CLIMATE ACTION PATHWAY

TRANSPORT

Action Table

November 2019

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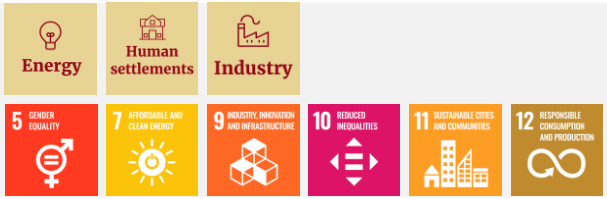
Impact 1

URBAN TRANSFORMATION CHANGES TRAVEL BEHAVIOUR

Mitigation

NEXUS



Policies (national, subnational and local)

By 2020

- Promote the transition to low-carbon transport infrastructure and systems based on the avoid, shift and improve approach.
- Double cycling use.
- Consider behavioural factors in both supply and demand side decarbonisation measures for urban transport.
- Increase alternative fuel use for light commercial vehicles in cities.
- Foster the adoption of alternative fuels in cities - e.g. pricing mechanisms, stricter emission standards, total or partial urban zoning restrictions, promoting standards for equipment, supporting recharging infrastructure or adopting alternative fuels for public institutions and large vehicle fleets.

By 2030

- Support changes in travel behaviour that will result in a shift to sustainable transport modes (e.g. walking, cycling and public transport) and 'Mobility as a Service' programmes.
- Transition to more holistic urban development planning that integrates land-use policies and prioritizes multi-modal integration
- Encourage sustainable urban mobility planning and development at all levels along with increased public transport supply and demand measures
- Implement Zero Emission Areas in Cities
- Prioritise the development of a gender-responsive mobility system for all

By 2050

- Create supportive institutional, legal and regulatory frameworks to promote sustainable urban transport
- Reduce individual car-based traffic in urban areas after having scaled up and invested into alternative transport solutions such as public, shared and on-demand transport services

	▪ Design zero emission areas in cities ▪ Add Capacity Development programmes to train public officials on operations of Low Carbon / Electric Public Transport ▪ Provide safe and secure public transport services for the vulnerable groups, particularly women and girls ▪ Increase accessibility of public transport		
Finance and Investment	▪ Scale up and diversify funding for supportive and coherent fiscal frameworks for infrastructure and services (e.g. public transit, walking and cycling, charging infrastructure for e-mobility, and shared mobility assets)	▪ Increase international funding and climate support for sustainable urban transport	
Technology and Innovation	▪ Accelerate action on development of zero emission urban transport and freight vehicles and systems	▪ Increase optimal design and allocation of charging infrastructure to accelerate market penetration of e-mobility and ultra-low-emission vehicles	▪ Digitalise transport information for personalised transport services ▪ Promote sustainable transport and urban mobility technologies through outcome-oriented investment and policies and actions as well as through various incentive structures
Business and Services	▪ Launch corporate leadership campaigns for companies committed to electric vehicles	▪ Integrate sustainable transport planning efforts and across modes and sectors ▪ Reduce barriers to intermodal public transport by improving journey planning and ticketing ▪ Forge new collaborations between relevant actors to address the sustainability challenges of urban passenger transport	
Civil Society	▪ Promote development of comprehensive sustainable urban mobility plans that are consistent with the Sustainable Development Goals (SDGs) (e.g. Goal 11)		▪ Build capacity of implementers through partnerships and organisations by sharing best practice and knowledge, notably through collaborative initiatives under the Non-State Actor Zone for Climate Action (NAZCA) Platform

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EXISTING INITIATIVES

ITF Decarbonising Transport initiative	Provide policy makers with the tools to take effective steps towards achieving their climate commitment, including a catalogue of measures, analysis and evidence
EV100	Accelerate the transition to electro-mobility by 2030
EcoMobility Alliance	Transform urban mobility systems to reduce automobile dependency and become more sustainable, low-carbon and people-centered
C40 Cities Clean Bus Declaration	Cities and manufacturers to adopt clean bus technologies
MobiliseYourCity Partnership	Engage 100 cities in reducing their emissions by 50 percent through the development of integrated sustainable urban mobility plans
Transformative Urban Mobility Initiative	Mobilize finance, build capacities and promote innovative approaches for urban mobility
UITP Declaration on Climate Leadership	Provide support to double the market share of public transport by 2025
Walk 21's Global Sidewalk Challenge	Construct, or rehabilitate, 100,000km of dedicated, safe, barrier free, sidewalks by 2030

FURTHER REFERENCES

IPCC Special Report: Global Warming of 1.5 ºC	Global Macro Roadmap
SLoCaT Transport and Climate Change 2018 Global Status Report (TCC-GSR)	Transport Decarbonization Alliance (2018), Decarbonising transport by 2050: A TDA manifesto on how to reach net zero emission mobility through uniting Countries, Cities / Regions and Companies, Online: http://tda-mobility.org/wp-content/uploads/2018/12/EY_TDA-Manifesto.pdf
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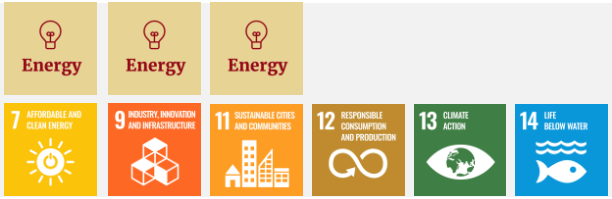
Impact 2

