUSTAT;

III. Benefits of cycling

17. This chapter focuses on the benefits of regular cycling related to transport, the environment and health, the economy and the job market. Benefits are calculated by applying state-of-the-art instruments (e.g. the WHO/Europe Health Economic Assessment Tool (HEAT) for walking and cycling[17]) derived from studies based on the assumption that the objective of doubling cycling across the region will be achieved. References to THE PEP goals are provided.

18. Cycling contributes to implementation of the 2030 Agenda for Sustainable Development and pursuit of the Sustainable Development Goals.[18] Of particular relevance are Goals 1 (End poverty in all its forms everywhere), 2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture), 3 (Ensure healthy lives and promote well-being for all at all ages), 5 (Achieve gender equality and empower all women and girls), 7 (Ensure access to affordable, reliable, sustainable and modern energy for all), 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all), 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation), 11 (Make cities and human settlements inclusive, safe, resilient and sustainable), 12 (Ensure sustainable consumption and production patterns), 13 (Take urgent action to combat climate change and its impacts) and 17

[17] www.heatwalkingcycling.org/#homepage.
[18] https://sustainabledevelopment.un.org/?menu=1300.

(Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development).[19] Walking and cycling are viable mobility options for essential trips – especially short- and medium-distance trips – even during transport system-disrupting events such as pandemics.

19. While many pan-European region countries keep statistics on the number of kilometres cycled,[20] in those countries where no such statistics are kept, members of the Partnership worked with experts to calculate the benefits of cycling.[21]

A. Contribution to sustainable economic development and job creation

20. Doubling cycling in the region would create additional jobs and increase the turnover in retail bicycle sales. Cyclists also support rural and local economies (Box 2).

Box 2
Cycling contributes to sustainable economic development and job creation

Cycling creates jobs! Approximately 750,000 jobs are linked to cycling in the pan-European region and that number has been increasing in recent years.[22] Relevant economic sectors include: the construction/maintenance of cycling infrastructure, the bicycle-racing industry; cycling-related research; bicycle repair; bicycle hire schemes; and bicycle courier services. Calculations based on the report, *Cycling Works: Jobs and Job-Creation in the Cycling Economy*[23] indicate that doubling the modal share of cycling in the European Union (8 per cent as at 2014) would create an additional 400,000 jobs and an additional €3.5 billion turnover in retail bicycle sales.

Cycling supports the rural and local economy. According to one study, cyclists spend, on average, three to four times as much money in each place visited as car-borne visitors[24] while daily cyclists ride shorter distances than they would drive by car and hence prefer local shops over shopping malls outside a town or city. Thus, cycling promotes local supply and a carefully devised mixture of residential areas and accompanying infrastructure as the basis for a sustainable form of living.

B. Support for sustainable mobility

21. Cycling is one of the most space-efficient modes of transport and the fastest and most efficient mode of travel for distances of up to five kilometres. Doubling cycling in the region would increase the share of public space available to people by reducing congestion, with indirect economic benefits of €4.9 billion (Box 3).

Box 3
Cycling supports sustainable mobility

European cities are challenged by increasing urbanization and population growth and public space is limited. City structures rarely allow for construction of additional areas for motorized traffic and current infrastructure is stretched to the limit.

[19] https://ecf.com/groups/cycling-delivers-global-goals.
[20] Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Slovakia, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland.
[21] Excluding Canada and the United States of America.
[22] https://thepep.unece.org/node/86.
[23] https://ecf.com/groups/cycling-works-jobs-and-job-creation-cycling-economy.
[24] https://www.cyclinguk.org/sites/default/files/document/migrated/campaign/0902_ctc_newvision_final-low-res.pdf.

In October 2018, an Informal Meeting of European Union Environment and Transport Ministers endorsed the Graz Declaration[25] inviting the European Commission to develop and deliver the comprehensive strategy for, and a pathway towards, sustainable, clean, safe, affordable and inclusive mobility in Europe, with appropriate packages by 2021. The Graz Declaration took stock of the Declaration on Cycling as a Climate-friendly Transport Mode adopted in October 2015.[26] Cycling is one of the most space efficient modes of transport. A parked car needs more than eight times, and a moving car 28 times, the space required by a moving bicycle.[27] After decades of car-oriented planning in cities such as Berlin, the traffic area reserved for cars is 19 times greater than that reserved for cyclists.[28] Doubling cycling will make an increasing share of public space available to people.

A substantial percentage of daily car trips might be replaced by cycling, as over 50 per cent of all trips are shorter than five kilometres.[29] With proper infrastructure, cycling is the fastest and most efficient way to travel short distances, as cyclists can usually follow the most direct route at a higher average speed. Some 131 billion passenger-kilometres are cycled annually in the pan-European region, replacing approximately 42 billion passenger-car-kilometres per year, and doubling cycling would double the number of kilometres shifted. This assumption is based on current data: the average for the analysed portions of the pan-European region is 144 kilometres per year. However, it should be noted that cycling replaces not only car trips (32 per cent), but also public transport trips (42 per cent) and 26 per cent of walking trips. Electric bicycles compete favourably with cars for trips of up to 10 kilometres[30] and electric cargo bicycles are efficient where car traffic is limited or banned. Compared to walking, cycling extends catchment areas for routes to and from stations from two to six kilometres with the same energy input.[31]

The space efficiency of cycling helps to prevent congestion, making it possible to convert areas formerly dominated by motorized traffic into leisure areas providing a high-quality living environment. Cycling is independent of timetables and external energy. Reducing congestion by doubling cycling will yield indirect economic benefits of €4.9 billion.[32]

Replacing car trips with cycling trips reduces road construction and maintenance costs for municipalities. Based on findings of the Organization for Economic Co-operation and Development (OECD) data on infrastructure investment[33] and infrastructure maintenance,[34] expert calculations show that doubling the current level of cycling in the countries included in the estimates would save €0.7 billion in road infrastructure investment and €0.4 billion in road maintenance.

After walking, cycling is the cheapest mode of transport. Because bicycles are more affordable and more democratic than cars, more people can afford them. Thus, cycling has direct social benefits, democratizing mobility, increasing autonomy and contributing

[25] www.eu2018.at/latest-news/news/10-30-Graz-Declaration.html.

[26] www.eu2015lu.eu/en/actualites/communiques/2015/10/07-info-transports-declaration-velo/07-Info-Transport-Declaration-of-Luxembourg-on-Cycling-as-a-climate-friendly-Transport-Mode---2015-10-06.pdf

[27] https://english.kimnet.nl/publications/publications/2018/04/06/cycling-facts.

[28] www.clevere-staedte.de/files/tao/img/blog-news/dokumente/2014-08-05_Flaechen-Gerechtigkeits-Report.pdf.

[29] www.statistiques.developpement-durable.gouv.fr/sources-methodes/enquete-nomenclature/1543/139/enquete-nationale-transports-deplacements-entd-2008.html; and information received from the German Federal Ministry of Transport, Building and Urban Development (2016).

[30] www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/hgp_electric_bikes_get_things_rolling.pdf.

[31] Hermann Knoflacher, *Grundlagen der Verkehrs- und Sieldungsplanung: Verkehrsplanung* (Vienna, Böhlau Verlag, 2017).

[32] Based on a United Kingdom of Great Britain and Northern Ireland WebTAG price for congestion (www.gov.uk/guidance/transport-analysis-guidance-webtag). See also European Climate Foundation, Annual Report 2016: Embracing Tipping Points (2016).

[33] https://data.oecd.org/transport/infrastructure-investment.htm.

[34] https://data.oecd.org/transport/infrastructure-maintenance.htm.

to the achievement of Sustainable Development Goal 10 (To reduce inequality within and among countries).

C. Reduced emissions and energy savings

22. The transport sector is one of the main GHG emitters and the only sector in which emissions have increased since 1990. By replacing passenger-car-kilometres, cycling directly reduces fuel consumption, GHG emissions, air pollutants and noise. Doubling cycling in the region will have the following indirect economic benefits:

(a) Reduce GHG emissions by 8 million tons of CO_2 with a savings of €1.1 billion per year;

(b) Reduce air and noise pollution with a savings of up to €0.8 billion per year;

(c) Save up to €2.6 billion per year in fuel costs (Box 4).

Box 4
Cycling reduces emissions and generates energy savings

The Paris Agreement under the United Nations Framework Convention on Climate Change offers a way forward in limiting temperature rise to well below 2° C (or even 1.5° as an ambitious goal). The former objective will require reducing GHG emissions by 80 to 95 per cent by 2050.[35] EU is even going a step ahead by committing to climate-neutrality by 2050[36]. Replacing passenger-car-kilometres also reduces fuel consumption, GHG and air pollutant emissions and noise. According to ECF, passenger cars emit about 271 grams of CO_2e per km.[37] Doubling the current rate of cycling will reduce GHG emissions by 8 million tons of CO_2, yielding €1.1 billion in indirect economic benefits per year.[38]

Air pollutants such as nitrogen oxides (NOx) and particulate matter (PM) are caused to a great extent by motorized traffic. NOx is mainly emitted by diesel vehicles and exceeds the health-compatible limits in several cities. Consequently, the number of low-emission zones is increasing. Furthermore, WHO estimates that almost 83 per cent of the population of the cities for which PM data exist are exposed to concentrations of particles with a diameter of less than 10 µm (PM10) exceeding the WHO air quality guidelines.[39] Cycling, which emits neither NOx nor PM, significantly improves air quality, especially where it is most needed: in cities.

The indirect economic benefits of reducing air pollution by doubling the current rate of cycling will amount to €0.4 billion per year. Assuming that the fleet comprises 41 per cent

[35] www.roadmap2050.eu/attachments/files/Volume1_fullreport_PressPack.pdf. See also United Nations Framework Convention on Climate Change, *National greenhouse gas inventory data for the period 1990–2013* (FCCC/SBI/2015/21).

[36] https://ec.europa.eu/clima/policies/strategies/2050_en

[37] https://ecf.com/groups/cycle-more-often-2-cool-down-planet-quantifying-co2-savings-cycling.

