United Nations ECE/AC.21/SC/2018/8–EUPCR1814179/2.1/SC16/8

Economic and Social Council

Distr.: General
28 September 2018

Original: English

Economic Commission for Europe

World Health Organization Regional Office for Europe

High-level Meeting on Transport, Health and Environment

Steering Committee of the Transport, Health and Environment Pan-European Programme

Sixteenth session
Geneva, 12–14 December 2018
Item 7 (c) of the provisional agenda
Implementing the Paris Declaration Partnerships

Draft pan-European master plan for cycling promotion

Submitted by Austria and France, leaders of Partnership on cycling promotion

Summary

At the Fourth High-level Meeting on Transport, Health and Environment (Paris, 2014), member States decided "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 Transport, Health and Environment Pan-European Programme (THE PEP)] partnerships" (ECE/AC.21/2014/2−EUDCE1408105/1.6/4HLM/2, annex, para. 10). The Transport, Health and Environment Pan-European Programme (THE PEP) Partnership on cycling promotion, led by Austria and France, undertook the drafting of a master plan.

At its thirty-third meeting (Vienna, 10–11 July 2018), , held in an extended format, the Bureau of THE PEP Steering Committee decided that the draft master plan should be submitted as an official document to the sixteenth session of the Steering Committee as requested by the Committee at its fifteenth session (ECE/AC.21/SC/2017/2–EUPCR1612201/4.4/SC15/2, para. 61 (c)). The Bureau also suggested that the objectives of the draft master plan and the recommendations made therein might be included in,

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respectively, the preamble to and the body of the draft ministerial declaration submitted for adoption at the Fifth High-level Meeting on Transport, Health and Environment (Vienna, 22–24 October 2019). The draft declaration might also include a commitment by countries to support each other's efforts to implement the Master Plan. The Master Plan also exists in a longer and more technical version, which the High-level Meeting may wish to publish.

The Steering Committee is invited to review the draft master plan with a view to its consideration and possible adoption at the High-Level Meeting and to the inclusion of some of its elements in the draft ministerial declaration adopted on that occasion.

Contents

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 Plan will contribute to the five Transport, Health and Environment Pan-European Programme (THE PEP) Priority Goals:

- **Priority Goal 1: To contribute to sustainable economic development and stimulate job creation through investment in environment- and health-friendly transport.** The cycling industry and cycling tourism have high economic potential. In the pan-European region, an estimated 750,000 jobs are connected to cycling;[1]
- **Priority Goal 2: To manage sustainable mobility and promote a more efficient transport system.** Some 131 billion passenger-kilometres, replacing 42 billion passenger-car-kilometres, are cycled annually in the region (Box 3);
- **Priority Goal 3: To reduce emissions of transport-related greenhouse gases, air pollution and noise.** Doubling the current level of cycling would reduce greenhouse gas (GHG) emissions by 8 million tons of equivalent carbon dioxide (CO_2e) with indirect economic benefits of €1.1 billion per year in the region (Box 4);
- **Priority Goal 4: To promote policies and actions 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);
- **Priority Goal 5: To integrate transport, health and environmental objectives into 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. In order to achieve our vision, we have established the following objectives to be implemented by 2030 in the pan-European region:

(a) Double cycling in the region and increase it in every country;

(b) Develop and implement national cycling policies, supported by national cycling plans, in the member States of the United Nations Economic Commission for Europe (ECE) and the World Health Organization Regional Office for Europe (WHO/Europe) region;

(c) Increase the safety of cyclists in the ECE and WHO member States and halve the number of fatalities and serious injuries of cyclists per kilometre cycled annually;

(d) Integrate cycling into health policies;

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

(e) Integrate cycling into land use, urban and regional planning, including for infrastructure.

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 Sustainability and Tourism of Austria and the Ministry for an Ecological and Solidary 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 WHO/Europe.

B. Recommendations for action

7. The Plan includes recommendations (section IV) based on evidence and good practice from the region, which offer a catalogue of actions for cycling promotion. Member States can select those most applicable to their needs and requirements based on their administrative system (responsibility for cycling, if any, may be divided between government sectors and administrative bodies at the national, regional and local levels), 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 (generally speaking, the national ministries of health, environment, transport and, in some cases, infrastructure, education, tourism and the interior). The Plan addresses national authorities in their role as coordinators with other relevant authorities and stakeholders involved where appropriate.

