3.1

National Policy Frameworks for Transport and Climate Change

Key findings

Nationally Determined Contributions (NDCs) in the framework of the Paris Agreement

- During 2015 and 2016, 166 first-generation NDCs were submitted (from 165 countries, plus the European Union-28); 76% of these highlight transport as an important sector for climate mitigation, but only 8% include specific targets for reducing transport emissions.

- From November 2018 through May 2021, 54 second-generation NDCs were submitted (from 53 countries, plus the European Union-27); 72% of these include specific measures for mitigating transport emissions, but only 15% include a specific target for reducing transport emissions, showing insufficient progress towards meeting Paris Agreement goals.

- Among second-generation NDCs, "*Improve*" measures account for 53% of all measures (versus 52% in first-generation NDCs); "*Shift*" measures account for 19% (versus 32% in first-generation NDCs); and "*Avoid*" measures account for 8% (versus

6% in first-generation NDCs), with other measures being cross cutting. This illustrates a continued bias towards technological solutions.

- Among second-generation NDCs, 15 countries have increased their attention to climate change adaption for transport (28%, compared to 4% of first-generation NDCs), although fewer than 6% include a transport adaptation target.

- While 37% of second-generation NDCs make reference to Long-Term Low Emission Development Strategies, there is potential to more strongly leverage transport decarbonisation synergies between these mechanisms.

- While 13 second-generation NDCs set higher targets for reducing economy-wide emissions, a recent assessment estimates that current pledges would still lead to warming of 2.6 degrees Celsius (°C) by 2100, far exceeding the Paris Agreement goals.

Voluntary National Reviews (VNRs) of the United Nations Sustainable Development Goals (SDGs) in the framework of the UN 2030 Agenda for Sustainable Development

- Among VNRs submitted in 2020, 48% connect transport to SDG 13 (Climate Action), while only a single VNR submission sets a specific transport target, illustrating the need for further alignment between Paris Agreement mechanisms and the 2030 Agenda for Sustainable Development.

- Among second-generation NDCs, 13% establish direct linkages between sustainable transport measures and specific SDGs, including SDG 3 (Good Health and Well-Being), SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action).

- Creating a common methodological framework between the Paris Agreement and the implementation and monitoring mechanisms for the 2030 Agenda can maximise the combined potential of both global frameworks for accelerating sustainable, low carbon transport.

Long-Term Low Emission Development Strategies (LT-LEDS) in the framework of the Paris Agreement

- All 29 LT-LEDS submitted from November 2016 through May 2021 contain references to transport sector actions, and more than 20% propose specific targets for mitigating transport emissions.

- Submitted LT-LEDS focus strongly on "*Improve*" measures (representing 56% of all measures), whereas only 13% represent "*Shift*" measures and 7% represent "*Avoid*" measures.

National Adaptation Plans (NAPs) and National Adaptation Programmes of Action (NAPAs) in the framework of the Paris Agreement

- Among the 22 NAPs submitted from October 2015 through March 2021 (with 14 submitted since 2018), more than 50% refer to specific transport adaptation measures. While this reflects an increase in adaptation considerations in transport, significant gaps remain.

- 51 NAPAs were submitted from November 2004 to February 2017, followed by no submissions through May 2021. This lack of substantive progress is likely linked to the absence of a clear reporting process on implementation status.

Linkages between national climate change planning processes and Paris Agreement mechanisms

- NDCs are increasingly referencing national climate change and strategic plans, to enhance synergies in the interest of accelerating transport decarbonisation and sustainability objectives.

- Many countries have captured enhanced ambition on transport in recent national climate change plans and commitments, which complement measures detailed in global climate change mechanisms.

Impacts of the COVID-19 pandemic on transport and climate change policy frameworks

- In 2020, due to the pandemic, the UN Conference on Climate Change (COP26, originally scheduled for November) and other key processes around the UN Framework Convention on Climate Change (UNFCCC) were delayed, resulting in shifted timelines for progress towards updated NDCs and NAPs.

- To accelerate collective and timely action towards a low carbon transport transition, many initiatives were announced at the En Route to COP26 event in December 2020.

- The pandemic has prompted low carbon transport measures in national recovery efforts (see Section 4.1 on Financing), which should be linked to the development of enhanced NDCs.

Overview

To achieve the goals of the Paris Agreement, the transport sector must accelerate climate action immediately to achieve decarbonisation by mid-century. Under the Agreement, Parties to the UN Framework Convention on Climate Change (UNFCCC) are required to submit Nationally Determined Contributions (NDCs), or frameworks and strategies outlining their specific targets and actions to reduce emissions. NDCs communicate planned mitigation and adaptation actions by the Parties, including plans to achieve resilient, low carbon transport systems.[1]

In addition to NDCs, the UNFCCC provides several mechanisms under the Paris Agreement to describe intended measures and ambitions on climate change mitigation and adaptation. These include: Long-Term Low Emission Development Strategies (LT-LEDS); National Adaptation Plans (NAPs); National Adaptation Programmes of Action (NAPAs); and Nationally Appropriate Mitigation Actions (NAMAs).[2] The Paris Agreement also provides a mechanism for collaboration among Parties and so-called non-Party stakeholders (all stakeholders that are not national governments) through the Marrakech Partnership for Global Climate Action. The Marrakech Partnership elaborates Climate Action Pathways, which set out visions for various sectors – including transport – to achieve a 1.5 °C resilient world in 2050.[3]

Sustainable transport is an important component of additional UN frameworks on sustainable development and resilience, including the 2030 Agenda for Sustainable Development (and its Voluntary National Reviews (VNR) for tracking progress towards these goals), as well as the adaptation and resilience objectives of the Sendai Framework for Disaster Risk Reduction (and its Global Assessment Report).[4] There is significant potential to strengthen the nexus between the UNFCCC mechanisms for the Paris Agreement and the 2030 Agenda and Sendai Framework. Enhancing linkages among these global frameworks and their monitoring and reporting processes can help assure that progress towards climate change mitigation and adaption yields broader positive impacts on sustainable development.