[38] Economic Commission for Europe, ForFITS Model: Assessing Future CO_2 Emissions (n.d.), available at www.unece.org/trans/theme_forfits.html; Ibid., Development and implementation of a monitoring and assessment tool for CO_2 emissions in inland transport to facilitate climate change mitigation, informal document No. 2, seventy-third session of the Inland Transport Committee (Geneva, 10–13 October 2017); and Michael Replogle and Lew Fulton, "A Global High Shift Scenario: Impacts and Potential for More Public Transport, Walking, and Cycling with Lower Car Use", in International Journal of Sustainable Transportation, vol. 8 (2014). An updated study by the Institute for Transportation and Development Policy and the University of California–Davis is available at www.itdp.org/wp-content/uploads/2015/11/A-Global-High-Shift-Cycling-Scenario_Nov-2015.pdf.

[39] www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2013/health-effects-of-particulate-matter.-policy-implications-for-countries-in-eastern-europe,-caucasus-and-central-asia-2013.

diesel cars and 54 per cent petrol cars[40] and that the share of the fleet that meets emission standards[41] is known, the costs of air pollution can be estimated using the *Handbook on External Costs of Transport*.[42]

The indirect economic benefits of reduced noise pollution from doubling the current level of cycling will amount to €0.4 billion per year. The European Environment Agency states that "road traffic is the most dominant source of environmental noise with an estimated 125 million people in the European Union affected by noise levels greater than 55 decibels (dB) Lden (day-evening-night level)".[43] As cycling is noiseless, a higher modal share – especially in cities, where population density is high, distances between home and transport routes are low – will reduce noise pollution and increase quality of life.

Except where electric bicycles are recharged using fossil-fuel-generated electricity, riding a bicycle uses no fossil fuel. The indirect economic benefits of the fuel saved by doubling the current level of cycling amount to €2.6 billion per year. Replacing passenger- car-kilometres reduces fuel consumption. In calculating these benefits, a fuel price of €0.08 per kilometre and €1.32 per litre (average of diesel and petrol, Eurostat, 2014) and an average consumption of 6.1 litres per 100 kilometres (ECE) has been used. Cycling thus contributes to the decarbonization of the economy.

D. A healthier and safer society

23. Cycling reduces physical inactivity and sedentary lifestyles, the health impact of which have an estimated cost of $54 billion in direct health care and an additional $14 billion in lost productivity. Doubling the current level of cycling will reduce absenteeism at work, resulting in up to €7 billion in indirect economic benefits per year. It will also prevent 30,000 deaths and provide €78 billion in indirect economic benefits (Box 5). During the pandemic, cycling emerged as both an effective way to support physical distancing and meet the minimum requirement for daily physical activity, and an effective mode of transport for essential trips. In a situation where people seek to minimize travel distances, walking and cycling have proved to be more suitable means of transport.

Box 5
Cycling contributes to a healthier and safer society

Physical activity has multiple health, social, environmental, cultural and economic benefits for individuals, communities and nations. Regular activity is a well-established factor in preventing the leading noncommunicable diseases, including heart disease, stroke, type 2 diabetes and breast and colon cancer. It also helps to prevent other important noncommunicable disease risk factors such as hypertension and obesity and is associated with improved mental health, delayed onset of dementia and improved quality of life and well-being.

According to WHO, levels of insufficient physical activity are high worldwide: 27.5 per cent of adults and 81 per cent of adolescents do not meet the global minimum recommendations for physical activity (150 – 300 minutes of moderate-intensity aerobic physical activity or at least 75 to 150 minutes of vigorous-intensity aerobic physical activity per week for adults and at least 60 minutes of moderate-to-vigorous-intensity physical activity daily for children and young people aged 5 to 17)[44].The global cost of physical

[40] www.acea.be/statistics/article/vehicles-in-use-europe-2017.
[41] www.eea.europa.eu/data-and-maps/indicators/proportion-of-vehicle-fleet-meeting/proportion-of-vehicle-fleet-meeting-1.
[42] https://ec.europa.eu/transport/sites/transport/files/handbook_on_external_costs_of_transport_2014_0.pdf.
[43] www.eea.europa.eu/publications/noise-in-europe-2014.
[44] https://www.who.int/publications/i/item/9789240015128.

inactivity is estimated to be $54 billion per year in direct health care, in 2013, with an additional $14 billion attributable to lost productivity.[45]

Cycling significantly reduces physical inactivity. Regular cycling to work has been found to reduce the total risk of mortality by about 10 per cent.[46] While active travellers should consider health risks such as the increased risk of road traffic injuries and rate of air pollution inhalation, the health benefits of physical activity outweigh the associated risks or costs with a median rate of 9 to 1.[47]

Reduced absenteeism at work resulting from the doubling of the current level of cycling will amount to €7 billion in indirect economic benefits per year.[48] A high percentage of cycling among daily trips has a significant impact on cyclists' mental and physical health, reducing the number of sick days taken, healthcare costs for public and private health insurance and loss of workforce.

Doubling the current level of cycling would prevent 30,000 deaths (primarily from increased physical activity) and provide an indirect annual benefit of €78 billion.[49]

However, to ensure that cycling delivers its full health benefit, it is imperative to address safety issues. A dedicated cycling infrastructure and road design aiming at reducing the average driving speed will encourage cycling and reduce the number and severity of collisions involving cars, cyclists and pedestrians.

Using OECD data on car crash fatalities,[50] European Union injury estimates[51] and casualty-related costs from HEAT, the indirect economic benefit of avoiding car accidents (reduced fatalities and serious or slight injuries) by doubling the current level of cycling is estimated at €3.0 billion per year. Based on a German cost-benefit study,[52] the indirect economic benefit of avoiding material damage from car accidents after doubling the current level of cycling in the region will amount to €4.9 billion per year.

E. Inclusive, safe, liveable and resilient spaces

24. Cycling can transport as many people as private cars using far less space (Box 6). Investment in cycling infrastructure minimizes soil sealing (covering the ground with an impermeable material) and has cost advantages. Cycling-friendly redesign of traffic areas creates valuable public space, improving all inhabitants' quality of life. Cycling-friendly street design and shared spaces can be more easily adapted to changing conditions (as seen during the pandemic).

Box 6
Cycling contributes to the creation of inclusive, safe, liveable and resilient space

Space and soil are scarce resources. Therefore, the minimization of soil sealing (covering) and land use for transport infrastructure is an economic and ecological necessity. Large parts of Europe are highly fragmented because of transport infrastructure and urban sprawl. Particularly in urban areas, soil is being sealed by increasing housing and infrastructure construction. The advantages of cycling infrastructure over car infrastructure include reduced levels of soil sealing and fragmentation, as well as lower cost. The cycling-friendly

[45] http://apps.who.int/iris/bitstream/handle/10665/272722/9789241514187-eng.pdf.
[46] https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-014-0132-x.
[47] Natalie Mueller and others, "Health impact assessment of active transportation: A systematic review", in *Preventive Medicine*, vol. 76 (2015), pp. 103–114.
[48] Calculation based on HEAT for the countries included in the estimates.
[49] Calculation based on HEAT.
[50] https://data.oecd.org/transport/road-accidents.htm.
[51] http://ec.europa.eu/transport/road_safety/specialist/statistics/map-viewer/.
[52] Wolfgang Röhling and Tanja Schäfer, *Kosten-Nutzen-Analyse: Bewertung der Effizienz von Radverkehrsmaßnahmen – Schlussbericht* (Denzlingen, Germany, Transport Consulting International, 2008).

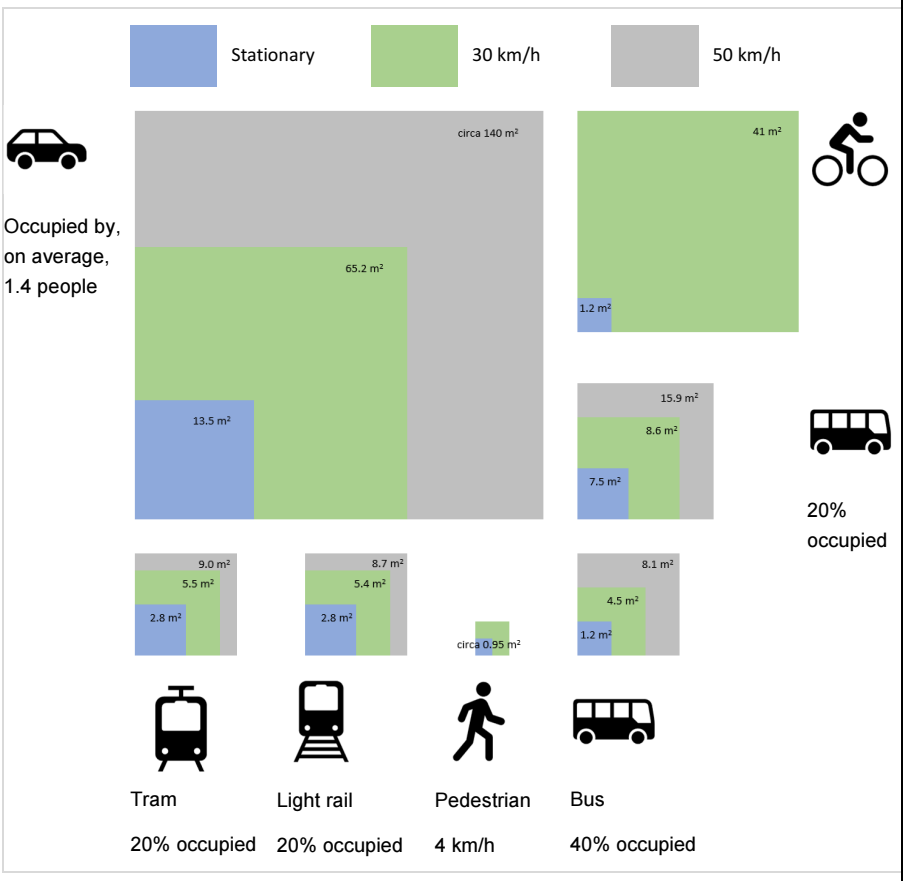
redesign of traffic areas, including green spaces and public gardens, creates valuable public space, liveable areas and therefore improved quality of life for all.