ADAPTATION ACTIONS ARE ACCELERATED IN THE TRANSPORT SECTOR

Adaptation

NEXUS



Policies (national, subnational and local)

By 2020

- Support institutional and human capacity-building to identify and manage climate risks to transport systems and networks
- Recommend that organisations with transport network responsibilities undertake risk assessments and prepare adaptation strategies for transport infrastructure systems
- Promote interconnectivity and facilitate efficient, temporary modal shift during periods of disruption
- Coordinate with stakeholders (including at regional and international levels) to identify opportunities for improved integration, interconnectivity and efficiency
- Review legal, governance and institutional framework for effective climate-risk

By 2030

- Consolidate institutional capacity with prioritized science-policy information exchange programmes
- Enshrine opportunities for improved integration, interconnectivity and efficiency into transport policy
- Make use of policy instruments to improve the resilience of transport networks in a systemic way using a combination of hard and soft measures
- Require organisations with transport network responsibilities to undertake risk assessments and to prepare adaptation strategies for transport infrastructure systems, taking into account cross-modal options

By 2050

- Ensure that policies, governance, legal and institutional frameworks are in place to support climate-resilience of all critical transport networks/systems components and nodes to (at least) 2100
- Provide required human resources and capacity to maintain and operate transport systems at local levels
- Support effective management of environmental resources for adaptation and resilience building

	assessment and adaptation planning for transport; integrate into national adaptation plans and into processes for implementation of international agreements, including 2030 Agenda, Paris Agreement and Sendai Framework ▪ Support long-term investment in human skills and resources through education and training programmes	▪ Foster education programmes that promote sustainability and multi-modality in transport network design, operation and management ▪ Put policies, governance, legal and institutional frameworks in place to support climate-resilience of all critical transport networks/systems components and nodes to (at least) 2050	
Finance and Investment	▪ Develop institutional capacity to identify and manage climate risks to transport networks ▪ Review financing models and decision-making criteria to facilitate and enable the delivery of flexible and adaptive transport systems ▪ Engage with stakeholders to identify improved integration, interconnectivity and efficiency opportunities ▪ Accelerate action for access to finance for transport networks and systems, in particular for most vulnerable regions groups of countries, such as SIDS, LLDCs LDCs) groups of countries/regions	▪ Consolidate institutional capacity with prioritized science-policy information exchange programmes ▪ Promote network resilience as a key determinant in business case and financing criteria for investment in transport systems ▪ Put financial and investment provisions in place to support climate-resilience of all critical transport networks/systems components and nodes to (at least) 2050	▪ Ensure finance and investment are in place to support climate-resilience of all critical transport networks/systems components and nodes to (at least) 2100
Technology and Innovation	▪ Develop strategic level monitoring, modelling, forecasting and information management tools for multi-mode transport networks ▪ Research and develop innovative, flexible and adaptive integrated transport management systems ▪ Develop and maintain inventories, databases (of transport system or network components, characteristics, environmental data) and GIS-based maps required for climate-risk assessment and	▪ Provide technology and related capacity building to support climate-resilience of all critical transport networks/systems components and nodes to (at least) 2050	▪ Provide technology and related capacity building to support climate-resilience of all critical transport networks/systems components and nodes to (at least) 2100

	priority setting for adaptation and resilience strengthening ▪ Accelerate action for access to technology and related capacity building, in particular for most vulnerable regions groups of countries, such as SIDS, LLDCs LDCs) groups of countries/regions		
Business and Services	▪ Accelerate mainstreaming of climate change considerations into planning, management/operations and decision-making processes for management and maintenance of transport systems/networks, components and nodes ▪ Develop institutional capacity to manage climate risks to existing transport networks and systems ▪ Implement strategic level, cross-modal monitoring and related information management systems ▪ Prioritise inspection and maintenance at systems level to ensure maximum operational resilience ▪ Prepare and publicize network-level disaster response or extreme weather contingency plans; raise awareness; provide training ▪ Develop and maintain inventories, databases (assets, components, characteristics, environmental data) and GIS-based maps required for climate-risk assessment and priority setting for adaptation and resilience building ▪ Invest in training and technical capacity building	▪ Consolidate institutional capacity through continued professional development programmes drawing on latest scientific research ▪ Initiate cross-modal programmes to assess the resilience of the network ▪ Implement real-time monitoring, forecasting and early warning systems to ensure continued functioning of the network during periods of disruption ▪ Modify systems to introduce flexibility and improve adaptive capacity between modes ▪ Ensure critical transport infrastructure networks, systems components and nodes are climate resilient to (at least) 2050	▪ Ensure all critical transport infrastructure networks and systems components and nodes are climate resilient to (at least) 2100
Civil Society	▪ Ensure familiarity with disaster recovery and other contingency plans	▪ Consolidate institutional capacity through continued professional development	▪ Consolidate institutional capacity through continued professional development

