

Transport and Voluntary National Reviews 2021

Achieving the Sustainable Development Goals
in Times of Change



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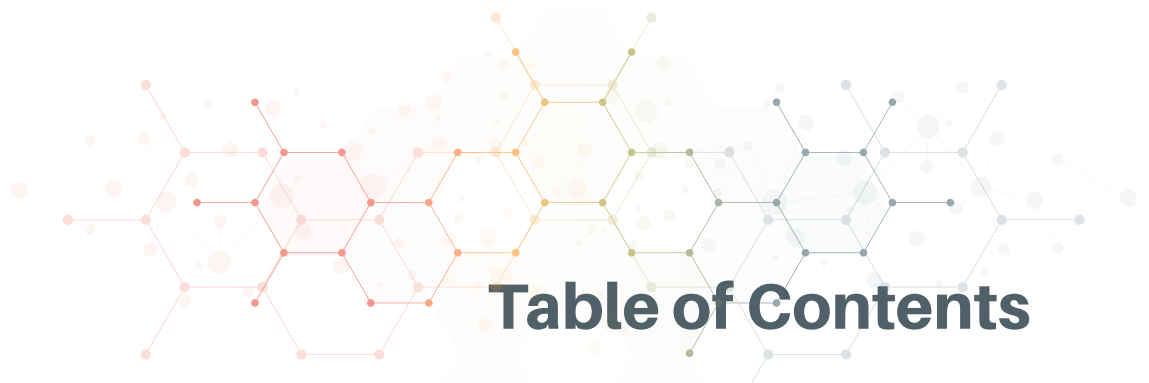


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Section 1. Transport actions for achieving the Sustainable Development Goals

1.1. Transport and the SDGs

Sustainable, low carbon mobility is a powerful driver for positive, systemic transformation of our societies. This transformation is outlined in the [2030 Agenda for Sustainable Development](#) and its 17 Sustainable Development Goals (SDGs), the global ‘blueprint to achieve a better and more sustainable future for all by 2030’. The 2030 Agenda was designed to be a cross-cutting and interconnected agenda, with the achievement of one SDG often dependent on the achievement of a series of others. While sustainable, low carbon transport and mobility is not represented by a stand-alone SDG, its successful implementation supports the achievement of almost every SDG.



2030 Agenda for Sustainable Development

[Transforming our World: the 2030 Agenda for Sustainable Development](#) was adopted in September 2015 by Heads of State and Government at the United Nations (UN) Sustainable Development Summit. The Agenda includes 17 SDGs and 169 targets and is a commitment to eradicate poverty and achieve sustainable development by 2030 world-wide, ensuring that no one is left behind. The adoption of the 2030 Agenda was a landmark achievement, providing for a shared global vision towards sustainable development for all.

The 2030 Agenda states that ‘sustainable transport systems, along with universal access to affordable, reliable, sustainable and modern energy services, quality and resilient infrastructure, and other policies that increase productive capacities and build strong economic foundations for all countries’.¹



Enabling sustainable, low carbon transport and mobility worldwide has explicit as well as implicit implications for the success of the entire 2030 Agenda, with social, environmental and economic ‘multiplier effects’ that go well beyond the scale of financial investment. Some areas where transport has the greatest positive impacts include: ending poverty (SDG 1); ending hunger (SDG 2); promoting healthy lifestyles and well-being (SDG 3); empowering women and girls (SDG 5); ensuring sustainable and modern energy (SDG 7); building resilient infrastructure (SDG 9); making cities sustainable (SDG 11) and taking action to combat climate change and its impacts (SDG 13).

In 2016, the first edition of the SLOCAT Wheel on Transport and the SDGs was developed to capture the interlinkages between transport and the SDGs. In 2020, SLOCAT released the [Second Edition of the SLOCAT Wheel on Transport and the SDGs](#), which identifies four cross-cutting themes — Equitable, Healthy, Green and Resilient — to present these interactions. Under each theme, fundamental notions related to socio-economic and environmental systems on which sustainable, low carbon transport can affect positive change are highlighted.



Figure 1: SLOCAT Wheel on Transport and the SDGs

The analysis is complemented by a [detailed list of targets](#) (Figure 2) across all SDGs for which action on sustainable, low carbon transport and mobility has the strongest impact. It also includes the **transport-relevant indicators** (Figure 3) used to assess advancement towards some of these targets in the framework of official 2030 Agenda monitoring efforts.