As seen from figure III, the same number of people can be transported by bicycle as by private car using far less space, especially in cities. In many downtown areas, parked cars take up valuable public space that could be eliminated by doubling the cycling rate. Cycling is of benefit to an integrated transport and urban planning approach, which should take into account the environmental and social quality of an area as perceived by residents, employees, customers and visitors.

The quality of an area is largely affected by conditions in public areas where people naturally interact with each other and their community, including streets and parks, and therefore by public policy and spatial planning decisions.

An integrated transport and urban planning approach will focus on mixed-use development that shortens travel distances and promotes walking and cycling. A good combination of density and mixed land usage can significantly increase cycling activities.

Figure III
Comparison of space consumption (per person) for cars, buses, tramways, light rail, bicycles and pedestrians



Source: Martin Randelhoff (Zukunft Mobilität), "Vergleich unterschiedlicher Flächeninanspruchnahmen nach Verkehrsarten (pro Person)", 2014.

F. Total benefits

25. The current benefits total over €130 billion per year and would rise to over €260 billion if the level of cycling were doubled in the region. The total benefit would be even higher, as some important benefits, such as aesthetics, fairness and equality, cannot be quantified monetarily.

IV. Recommendations

26. The following recommendations offer possible actions for cycling promotion. Each country can choose those most applicable to its needs based on its administrative system (responsibility for cycling, if any, may be divided between various government sectors and administrative bodies at the national, regional and local levels), geographical conditions (including climate) and other country-specific factors. Special attention should be paid to the recommendations included under topic 11 providing guidance for appropriate actions to increase the resilience of the transport system during pandemics and other situations of crisis.

27. For a more detailed description of the recommendations, including a list of good practices, see the toolbox of actions for cycling promotion, based on the best available experience of countries in the pan-European region, which will be annexed to the Plan.

1. Develop and implement a national cycling policy, supported by a national cycling plan

28. In some countries in the pan-European region, cycling is not viewed as an equal mode of transport and is not fully incorporated into national policies on transport, health and environment, nor, in many cases, is it included in curriculums for future town planners.

29. A systematic plan, adopted internationally, will help national and local stakeholders streamline their efforts to promote cycling in order to address the aforementioned issues. National cycling plans are strategically important policy documents, providing a framework for expanding cycling at various policy levels and supporting regional and local authorities' efforts.

30. The following additional measures have proved effective in implementing national cycling plans: training (capacity-building) for the main stakeholders; establishment of a network of stakeholders; and appointment of a national cycling officer to steer the cycling promotion process.

Recommendation 1.1: Develop (and/or update) and implement a national cycling plan

31. A national cycling plan provides a framework for the promotion of cycling at the national level. The plan and its objectives and recommendations should reflect the country's characteristics and include cycling policies and strategies. National authorities should coordinate, monitor and update implementation of the plan and ensure the involvement of all relevant stakeholders at the regional and local levels.

Recommendation 1.2: Create strong cycling working groups and appoint a national cycling officer

32. Contacts and regular exchange of ideas between stakeholders at the local, regional and national levels and between the transport, health, environment and economic sectors should be ensured in order to improve understanding of cycling needs and requirements.

33. Countries should establish a national cycling officer (for countries that are just beginning to promote cycling) or a national cycling competence centre (for countries with longer experience). The officer/competence centre should ideally be supported by all relevant ministries and should have a specific mandate and a clear profile or description. The officer or the director of the competence centre should spend 100 per cent of his or her working time on cycling issues, have a strong technical competence, be empowered to reach out to a variety

of stakeholders, play a coordinating and enabling role, be committed to and enthusiastic about cycling and cycle on a regular basis.

Recommendation 1.3: Establish a national knowledge centre or "bicycle academy" for the training of professionals and enhancement of skills

34. Education, training and awareness-raising are the most efficient methods of transferring knowledge and disseminating cycling-friendly solutions. "Bicycle academies" – platforms for the exchange of know-how– can provide the necessary professional training and skill enhancement. They can be linked to existing research, academic and information institutions (of relevance to cycling), advocacy groups, non-governmental organizations, cycling embassies and international and local expert groups. To facilitate the exchange of know-how and cooperation among Member states a pan-European cooperation among the relevant institutions of the members states should be strengthened e.g. by developing centre of competence at the pan-European level.

2. Improve the regulatory framework for cycling promotion

35. Several countries have adopted standards and regulations adapted to the needs of cyclists and other countries might benefit from their experience.

36. Despite differences in regulatory frameworks, national authorities might adopt the good practices of other countries: steps taken in order to ensure the safety of cyclists and pedestrians (e.g. traffic regulations, directional signage and traffic lights) should be compiled on a systematic basis and evaluated for use in other countries. Setting common standards for heavy goods vehicles (HGVs) can reduce or even eliminate blind spots and improve pedestrian and cyclist safety.

37. Improving regulatory frameworks can facilitate the smooth coexistence of all modes of transport. It improves safety, provides clear guidance for all concerned and acknowledges cycling as an attractive mode of transport.

38. Other types of vehicles such as cargo bicycles, delivery tricycles, handcycles and electrically assisted cycles offer a wide range of possibilities for new groups of users, compete for the existing infrastructure and are often not subject to regulation or standardization. They should be used as effectively as possible in order to tap their potential and increase the share of cycling, walking and public transport while taking care not to compromise the safety or convenience of other vulnerable users.

Recommendation 2.1: Consider incorporating cycle-friendly regulations into traffic laws and guidance documents

39. Many traffic laws and guidance documents still lack regulations designed to promote cycling and increase the safety of cyclists. Rules and principles that have proved effective should be considered for adoption by ECE and WHO member States. New rules that are consistent with national priorities and circumstances should be tested and evaluated from the point of view of their impact on safety, traffic and comfort.

Recommendation 2.2: Create cycle-friendly traffic conditions

40. On high-speed or high-density roads, a divided infrastructure increases cyclists' perception of safety and may attract more people to cycling. Where appropriate, traffic speeds should be limited to 30km/h or less where bicycles and motorized traffic mix but care should be taken so that speed control devices do not create hazards for cyclists. Where speeds cannot be lowered, or where justified by traffic densities, authorities should seek to separate bicycle and motor traffic whenever feasibly.[53]

[53] Organisation for Economic Co-operation and Development, *Cycling, Health and Safety* (Paris, 2013).

Recommendation 2.3: Improve and harmonize vehicle (equipment) specifications

41. For other vehicles such as cargo bicycles and delivery tricycles, regulations should harmonize authorization and classification procedures in order to establish safety and behaviour rules and set up transnational standardization with a view to the development of a new ECE–WHO/Europe norm. To reduce the number of injuries and deaths from collisions with cyclists, local, national and international specifications for HGV design should address the blind spot problem and guidelines on HGV or lorry access restrictions and public procurement of HGVs in urban areas should be developed. The European Union initial qualification of professional drivers now includes references to cycling and urban driving.[54]

3. Create a user-friendly cycling infrastructure

42. Cycling infrastructure is constructed, managed, promoted and maintained at various administrative levels. Strategic planning is needed in order to connect these levels (e.g. flagship cross-border infrastructure, such as EuroVelo, and denser national networks). In many countries, existing design standards do not reflect cyclists´ needs or ensure a coherent, attractive cycling network; a trans-European cycling network with a consistent interlinked structure should be created. European cycling routes should be planned with national routes as the backbone of the network, regional and local routes linking communities and some sections serving multiple needs. The development of a common methodology and framework, as initiated in the ECE Working Party on Transport Trends and Economics in the Infrastructure Module for the pan-European Master Plan for Cycling Promotion[55], can serve as a guideline for national, regional and local authorities. Each level of cycling infrastructure needs to be further managed, promoted, monitored and maintained. The outcome of this approach will provide greater safety, convenience and satisfaction for current cyclists and encouragement for potential ones.

Recommendation 3.1: Develop or expand a methodology for and monitor implementation of a trans-European cycling network

43. Through a coordinated approach involving ECE and WHO/Europe member States, ECE should support the development of a trans-European cycling network based on official national cycle routes and EuroVelo networks and incorporating urban networks and regional cycle routes. The establishment of such a network will help national and regional governments to identify, design and prioritize backbone cycling corridors (see recommendation 3.2). National, regional and local governments might approach international financial institutions and other international donors with more structured and ready-to-be-financed project proposals (see recommendation 5.2).

Recommendation 3.2: Coordinate the establishment and maintenance of trans-European, national, regional and local cycling networks including parking facilities

44. The development of national cycle route networks should be coordinated at the national level while regional and local cycle networks should be coordinated by the relevant bodies. These may include trans-European routes (see recommendation 3.1) and/or connect with those of neighbouring countries. Such networks should be created in partnership with the relevant national, regional and local authorities and stakeholders, in light of their respective competencies, in order to ensure that the appropriate infrastructure for various purposes including bicycle parking facilities is in place.

Recommendation 3.3: Standardize cycling infrastructure

45. Minimum infrastructure quality standards that ensure the coherence, directness, safety, comfort and attractiveness of cycling networks should be adopted at the highest possible level and, at a minimum, as a condition for all projects financed by states, the European Union or international financial institutions (see recommendation 3.1). In order to

[54] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018L0645.
[55] http://www.unece.org/fileadmin/DAM/trans/doc/2020/wp5/WP5_id_2020_06e.pdf

increase its acceptance, the standardization process should be accompanied by promotion and training activities. Other infrastructure standards, such as those for bridge or tunnel design, should take these minimum quality standards into account.