	▪ Facilitate information exchange and share evolving good practice ▪ Ensure stakeholder engagement and consultations as part of risk assessment and adaptation planning processes	programmes drawing on latest scientific research	programmes drawing on latest scientific research

EXISTING INITIATIVES

Navigating a Changing Climate	Move towards low carbon and resilient waterborne transport infrastructure
Low Carbon Road and Road Transport Initiative	Build strong and sustainable adaptation policies for the road network, including sensitive engineering structures and infrastructure
ITS for Climate	Using ITS solutions to work towards a low-carbon, resilient world and contribute to adaptation to climate change in large cities and isolated territories
UIC – Rail ADAPT	The Rail Adapt vision is for “a transport system in which the world's railways have acquired the flexibility to intelligently adjust to climate change, thereby providing their economies and societies with reliable and cost-efficient transportation services”.

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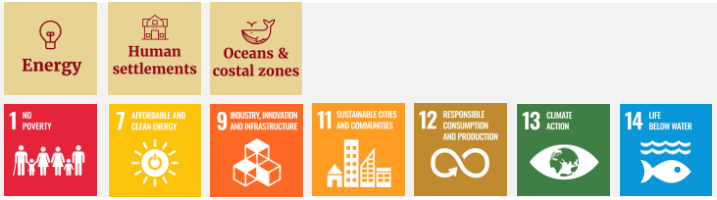
Impact 3

ADAPTATION ACTIONS FOR TRANSPORT INFRASTRUCTURE ARE ACCELERATED

Adaptation

NEXUS



Policies (national, subnational and local)

By 2020

- Accelerate institutional and human capacity-building to identify and manage climate risks to transport infrastructure
- Recommend undertaking of risk assessments and preparation of adaptation strategies for vulnerable transport infrastructure
- Introduce a build-back-better policy
- Coordinate with stakeholders to identify opportunities for joined up policies on resilient infrastructure

By 2030

- Require organisations with transport infrastructure responsibilities to undertake risk assessments and to prepare adaptation strategies
- Enshrine requirement for resilient infrastructure into transport policy
- Ensure appropriate provision is made in new or replacement infrastructure to accommodate climate change-related mode adaptation
- Use policy instruments to encourage consideration of combinations of hard, soft and behavioural, operational or institutional measures
- Promote flexibility in infrastructure design through revised or new design standards and Codes of Practice through application

By 2050

- Ensure policies, governance, legal and institutional framework are in place to support climate-resilience of all critical transport infrastructure assets to (at least) 2100*
- Provide required human resources and capacity to maintain and operate transport assets at local levels
- Support effective management of environmental resources for adaptation and resilience building

		of ISO 14090 Adaptation to Climate Change and its subservient standards ▪ Promote planning methodologies, risk assessment tools, and evaluation techniques that overtly deal with climate change uncertainties ▪ Use land-use planning and other strategic tools to encourage or require relocation of critical transport infrastructure out of high-risk areas ▪ Foster no-/low-carbon construction policies ▪ Put in place policies, governance, legal and institutional framework in place to the support climate-resilience of all critical transport infrastructure assets to (at least) 2050*	
Finance and Investment	▪ Develop institutional capacity to identify and manage climate risks to transport infrastructure ▪ Embrace the concept of flexible infrastructure design and the use of adaptive management principles and provide for this in financing models and decision-making criteria ▪ Engage with stakeholders to identify opportunities **for joined up financing of resilient infrastructure** ▪ Accelerate action for access to finance for critical transport infrastructure, in particular for most vulnerable regions groups of countries, such as SIDS, LLDCs LDCs) groups of countries/regions	▪ Facilitate the development and delivery of climate-resilient refurbishment, retrofitting or renewal programs, using nature-based solutions where relevant ▪ Link sectoral insurance premiums to demonstrated investment in resilient transport infrastructure ▪ Promote network resilience as a key determinant in business case and financing criteria for investment in transport infrastructure ▪ Change emphasis from 'financial' returns to 'different' economics rules related to e.g. 'triple bottom line' and sustainability principles with very low or zero discount rates to promote climate-resilient infrastructure ▪ Provide finance and investment to support the climate-resilience of all critical	▪ Ensure finance and investment are in place to support the climate-resilience of all critical transport infrastructure assets to (at least) 2100*