9. In this context, 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 intergovernmental bodies such as the 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 not only target groups but, with the exception of the international financial institutions, direct beneficiaries of activities under the Plan; however, civil society (including the private sector, and particularly the bicycle economy) is the ultimate beneficiary.

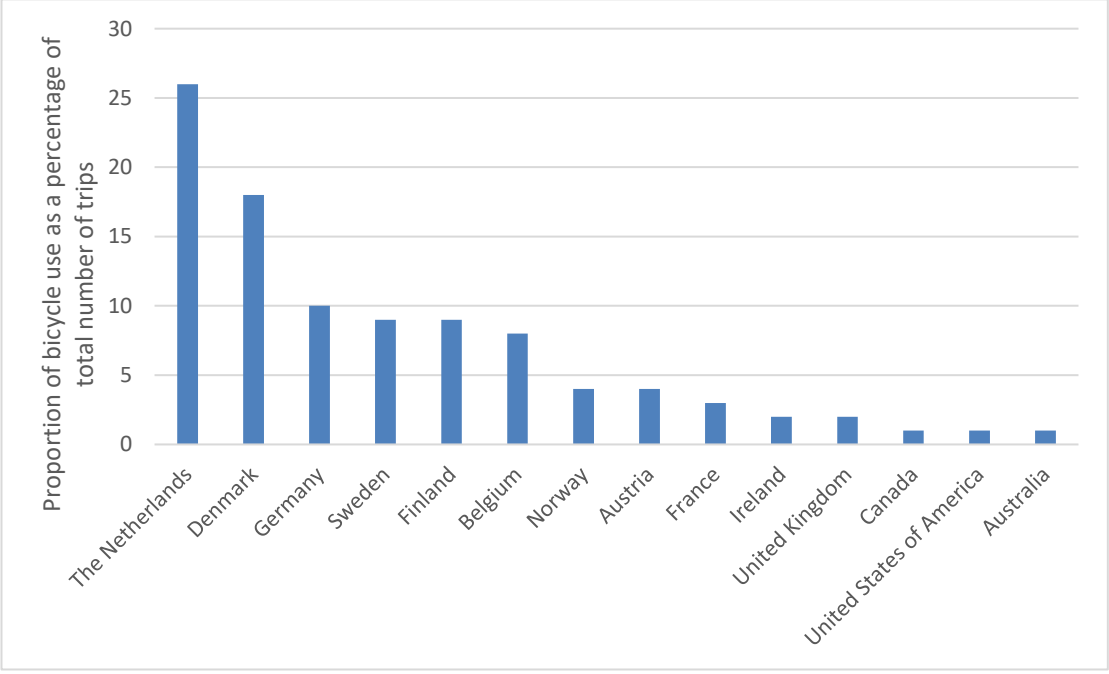
II. Cycling in the pan-European region

12. Cycling is a success story! The bicycle was invented in the early nineteenth century and its current worldwide renaissance began over a decade ago. New bicycles sold in Europe outnumber new passenger car registrations.[2] 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[3] (Box 1).

13. However, cycling conditions in the region vary widely. Some countries already 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. Despite the difficulty of obtaining accurate statistics in this area, it is estimated that the modal share of cycling in the region ranges from 27 per cent to almost zero and is highest in the Netherlands and Denmark (figure I).

Figure I
Share of bicycle use as a percentage of total number of trips in selected countries.



Source: John Pucher and Ralph Buehler, *City Cycling* (Cambridge, Massachusetts and London, MIT Press, 2012).

[2] For example: https://issuu.com/conebi/docs/european_bicycle_industry___market__8e7511a5a2e3fe; and https://www.acea.be/uploads/publications/POCKET_GUIDE_2015-2016.pdf.

[3] https://www.rolandberger.com/en/Publications/Bike-Sharing-Cornerstone-in-future-urban-mobility.html.