4. Provide sustainable investment and efficient funding mechanisms

46. In order to achieve modal shift towards cycling, investment in infrastructure and promotion is needed (see recommendation 5.6). However, cycling is rarely valued as an equal mode of transport or included in national investment plans. Ensuring the allocation of sufficient budgetary resources should be an integral part of the development of national cycling plans. Experience shows that a sustained minimum level of investment is a prerequisite for significant improvement in cycling conditions. Financing should be provided at all administrative levels in order to foster the implementation of cycling measures and guarantee the maintenance of infrastructure. Since competencies in areas related to cycling vary from country to country, a set share of the national transport budget should be allocated to cycling over all levels of governance. In order to justify the allocated budget, new indicators that take the benefits of cycling into account should be used in cost-benefit analyses. This will raise the awareness of those benefits and change the perceptions of public authorities and sources of funding. International funding schemes might provide front-end financing but are seldom used to their full potential.

Recommendation 4.1: Set up sustainable national funding schemes to promote cycling

47. One option for national authorities is to set up funding schemes to support local or regional authorities in their efforts to promote cycling. Cycling should be treated equally with other modes of transport when identifying and accessing financing measures including for infrastructure (examples are included in annex II of the Plan). It is crucial to sustain adequate investment levels over the long term in order to achieve a perennial modal shift. In addition to the financial engagement of the public sector, possibilities for private sector financing (e.g. for public bicycle-sharing systems) and other financial transport regulators (e.g. congestion charges, parking fees and a gasoline tax) should be explored. In the light of the substantial health benefits of cycling, financing from the prevention funds of health insurance providers may be an option, especially for promotional measures (see recommendation 6.1).

Recommendation 4.2: Establish close cooperation with international financial institutions in order to ensure funding for cycling infrastructure

48. Cycling infrastructure projects have a very high rate of return on investment, of up to 17 times (see annex II of Plan). Therefore, investments in cycling should be attractive for international financial institutions and other donors. Involving financial institutions could be the basis for additional funding opportunities. Often, donors have special conditions and rules for the financing of infrastructure projects, which require standardized key performance indicators and other relevant data (see recommendation 8.1). International funding workshops should support applicants in providing the necessary information and raise financial institutions' awareness of the benefits of investing in cycling projects.

Recommendation 4.3: Consider the impact of cycling during investment decisions

49. Considering the impact of and on cycling should be standard procedure in cost-benefit analyses of transport projects and should include transport, environment and health impacts. The issue should be addressed at the transnational level by developing an internationally agreed methodology for transport or urban development in cooperation with the international financial institutions, the international development agencies, ECE and WHO. This process should include a review of existing cost-benefit analyses in ECE and WHO/Europe member States and identification of the benefits and costs used. Guidance for assessing the health impact of transport or urban initiatives (e.g. using HEAT) that include their impact on cycling should be developed (see recommendation 8.3). Environmental impact assessment or, if appropriate, strategic environmental assessment should be standard procedure for transport projects, plans, programmes and policies.

5. Include cycling in the planning processes and facilitate multimodality

50. Cycling is often insufficiently integrated into the transport system, limiting the potential for everyday cycling over short distances. Cycling infrastructure is not considered until a very late stage of development projects, when all other infrastructure and facilities are already in place, raising the cost of subsequent adaptation.

51. Cycling should be included in the drafting of regulations on infrastructure planning. Cycling-friendly planning principles should be applied consistently during the planning process unless they are proved irrelevant. Cycling for everyday trips is most common over short distances and might be expanded by integrating it into the transport system as a whole. Close cooperation with all relevant stakeholders will help to operate the transport chain more efficiently.

52. Cycling-friendly spatial and land-use planning will make the most fundamental change visible: it will reduce transport needs, provide space for non-motorized traffic and result in more liveable and attractive cities and settlements.

Recommendation 5.1: Incorporate cycling into all infrastructure planning

53. Regulations at all administrative levels should establish basic principles for cyclist-friendly infrastructure planning. All relevant technical details should be provided in cycling planning guidelines, manuals and design standards, while ensuring flexibility in order to take local, regional and national circumstances into account. Guidelines, manuals and standards should be promoted and regularly updated. Close cooperation and harmonization with relevant institutions, agencies and affected stakeholders in adapting existing regulations is also necessary. The process should culminate in regulations and plans, followed by monitoring of their implementation.

Recommendation 5.2: Consider cycling during spatial planning and incorporate it into building regulations

54. Spatial planning should facilitate short trips suitable for cycling by ensuring an adequate land-use mix and considering the needs of cyclists and non-motorized traffic in general. Where all basic public services are provided at the local level, car trips can be replaced by cycling and walking.

55. Cycling-friendly building regulations should set detailed requirements (including secure bicycle parking, chargers, positioning of entrances, wide doors, oversized elevators, changing rooms, lockers and repair stands).

Recommendation 5.3: Facilitate multimodality (cycling, public transport and walking)

56. In order to facilitate bicycle transport, public transport vehicles should be able to carry bicycles comfortably and affordably. A smooth transfer between the bicycle network and the platform should be ensured by ramps, special staircases or elevators. The responsible institutions should include the necessary vehicle or service specifications in the tender documentation for public procurement and introduce attractive tariff systems.

57. Multimodality should be facilitated by providing secure and convenient bicycle parking at public transport stations as well as services such as public bicycle sharing schemes. While extending the catchment area of the stations, such facilities would enable attractive multimodal alternatives to car use for a large share of commuters.57. Multimodal route planners and applications and traffic information systems should include cycling networks and bicycle-sharing schemes. The introduction of innovative e-ticket systems and mobility cards should cover all sustainable transport modes, including public transport, car-sharing, bicycle-sharing and secure bicycle parking.

58. In order to support multimodality and the integration of cycling into the infrastructure network, multimodal transportation agencies should be established. To that end, the relevant agencies must be identified and an agreement on basic cooperation principles reached.

6. Promote cycling through incentives and mobility management

59. Many countries offer tax benefits to people who use their cars or public transport for their daily commute; only a few countries do the same for cycling. Monetary incentives are a powerful tool that can change behaviour and enhance cycling's status. The recent introduction of electric bicycles expands the scope of bicycle use far beyond that of conventional bicycles in terms of distance and convenience. However, this potential is not being fully tapped owing to considerably higher purchase cost. The aim is to have cycling acknowledged and promoted as an equal mode of transport in the fiscal system, while improving public awareness and appreciation of it.

60. Monetary incentives might include, tax benefits, the installation of cycling infrastructure by companies and subsidies for commuting by bicycle. Electric mobility funding schemes should promote both electric cars and electric bicycles. Promotional campaigns should raise awareness of cycling and its benefits with a view to behaviour change and endeavour to attract groups that have not previously cycled.

Recommendation 6.1: Introduce fiscal incentives for cycling

61. Depending on the national fiscal system, the aim of a level playing field for commuting can be achieved in various ways. Examples of fiscal incentives include the introduction of a tax-free mobility budget, tax-free kilometric reimbursement for cycling to work, tax incentives for bicycles, cycling infrastructure for employees and facilitation of bicycle usage for business trips. Where there is no political majority for the introduction of a specific tax benefit for cycling, the elimination of subsidies for commuting by car can level the fiscal playing field for all modes of transport. Once fiscal incentives have been introduced, it is crucial to promote them in order to raise awareness among employers and other potential beneficiaries.

Recommendation 6.2: Provide communities, companies and consumers with financial support for the purchase of bicycles (e.g. electric or cargo)

62. Wider diffusion of high-quality conventional bicycles and innovative bicycles such as pedal electric bicycles (pedelecs), folding bicycles and cargo bicycles can steer behaviour away from car or van trips. Therefore, all electric-mobility strategies and funding schemes should include electric bicycles. In markets with low sales figures, a general subsidy of €500 for electric bicycles and €1,000 for electric cargo bicycles might help to bridge the price gap with conventional bicycles and facilitate market uptake. In countries where electric bicycles already have a large market share, fiscal incentives should focus on cycle use although financial support schemes (particularly for pedelecs and electric cargo bicycles, owing to their higher price, and for small businesses) may still be an option.

Recommendation 6.3: Promote the use of cycling through mobility management

63. Campaigns to promote cycling, for both daily and touristic purposes are a necessary part of efforts to create a cycling culture. Mobility management offers a wide range of instruments designed to promote cycling and other sustainable modes of transport by including demand management for car use and changing travellers' attitudes and behaviour. At the core of mobility management are "soft" measures, such as information, promotion, organization, coordination, education and training, location and support, that enhance the effectiveness of "hard" measures (e.g. new bicycle lanes). In many cases, responsibility for these measures lies at the local and/or regional level. National authorities should have a clear understanding of their roles and responsibilities and provide a suitable framework to support local and regional efforts.

7. Improve health and safety

64. Each year, about 1 million deaths in the WHO/Europe region are attributed to insufficient physical activity.[56] Active mobility in the form of cycling as a means of transportation is a highly promising approach to the integration of physical activity into daily life. Measures designed to increase cyclists' safety should be incorporated into national and international road safety policies.

Recommendation 7.1. Strengthen awareness among health professionals and build their capacity to advocate cycling as a tool for promoting physical activity and improving public health

65. Regular cycling has significant health benefits. Public health professionals can be a strong voice in advocating for the inclusion of cycling in health policies and interventions. This requires developing well-structured, user-friendly guidelines for physicians and public health professionals, raising awareness of the links between active mobility and health and addressing issues related to specific health conditions. The guidelines, underpinned by strong scientific evidence, should include cycling as a preventive or rehabilitative treatment for some health conditions and in order to prevent various non-communicable diseases. They should also provide clear information on the recommended speed and duration of cycling for specific diseases in light of factors such as age and weight. Advocacy for and promotion of cycling should extend beyond the health sector to address the educational, occupational and recreational settings in which people live and work. In view of the reduced risk of non-communicable diseases, health insurance companies may wish to consider providing financial incentives for subscribers who cycle regularly.