		transport infrastructure assets to (at least) 2050*	
Technology and Innovation	▪ Develop mode-appropriate monitoring, modelling, forecasting and information management tools ▪ Research and develop innovative, flexible and adaptive engineering responses to climate hazards ▪ Facilitate information exchange, share evolving good practice and feedback into industry guidelines and standards ▪ Develop and maintain inventories, databases (of assets, components, characteristics, environmental data) and GIS-based maps required for climate-risk assessment and priority setting for adaptation and resilience strengthening	▪ Refine real-time hydro-meteorological monitoring and early warning systems ▪ Develop new flexible/adaptive designs and associated industry standards where relevant to accommodate climate related risks ▪ Provide technology and related capacity building to support the climate-resilience of all critical transport infrastructure assets to (at least) 2050*.	▪ Provide technology and related capacity building to support the climate-resilience of all critical transport infrastructure assets to (at least) 2100*
Business and Services	▪ Accelerate mainstreaming of climate change considerations into planning, maintenance, management/operations and decision-making processes for critical transport infrastructure assets and operations ▪ Enhance organisational capacity to identify and manage climate risks affecting existing transport infrastructure assets and operations ▪ Prioritise inspection and maintenance of assets to maximise operational resilience ▪ Implement monitoring and information management systems ▪ Carry out risk assessments and prepare adaptation strategies for critical transport infrastructure ▪ For new or replacement transport infrastructure, apply planning, design and evaluation techniques that properly	▪ Implement real-time monitoring, forecasting and early warning systems for critical transport infrastructure to minimise business disruption, optimise aid distribution, etc. ▪ Refine and disseminate disaster response or extreme weather contingency plans ▪ Modify operational procedures and working practices to introduce flexibility and improve adaptive capacity ▪ Invest in engineered redundancy to optimise resilience ▪ Incrementally reinforce, modify, raise or strengthen critical assets and systems ▪ Consolidate institutional capacity through continued professional development programmes drawing on latest scientific research	▪ Develop and deliver asset-specific programmes for climate-resilient refurbishment, retrofitting or renewal, using nature-based solutions where relevant ▪ Ensure that all critical transport infrastructure assets and operations are climate resilient to (at least) 2100*

	accommodate climate change-related uncertainties ▪ Embrace flexibility, and apply adaptive management principles in the design and construction of new or replacement transport infrastructure ▪ Prepare and publicise disaster response or extreme weather contingency plans; raise awareness and provide training	▪ Ensure that all critical transport infrastructure assets and operations are climate resilient to (at least) 2050*	
Civil Society	▪ Ensure familiarity with disaster recovery and other contingency plans ▪ Engage in relevant decisions on resilient transport infrastructure; help to identify and deliver no regret or win-win opportunities including nature-based solutions ▪ Ensure stakeholder engagement and consultations as part of climate change risk assessment and adaptation planning for transport infrastructure assets and operations ▪ Accelerate long-term investment in human skills and resources to maintain and operate resilient transport assets through education and training programmes	▪ Promote civil society stakeholder engagement to support the climate-resilience of all critical transport infrastructure assets to (at least) 2050*	▪ Promote civil society stakeholder engagement to support the climate-resilience of all critical transport infrastructure assets to (at least) 2100*

***** In line with projections (best available science, including relevant return period for extreme events)

EXISTING INITIATIVES

Navigating a Changing Climate	Move towards low carbon and resilient waterborne transport infrastructure

Low Carbon Road and Road Transport Initiative	Build strong and sustainable adaptation policies for the road network, including resilient engineering structures and infrastructure
ITS for Climate	Using ITS solutions to work towards a low-carbon, resilient world and contribute to adaptation to climate change in large cities and isolated territories
UIC – Rail ADAPT	The Rail Adapt vision is for "a transport system in which the world's railways have acquired the flexibility to intelligently adjust to climate change, thereby providing their economies and societies with reliable and cost-efficient transportation services".

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Impact 4

LOW-CARBON ENERGY SUPPLY STRATEGIES ARE IMPLEMENTED

Mitigation

NEXUS

Policies (national, subnational and local)

By 2020

- Commit to reducing carbon pricing gaps in order to expedite the transition to sustainable transport technologies
- Develop coherent electric mobility strategies for urban areas
- Encourage the use of sustainable biofuels (i.e. second and third generations) in transport
- Achieve 50-ppm sulphur fuels in most countries
- Tailor decarbonising pathways and identify road freight decarbonising strategies to the economic and geographical realities of different country groups, due to the different geographic, economic, regulatory and infrastructure conditions

By 2030

- Eliminate carbon pricing gaps
- Reduce the carbon intensity of shipping and implement stricter Energy Efficiency Design Index
- Support and incentivise the electrification of the rail and public transport sector (both vehicles and infrastructure)
- Reach 10-ppm sulphur fuels in most countries
- Shift primary energy mix and prioritise renewable sources of energy (e.g. solar and wind) in new power programs
- Introduce fuel cell-powered vehicles especially for longer-distance travel

By 2050

- Prioritise electrification and the production and distribution of renewable energy for transformation of the transport sector

	▪ Incentivise public transport companies to shift towards electric vehicles for public transit operations		
Finance and Investment	▪ Invest in development, production and scaling up of sustainable, low carbon energy (and related infrastructure) for transport	▪ Invest in alternatively powered/more energy efficient ships and infrastructure in ports (e.g. shore power facilities, bunkering facilities for lower carbon energy supplies, such as liquefied natural gas, biofuels and others)	
Technology and Innovation	▪ Conduct research and development for electric/hybrid and biofuel powered shipping and aviation, including options for solar and wind	▪ Develop and deploy fast charging technology integrated with sustainable transport systems	▪ Substitute a significant proportion of aviation fuels with sustainable aviation fuels
Business and Services	▪ Increase production and distribution of renewable energy related to companies ▪ Resolve split incentives of ship owners and operators	▪ Encourage ports to increase the availability of alternative energy supplies for shipping and port activities ▪ Succeed in making at least 100 airports in Europe to be carbon neutral ▪ Install charging infrastructure at workplaces and customer parking sites	
Civil Society	▪ Increase capacity building and sharing of best practice knowledge among stakeholders	▪ Increase capacity building and sharing of best practice knowledge among stakeholders	