The COVID-19 pandemic impacted transport and climate change policy frameworks, resulting in a postponement of the 2020 UN Conference on Climate Change (COP26) and in shifts in submissions for new NDCs. The pandemic has also prompted efforts to include low carbon transport measures in national recovery plans (see Box 1).[5]

Nationally Determined Contributions (NDCs) in the framework of the Paris Agreement

NDCs are submitted in a five-year cycle, with the first generation of NDCs submitted in 2015 and subsequent generations to be submitted every five years thereafter. The NDC process is supported by a set of "global stocktakes" to assess progress towards implementation of the Paris Agreement, with the first one scheduled to take place in 2023 (and subsequent ones every five years thereafter).[6]

Transport in first-generation NDCs

During 2015 and 2016, 166 first-generation NDCs were submitted (from 165 countries, plus the European Union-28); 76% of these highlight transport as an important sector for climate mitigation, but only 8% include specific targets for reducing transport emissions.[7] First-generation NDCs were submitted as Intended Nationally Determined Contributions (INDCs), which then officially became NDCs following the ratification of the Paris Agreement in 2015.[8]

Around half of the transport actions described in the first-generation NDCs represent "*Improve*" measures, while a more balanced set of "*Avoid*" and "*Shift*" measures is needed to optimise the mitigation potential of transport (*see Avoid-Shift-Improve hierarchy in Section 1.1*).[9] Despite commitments to decarbonise transport in more than three-quarters of NDCs, few of the first-generation NDCs include quantified targets and timelines for achieving these measures.

Transport in second-generation NDCs

Parties to the UNFCCC were requested to submit second-generation NDCs by the end of 2020, according to the established five-year cycle. However, due to the COVID-19 pandemic, and mindful of countries' needs to focus on pandemic-related emergencies, the UNFCCC extended the timeline for Parties to submit second-generation NDCs until 9 to 12 months before the UN Climate Change Conference (COP26, which was postponed to November 2021).[10]

From November 2018 through May 2021, 54 second-generation NDCs were submitted (from 53 countries, plus the European Union-27); 72% of these include specific measures for mitigating transport emissions, but only 15% include a specific target for reducing transport emissions, showing insufficient progress toward Paris Agreement goals.[11] The Parties that submitted these 54 NDCs collectively account for 59% of global transport CO_2 emissions, but only 8 of the NDCs include transport mitigation targets (*see Table 1*).[12] Submission of additional second-generation NDCs is anticipated before COP26.

Among second-generation NDCs, Improve measures account for 53% of all measures (versus 52% in first-generation NDCs); Shift measures account for 19% (versus 32% in first-generation NDCs); and Avoid measures account for 8% (versus 6% in first-generation NDCs), with other measures being cross cutting (*see Figure 1*).[13] This illustrates a continued bias towards technological solutions.

As of May 2021, 10 countries had expanded the scope of their second-generation NDCs to amplify Avoid measures (e.g., avoiding unnecessary motorised transport; planning more compact cities) and Shift measures (e.g., increasing access to opportunities through public transport, walking and cycling).[14] Amplifying *Avoid* and *Shift* measures is seen as a key opportunity to enhance transport in NDCs.[15]

- Cabo Verde, Colombia, Moldova and Suriname intend to avoid motorised travel through urban planning and car-free zones.[16]

Table 1. Second-generation NDC submissions with specific targets for mitigating transport emissions

| Country	Target
Andorra	Reduce road transport emissions 50% by 2030 (new in second-generation NDC)
Bangladesh	Reduce transport emissions 9% below business-as-usual by 2030 (repeated from first-generation NDC)
Cuba	Reduce fossil fuel use in ground transport 50% by 2030 (new in second-generation NDC)
European Union	- Reduce carbon dioxide (CO_2) emissions per kilometre from passenger cars sold by 37.5% on average, and from new vans by 31% on average, by 2030 (from 2021 levels) (new in second-generation NDC) - Reduce CO_2 emissions per kilometre from new large lorries 30% on average from 2019/2020 levels (new in second-generation NDC)
Fiji	Reduce domestic maritime shipping emissions 40% below business-as-usual levels by 2030 (new in second-generation NDC)
Grenada	Reduce transport CO_2 emissions 20% below business-as-usual levels by 2025, with further reductions by 2030 (repeated from first-generation NDC)
Japan	Reduce transport CO_2 emissions 27% below 2013 levels by 2030, to reach 163 million tonnes of CO_2 or less (repeated from first-generation NDC)
Norway	Reduce transport emissions 40% below 2005 levels by 2030 (new in second-generation NDC)

Source: See endnote 12 for this section.