Recommendation 7.2. Integrate health- and cycling-related issues into formal and informal education and awareness-raising activities

66. The health-related benefits of cycling should be promoted widely through formal and informal education at all educational stages, from early childhood. Ministries of health and education should include the health benefits of cycling, as well as traffic rules and road safety, in teaching curricula. For example, manuals written in a clear, concise and user-friendly style, followed by training and awareness-raising exercises, might be developed for teachers and parents. Children and youth should be given an opportunity to develop cycling skills and practise them safely. Opportunities to develop a safe cycling infrastructure, including protected parking places, and to facilitate regular cycling to school, university and other educational and recreational facilities should be sought. These measures should be integrated into schools' mobility management plans.

Recommendation 7.3. Incorporate cycling into road safety policies

67. Improving road safety for cyclists requires a holistic approach and should be integrated into road safety policies. Initiatives such as infrastructure and speed management are discussed in sections 2 and 3. Improving road users' behaviour through better information, education, awareness-raising and enforcement of traffic rules is an important aspect of road safety policy, as is vehicle – and especially motor vehicle – safety. Current technological developments such as Intelligent Speed Assistance (ISA) and Automatic Emergency Braking (AEB) and truck safety features such as better direct vision and turning assist will have a positive impact on cyclists and pedestrians and should be considered when setting ECE vehicle standards.

[56] http://www.who.int/nmh/publications/ncd-status-report-2014/en/.

8. Improve cycling statistics for use in efficient monitoring and benchmarking

68. Assessing the benefits of cycle use requires the systematic collection of statistical data. A comparable, reliable statistical database for the pan-European region is a prerequisite for the monitoring and benchmarking of cycling promotion.

69. The first step will be to prepare an overview of existing data at the regional, national and pan-European levels. The next step will entail collecting comparable and reliable statistical data using a minimum set of indicators, including the modal share of cycling, the annual number of passenger-kilometres cycled per capita, the number of national cycling plans (status: developed, adopted or implemented), the annual number of cyclist fatalities per kilometre cycled, the number of countries that apply HEAT to cycling and walking, the number of kilometres of cycle infrastructure, the average number of bicycles per inhabitant and per household and the number of bicycles sold annually. With digitization and new technologies, new ways of collecting statistical data may be developed (see section 10). The aim is to collect baseline data at the national level for 2020.

70. This common database will have an immediate impact on the credibility stakeholders' arguments in favour of cycling and will be used in discussions with financial institutions and taxpayers regarding higher budget allocations to cycling. It will also serve as a powerful monitoring and evaluation tool for comparing the effectiveness of measures and identifying success factors (measures that might serve as best practice for other countries) that will attract available funds to the investments that promise the highest impact.

Recommendation 8.1: Provide adequate and reliable statistical data for monitoring the level of cycling

71. In order to assess the impact of cycling using a common methodology and to monitor progress in implementing the pan-European Master Plan for Cycling Promotion, a minimum set of data is needed. Based on the aforementioned overview of existing data at the regional, national and European levels (including quality), a minimum set of comparable, reliable and harmonized statistical data will be collected (e.g. by applying the Eurostat Passenger Mobility Guidelines or the outcome of the SHANTI Project).[57] Additionally, it is recommended that a national travel survey be conducted (or updated) in each country. This additional information will offer greater insight into the behaviour, needs and preferences of cyclists.

Recommendation 8.2: Support countries' efforts to collect systematic, internationally-comparable data

72. The ECE Inland Transport Committee Working Party on Transport Statistics, in cooperation with Eurostat and the International Transport Forum, already provides an internationally recognized framework and methodology for the collection of transport-related statistics, which should be expanded to include detailed cycling-related statistics (such as kilometres cycled and cycling fatalities), using existing data collection systems where possible.

Recommendation 8.3: Highlight the benefits of cycling by developing and applying common tools

73. HEAT can be used to estimate the value of the reduced mortality resulting from regular walking or cycling. The tool is designed to help urban planners, transport authorities and health practitioners to make the case for new investment in active mobility and quantify the economic value of active mobility. The newest version of HEAT includes modules on mortality from air pollution and road traffic injury and a module to estimate changes in carbon emissions resulting from modal shifts towards cycling and walking. Further improvements and tools are necessary in order to assess and highlight the impact of cycling on the economy using a common methodology and harmonized data.

[57] https://circabc.europa.eu/sd/a/72b395b9-031e-424a-bee3-a34a1684d048/SHANTI%2520Eurostat%2520June%252017.pptx.

9. Promote cycling tourism

74. Cycle tourism and recreational cycling are well established in many European countries and are making an increasingly significant contribution to national economies. According to a study commissioned by the European Parliament in 2012 and a THE PEP/ United Nations Environment Programme study on green jobs in cycling,[58] cycle tourism contributes more than €44 billion per year to the economy of the European Union, Norway and Switzerland combined, in addition to the related environmental and societal benefits. However, there is still a frequent lack of coordination between various levels of responsibility for the design of cycling tourism routes and accompanying services such as public transport and accommodation. In order to ensure the continued growth of cycle tourism and recreational cycling, it is vital to oversee their development at the national level by establishing national cycling tourism coordination centres and bringing together the relevant service providers through cycling-friendly service schemes. It is also necessary to adopt and implement a national standard for cycle route network signalization. If these measures are designed holistically, cycling tourism will reach a wider share of the market and become more accessible, acting as a gateway for subsequent use of bicycles in daily life.

Recommendation 9.1: Establish national cycling tourism coordination centres

75. The success of cycle tourism destinations requires the establishment of organizational structures to coordinate EuroVelo-related and other necessary actions at the national level. Such coordination would typically include the relevant national tourism ministry or authority, the national highway or transport ministry or authority, regional authorities, cycling organizations (representing users), organizations representing service providers (e.g. accommodation) and public transport operators. In addition to the identification of relevant stakeholders, the structure, legal status, tasks and responsibilities of the coordination centre must be established. While countries that are just beginning to promote cycling tourism might begin by establishing a working group with an initial contact point for inquiries, those with a long tradition of cycling tourism might set up a full coordination centre. Priorities and actions should be discussed during stakeholder workshops and financing secured.

Recommendation 9.2: Introduce a national cycle-friendly service scheme

76. Cycle tourists have specific needs (e.g. safe and secure bicycle parking and tools for repairing minor mechanical problems) and service providers that meet these requirements can advertise them to potential customers through national cycle-friendly service schemes; these have been established in many countries and are often run by the National EuroVelo Coordination Centre (see recommendation 3.1). However, some countries do not have such schemes and in others a variety of regional schemes create a confusing situation for users. Existing systems should be coordinated at the national level and a single set of criteria and financing model, including marketing, promotion and training activities, should be agreed.

Recommendation 9.3: Adopt and implement national guidelines for the signalization of cycle route networks

77. Some countries have no national guidelines or standard for the signalization of cycle routes. This entails the risk of signage that varies from one region to another or of a total absence of signage. National highway or transport authorities and governments should play a coordinating role in developing standards and adopting the corresponding regulations (see annex II of Plan). As they will be implemented at the local or regional level, the involvement of all stakeholders during the preparation phase is essential.

10. Make use of new technology and innovation

78. In recent years, technological development has accelerated and new types of bicycles, similar vehicles and tools that support cycling are ready for market and can make cycling

[58] https://thepep.unece.org/node/86.

more attractive, safer and more comfortable. Electric bicycles have become increasingly popular among both recreational users and commuters, who are discovering the advantages of electric support. The average distance covered during a daily commute can be almost doubled with the use of electric bicycles and speed pedelecs.

79. Innovative features such as travel and journey planners, data collection sensors and electric mobility have become available for cyclists as well. The Intelligent Transport System (ITS) can improve traffic management through communication between bicycles and traffic lights and with new technologies, the flow of cyclists can be recognized and prioritized. Data can be collected from tags placed on bicycles or through applications on cyclists' smartphones. Applications can also prevent bicycle theft, alert riders to open spaces in large bicycle parking areas, improve signage and provide Digital Information Services. It should also be borne in mind that the establishment of separate lanes for self-driving cars could reduce space for cyclists in inner cities and should be avoided.

80. The patchwork of technology associated with the bicycle sector is an unregulated industry that is difficult to compartmentalize. The role of government can be increased by setting agendas, adopting more open standards and encouraging cooperation, thus promoting cycling and benefiting users.

Recommendation 10.1: Encourage vehicle and infrastructure innovation

81. Governments can play an important role in promoting and funding innovation in bicycles and bicycle infrastructure. Bicycle innovations can, for example, help elderly people to keep cycling safely until a higher age. Such innovations include: saddles that lowers automatically when the cyclist stops, allowing elderly people to place both feet on the ground when stationary; and handle-bars that are automatically stabilized to allow the rider to keep cycling safely at low speeds. An example of a helpful infrastructure innovation is the rain sensor on traffic lights to give cyclists priority when it rains.

Recommendation 10.2: Introduce open standards for data exchange and use smart data to improve cycling conditions

82. The rise of numerous forms of data collection and innovative applications has resulted in a non-transparent patchwork of standards. As each developer focuses on the implementation of its own standards, data exchange is restricted. The introduction of open standards at the European Union or ECE level would make applications accessible to a broader public and promote better business collaboration. Possible applications include: multimodal travel information; public bicycle-sharing; bicycle parks; and theft prevention.

83. A better understanding of when and where people cycle and where they do not, which routes they choose and what speeds are most common will facilitate the development of strategies (see recommendations 8.1 and 8.2) that promote cycling and make it more comfortable.

84. Governments should cooperate with third parties and develop information-sharing strategies so that data collected from cyclists can be used to improve urban cycling and made available to interested stakeholders. For example, public bicycle-sharing systems in various cities and countries might benefit from open standards and interoperable systems, particularly given the growth of mobility as a service.

Recommendation 10.3: Support innovative cycling approaches to last-mile services

85. The issue of last-mile logistics for e-commerce and home shopping is essential to the sustainability of cities and the safety of pedestrians and cyclists. Innovative cargo bicycles provide solutions to this problem. Relevant products and vehicles must be identified and tested in the local environment with legislation or regulations amended where necessary. The benefits of newly developed solutions should be evaluated carefully. Support and supervision should be provided by national ministries. To preserve the accessibility and liveability of cities, the number of cars entering inner cities needs to be decreased. Stimulating last-mile solutions for passenger transport, such as "Park and Bike" locations and encouraging bicycle sharing, combined with mobility management measures including higher parking rates, can be implemented in many cities.