EXISTING INITIATIVES

EV100	Accelerate the transition to electro-mobility by 2030
below50	Create demand for sustainable fuels, scale up deployment and increase the number of companies choosing below50 fuels

Electric Vehicle Initiative	Launch the EV30@30 Campaign which targets at least 30 percent new electric vehicle sales by 2030
Global Strategy for Clean Fuels and Vehicles	Help most countries to achieve 50-ppm sulfur fuels by 2020, all countries to reach this level by 2025 and most countries to reach 10-ppm fuels by 2030
Urban Electric Mobility Initiative	Boost the share of electric vehicles in individual mobility and integrate electric mobility into urban transport to reduce GHG emissions by 30 percent in urban areas by 2030
C40 Green and Healthy Streets Declaration	Procure, with declaration partners, only zero emission buses from 2025 and ensure a major area of the city is zero emissions by 2030
ITF Decarbonising Transport initiative	Provide policy makers with the tools to take effective steps towards achieving their climate commitment, including a catalogue of measures, analysis and evidence
Airport Carbon Accreditation	Airports managing, reducing and ultimately neutralizing their carbon footprint
Aviation's' Climate Action Takes Off Initiative	Aim to control international aviation CO2 emissions through a basket of aviation COP2 reduction measures
Global Fuel Economy Initiative	Improve the fuel economy of all road vehicles, including light duty vehicles and heavy duty vehicles. The Initiative also works across all energy types, including internal combustion engines, hybrids engines, and electric vehicles.
Global Strategy for Cleaner Fuels and Vehicles	Introduce low sulphur fuel and vehicle emissions standards by 2030
UIC Low Carbon Sustainable Rail Transport Challenge	This challenge sets out ambitious but achievable targets for improvement of rail sector energy efficiency, reductions in greenhouse gas
UIC – Rail ADAPT	The Rail Adapt vision is for "a transport system in which the world's railways have acquired the flexibility to intelligently adjust to climate change, thereby providing their economies and societies with reliable and cost-efficient transportation services".

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Impact 5

VEHICLE USE IS REDUCED AND TRANSPORT SYSTEM EFFICIENCY IS IMPROVED

Mitigation

NEXUS

Policies (national, subnational and local)

By 2020

- Promote electrification of freight transport
- Increase network and system efficiency for multi-modal passenger and freight transport
- Increase implementation of freight vehicle and route optimisation measures through a combined use of economic tools and regulations
- Define and agree on a global target for shipping to align to a "less than 2 degrees" scenario
- Make transport planning, policy and investment decisions based on the three sustainable development dimensions, social development, environmental (including climate) impacts and economic growth, and a full life cycle analysis

By 2030

- Tighten emission and fuel economy standards for light and heavy-duty vehicles
- Implementation a global market-based measure through the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) program and the pursuit of even more ambitious targets for aviation
- Include the electrification systems for ships when docked
- Create supportive institutional, legal and regulatory frameworks to promote effective sustainable transport
- Integrate all sustainable transport planning efforts with an appropriately-balanced development of transport modes: integration vertically among levels of

By 2050

- Set new passenger light-duty vehicles per kilometre CO2 reduction target of 90 percent (relative to 2005)
- Set heavy-duty truck per kilometre CO2 reduction target of 70 percent (also relative to 2005)

	▪ Explore options for and impacts of vehicle weight and size reduction policies ▪ Scale up tested and low-barrier decarbonisation measures for freight transport, including aerodynamic retrofits, reduced-rolling resistance of tyres, vehicle weight reduction, increased engine efficiency and hybridisation. ▪ Implement fuel economy and CO2 emission standards to encourage widespread deployment of decarbonising measures for heavy duty vehicles, such as eco-driving training and fewer restrictions on truck length and weight to maximise efficiencies from the introduction of high capacity vehicles (HCVs) on certain corridors. Further measures include the adoption of common standards for new equipment and processes, the promotion of off-peak deliveries, and the creation of collection points, route optimisation or voluntary emissions reduction programmes with set targets.	government and horizontally across modes, territories and sectors ▪ Pursue ambitions to reach at least 30 percent new electric vehicle sales ▪ Encourage the reduction of vehicle weights e.g. by setting targets for manufacturers, setting relevant feebate systems that are in line with an average weight reduction of 40 percent compared to 2015 levels (dependent on technology) ▪ Give particular attention to infrastructure and operational gaps of less carbon intensive modes (e.g. rail and inland waterways) in areas where their potential can be maximised, such as connections to generators of great volumes of cargo (e.g. ports, large industries, logistic centres), transport of bulk low value and high density commodities and long distance inland corridors
Finance and Investment	▪ Scale up and diversify funding for supportive and coherent fiscal frameworks to advance sustainable systems, initiatives and projects	▪ Increase international development funding and climate funding for sustainable transport
Technology and Innovation	▪ Scale up research and development in the automotive, rail, aviation and shipping industry for efficiency improvements	▪ Apply electronic pricing for differentiated road pricing based on the weight and dimension of heavy duty vehicles to enable greater vehicle utilization ▪ Synchronize payment methods with arrival and departure time across modes ▪ Promote sustainable transport technologies through outcome-oriented government investment and policies that