- **Switzerland** notes the importance of removing fossil fuel subsidies and being actively involved in Friends of Fossil Fuel Subsidies Reform.[17]

As of May 2021, 21 of the 54 second-generation NDCs referred to electric mobility, and several NDCs included electric mobility-related targets, reflecting continued emphasis on Improve measures.[18]

- **Brunei** aims for electric vehicles to represent 60% of total annual vehicle sales by 2035.[19]
- **Nepal** aims for 90% of private passenger cars and two-wheelers sold and 60% of public transport vehicles in operation to be electric by 2030.[20]
- **Tonga** aims for 10% of all newly registered vehicles to be electric or hybrid by 2030.[21]

Among second-generation NDCs, 15 countries have increased their attention to climate change adaption for transport (28%, compared to 4% of first-generation NDCs), although fewer than 6% include a transport adaptation target.[22] Among first-generation NDCs, 16% highlight the transport sector within the scope of adaptation activities, while only 4% include specific transport adaptation measures, underscoring the need to further emphasise transport adaptation in the NDC framework.[23]

Figure 1. *Avoid, Shift* and/or *Improve* transport measures in second-generation NDCs
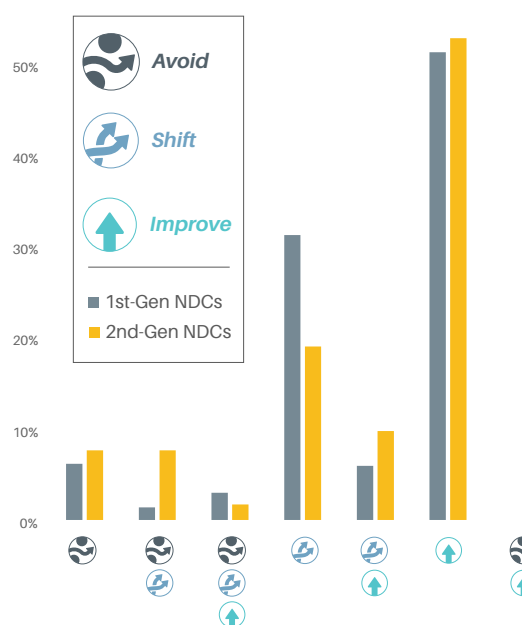
Source: See endnote 13 for this section.

Among the 15 second-generation NDCs with greater attention to adaptation for transport (as of May 2021), the most common adaptation measures were transport infrastructure resilience improvements (20 actions), design standards (8 actions) and disaster information systems (7 actions).[24] Transport adaptation targets in second-generation NDCs include the following:

■ **Cambodia** aims to develop climate-proofing road standards by 2022 and to implement them on all roads by 2030.[25]
■ **Kenya** aims to climate-proof at least 4,500 kilometres of roads by 2030.[26]
■ **Papua New Guinea** has committed to making USD 1.2 billion in transport infrastructure assets climate resilient.[27]

While 37% of second-generation NDCs make general references to Long-Term Low Emission Development Strategies, there is potential to more strongly leverage transport decarbonisation synergies between these mechanisms.[28] LT-LEDS are beneficial for transport because new or expanded projects typically take many years to design and build, and reaching transport targets typically requires more than 10 years. As NDCs have only a 5- to 10-year horizon, LT-LEDS are necessary to bridge the planning and implementation processes for structural transformations.[29]

While 13 second-generation NDCs set higher targets for reducing economy-wide emissions, a recent assessment estimates that current pledges would still lead to warming of 2.6 °C by 2100, far exceeding the Paris Agreement goals.[30] The Intergovernmental Panel in Climate Change (IPCC) concludes that while emission reductions are urgent, they are also feasible and will require robust mitigation commitments, bold policy support and dedicated funding streams.[31] A pathway for the transport sector that is compatible with keeping the rise in global temperature below 1.5 °C can deliver critical emission reductions as well as more equitable mobility access, expanded job creation and improved air quality.[32]

Voluntary National Reviews (VNRs) of the UN Sustainable Development Goals (SDGs) in the framework of the UN 2030 Agenda for Sustainable Development

Sustainable, low carbon mobility is a powerful driver for positive, systemic transformation of societies in areas that go well beyond climate action. This transformation is outlined in the UN 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals.[33] The 2030 Agenda is a cross-cutting, interconnected agenda, with the achievement of one SDG often dependent on the achievement of a series of others. SDG 13 (Climate Action) provides a direct linkage between the actions to support the 2030 Agenda and the Paris Agreement.

While sustainable, low carbon mobility is not represented by a stand-alone SDG, its successful implementation supports the achievement of almost every SDG. The extent of positive interactions between sustainable, low carbon transport and mobility and the 2030

Agenda is captured among four cross-cutting themes – Equitable, Healthy, Green and Resilient – each of which incorporates impacts of transport climate action (*see Figure 2*).[34]

The 2030 Agenda encourages UN Member States to submit VNRs to the annual UN High-Level Political Forum on Sustainable Development.[35] The VNR process facilitates sharing of successes and challenges among Member States, with a view towards accelerating implementation of the 2030 Agenda.[36] Since the first High-Level Political Forum in 2016, countries have reported on transport as a vital sector to implement the SDGs, showcasing on-the-ground implementation and best practices.