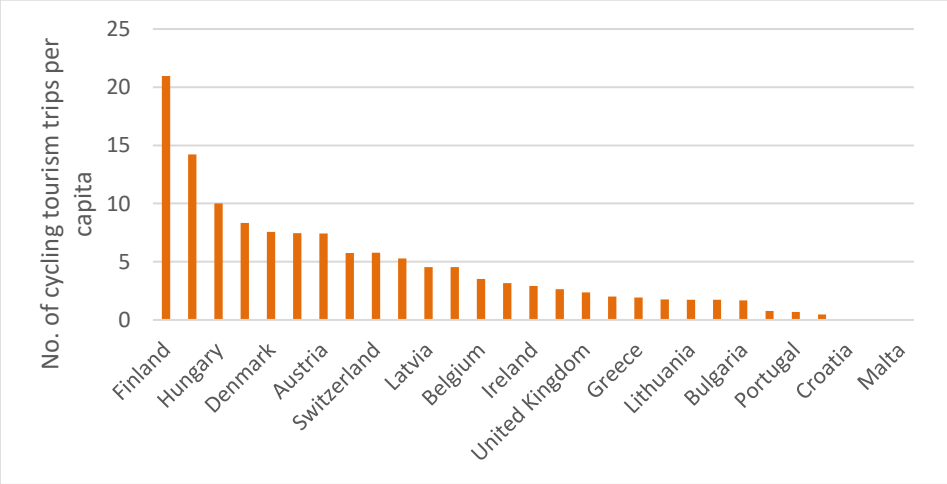
15. Exemplary approaches in cycling-oriented countries show that cyclists' needs should be promoted as an equal component of an integrated transport and mobility policy. This requires powerful political support at all levels in order to develop a national cycling culture. According to recent ECF research 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, Netherlands, Norway, Slovakia, Sweden, Switzerland and the United Kingdom (with England, Northern Ireland, Scotland and Wales each having their own plan). The Russian Federation and Slovenia 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.[4]

Box 1
Status of cycling

Cycling tourism has great promise, especially for peripheral regions, and offers 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.

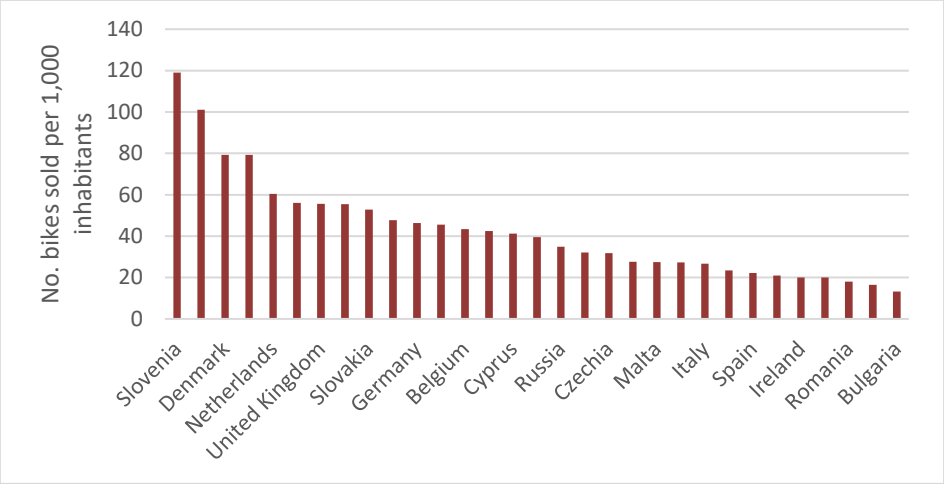
Figure II
Cycling tourism – Number of trips per capita



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

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

Figure III
Bicycle sales



Source: For the European Union, Confederation of the European Bicycle Industry (CONEBI), *European bicycle market: Industry & Market Profile*, 2013 edition; for the Russian Federation and Ukraine, a direct communication from CONEBI (n.d.) and the ECE Statistical Database (http://w3.unece.org/PXWeb/en) for population figures; for Switzerland, Vélosuisse (Swiss Association of Bicycle Suppliers), *Marché suisse de la bicyclette 2015* (2016) and Swiss Federal Statistical Office, *Bilanz der ständigen Wohnbevölkerung, 1861-2016*, 30 August 2017.