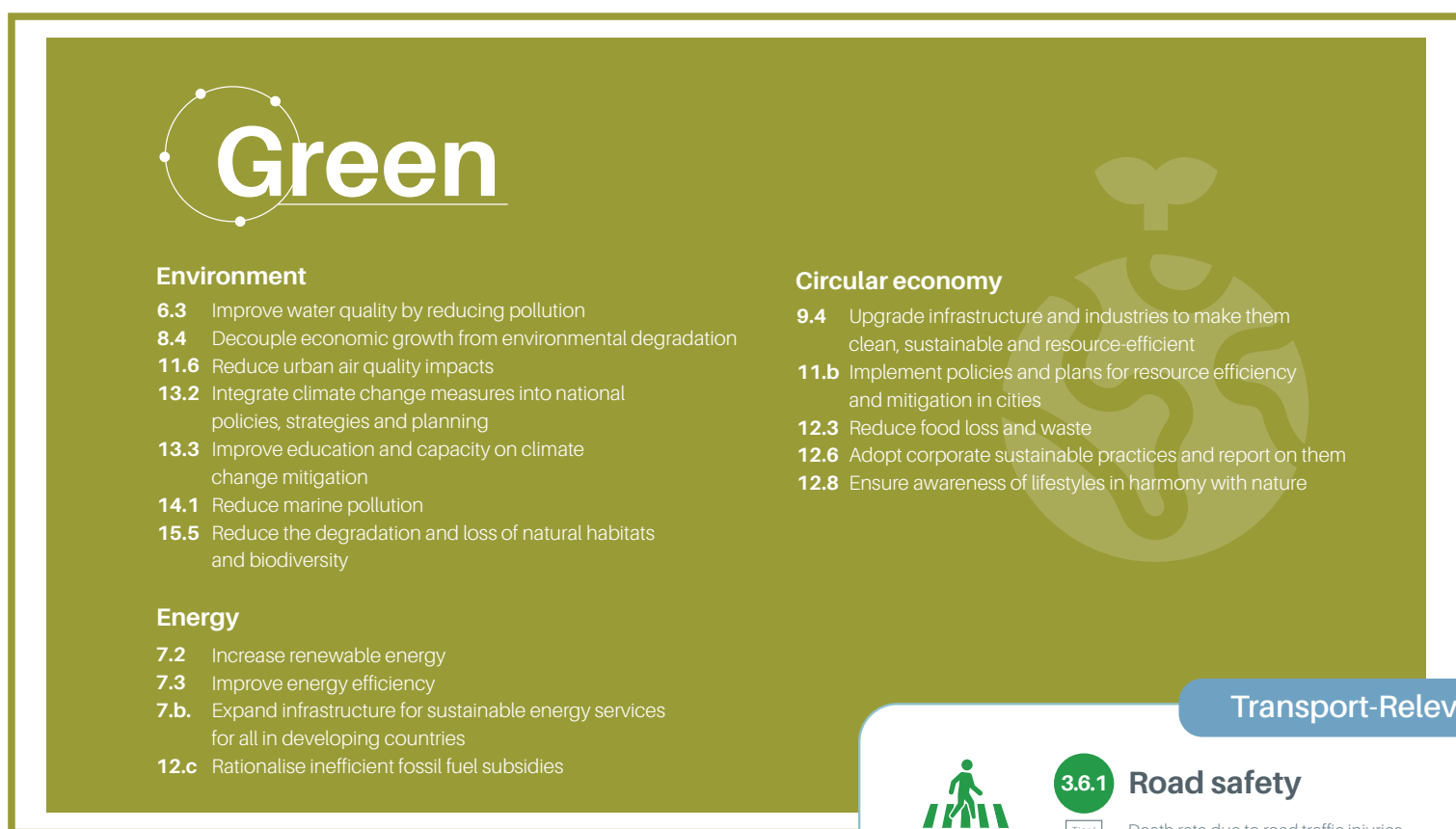
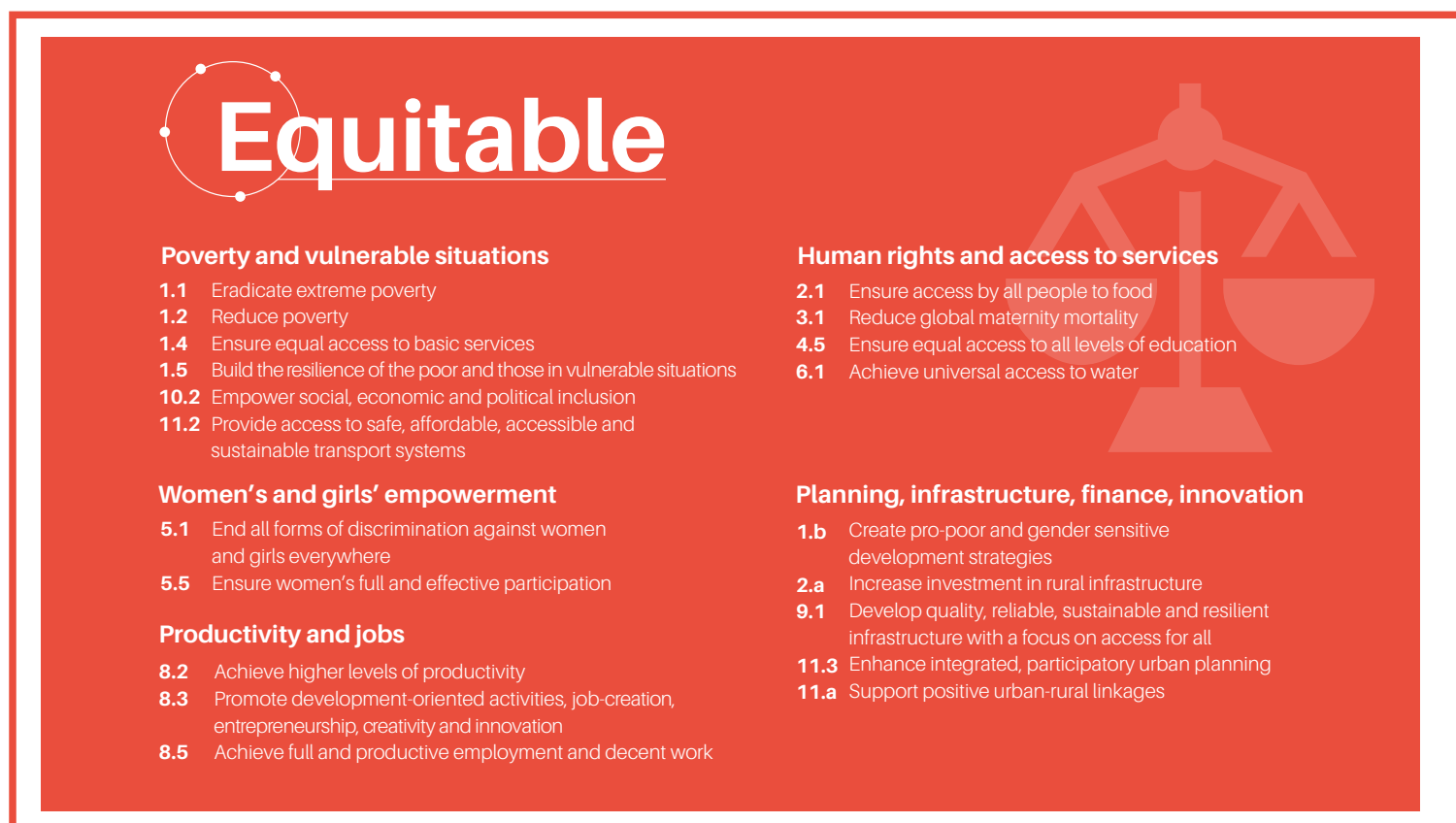
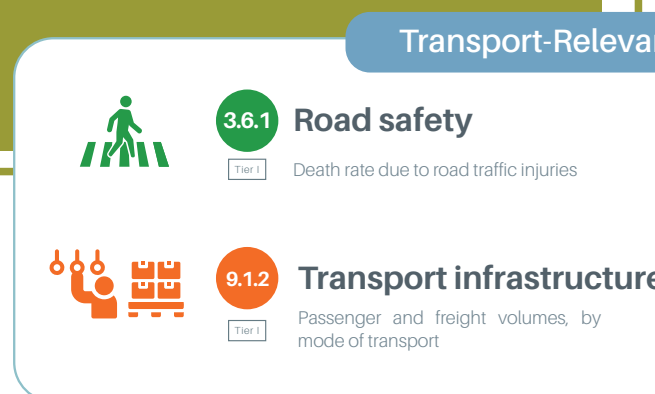