Among VNRs submitted in 2020, 48% connect transport to SDG 13 (Climate Action), while only a single VNR submission sets a specific transport target (*see Figure 3*), illustrating the need for further alignment between Paris Agreement mechanisms and the 2030 Agenda for Sustainable Development.[37] VNRs submitted in 2020 with climate-focused transport targets include the following:

■ **Argentina** set a target to increase universal access to public transport from 82% in 2010 to 91% by 2030.[38]
■ **Estonia** aims to increase the share of renewable energy in its transport sector to 10% by 2021.[39]
■ **Slovenia** set a target to reduce transport greenhouse gas emissions "significantly" by 2030 and 2050.[40]

Among second-generation NDCs, 13% establish direct linkages between sustainable transport measures and specific SDGs, including SDG 3 (Good Health and Well-Being), SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action).[41] Examples of second-generation NDC linkages to SDGs include the following:

■ **Cambodia** aims to promote integrated public transport systems, enhance vehicle inspection and maintenance, and shift long-distance freight from truck to train, linking these measures to SDG 3 (Good Health and Well-Being), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation and Infrastructure).[42]
■ **Chile** aims to reduce total black carbon emissions at least 25% by 2030 (from 2016 levels), linking this measure to SDG 3 (Good Health and Well-Being), SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action).[43]
■ **Rwanda** aims to increase vehicle emission standards to enhance resilience to disease, linking this measure to SDG 3 (Good Health and Well-Being), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action).[44]

The development, implementation and reporting of NDCs and VNRs can be optimised and leveraged through concerted and co-ordinated efforts to scale up sustainable transport (*see Box 1*).[45]

Figure 2. Transport and the SDGs: Four cross-cutting themes

Source: See endnote 34 for this section.

Figure 3. Shares of VNRs submitted in 2020 that connect transport with different SDGs

% of 2020 VNRs connecting transport with different SDGs

No. of VNRs submitted in 2020: 47
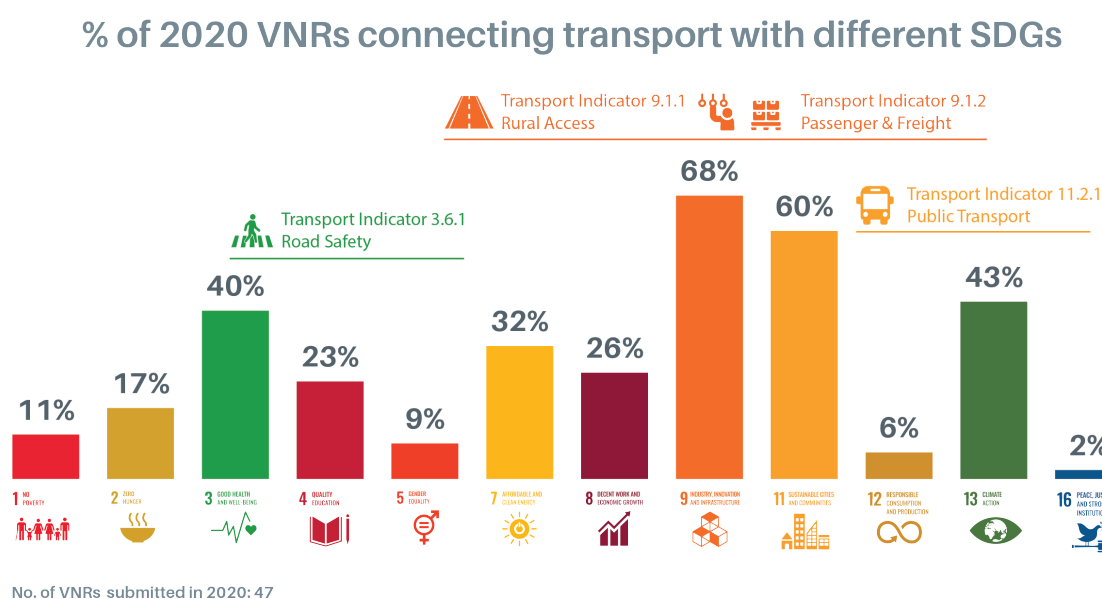
Source: See endnote 37 for this section.

Box 1. Synergies among NDCs and VNRs

Creating a common methodological framework between the Paris Agreement and the implementation and monitoring mechanisms for the 2030 Agenda can maximise the combined potential of both global frameworks for accelerating sustainable, low carbon transport.

A successful implementation of sustainable transport measures in the context of the Paris Agreement and the 2030 Agenda must involve concerted and co-ordinated efforts to more closely link the processes of developing, implementing and tracking progress towards both NDCs and VNRs. Such alignment is required both in the governance of the processes themselves and in the co-ordination among the national and sub-national actors that are formulating and putting them into practice.

In response to this identified need, a guidance was proposed in 2020 by the Islamic Development Bank and the SLOCAT Secretariat to support the implementation of NDCs and SDGs for the transport sector at the national level. The guidance presents a set of eight components for mainstreaming the 2030 Agenda and the Paris Agreement objectives within the transport sector, to support convergence between climate action and sustainable development.

Source: See endnote 45 for this section.