III. Benefits of cycling

17. Of the countless benefits of regular cycling for society, this chapter focuses on those 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 [5]) derived from studies based on the assumption that the objective of doubling cycling across the region will be achieved. References to the Priority Goals of THE PEP are provided.

18. Cycling also contributes to implementation of the 2030 Agenda for Sustainable Development and pursuit of the Sustainable Development Goals.[6] 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 (Strengthen the

[5] www.heatwalkingcycling.org/#homepage.
[6] sustainabledevelopment.un.org/?menu=1300.

means of implementation and revitalize the Global Partnership for Sustainable Development).[7]

19. While many countries in the pan-European region keep statistics on the number of kilometres cycled.[8] In those countries where no such statistics are kept, members of the Partnership worked with experts to calculate the benefits of cycling.[9]

A. Contribution to sustainable economic development and job creation

20. Doubling the modal share of cycling 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 currently linked to cycling in the pan-European region and their numbers have been increasing in recent years.[10] The relevant economic sectors include the construction and maintenance of cycling infrastructure, the bicycle-racing industry and cycling-related research, as well as bicycle repair, bicycle hire schemes and bicycle courier services. Calculations based on the report, *Cycling Works: Jobs and Job-Creation in the Cycling Economy*[11] 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 a study conducted in the United Kingdom, cyclists spend, on average, three to four times as much money in each place visited as car-borne visitors[12] 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 will make an increasing share of public space available to people by shifting an additional 42 billion passenger-car-kilometres per year to cycling and reducing congestion with indirect economic benefits of €4.9 billion (Box 3).

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

Box 3
Cycling supports sustainable mobility

European cities are challenged by the trend towards urbanization, and population growth and public space is limited. City structures as they have evolved rarely allow for the construction of additional areas for motorized traffic and the current infrastructure is stretched to the limit. On 25 April 2007, the European Economic and Social Committee declared that "important as cars are in modern society, car-oriented cities are neither possible nor desirable. Instead, public transport and environmentally friendly private transport (e.g. cycling or walking) should be the mainstays of modern urban transport planning".[13]

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.[14] 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.[15] Doubling cycling will make an increasing share of public space available to people rather than cars.

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.[16] With the proper infrastructure, cycling is the fastest and most efficient way to get "from kitchen table to office desk" over short distances as a cyclist can usually follow the most direct route to the destination 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 borne in mind 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. New inventions such as electric bicycles compete favourably with cars for trips of up to 10 kilometres[17] and electric cargo bicycles are efficient tools 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.[18]

The space efficiency of cycling helps to prevent congestion and makes it possible to convert areas formerly dominated by motorized traffic into leisure areas that provide a high-quality living environment. Cycling is independent in terms of time (no timetables) and external energy. Reducing congestion by doubling cycling will yield indirect economic benefits of €4.9 billion.[19]

[13] Dimitris Dimitriadis, Opinion of the European Economic and Social Committee on "Transport in urban and metropolitan areas" (Exploratory opinion), TEN/276–CESE 615/2007 (European Commission, 2007).

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

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

[16] http://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).

[17] https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/hgp_electric_bikes_get_things_rolling.pdf.

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

[19] Based on a United Kingdom WebTAG price for congestion (https://www.gov.uk/guidance/transport-analysis-guidance-webtag). See also European Climate Foundation, *Annual Report 2016: Embracing Tipping Points* (2016).

Replacing car trips with cycling trips also saves municipalities money by reducing road construction and maintenance costs. Based on Organisation for Economic Co-operation and Development (OECD) data on infrastructure investment[20] and infrastructure maintenance,[21] 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: it democratizes mobility, increases autonomy and contributes 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 the current rate of cycling 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.[22] Replacing passenger-car-kilometres also reduces fuel consumption, GHG and air pollutant emissions and noise. According to ECF, cyclists emit 16 grams of carbon dioxide per kilometre (g CO_2 per km), whereas passenger cars emit about 271 g CO_2 per km. 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.[23]

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

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

[22] http://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).