		encourage private sector investment and action through various incentive structures	
Business and Services	▪ Original Equipment Manufacturers commit towards accelerating action on deployment of more fuel-efficient vehicles ▪ Build technical capacity of transport planners and implementers especially in developing countries, through partnerships with international organizations, multilateral development banks, and governments at all levels, to ensure equitable access to markets, jobs, education and other necessities.	▪ Increase efficiency of air transport through improved operations, more direct navigation, more stringent CO2 emission standards and reduced carbon footprint of ground operations ▪ Integrate information and communication technologies (ICT) into sustainable transport operations allowing for optimised networks and improved system efficiencies ▪ Integrate ticketing, shared information within and between modes allowing for fast, easy and seamless multimodal journeys ▪ Replace company vehicle fleets with electric vehicles	▪ Reduce energy consumption and CO2 emissions from train operations through optimisation of vehicle capacity ▪ Increase railway share of passenger transport and freight transport through cost and time efficiency incentives
Civil Society	▪ Promote real-world testing ▪ Develop public education and public information campaigns to achieve sustainable transport behaviour ▪ Foster an informed, engaged public as a crucial partner in advancing sustainable transport solutions.		

EXISTING INITIATIVES

EcoMobility Alliance	Reduce automobile dependency and help urban mobility system become more sustainable, low-carbon and people-centered

Cycling Delivers on the Global Goals	Showcase the ambitions of cities to increase the modal share of cycling worldwide and to double cycling in Europe by 2020.
Global Sidewalk Challenge	Construct, or rehabilitate, 100,000km of dedicated, safe, barrier free, sidewalks by 2030
Transformative Urban Mobility Initiative	Mobilize finance, build capacities and promote innovative approaches for urban mobility
MobilseYourCity Partnership	20 countries commit themselves to introduce sustainable urban mobility policies and/or incentive programs
UIC Low Carbon Sustainable Rail Transport Challenge	This challenge sets out ambitious but achievable targets for improvement of rail sector energy efficiency, reductions in greenhouse gas (GHG) emissions and a more sustainable balance between transport modes.
Global Fuel Economy Initiative	Improve the fuel economy of all road vehicles, including light duty vehicles and heavy duty vehicles. The Initiative also works across all energy types, including internal combustion engines, hybrids engines, and electric vehicles.

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Marrakech Partnership

Impact 6

SUPPLY CHAINS ARE OPTIMISED

Mitigation

NEXUS

	By 2020	By 2030	By 2050
Policies (national, subnational and local)	▪ Boost cooperation within the supply chain to increase efficiency and solve bottlenecks ▪ Establish policy frameworks to overcome regulatory barriers to collaboration in the logistics sector, through digital collaboration platforms and the development of a "physical internet". ▪ Support logistics firms that deploy new digital technologies in ways that allow them to enhance collaboration with other companies, with a view to deliver more efficient logistics services while complying with regulation and protecting their sensitive commercial information.	▪ Promote modal shift from road to rail or water, and from air to rail and water, depending on commodity type ▪ Facilitate smoother maritime supply chains to reduce idling times ▪ Align and enhance existing green freight programmes, develop and support new green freight programmes, and incorporate black carbon reductions into green freight programs ▪ Recognise companies that lead efforts to decarbonise through voluntary schemes ▪ Develop and adopt standards for new equipment types (e.g. modular packaging units)	▪ Develop trade policy based on environmentally-led paradigms and specifically address GHG impacts

Finance and Investment	▪ Create investment programmes to enable/encourage modal shift towards low carbon modes	▪ Integrate ICT and planning systems of all stakeholders in the maritime supply chain
Technology and Innovation	▪ Develop cargo community systems ▪ Invest in digital platforms operated by trusted and neutral third parties that offer a promising pathway to overcome regulatory and commercial barriers and unlock the potential of collaboration	▪ Apply ICT to better manage freight in an effort to optimize systems
Business and Services		▪ Restructure urban freight systems by using smaller and cleaner vehicles, delivering during off-peak hours and optimising route choice ▪ Optimising supply chains to manage freight transport emissions, including (re)-localising and/or optimising purchasing choices and redefining supplying schemes; de-fragmenting certain operations (e.g. semi-finished products manufactured in different places and then assembled elsewhere); and simplifying and streamlining distribution channels.
Civil Society	▪ Advocate for zero-emission urban freight as part of overall low carbon transport planning	▪ Advocate for and increase awareness of zero-emission urban freight as part of overall low carbon transport planning