Long-Term Low Emission Development Strategies (LT-LEDS) in the framework of the Paris Agreement

To complement the NDCs, the Paris Agreement invites (but does not require) Parties to formulate and communicate Long-Term Low Emission Development Strategies, to help establish low carbon trajectories to 2050. Parties were invited to submit LT-LEDS by the end of 2020, and as of May 2021, 29 had been submitted.[46]

All 29 LT-LEDS submitted from November 2016 through May 2021 contain references to transport sector actions, and more than 20% propose specific targets for mitigating transport emissions.[47] Proposed decarbonisation actions include electric mobility (24 countries), transport infrastructure improvements (16 countries) and vehicle efficiency improvements (13 countries).[48] Six LT-LEDS propose explicit transport mitigation targets, as follows:

- **Belgium** aims achieve a 100% reduction of transport CO_2 emissions by 2050.[49]
- **Germany** aims to reduce transport greenhouse gas emissions 40% to 42% below 1990 levels by 2030, reaching 95 million to 98 million tonnes of CO_2 equivalent or less.[50]
- **Japan** aims to reduce transport CO_2 emissions 80% below 2010 levels by 2050.[51]
- **Portugal** targets reducing transport CO_2 emissions 43-46% by 2030, 84-85% by 2040 and 98% by 2050.[52]
- **Sweden** aims to reduce transport CO_2 emissions 70% below 2010 levels by 2030.[53]

- **Switzerland** is targeting zero greenhouse gas emissions from domestic land transport by 2050, and net zero emissions from international aviation from the country by 2050.[54]

Submitted LT-LEDS focus strongly on *Improve* measures (representing 56% of all measures), whereas only 13% represent *Shift* measures and 7% represent *Avoid* measures (*see Figure 4*).[55] Despite providing a more comprehensive narrative on low carbon transport measures, the LT-LEDS still depend largely on technological solutions. (*See Box 2 for a recently established process for tracking the the role of transport in NDCs and LT-LEDS.*[56]) Examples of transport measures and targets captured in recently submitted LT-LEDS include the following:

- **Costa Rica** establishes three axes for transport decarbonisation: public transport and active mobility; light-duty vehicle fleets powered by renewables; and low-emission freight transport.[57]
- **Finland** targets a 5-to-1 ratio of electric to petrol vehicles by 2030.[58]
- **Singapore** targets having 9 out of 10 trips during peak periods performed through walking, cycling and public transport modes by 2040 and envisions the development of 20-minute towns and a 45-minute city, which would reduce the need for motorised travel.[59]

National Adaptation Plans (NAPs) and National Adaptation Programmes of Action (NAPAs) in the framework of the Paris Agreement

The impacts of climate change on transport infrastructure and services are already being experienced and are likely to increase in the future (See Focus Feature on Adaptation). For example, in the European Union, costs to transport systems from extreme weather events are projected to increase 20% by 2040-2050, ranging from an estimated 7% increase for road transport to a 72% increase for rail.[60] Thus, it is important for governments to recognise the value of transport adaptation plans and strategies within global processes and national and local plans. Despite these needs, transport adaptation has received less attention than transport mitigation in NDCs, and most low- and middle-income countries have not completed climate vulnerability studies.

National Adaptation Plans (NAPs), established in 2011, identify medium- and long-term adaptation needs for developing countries, and strategies to address those needs. NAPs aim to facilitate integration of climate change adaptation into new and existing policies, programmes and activities to establish and develop planning processes and strategies across various sectors and levels of government.[61]

Among the 22 NAPs submitted from October 2015 through March 2021 (with 14 submitted since 2018), more than 50% refer to specific transport adaptation measures.[62] While this reflects an increase in adaptation considerations in transport, significant gaps remain. Among the submitted NAPs, 13 mention climate change impacts on transport, and 13 refer to specific transport adaptation measures. Action on NAPs shows little change from previous years in addressing transport vulnerabilities, despite increasing climate impacts in the sector.

- **Brazil** aims to incorporate adaptation studies in technical standards for design and maintenance of the urban mobility infrastructure and has highlighted transport impacts and needs in a NAP sectoral strategy.[63]
- **Kenya** aims to climate-proof buildings, roads, railway, marine, aviation, and information and communications technology infrastructure through the use of appropriate designs and building materials.[64]
- **Sri Lanka** aims to improve climate resilience and disaster risk preparedness of transport and to assess the impacts of projected changes and extreme weather scenarios on transport systems.[65]

National Adaptation Programmes of Action (NAPAs), established in 2001, allow least-developed countries to prioritise a list of ranked adaptation activities, in order to facilitate the development of project proposals for implementation. The UNFCCC has established a Least Developed Countries Fund to assist in the preparation and implementation of NAPAs and an Expert Group to provide technical support.[66]

Figure 4. Transport measures in Long-Term Low Emission Development Strategies
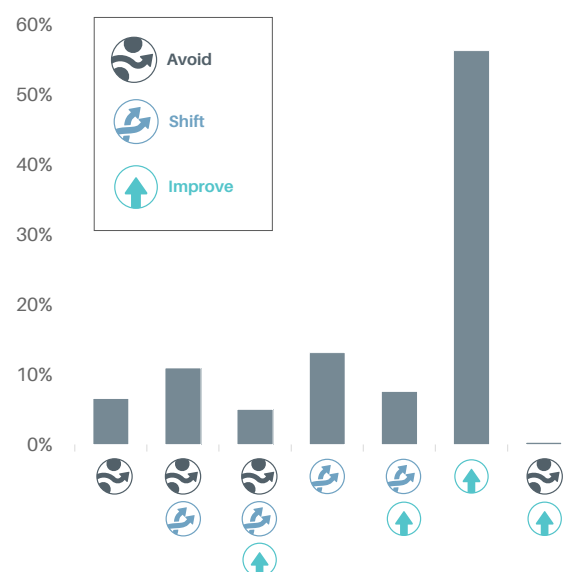
Source: See endnote 55 for this section.