[23] Economic Commission for Europe, *ForFITS Model: Assessing Future CO2 Emissions* (n.d.), available at https://www.unece.org/trans/theme_forfits.html; Ibid., Development and implementation of a monitoring and assessment tool for CO2 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 https://www.itdp.org/wp-content/uploads/2015/11/A-Global-High-Shift-Cycling-Scenario_Nov-2015.pdf.

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. As a consequence, 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.[24] 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 diesel cars and 54 per cent petrol cars[25] and that the share of the fleet that meets emission standards[26] is known, the costs of air pollution can be estimated using the *Handbook on External Costs of Transport*.[27]

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)".[28] 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 electricity provided by traditional power plant, 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, the health impact of which has 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).

[24] http://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.

[25] https://www.acea.be/statistics/article/vehicles-in-use-europe-2017.

[26] https://www.eea.europa.eu/data-and-maps/indicators/proportion-of-vehicle-fleet-meeting/proportion-of-vehicle-fleet-meeting-1.

[27] https://ec.europa.eu/transport/sites/transport/files/handbook_on_external_costs_of_transport_2014_0.pdf.

[28] https://www.eea.europa.eu/publications/noise-in-europe-2014.

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, diabetes and breast and colon cancer. It also helps to prevent other important noncommunicable disease risk factors such as hypertension, overweight 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: 23 per cent of adults and 81 per cent of adolescents do not meet the global minimum recommendations for physical activity (150 minutes of moderate-intensity 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). Globally, physical inactivity has an estimated annual cost of $54 billion in direct health care, of which 57 per cent is incurred by the public sector and an additional $14 billion is attributable to lost productivity.

Cycling can significantly reduce physical inactivity. Regular cycling by adults as part of the daily commute to work has been found to reduce the total risk of mortality by about 10 per cent.[29] 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.[30]

Reduced absenteeism at work resulting from the current level of cycling is doubled will amount to €7 billion in indirect economic benefits per year.[31] A high percentage of cycling among daily trips has a significant impact on the cyclist's mental and physical health, reducing the number of days off work through illness, 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.[32] Other sources indicate that the indirect economic benefit in terms of reduced mortality will amount to €135 billion per year and the indirect benefit of reduced morbidity (40 per cent of mortality benefits) resulting from healthier lives through cycling to €54 billion per year in the pan-European region.[33]

However, in order 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,[34] injury estimates from the European Union[35] 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 the outcome of a German cost-benefit study,[36] 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.

[29] https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-014-0132-x.
[30] Natalie Mueller and others, "Health impact assessment of active transportation: A systematic review", in *Preventive Medicine*, vol. 76 (2015), pp. 103–114.
[31] Calculation based on HEAT for the countries included in the estimates.

E. Inclusive, safe, liveable and resilient spaces

24. Cycling can transport the same number of 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 also improves the quality of life for all inhabitants by creating valuable public space.

F. Total benefits

25. As described above, the current benefits, i.e. the status quo, total over €130 billion per year and would be doubled to over €260 billion if the level of cycling were doubled. This total would, in fact, be even higher as some important benefits, such as aesthetics, fairness and equality, cannot be quantified monetarily.

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.[37] Particularly in urban areas, soil is being sealed by increasing housing and infrastructure construction.[38] The advantages of cycling infrastructure over car infrastructure include reduced levels of soil sealing and fragmentation, as well as lower cost. The cycling-friendly redesign of traffic areas, including green spaces and public gardens, creates valuable public space, liveable areas and therefore improved quality of life for all inhabitants.

As seen from figure IV, 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 rate of cycling. 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.