11. Promote cycling for a more resilient transport system

86. On 11 March 2020, the WHO declared the COVID-19 outbreak to be a pandemic. The pandemic strongly affected societies and their economies, causing unplanned changes, including to mobility and transport.

87. During lockdown, transport emissions dramatically decreased, due to limited circulation of vehicles, including motorized ones. Public transportation was most hit, with travellers avoiding using it for fear of contagion, or because the passenger-carrying capacity of vehicles was reduced to maintain physical distancing. Walking and cycling emerged as viable mobility options for essential especially short and medium distance trips for three main reasons:

(a) Provision of physical distancing while travelling;

(b) Changing travel patterns, with many people and children practising teleworking or distance learning due to lockdown restrictions, therefore meeting their daily needs close to home;

(c) Partial substitution of public transport.

88. The three above-mentioned reasons contribute to increasing cities' resilience to possible future shocks of a similar nature, in addition to contributing to health and environment, and bringing economic benefits. As such, WHO recommended walking and cycling for essential - especially short and medium distance - trips whenever feasible during lockdown (WHO, 2020)[59].

89. The link between active mobility and urban resilience is two-fold. On the one hand, increases in cycling (and walking) support a modal shift towards active mobility for short and medium distance trips and help reduce the pressure on public transport during peak hours. On the other hand, these increases are enablers of shifts towards the "city of proximity", where citizens can meet their essential daily needs within distances that could be conveniently covered on foot or by bike.

90. The reallocation of space from cars allows a growing number of cyclists and pedestrians to move safely while maintaining physical distancing during the pandemic. Furthermore, these measures, even if temporary, allowed many citizens to experiment with cycling and walking under safer conditions, possibly contributing to unleashing a new demand and greater political backing for measures supporting active mobility. Many cities and central Governments began creating dedicated cycle paths, reducing speed limits and subsidizing bike purchases to encourage cycling.

Recommendation 11.1: Redistribute road space fairly among all road users

91. The situation during the pandemic demonstrated that urban areas should consider redistributing road space to include walking and cycling. The main principle should be that pedestrians and cyclists are equal road users on the street and public space should be divided equitably among all involved.

92. New cycling facilities, for instance (temporary bike lanes and widening pavements, make essential travel possible and safe. Reshaping roads in built up areas is another important mean to calm traffic and make it more safe and attractive for cyclists and pedestrians.

Recommendation 11.2: Optimizing public spaces and making them attractive and enjoyable

93. Besides widening pavements and introducing new cycling facilities, reallocating space from cars should create more enjoyable, attractive spaces for more liveable cities. Relevant strategies could include: creating parklets;[60] installing climate adaptation elements,

[59] See https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/technical-guidance/moving-around-during-the-covid-19-outbreak

[60] Pavement extension that provides more space and amenities for people using the street.

such as shade; and installing urban art. During the pandemic, tactical urbanism interventions, such as the use of traffic cones, plastic bollards and construction separators, were low-cost, temporary changes in the built environment to reclaim street space from car parking and travel lanes. Properly designed shared spaces are permanent elements in the road network, which can easily be adapted to changing framework conditions Multifunctional street areas could provide adequate means to increase cities' resilience.

Recommendation 11.3: Integrate cycling into recovery and resilience plans

94. Even during lockdown restrictions, bicycles can be a means of transport (besides walking) that is still available for essential trips. In addition to ensuring that cycling infrastructure can accommodate a potential wave of new cyclists, decision-makers need to develop plans to increase safety (for instance, by introducing low-speed zones), install new bike parking facilities, provide additional (e-)bikes in existing rental/sharing schemes and introduce new or expand existing subsidy schemes for buying new (e-)bikes or cargo bikes. These measures should be part of recovery and resilience plans on different levels that make it easier to respond to the challenges of pandemic crisis.

V. Joint actions towards more active mobility in the pan-European region

95. By joining forces to strengthen cooperation, to provide competence and know-how and to provide adequate infrastructure, funding and comprehensive statistical data on the international level, the implementation of appropriate recommendations of the Master Plan on the national level will be supported and accelerated and pan-European cooperation strengthened.

96. THE PEP Partnership on Cycling will intensify and strengthen its cooperative efforts by actively involving member states, ECF, ECE WHO/Europe, international financing institutions and relevant stakeholder after 2021. The Partnership will continue to share good practices and monitor implementation of the Plan and will seek to expand its geographical scope to include countries that have not been involved in the past. It will report annually to the Steering Committee of THE PEP and prepare for a mid-term review of the Master Plan at the Sixth High-level Meeting.

97. A Pan-European Competence Centre for Active Mobility (Recommendation 1.3) will be designed and established in the frame of THE PEP. As a centre of excellence it will support the implementation of the Pan-European Master Plan and facilitate the work of the Partnership in close liaison with THE PEP secretariat. It will act as a hub to build up and strengthen the know-how for the implementation of the Master Plan among the ECE and WHO/Europe member States.

98. The Pan European Competence Centre for Active Mobility will build upon and sustainably interlink the valuable experiences and tools elaborated by the Partnership, the Danube Cycle Plans project and other relevant transnational projects and initiatives as well as the competence and experience of the members of THE PEP Partnerships who are invited to support and contribute to the development of the Pan European Competence Centre. Close links between the Pan-European Competence Centre, THE PEP Partnerships, THE PEP Academy and national cycling competence centres will be established in order to facilitate the information and know-how exchange and to support the capacity-building required for successful implementation of the Master Plan.

99. The Pan European Competence Centre for Active Mobility in close liaison with THE PEP secretariat and ECF may facilitate the development of national cycling and walking plans, strategies and transnational cooperation projects in the pan-European region.

100. The Trans-European Cycle Network (TEC) will be further developed and implemented as a crucial element for achieving the objectives set in the Master Plan. Close cooperation with the ECE and WHO/Europe member States, THE PEP Steering Committee, ECE Working Parties, such as the Working Party on Transport Trends and Economics and

the Global Forum for Road Traffic Safety, international financial institutions and other donors will be of importance in that regard.

101. The process to elaborate the Infrastructure Module for the pan-European Master Plan for Cycling Promotion, as initiated under the ECE Working Party on Transport Trends and Economics will continue in support of Recommendations 3.1 and 3.2 to designate the TEC.

102. The data collection process on the already designated national cycling routes as well as planned routes will continue and be strengthened as far as possible. ECE and WHO/Europe member States are invited to work closely with the ECE secretariat in uploading the cycling routes data in geographical information system environment.

103. The ECE secretariat in collaboration with THE PEP and its members will assist the analysis of the national network data and show its results to ECE and WHO/Europe member States as a basis for designation of the trans-European Cycle Network.

104. ECE and WHO/Europe member States are invited to work closely with the ECE secretariat and its partners in examining draft definitions for various types of cycling infrastructure. Member States may wish to take a leading role for this work.

105. In addition, discussion on possible new road signs in support of road safety and cycling facilitation will continue building on the suggestions from the Infrastructure Module, Chapter 1.

106. Definitions and suggestions for new road signs as discussed under THE PEP will be shared, preferably by the lead member State, with the ECE Global Forum for Road Traffic Safety. This intergovernmental body will be invited to consider these definitions and suggestions with the view to agree how to incorporate them into the United Nations legal instruments such as the Vienna Conventions of 1968.

107. Financing from International Financing Institutions could increase the available budget for cycling promotion activities beyond investment at the national and European Union levels. Moreover, the Plan's development and adoption meets an important precondition for approaching international financial institutions and other donors by providing structured data and information in a form that is attractive to them. The next step will be to organize funding workshops with representatives of the various financial institutions in order to discuss options for financing the infrastructure elements necessary to implement the Trans-European Cycling Network and investments related to that.

108. Cycling data regularly collected in cooperation with other international institutions (e.g. ECE Inland Transport Committee Working Party on Transport Statistics, in cooperation with Eurostat and the International Transport Forum) will provide the relevant baseline data for monitoring the progress in the promotion of cycling in the pan-European region. In combination with improved tools, reliable data will help to provide the relevant arguments to allocate more money for cycling (see recommendations in topic 8).

109. These activities will facilitate the implementation of the Plan. They may be followed, as appropriate with efforts for elaboration of a possible legal instrument to strengthen action in line with the agreed vision.

110. The engagement of member states within THE PEP should not end with boosting cycling, the benefits of which are also applicable to walking. Expanding the scope of work to include walking and the entire range of active mobility would be the next logical step towards THE PEP vision.

Annex IV

Policy Recommendations for Eco-driving[1]

1. Eco-driving facilitates the achievement of important objectives: improved traffic safety, reduced driving stress and greater comfort for drivers, smoother traffic flow and less congestion, lower fuel consumption and operating costs and lower carbon dioxide emissions and health risks. Eco-driving is a highly cost-effective measure contributing to greater energy efficiency and environmentally friendly and safer mobility and transport. One advantage of eco-driving is that it can also be practised on a voluntary basis and applied instantly by any driver without new equipment or devices.

2. The most important eco-driving recommendations are presented in THE PEP Guidelines on Eco-driving, which were developed within THE PEP Partnership on Eco-driving. Eco-driving should be established and mainstreamed as the smart and efficient driving style for all drivers, all vehicles and all traffic conditions.