Box 2. Tracker of Climate Strategies for Transport: A database on ambition, targets and policies in NDCs and LT-LEDS

The Tracker of Climate Strategies for Transport was developed by the SLOCAT Partnership on Sustainable, Low Carbon Transport and the Advancing Transport Climate Strategies in Rapidly Motorising Countries (TraCS) project[i]. It enables tracking of national-level climate policies and targets in transport, and specifically provides information on the role of transport in NDCs and LT-LEDS. The Tracker will be continually updated, adding the newest NDCs and LT-LEDS once they are published on the UNFCCC portal. The Tracker will eventually be updated with other major national strategies, starting with relevant transport documents referenced in NDCs and LT-LEDS.

Source: See endnote 56 for this section.

i Implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and financed by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

51 NAPAs were submitted from November 2004 to February 2017, followed by no submissions through May 2021.[67] This lack of substantive progress is likely linked to the absence of a clear reporting process on implementation status.[68] Among the submitted NAPAs, 34 include general descriptions of climate change impacts on transport, and 18 include specific transport adaptation measures.

- **Comoros** aims to reinforce energy infrastructure for production and transport.[69]
- **Timor-Leste** aims to deliver a comprehensive maintenance programme for all existing roads.[70]
- **Tuvalu** aims to implement a multi-million dollar tar-sealed road infrastructure project to increase connectivity of rural communities with the urban centre.[71]

Additional support is needed to increase attention to transport in NAPs and NAPAs, through NAP Expos and other opportunities for peer exchange on international best practices. The Marrakech Partnership Climate Action Pathway on Transport provides guidance on mitigation and resilience strategies for transport (*see Box 3*), although planning and implementation of transport resilience strategies continues to vary widely, especially among least-developed countries.[72]

Linkages between national climate change planning processes and Paris Agreement mechanisms

NDCs are increasingly referencing national climate change and strategic plans, to enhance synergies in the interest of accelerating transport decarbonisation and sustainability objectives. Strengthening linkages between climate and transport plans is an area of increasing convergence, and several countries refer to national strategies in their NDCs to achieve a broader set of sustainable development, including the following:

- In its second-generation NDC in December 2020, **Costa Rica** refers to its 2050 National Strategic Plan, which states a priority to close the digital divide and allow more equitable access through telecommuting and virtual tourism to reduce the need to travel.[73]
- In its second-generation NDC in December 2020, **Kenya** refers to its National Climate Change Action Plan 2018-2022, which contains specific measures to climate-proof the energy and transport sectors, and to promote low carbon action in the aviation and maritime sectors.[74]

Box 3. Transport adaptation measures in the Marrakech Partnership Climate Action Pathways

The Climate Action Pathways are among the Marrakech Partnership tools to enhance climate ambition and action towards fully implementing the Paris Agreement. First launched in 2019, they set out sectoral visions – including for transport – for achieving a 1.5° C resilient world in 2050, which include overarching transformational milestones and key impacts to be achieved.

The Pathways aim to provide a roadmap to help both Parties and non-Party stakeholders under the UNFCCC identify actions needed by 2021, 2025, 2030 and 2040 as steps to get to the 2050 vision. The key aim of the updated Pathways for 2021 is to strengthen the aspects of a just transition, gender responsiveness, resilience, and the circular economy, deepening the alignment of actions across the Pathways.

The sectoral Climate Action Pathway for Transport includes guidance on strategies for mitigating transport emissions and building more resilient transport systems. The Pathway for Transport section on adaptation refers to the need to increase resilience to extreme weather events at the level of transport systems or networks; specific infrastructure assets; and transport vehicles.

Milestones for resilient transport through the Pathway for Transport include:

- **By 2021**: Climate risk assessments, adaptation strategies and disaster response plans are prepared and implemented for critical transport infrastructure; review of legal, policy and institutional frameworks for effective climate-risk assessment and adaptation planning.
- **By 2025**: Climate resilience of new transport infrastructure and systems to at least 2050; innovative adaptation finance mechanisms are available; finance for new transport systems requires consideration of climate risks; nature-based solutions are mainstreamed into transport infrastructure wherever practicable.
- **By 2030**: Climate resilience of all critical transport infrastructure to at least 2050; design of new vehicles incorporates needed modifications to strengthen resilience to extreme weather.
- **By 2040**: Climate-resilience of all critical transport infrastructure and systems to at least 2100.

The Transport Pathway Action Table includes an impact area on Resilient Transport Systems, Infrastructure and Vehicles, which includes recommended actions for policy makers, financial institutions, technology providers and innovators, business and service providers, and civil society.

A complementary vision for resilient infrastructure and services, including transport sector action, is detailed in the cross-cutting Climate Action Pathway on Climate Resilience.