EXISTING INITIATIVES

Global Green Freight Action Plan	Enhance the efficiency of global goods movement in ways that significantly reduce climate, health, energy, and economic impacts
below50	Connects the entire value-chain for sustainable fuels that produce at least 50% less CO2 emissions than conventional fossil fuels
ITS for Climate	Develop coordinated deployment plan of ITS Solutions in large cities and insulated territories
ITF Decarbonising Transport Initiative	Provide policy makers with the tools to take effective steps towards achieving their climate commitment, including a catalogue of measures, analysis and evidence
Urban Mobility Initiative	Accelerate the implementation of sustainable urban transport development and mitigation of climate change

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Impact 7

TRAVEL DISTANCE AND VEHICLE USE ARE REDUCED

Mitigation

NEXUS

Policies (national, subnational and local)

By 2020

- Establish stronger linkages between land use and transport planning for higher density levels and mixed land use to increase accessibility and reduce travel distance
- Move away from the principle that "curbing mobility is not an option" (e.g. as set out in EU 2011 Transport White Paper) and reflect this in policy documents at all levels
- Explore opportunities for economic growth scenarios that are not reliant on growth in transport activity, or even encourage decline in transport activity, such as on-shoring of industrial activity
- Promote more sustainable consumption and travel patterns through campaigns

By 2030

- Implement transit-oriented development in cities with high urban densities to trigger mixed land use to reduce travel distance and the number of personal vehicle trips
- Address the differences in travel behaviour and patterns across user groups, taking into account gender, income and physical accessibility needs
- Deploy innovative transport demand management measures alongside increased sustainable transport supply
- Facilitate high-occupancy shared mobility
- Construct, or rehabilitate, 100,000 km of additional dedicated, safe, barrier free, sidewalks in the proximity of public transport hubs globally

By 2050

	that highlight the benefits of more sustainable consumer behavior (e.g. cost/time savings, higher quality products) ▪ Encourage industry to invest in more durable product designs.	▪ Roll out large-scale docking free bike-share programs. ▪ Encourage efficient, real-time, personalized shared mobility services with proper set of regulations to ensure social fairness.	
Finance and Investment	▪ Employers provide subsidies for public transport and remove parking subsidies for employees.	▪ Provide fiscal incentives for companies with transport demand management measures to reduce personal vehicle-based commute trips.	
Technology and Innovation	▪ Accelerate the development of high-quality online conference facilities. ▪ Implement intelligent transport systems (ITS), which include a wide array of technologies that can contribute to the reduction of greenhouse gas emissions in road freight transport. These include in-vehicle devices that influence navigation, optimizing routing and driving dynamics. They can also be infrastructure based and cooperative like traffic management systems and auxiliaries for parking and deliveries.	▪ Integrate advanced ITS with transport demand management measures (e.g. dynamic pricing, dynamic ridesharing, routing, smart parking, and predictive traveler information).	▪ Encourage seamless intermodality between existing modes (public and private) increase the modal share of public and shared transport by offering door-to-door solutions in the case of passenger mobility.
Business and Services	▪ Online shopping companies commit to streamlined, integrated delivery systems ▪ Employers implement transport demand management measures. ▪ Promote alternative work practices and flexible work schedules	▪ Invest in business models that provide high-occupancy transport services. ▪ Develop freight delivery systems based on urban distribution, and logistics systems with last-mile delivery through electric or 2- or 3-wheel-based solutions.	
Civil Society	▪ Encourage the reduction of vehicle kilometres through changes in trip patterns and behaviour and by making better informed choices. ▪ Promote more sustainable consumption and travel patterns through campaigns that highlight the benefits of more		

sustainable consumer behaviour (e.g. cost/time savings, higher quality products).

EXISTING INITIATIVES

EcoMobility Alliance	Reduce automobile dependency and help urban mobility system become more sustainable, low-carbon and people-centered.
Transformative Urban Mobility Initiative	Mobilize finance, build capacities and promote innovative approaches for urban mobility.
MobiliseYourCity Partnership	Twenty countries commit themselves to introduce sustainable urban mobility policies and/or incentive programs.
UIC Low Carbon Sustainable Rail Transport Challenge	This challenge sets out ambitious but achievable targets for improvement of rail sector energy efficiency, reductions in greenhouse gas (GHG) emissions and a more sustainable balance between transport modes.
Cycling Delivers on the Global Goals	Showcase the ambitions of cities to increase the modal share of cycling worldwide and to double cycling in Europe by 2020.

Impact 8

ECONOMIC INSTRUMENTS ARE SIGNIFICANTLY IMPLEMENTED

Mitigation

NEXUS

Policies (national, subnational and local)

By 2020

- Roll-out alternative and dynamic transport and carbon pricing mechanisms to accelerate transformation of transport sector.
- Include carbon targets in port terminal concessions.
- Explore investment needs to allow for user and polluter pay pricing strategies for road transport.
- Start phasing out (hidden) tax advantages/subsidies for aviation and maritime transport to create a level playing field across different modes of transport.
- Apply for climate funds to help ensure that all transport funding (public and private) becomes more climate-oriented.