3. To this end, it is suggested that national eco-driving initiatives be established based on THE PEP Guidelines on Eco-driving. The following 10 core implementation steps are recommended in that regard:

(a) Following THE PEP Guidelines on Eco-driving, platforms of national eco-driving experts and institutions relevant for eco-driving should be set up in member States. Using such platforms, national eco-driving standards, handbooks and certification schemes for eco-driving trainers and eco-driving initiatives should be established;

(b) Driving trainers should be upskilled within the framework of THE PEP Partnership on Eco-driving to create capacity for acting as eco-driving master trainers and eco-driving trainers, serving as a knowledge base for driving skills and driving education, as well as innovative vehicle technology. To share and generate knowledge, pilot seminars with fleet operators, facilitated by eco-driving experts from members of THE PEP Partnership on Eco-driving, should be established and, if appropriate, used to upskill experienced driving trainers to become eco-driving master trainers;

(c) Following the train-the-trainer approach, the platform of eco-driving experts and eco-driving master trainers should establish courses to train a sufficient number of eco-driving trainers on standards and the contents of eco-driving courses. Such seminars should include theory and practice, an examination and, if appropriate, certification of eco-driving trainers;

(d) Furthermore, certification schemes to upskill driving schools to become eco-driving schools should be developed. Such eco-driving schools should act as multipliers for eco-driving and sustainable mobility, for example, by providing skilled eco-driving personnel and a low-emission vehicle fleet and by emphasizing alternative drives and sustainable mobility in driver education;

(e) Eco-driving should be integrated into the legislative framework for driving education and examination for learner drivers. Furthermore, learner driver education and examination procedures should be amended to incorporate the driving of electric vehicles and vehicles using alternative fuels and propulsion systems, on an equal basis with conventional vehicles;

(f) Eco-driving training courses for licensed drivers should be delivered by experienced and qualified eco-driving driving trainers and must include driving on public roads and the use of monitoring devices that give direct feedback on fuel consumption. Eco-driving training courses for licensed drivers should follow a twofold approach: providing training for licensed drivers in general, as well as for professional drivers of cars, buses and

[1] For the full publication, please see Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, *THE PEP Partnership on Eco-Driving: Guidelines for National Eco-Driving Initiatives* (Vienna, forthcoming).

trucks. The effect of the training courses should be evaluated and monitored, in particular regarding fuel consumption, carbon dioxide emissions and maintenance costs, to motivate more target groups to implement eco-driving;

(g) The roll-out of eco-driving initiatives should also be supported by awareness-raising campaigns and by the integration of eco-driving into the professional driver qualification for truck and bus drivers. It could also be addressed specifically to experienced drivers not having received eco-driving instruction since obtaining their driving licence;

(h) There should be a particular focus on eco-driving for electric vehicles as the best way to extend their range. Electric vehicle training should combine eco-driving with, in particular, the use of recuperation, as well as effective charging;

(i) Eco-driving should be included in policies and strategies in order to ensure the sustainability of eco-driving initiatives;

(j) Eco-driving should be incorporated into national and international funding schemes in order to facilitate the establishment of eco-driving programmes, the exchange of know-how, the sharing of experiences and the further development of eco-driving techniques and training. Special emphasis should be placed in the future on the driving of electric and alternative vehicles, the freight and bus sector and the extension to further vehicle categories, such as railways, tractors and construction machinery. To this end, further cooperation between member States should be intensified within THE PEP Partnership on Eco-driving.

Annex V

Conclusions and recommendations of the Handbook on Sustainable Urban Mobility and Spatial Planning[1]

Conclusions

1. An integrated approach to urban transport can better support the achievement of the 2030 Agenda for Sustainable Development and the Paris Agreement.

2. Making transport systems more resilient requires the adoption and implementation of a comprehensive and integrated approach based on clearly defined objectives and measures in the spheres of transport, economic and urban development policies and social cohesion. People and their needs are the focus of the integrated approach. The role of transport and land use planning integration is crucial. An integrated approach can prevent urban sprawl and promote inclusive eco-density.

3. The "avoid-shift-improve" principles must form the basis for integrating transport and urban planning, and implementing demand management:

(a) Development of compact, dense and public transport-oriented urban areas, combined with promotion of mixed land use, reduces the need to travel ("avoid");

(b) Development of public transport and active mobility-oriented urban areas supports the shift to cleaner and healthier modes of transport ("shift");

(c) Development and adaptation of new technologies in urban areas supports the improvement of the urban transport system ("improve").

4. Given that public transport is a key element of a "liveable city", public transport improvements have to be made a priority in city strategy and sufficient financial resources must be allocated in their regard.

5. Achieving more sustainable transport involves the: (a) replacement of polluting bus fleets; (b) promotion of electromobility; (c) development of modern trams and intermodal hubs; and (d) drawing up of appropriate land management policies.

6. Active mobility is a core element of healthy cities. Walking and cycling need to be supported not just in urban cores but on a much larger scale, in combination with other modes of transport, especially public transport. Cities need to develop user-friendly intermodal hubs and provide amenities that support cycling and walking. Initiatives such as the World Health Organization European Healthy Cities Network should pay more attention to transportation and mobility as key factors.

7. Developing good quality public transport and infrastructure supporting active mobility is good practice in making cities more liveable, and in safeguarding access to markets while fostering well-being.

8. Cities are witnessing the rise of a new generation of intelligent transport systems, which benefit from the financial and technological opportunities offered by digitalization.

Recommendations

9. Urban transportation systems are growing increasingly complex. Along with existing public and private, collective and individual mobility systems, shared mobility and, more recently, autonomous mobility, call into question the organization of public space in cities and raise the issue of the need for more transparent decision-making processes.

[1] *A Handbook on Sustainable Urban Mobility and Spatial Planning: Promoting Active Mobility* (United Nations publication, ECE/TRANS/298).

10. Decision-makers need to develop new skills and approaches, make the best of the current technological and social situation and work through partnerships to implement comprehensive, cross-sectoral mobility policies.

11. Along with people, attention should be given to freight in the integrated approach so that goods can reach markets without the liveability of urban areas being compromised.

12. Implementation of the integrated approach requires development of the necessary skills by city and mobility planners and practitioners; they need to recognize risks stemming from new technologies – shared mobility, automation – and this ability needs to be enhanced through education and collaboration with academia.

13. Development of effective urban mobility and spatial planning policies requires participatory decision-making processes engaging multiple stakeholders ranging from municipal authorities, spatial planners, housing and transport providers, health authorities and community leaders to the urban population and commuters as the main beneficiaries of a city's housing and transport infrastructure.

14. The present Handbook addresses one of the most pressing challenges of our time – how to foster sustainable, liveable and harmonious cities.

15. If cities can use this guide to create their own vision and road map towards a sustainable future, the Handbook will have achieved its purpose.

Annex VI

Workplan for the period 2021–2025

I. Background

1. Since its establishment in 2002, the Transport, Health and Environment Pan-European Programme (THE PEP), has served as a unique policy platform that aims to develop and promote sustainable and healthy transport patterns at the pan-European level. THE PEP operates under the mandate of the High-level Meetings on Transport, Health and Environment convened approximately every five years.

2. This document sets out a draft workplan comprising programme areas for activities under THE PEP for the period 2021–2025. The draft workplan is the operational tool of the Vienna Declaration and provides a road map for activities and projects to work towards the implementation of THE PEP vision.

3. The document was prepared by the Bureau of the Steering Committee with the support of the secretariat. It was discussed, amended and endorsed by: the thirty-fifth meeting of the Bureau (Valletta, 2 and 3 May 2019), meeting in an extended format; the thirty-sixth meeting of the Bureau (Bonn, Germany, 1 and 2 July 2019); the seventeenth meeting of the Steering Committee (Geneva, 21–23 October 2019); the thirty-seventh meeting of the Bureau (online, 29 June 2020); a preparatory meeting (online, 30 June 2020)); the eighteenth session of the Steering Committee (online, 25-27 November 2020); and a further preparatory meeting to the High-level Meeting (online, 25 January 2021).

II. Relevance to the 2030 Agenda for Sustainable Development and other global commitments

4. In adopting the 2030 Agenda for Sustainable Development, States Members of the United Nations undertook to mobilize efforts to end poverty and inequality, protect the planet and ensure well-being and prosperity for all. The 2030 Agenda includes 17 Sustainable Development Goals: each Goal has specific targets and Member States are expected to establish national frameworks for their achievement.

5. THE PEP is linked to several of the Sustainable Development Goals and can support national efforts to achieve them. It is particularly relevant to the following Goals:

(a) 3 (Ensure healthy lives and promote well-being for all at all ages);

(b) 7 (Ensure access to affordable, reliable, sustainable and modern energy for all);

(c) 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all);

(d) 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation);

(e) 11 (Make cities and human settlements inclusive, safe, resilient and sustainable);

(f) 12 (Ensure sustainable consumption and production patterns);

(g) 13 (Take urgent action to combat climate change and its impacts).

6. The linkages between THE PEP and these and other Sustainable Development Goals are analysed in the recent publication *Making THE (Transport, Health and Environment) Link: Transport, Health and Environment Pan-European Programme*.[1]

[1] Arseni, O. and others (Copenhagen, World Health Organization Regional Office for Europe, 2018).

7. The 2030 Agenda identifies the United Nations Framework Convention on Climate Change as the main forum for negotiations on Sustainable Development Goal 13. Three months after the adoption of the 2030 Agenda, the States Members of the United Nations adopted the Paris Agreement.

8. Transport is one of the sectors where member States of the United Nations Economic Commission for Europe (ECE) need to take actions to support mitigation of climate change. With its emphasis on integrated transport and urban planning policies and the promotion of active mobility, public transport and non-fossil-fuel-powered mobility, THE PEP is well placed to support member States' efforts to implement the Paris Agreement.

III. Achieving the vision set out in the Vienna Declaration

9. To implement the vision set out in the Vienna Declaration, THE PEP Steering Committee needs to undertake a number of activities, including the following:

(a) Developing a comprehensive pan-European strategy to achieve the vision and guide the implementation of THE PEP;

(b) Developing proposals for possible legal instruments in line with the vision, for consideration by the Sixth High-level Meeting on Transport, Health and Environment;

(c) Developing a communications strategy to disseminate the results of THE PEP in order to raise awareness among stakeholders and citizens;

(d) Supporting the establishment of coordination mechanisms at the national level between the transport, health and environment sectors, including subnational and local authorities and involving other relevant stakeholders;

(e) Exploring the possibilities of incorporating the perspectives of future generations into the work of THE PEP;

(f) Monitoring the implementation of THE PEP;

(g) Holding its annual meetings, as well as biannual meetings of its Bureau;

(h) Requesting ECE and the World Health Organization (WHO) Regional Office for Europe to continue to provide secretariat services and to continue supporting them in this endeavour.