Source: See endnote 72 for this section.w

Many countries have captured enhanced ambition on transport in recent national climate change plans and commitments, which complement measures detailed in global climate change mechanisms. Governments are increasingly embedding sustainable, low carbon transport into their overall national climate change strategies, as demonstrated in recent climate change plans, including the following:

- In September 2020, **China** announced plans to reach peak CO_2 emissions by 2030 and to achieve carbon neutrality before 2060, with an implicit contribution to decarbonisation from the transport sector.[75]
- In September 2020, the **European Commission** proposed a 2030 Climate Target Plan with a target to cut CO_2 emissions at least 55% by 2030.[76] The proposal includes increasing the share of public transport and walking and cycling trips, and increasing the share of renewable energy in transport 24% by 2030 by scaling up electrification, advanced biofuels and other low carbon fuels.[77]

National urban mobility plans and investment programmes (NUMPs) and sustainable urban mobility plans (SUMPs) are another key element of national and sub-national climate change planning processes. NUMPs refer to national strategic frameworks to enhance the capabilities of cities to fulfil their mobility needs in a sustainable way, and SUMPs are strategic frameworks designed to improve quality of life by addressing major challenges related to urban transport.[78] (*See Section 3.2 on Sustainable Mobility Planning and Transport Demand Management.*)

Box 4. Impacts of the COVID-19 pandemic on transport and climate change policy frameworks

COVID-19 has created unprecedented changes to transport systems around the world and to national and global processes that support action on transport and climate change. The pandemic has confronted governments and the private sector with unforeseen challenges, while also shifting national and global processes to address the pandemic and to increase readiness for forthcoming global shocks.

In 2020, due to the pandemic, the UN Conference on Climate Change (COP26, originally scheduled for November) and other key processes around the UNFCCC were delayed, resulting in shifted timelines for progress towards updated NDCs and NAPs. COVID-19 has slowed the process of updating NDCs, with delays around collection and validation of data, decision-making processes and convening key stakeholders. The pandemic also led to postponement of the 2020 NAP Expo, which serves as an annual forum for exchange of experience and best practices on NAPs, thus slowing progress towards filling adaptation gaps among developing countries in transport and other sectors.

To accelerate collective and timely action towards a low carbon transport transition, many initiatives were announced at the En Route to COP26 event in December 2020. Scheduled to mark 12 months before the postponed UN Climate Change Conference under the UK Presidency, En Route to COP26 was designed to accelerate collective and timely action by engaging transport actors to quickly, efficiently and fairly realise the low carbon transport transition.

The *En Route to COP26* Outcome Document highlights essential transport decarbonisation messages towards COP26. It also outlines exciting initiatives announced during *En Route to COP26* to further enable and accelerate collective action. It provides no-regret recommendations for action by different stakeholders.

The pandemic has prompted low carbon transport measures in national recovery efforts (*see Section 4.1 on Financing*), **which should be linked to the development of enhanced NDCs.** Transport demand and emission trends have shifted due to COVID-19 and continue to take shape. Emerging trends include how companies will shift operations from global supply chains to regional ones, and how changes in work arrangements may reduce work-related commuting and travel. Forthcoming policy commitments – through a combination of NDCs, LT-LEDS, and national transport and climate change plans – will determine which changes are likely to be retained or reversed after the pandemic

In December 2020, the UNFCCC, the UN Development Programme and the NDC Partnership convened an event titled "NDC Enhancement and COVID-19 Recovery: Regional Trends and Country Experiences". The event presented global and regional trends in the NDC revision process and showcased efforts to align enhanced NDCs with national COVID-19 recovery efforts. Tools and resources were shared to further support countries in linking NDCs and recovery efforts, with a desired outcome of sharing best practices in this endeavour.

Source: See endnote 5 for this section.

Annex: Methodological Note

Data usage

Time period for data:
The report strives to utilise the most recent publicly available data and information just prior to the time of publication (as of 31 May 2021). The figures in the report were developed between September and December 2020 using the most recent data available.

Secondary data:
SLOCAT relies on secondary data and information collected and provided by SLOCAT partners and other entities and does not make use of any internal modelling tools.

Data on sustainable mobility: A call to action

The report benefits directly from data collected by a wide range of stakeholders working in different areas of transport.

Data are important for providing a comprehensive picture of the status of sustainable, low carbon transport and are essential for both policy and investment decision making. In these times of change, it is critical to upgrade data and policy collection and interpretation capacities to better understand progress and the hurdles that must be addressed.

The data limitations mentioned below are not new. Obtaining regular, reliable and public data across regions and transport modes remains an outstanding issue. When an increasing number of stakeholders are collecting data and policy information, more and better open-access data and capacity building efforts for data interpretation are supported by many multi-stakeholder partnerships in the sustainable, low carbon movement.

If you share our passion for open-access data and knowledge towards greater impact on policy and investment decision making worldwide and/or would like to contribute data or knowledge to our collective efforts on this report, **please reach out to the research team in the SLOCAT Secretariat at tcc-gsr@slocatpartnership.org**.

Specific data used in this report

Data on emissions

The data in this edition of the report point to the direct carbon emissions from transport activity; they do not cover the indirect emissions and land-use impacts associated with certain modes of transport. The report primarily utilises CO_2 emission data compiled in the Emissions Database for Global Atmospheric Research (EDGAR) from the Joint Research Centre of the European Commission, as this represents the most recent, comprehensive dataset on transport CO_2 emissions. However, this global dataset does not convey in full detail the unique situations of individual countries.

EDGAR provides estimates for fossil CO_2 emissions from all anthropogenic activities with the exception of land use, land-use change, forestry and the large-scale burning of biomass. The main activities covered are CO_2 emissions emitted by the power sector (i.e., power and heat genertion plants), by other industrial combustion (i.e., combustion for industrial manufacturing and fuel production) and by buildings and other activities such as industrial process emissions, agricultural soils and waste. Transport activities covered within EDGAR include road transport, non-road transport, domestic aviation, and inland waterways on a country level, as well as international aviation and shipping.[1]

For the world, regions and countries, the CO_2 emission data (provided by EDGAR) span through 2019. In a few places in the report, CO_2 data for 2020 are shown to illustrate the impact of the COVID-19 pandemic; however, these data are based on a different methodology than the EDGAR dataset and should not be compared directly with the data from previous years.