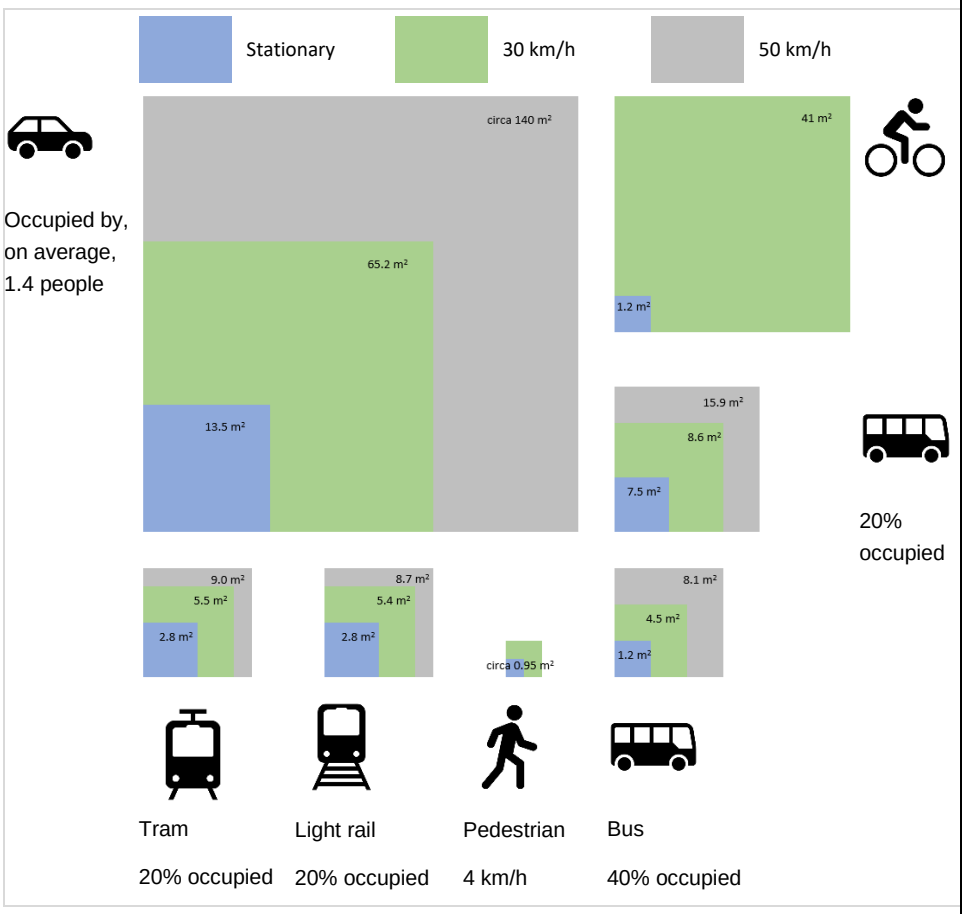
The quality of an area is largely affected by conditions in public areas where people naturally interact with each other and their community, including streets, parks, transportation terminals and other public facilities, and therefore by public policy and spatial planning decisions.

An integrated transport and urban planning approach will focus on mixed-use development that shortens travel distances and promotes walking and cycling. A good

[32] Calculation based on HEAT.
[33] https://www.gracq.org/sites/default/files/2014rbceconomievelo.pdf.
[34] https://data.oecd.org/transport/road-accidents.htm.
[35] http://ec.europa.eu/transport/road_safety/specialist/statistics/map-viewer/.
[36] Wolfgang Röhling and Tanja Schäfer, *Kosten-Nutzen-Analyse: Bewertung der Effizienz von Radverkehrsmaßnahmen – Schlussbericht* (Denzlingen, Germany, Transport Consulting International, 2008).
[37] https://www.eea.europa.eu/data-and-maps/indicators/mobility-and-urbanisation-pressure-on-ecosystems/assessment.
[38] https://www.eea.europa.eu/articles/urban-soil-sealing-in-europe.

combination of density and mixed land usage can significantly increase cycling activities.[39]

Figure IV
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.

IV. Recommendations

26. The following recommendations offer a catalogue of possible actions for cycling promotion. Each country can choose the ones most applicable to its needs and requirements 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.

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 this Plan.

[39] Brian E. Saelens, James S. Sallis, and Lawrence D. Frank, "Environmental correlates of walking and cycling: Findings from the transportation, urban design, and planning literatures", in *Annals of Behavioral Medicine*, vol. 25 (2003), pp. 80–91.

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 the educational curriculum of future town planners.