Figure 3: Transport-relevant SDG indicators



Healthy



Health and well-being

- 2.1** End hunger and ensure access to food
- 3.3** Combat and end epidemics and communicable diseases
- 3.d** Strengthen capacity for management of health risks particularly for developing countries
- 11.7** Provide universal access to green and public spaces

Safety and security

- 3.6** Reduce deaths from road traffic accidents
- 5.2** Eliminate all forms of violence against women and girls

Air quality

- 3.9** Reduce number of deaths and illnesses from pollution

Resilient



Socio-economic resilience

- 1.5** Build resilience to climatic events and environmental shocks
- 8.9** Promote sustainable tourism
- 9.1** Develop resilient infrastructure for human well-being
- 9.a** Facilitate resilient infrastructure in developing countries

Resilience to global shocks

- 3.3** End epidemics and combat communicable diseases
- 3.d** Strengthen capacity for early warning and management
- 11.5** Decrease economic losses caused by disasters
- 11.b** Develop holistic disaster risk management strategies
- 13.1** Strengthen resilience and adaptive capacity to climate-related hazards
- 13.2** Integrate climate change measures into national policies, strategies and planning
- 13.3** Improve education and capacity on climate change adaptation and early warning

Key SDG Indicators



9.1.1

Rural access

Tier II

Proportion of the rural population who live within 2 km of an all-season road



11.2.1

Public transport

Tier II

Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

SDGs review mechanism

The **High-level Political Forum on Sustainable Development (HLPF)** is the UN's apex body on sustainable development. It has a central role in the follow-up and review of the 2030 Agenda and the SDGs at the global level. The Forum has been convening annually under the auspices of the **Economic and Social Council (ECOSOC)** since 2016, and every four years under the auspices of the General Assembly; last time in 2019.

The 2030 Agenda encourages UN member states to 'conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven'.³ This mechanism, known as the **Voluntary National Review (VNR)**, aims to facilitate the sharing of experiences among countries, including successes, challenges and lessons learned, with a view to accelerating the implementation of the 2030 Agenda.

Since the inaugural UN High-Level Political Forum on Sustainable Development (HLPF) in 2016, SLOCAT has been assessing **transport references in the Voluntary National Reviews (VNRs)**. Over the past years, our assessments have found that countries continued to report on transport as a vital sector to implement the SDGs, showcasing on-the-ground implementation and best practices. Through the VNRs, countries have helped build momentum for the transport sector to move along a more sustainable path.²



National Sustainable Development Strategy and VNRs

VNRs are not the only element that countries use to plan and report on implementation of the 2030 Agenda. While VNRs provide insights into a country's implementation of sustainable development policy, countries must still work to incorporate the 2030 Agenda and SDGs into development planning. As a result, countries are encouraged to adopt National Sustainable Development Strategies (NSDS), as to inform planning and action around the three pillars of sustainable development (economic, social and environmental). While the official process for gathering NSDS at the global level has come to a halt (as VNRs have become the primary mechanism for highlighting progress), national action can be extrapolated from existing material submitted by countries under review. Within these plans, transport often plays a central role in long-term planning related to sustainability and decarbonisation.



Bhutan has a number of strategies and plans touching on key elements of sustainable development. Within these plans, transport plays a central role, with references to scaling up green and sustainable transport and mobility systems, as well as increasing connectivity between urban and rural areas.



Egypt's Sustainable Development Strategy: Egypt Vision 2030 outlines work being done to scale up public transport systems, as well as establish new sustainable transport infrastructure, like high-speed rail.



Niger has adopted the Stratégie de Développement Durable et de Croissance Inclusive (SDDCI) Niger 2035 - the Strategy for Sustainable Development and Inclusive Growth Niger 2035. Within this plan, transport is highlighted and includes investments in transport infrastructure and systems.