The latest CO_2 emission data for individual transport modes are for 2018 and have been compiled only at the global level. For passenger and freight transport, the data on global CO_2 emissions are for 2017, as this is the latest year with robust data. Data on passenger activity (passenger-kilometres) and freight activity (tonne-kilometres) – provided mainly in the country fact sheets – are based on the latest available year, as indicated in the report analysis.

Information on greenhouse gas emissions – provided in CO_2 equivalent (CO_{2eq}) – include not only CO_2 but also methane, nitrous oxide, and industrial gases such as hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and nitrogen trifluoride.[2] These data are less up-to-date. As of 31 May 2021, data on greenhouse gas emissions were not readily available for the period 2019-2020. In some cases, additional data sources were used to provide detailed information about other climate pollutants besides CO_2.

All data on CO_2 and other greenhouse gas emissions, as well as CO_{2eq}, are provided in metric tonnes.

Data on car ownership

Information on car ownership rates is based on a global dataset from the International Organization of Motor Vehicle Manufacturers (OICA), with the latest release (as of 31 May 2021) dating from 2015.[3] Although newer information is available for some individual countries, using these data would hinder accurate global comparisons. Data on passenger and commercial vehicle sales were available only up to 2019.

Policy landscape data

The policy-related information presented in this report is not intended to be comprehensive. The data for the policy landscape indicators provided in Section 3 were gathered through desk research unless otherwise indicated. Barriers to accessing such information include language and limited availability of information through online media (e.g., websites, press releases and news articles).

Data in country fact sheets

Information in the fact sheets is based on desk research and on contributions from the national focal points. The data were collected to the best of the authors' knowledge and based on data availability, and thus may not be complete or show the most recent status. When no information was available for a given indicator, the term "Not available" is used.

Data gaps

Major data gaps exist in areas where there is no globally accepted data collection methodology. For example, the mapping of cycling and walking infrastructure is not currently done in all regions. Also, the modal share can be surveyed through different methods, leading to inconsistencies in available data. In addition, data on paratransit (informal transport), a predominant form of transport in many parts of the world, are largely lacking. This results in an incomplete picture of the impact of transport on climate change and sustainable development.

Methodological approach

Countries and regions

The report follows the M49 Standard of the United Nations Statistics Division.[4] In total, 196 countries have official United Nations membership and are also party to the United Nations Framework Convention on Climate Change. The available data have been put in a common structure for the United Nations member countries, regions and income groups to enable a consistent assessment. Income groups are based on the World Bank's classification of 2019.[5]

Economic calculations

The per capita and gross domestic product (GDP) calculations are based on the United Nations World Population Prospects 2019 and on World Bank GDP data using constant 2010 USD.[6]

Spatial and temporal scales

The geographic scale (global, national, city-level, etc.) as well as time scale (annual, monthly, daily) used in this report depends largely on the available dataset, as noted in the relevant figures and text. The detailed data forming the basis of the calculations and analysis are provided in the SLOCAT Transport Knowledge Base.[7]

Criteria for selection

The report covers policies, targets, emission reductions (achieved or envisioned) and market measures. To merit inclusion in the analysis, the policies, projects and trends must have been announced or completed between 2018 and 2020. Significant developments from January through May 2021 were included when deemed relevant, with the understanding that the next edition of the *Transport and Climate Change Global Status Report* will cover a period starting in 2021.

Pre- and post-COVID-19 pandemic trends

The year 2020 was pivotal for the world, and the COVID-19 pandemic has had substantial impacts on many of the transport trends monitored in this report. This edition attempts to differentiate between long-term trends and impacts due to the pandemic. To the extent possible, the analysis notes "pre-pandemic" (up to the end of 2019 or latest by February 2020) and "during pandemic" trends (starting in March 2020 until the end of 2020), as in some cases the pandemic led to reversals in long-term trends, at least for a specific period of time. In each section, a box describes the impacts that the pandemic has had on specific regions and sub-sectors.

Assembling the report

Global Strategy Team

This edition of the report was guided by a global strategy team consisting of 20 experts in the field who provided inputs over the span of six meetings between September 2019 and October 2020. Additionally, small group consultations were organised in February 2021, following the peer review process.

Authors and contributors

The report was collaboratively drafted by 22 authors and contributors from 16 organisations, led by the SLOCAT Secretariat. This includes additions and high-level inputs from the copy editor and from the special advisor who also co-authored the Executive Summary. Authors researched and compiled relevant facts and figures for the five sections of the report, including the Focus Features, with supporting review and inputs from several other organisations.

Peer review: A peer review process was carried out from 18 December 2020 to 20 January 2021 with 1,700 comments received from 74 reviewers. Each comment was individually reviewed by the SLOCAT Secretariat and considered in finalising the report.

National focal points: The report benefited from the contributions of voluntary national focal points, or experts from various regions and countries who have been essential to overcome language and information barriers. A public call for participation to provide information on policies and data resulted in several hundred initial registrations. Out of these registrations, 78 national focal points provided inputs through a first survey from 24 January to 3 February 2020; and through a second survey (focused on the country fact sheets) from 6 to 30 August 2020. All national focal points that contributed to the surveys are listed in the Acknowledgements.

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Annex: Methodological Note

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