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

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. In order to ensure its success, 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 national cycling officer or 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 linked with an international network – can provide the necessary professional training and skill enhancement. They can be linked to existing research and information institutes (of relevance to cycling), advocacy groups, non-governmental organizations, cycling embassies and international and local expert groups.

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. At the same time, 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. New 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 less than 30km/h 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".[40]

Recommendation 2.3: Improve and harmonize vehicle (equipment) specifications

41. For new vehicles such as cargo bicycles, delivery tricycles, handcycles and electrically assisted cycles, 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 cycling and urban driving.[41]

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 infrastructures, such as EuroVelo, and denser national networks). In many countries, existing design standards do not reflect cyclists´ needs or ensure a coherent,

[40] Organisation for Economic Co-operation and Development, *Cycling, Health and Safety* (Paris, 2013).
[41] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018L0645.

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 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

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 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. In order to 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 a modal shift towards cycling, investment in infrastructure and promotion is needed (see recommendation 5.6). However, cycling is often not 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 since 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. The United Nations Environment Programme (UNEP) recommends that 20 per cent of the transport budget be allocated to walking and cycling. (The Netherlands invests about 7 per cent of its transport budget – about €30 per person annually – in cycling.) 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 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. International financial institutions and other donors have special conditions and rules for the financing of infrastructure projects, which facilitate the funding process by standardizing the key performance indicators and data to be analysed. Specific projects should be discussed at bilateral meetings with representatives of countries or cities.

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 overseas 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).

5. Include cycling in planning processes and facilitate multimodality

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

51. One of the best ways to address this omission is to include cycling 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) for all new development projects.

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. 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. While many countries offer tax benefits to people who use their cars or public transport for their daily commute, fiscal incentives for cycling are granted in only a few countries. Monetary incentives are a powerful tool that can change behaviour and enhance the status of cycling. Additionally, 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, among other things, 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 have a positive impact by levelling 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 cycles (pedelecs), folding bicycles and cargo bicycles can steer behaviour away from car or van trips. Therefore, all e-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. Improving health and safety

64. Each year, about 1 million deaths in the WHO/Europe region are attributed to insufficient physical activity.[42] 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

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

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 ages. 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 and children 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 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.

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[43]). 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's Working Party on Transport Statistics already provides an internationally recognized framework for the collection of transport-related statistics, which should be expanded to include detailed cycling-related statistics.

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.

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–UNEP study on green jobs in cycling,[44] 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

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

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

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. 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 more attractive, safer and more comfortable. 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.

79. 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. For example, public bicycle-sharing systems in various cities

and countries might benefit from open standards and interoperable systems, particularly in light of the rise of mobility as a service.

Recommendation 10.1: Introduce open standards for data exchange

80. 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.

Recommendation 10.2: Use smart data to improve cycling conditions

81. Data collection can provide input into cycling policies (see recommendations 8.1 and 8.2). 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 that promote cycling and make it more comfortable.

82. 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 (e.g. cyclists and researchers).

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

83. 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 and support and supervision should be provided by national ministries.

V. Paving the way to the future

84. Since the Fourth High-level Meeting, the members of THE PEP Partnership on cycling promotion have been cooperating closely in preparing the draft pan-European Master Plan for Cycling Promotion. This cooperation will continue after its adoption.

85. The Partnership will continue to share good practices and monitor implementation of the Plan after 2019 and will seek to expand its geographical scope to include countries that have not been involved in the past.

86. Close links between the Partnership and, for example, THE PEP Academy and national knowledge centres (see recommendation 1.3) should be established in order to facilitate the exchange of know-how and to support the capacity-building required for successful implementation of the Plan.

87. Further development and implementation of the trans-European Cycle Network will be crucial in achieving the objectives set in the Plan. Close cooperation with international financial institutions and other donors will be of paramount importance in that regard. Financing from the International Monetary Fund, the European Investment Bank and similar institutions will 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 projects summarized in the longer, technical version of the Plan.

88. These activities will facilitate implementation of the Plan, which might be followed by proposals for a draft European cycling convention.

89. Lastly, the engagement of THE PEP should not end with doubling cycling, the benefits of which are also applicable to walking. Expanding the scope of work to include the entire range of active mobility would be the next logical step towards the Priority Goals of THE PEP.