10. In the first months of 2020, the coronavirus disease (COVID-19) pandemic struck the ECE region, with member States introducing national and international travel restrictions that affected the economy.

11. When planning reopening measures, it became clear to ECE member States that relaunching the economy would not be sustainable unless transport systems were restarted taking into consideration lessons learned during the pandemic. Taking this into account, member States joined forces to begin drafting a set of green and healthy sustainable transport principles, for adoption at the Fifth High-level Meeting.

12. THE PEP vision needs to consider that the rebuilding of transport requires a holistic approach, with an emphasis on inclusiveness, fairness and other social aspects, while keeping in mind health and the environment.

IV. Implementing the workplan

13. In accordance with its Terms of Reference and Rules of Procedure, THE PEP Steering Committee is the main decision-making body for the implementation of THE PEP. It operates under the authority of the High-level Meeting on Transport, Environment and Health to promote, coordinate and monitor the implementation of THE PEP workplan and is responsible for giving guidance and strategic directions to THE PEP.

14. The Steering Committee is assisted by a Bureau consisting of 9 to 15 members elected by the Steering Committee. The members of the Bureau represent the transport, environment and health sectors. The Bureau is responsible for preparing the meetings of the Steering Committee and for following up on its decisions.

15. The High-level Meetings have, in the past, set Priority Goals to be achieved to implement THE PEP. To support achievement of the Priority Goals, member States have also adopted implementation mechanisms. The current implementation mechanisms are:

(a) A series of national, subregional and regional workshops on sustainable transport policies (THE PEP relay race);

(b) Preparation and implementation of national action plans on transport, health and environment, supported by methodological guidance developed within the framework of THE PEP;

(c) Partnerships to support implementation of THE PEP workplan, with a focus on specific technical implementation aspects of the Priority Goals;

(d) THE PEP Academy, a platform linking science, policy and practice in order to strengthen capacities for integrated policymaking, supported by THE PEP Clearing House.

16. THE PEP implementation mechanisms are an important element in the implementation of the workplan. They are supported by tools used within THE PEP.

17. Lead countries or organizations facilitate, with the assistance of THE PEP secretariat, the implementation of the activities outlined in THE PEP workplan and act as coordinator and/or rapporteur. Lead countries or organizations report to THE PEP Steering Committee on progress made and challenges encountered in the implementation of these activities.

18. THE PEP workplan for the period 2021–2025 will be implemented in close cooperation with national and international governmental and non-governmental stakeholders, including local and municipal authorities, youth organizations, research organizations and academia.

19. Implementation of the proposed activities will be conditional on the mobilization of the necessary resources.

V. Structure of the workplan

20. The workplan is organized into nine programme areas (see table below). Programme area 1 corresponds to the overall implementation of THE PEP vision expressed in the Vienna Declaration. Programme areas 2–9 correspond to each of the focus areas identified in paragraph 2 (a)–(h) of the Declaration.

21. Each programme area includes overall activities that lead to its implementation. As implementation of activities depends on the availability of resources and leadership by stakeholders, the lead country or organization is indicated next to each programme area.

22. In addition, the workplan indicates the implementation mechanisms that could be used to support the activities. Furthermore, the relevant Sustainable Development Goals are indicated for each programme area, in line with the decision to align further THE PEP with the 2030 Agenda for Sustainable Development

VI. Workplan activities

Programme area and activities	*Lead country/organization*	*Implementation mechanisms*	*Timeframe*	*Resources*	*Sustainable Development Goals*
1. Transforming to clean, safe, healthy and inclusive mobility and transport for the happiness and prosperity for all					3; 7; 8; 9; 11; 12; 13
Development of a comprehensive pan-European strategy on transport, health and environment, (taking into account the experiences of the COVID-19 crisis)	Steering Committee and lead country		By 2023		
Development of proposals for a possible legal instrument in line with THE PEP vision and the Priority Goals, for consideration by the Sixth High-level Meeting on Transport, Health and Environment	Steering Committee and lead country		By 2025		
Organize a meeting to take stock of progress 20 years after the establishment of THE PEP	France		2022		
Development of a communication strategy to raise awareness of opportunities for and benefits of sustainable and healthy transport and disseminate the results of THE PEP	Bureau				
Development of joint initiatives and actions at the international, regional, national and local levels to support member States in the transition towards more resilient, safe, equitable and sustainable transport and mobility systems	Bureau and Steering Committee		2021–2025		

Programme area and activities	*Lead country/organization*	*Implementation mechanisms*	*Timeframe*	*Resources*	*Sustainable Development Goals*
Monitoring the implementation of THE PEP (and identifying country needs and main challenges in the implementation process)	Bureau and Steering Committee				
Organization of annual meetings of the Steering Committee and of biannual meetings of the Bureau	Bureau		Yearly		
Secretariat services					
2. Ensuring the resilience of transport systems to climate change, pandemics and other disasters					3; 7; 8; 9; 11; 12
Implementation of the Recommendations on green and healthy sustainable transport and support to member States	Steering Committee/Task force	Partnerships and others	2021–2025		
3. Improved living conditions in cities and regions by integrating environmental and health policies and objectives into coordinated transport and spatial planning					3; 9; 11; 13
Activity to support coordination on the integration of sustainable transport, land-use planning, health and the environment (with a first relay race event in October 2021, in St. Petersburg, Russian Federation, on integration of transport and urban planning)	Russian Federation and France	Relay races and Partnerships			
4. Clean, safe, low-noise and net-zero emission transport by implementing policies and actions for healthy, active and safer mobility					3; 7; 11; 12; 13
Activity to implement the Pan-European Master Plan for Cycling Promotion,	Austria and France, as leaders of the	Partnership on Cycling Promotion, extended to			

Programme area and activities	*Lead country/organization*	*Implementation mechanisms*	*Timeframe*	*Resources*	*Sustainable Development Goals*
including activity to promote measures to shift from motorized mobility to active mobility (and measures directly addressing COVID-19 and the role that cycling could play in making transport systems more resilient), including continuing the work on and the implementation of the infrastructure module and the development of the pan-European competence centre on active mobility	Partnership, ECF, CONEBI, ECE and other member States	Partnership on Active Mobility			
Development of a pan-European master plan for active mobility	Austria, France and other member States	Partnership on Cycling Promotion, extended to Partnership on Active Mobility			
Activity to further develop THE PEP tools and promote their application in decision-making process	Steering Committee	Partnership on Cycling Promotion, extended to Partnership on Active Mobility			
Activity under THE PEP Academy to transfer knowledge and best practices and reinforce capacities of member States for integrated policymaking	Steering Committee and lead country				
Activity for future updates and improvements of HEAT	WHO	Partnership on HEAT			
Activity to promote eco-driving	Austria	Partnership on Eco-Driving			
Activity to accelerate development and introduction of low- and zero-emission vehicles, electromobility and related infrastructure through financial and other support programmes	Steering Committee				

Programme area and activities	*Lead country/organization*	*Implementation mechanisms*	*Timeframe*	*Resources*	*Sustainable Development Goals*
Activity for future updates and improvements of ForFITS	ECE				
5. The social inclusivity of access to mobility and transport					3; 7; 8; 9; 11; 12
Identify partners and stakeholders and create synergies with them so that all levels of society can be reached (how to involve them, how to benefit from them and how to make them benefit from us) (including custodians of Sustainable Development Goals and indicators)	Bureau and Steering Committee				
Develop a partnership on child- and youth-friendly mobility	Austria, and others				
6. Directing investments, fiscal incentives and green finance initiatives towards sustainable transport to stimulate job creation and the economy					8; 9; 11; 12; 13
Green and healthy jobs in transport	(Exploring possibilities regarding further support)	Partnership on jobs in Green and Healthy Transport			
7. Making the best use of the benefits of the digitalization of transport and mobility services	Steering Committee				3; 8; 11; 12
8. Implementing sustainable mobility management and services, employing appropriate technologies for clean, efficient, healthy and safe transport systems					3; 7; 8; 9; 11; 12; 13
Provide ad hoc support and advice towards the creation of transport, health and environment action plans	Bureau and Steering Committee	National transport, health and environment action plans			

Programme area and activities	*Lead country/organization*	*Implementation mechanisms*	*Timeframe*	*Resources*	*Sustainable Development Goals*
Compilation and sharing of good practices and innovations on green and healthy mobility and cooperation between relevant sectors, at the national and local levels	Bureau, Steering Committee and other stakeholders, for example EPOMM				
Promotion activities and sharing of good practices on mobility management and more studies on managed mobility	Bureau, Steering Committee, lead country, for example Austria, and stakeholders, for example EPOMM				
Activities on tourism and mobility	Austria	TRANSDANUBE Partnership, extended to Partnership on Sustainable Tourism Mobility			
Development and implementation of studies on the environmental and health impacts of new mobility options	Bureau and Steering Committee				
9. The promotion of solutions to implement sustainable urban mobility, including a wide range of electric urban public transport modes and cycling and walking, and consideration of these forms of mobility in transport and spatial planning					3; 7; 9; 11; 12; 13
See activities in programme areas 3 and 4 on supporting active mobility and integration of transport planning into urban planning	Bureau and Steering Committee	Partnerships			

Abbreviations: CONEBI, Confederation of the European Bicycle Industry; ECF, European Cyclists' Federation; EPOMM, European Platform on Mobility Management; ForFITS, For Future Inland Transport Systems model; HEAT, Health Economic Assessment Tools; TRANSDANUBE Partnership, THE PEP Partnership on Environmentally healthy mobility in leisure and tourism.