By 2030

- Price the cost of economy-wide carbon emissions.
- Introduce market-based measures to reduce greenhouse gas emissions in shipping.
- Roll out environmentally differentiated port tariffs.
- Roll out of distance-based charges on motorways for passenger vehicles (and freight vehicles, where this is not yet the case), varied by the externalities (i.e. CO_2 emission levels) of the vehicles.
- Explore technical and regulatory solutions for deployment of distance-based charging on secondary and tertiary street networks.

By 2050

- Tailor decarbonising pathways to the development priorities of different country groups where improving the safety, accessibility and equity of transport remain high priorities.
- Apply distance-based charges on secondary and tertiary road systems for passenger and freight transport, in line with user-and polluter pay principles, e.g. region-wide and based on annual odometer readers of the vehicles.
- Tax all means of transport in line with the user and polluter pay principles, i.e. in accordance with their externalities, by distance-based charges.

		▪ Introduce economic instruments e.g. electronic road pricing, parking policies, number plate auctioning and fuel prices.
Finance and Investment	▪ Establish clear criteria for access to development funding for sustainable transport.	▪ Develop tools to de-risk long-term investments in low-carbon sustainable transport solutions will have to be designed and deployed (e.g. shorter amortization) to attract non-traditional investors to sustainable transport, such as insurance companies, pension funds and other institutional investors.
Technology and Innovation	▪ Accelerate the development of information technology tools to incentivize and facilitate the pricing of transport systems and modes.	
Business and Services	▪ Design strategic investments to integrate the cost of carbon in business models.	▪ Transport operators shift towards low carbon transport options as a response to price signals linked to the use of carbon intensive transport modes.
Civil Society	▪ Encourage the adoption of carbon pricing ▪ Advocate sufficiently high price for high carbon transport modes.	

EXISTING INITIATIVES

Transformative Urban Mobility Initiative	Mobilise up to 1 billion USD to build and modernize sustainable urban mobility infrastructure.
MobiliseYourCity Partnership	Trigger sector investments for sustainable urban mobility plans.

below50	Engage with investors and financiers to map investment barriers and develop de-risking mechanisms for sustainable fuels.

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Impact 9

LOW-CARBON SOLUTIONS FOR RURAL AND NON-URBAN TRANSPORT ARE PROVIDED

Mitigation

NEXUS

Policies (national, subnational and local)

By 2020

- Improve access to all-season roads via expansion of climate resilient rural road networks and transport services.
- Establish cross-sector consultation and collaboration platforms on the local, national and regional level to develop the policy framework, strategies, problem-solving methods, delivery arrangements and capacity, and resource mobilization to ensure mutually beneficial and sustainable rural transport infrastructure and services that are safe, appropriate, affordable, resilient and 'fit for purpose.

By 2030

- Prioritize the provision of shared and efficient transport-on-demand services over heavy transport infrastructure investments to reduce the reliance on individual car-based transport
- Prioritize maintenance and preservation of the existing road assets, coupled with spot improvement strategies for cost-effective enhancement.
- Fact and evidence-based awareness creation is required to create the dedicated political will at all levels as a pre-condition for success in rural transport policies (e.g. additional funding for new infrastructure and for improved maintenance).

By 2050

- Match rural transport infrastructure development with development of resilient, low-carbon transport services.

Finance and Investment	▪ Apply a whole-life costing approach low volume sealed rural roads which considers social value. ▪ Explore climate adaptive road and infrastructure investments.	▪ Make dedicated funding available for development of low-carbon rural transport. ▪ Existing funding sources need to be expanded and new funding sources need to be developed, piloted and implemented not only for building but also for managing and maintaining the rural road assets.	▪ Introduce and embed an asset management culture and life cycle cost management practices.
Technology and Innovation	▪ Dedicate research and development efforts to develop adapted low-carbon solutions for rural transport – both engines and fuels. ▪ Increase trials on transport-on-demand solutions.	▪ Roll out fast Internet across rural areas in order to establish basis for use of ITS in rural transport services. ▪ Adopt proven agricultural tractor technology, in appropriate circumstances, to unpaved rural road maintenance.	
Business and Services	▪ Incentivize transport operators (passengers and freight) to pilot low-carbon transport solutions.	▪ Scale up of pilot programmes.	
Civil Society	▪ Advocate that rural transport is part of low-carbon transport discussion.	▪ Train residents of local communities (especially women) to maintain rural roads, allowing them to earn extra income while making the roads last longer, improving access to schools and markets.	▪ Develop a framework for self-assessment of asset management performance, tools for road network asset valuation and condition monitoring, indicators of social and economic impacts of rural roads, and a framework for capacity development in the participating roads agencies.

EXISTING INITIATIVES

Research for Community Access Partnership	Strengthen the evidence base on more cost effective and reliable low volume road and transport services approaches.
Low Carbon Road and Road Transport Initiative	Build strong and sustainable adaptation policies for the road network, including resilient engineering structures and infrastructure.