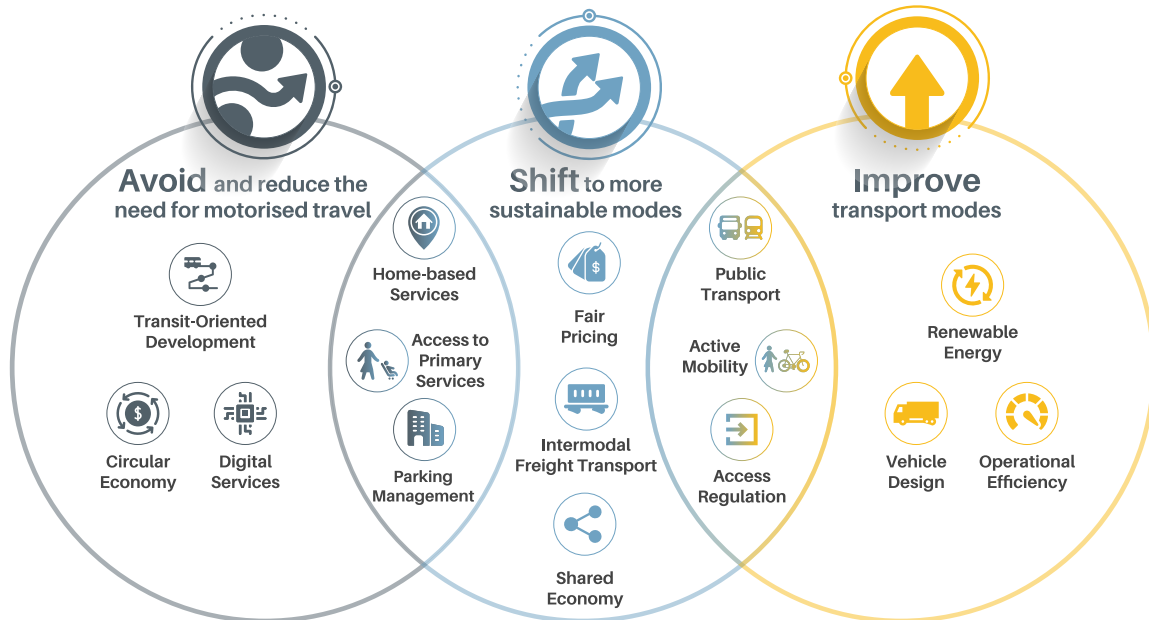
Thailand has integrated the SDGs into its 20-Year National Strategy, thus embedding sustainable development into its long-term planning. A key component of this strategy is 'Mega Public Transportation Development', an effort to scale up existing urban public transport systems, as well as build new infrastructure in provincial areas and places with high levels of tourism.



Uruguay has adopted a National Environmental Plan for Sustainable Development, as well as other cross-cutting plans encompassing country-wide national strategies on sustainable development. Within this plan, transport is highlighted, both in terms of decarbonisation of the sector, as well as increasing access to transport and mobility services to leave no one behind.

1.2. Applying the *Avoid-Shift-Improve* Framework in SDGs implementation plans




Applying *Avoid-Shift-Improve* (A-S-I) measures through integrated, inter-modal and balanced approaches is critical to unleashing the full benefits of sustainable, low carbon transport to implement the SDGs. The A-S-I framework has been central to sustainable, low carbon transport for more than a decade (Figure 4).



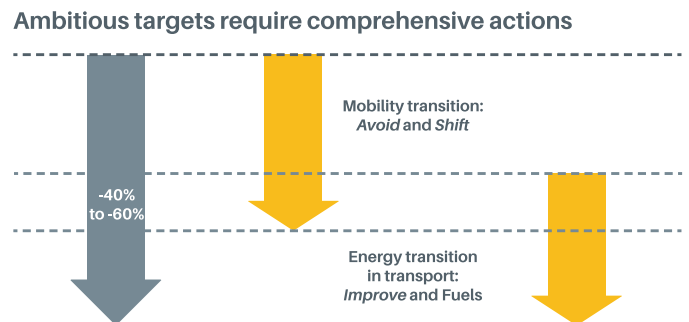
*The A-S-I diagramme presents a non-exhaustive list of measures for illustrative purposes only.

Figure 4: *Avoid-Shift-Improve* framework⁴

The A-S-I approach follows an implicit hierarchy, with appropriate and context-sensitive *Avoid* measures intended to be implemented first, followed by *Shift* measures and finally by *Improve* measures. This prioritisation can help reduce environmental impact, improve access to socio-economic opportunities, increase logistics efficiency, reduce congestion, improve air quality and increase road safety. The A-S-I framework calls for:

-  *Avoiding* unnecessary motorised trips based on proximity and accessibility;
-  *Shifting* to less carbon-intensive modes – that is, from private vehicles to public transport, shared mobility, walking and cycling, water-based freight, electrified road-rail freight, and cargo bikes for last-mile deliveries, among others; and
-  *Improving* vehicle design, energy efficiency and clean energy sources for different types of freight and passenger vehicles.

Growing evidence shows that *Avoid* and *Shift* strategies can account for 40-60% of transport emission reductions, at lower costs than *Improve* strategies (see Figure 5).⁵ There is wide recognition that current policies are over-reliant on technology-focused *Improve* strategies, and thus are insufficient to achieve the systemic and rapid transformation that is needed to meet global climate and equity goals.



Original graphic by: Martin Schmied, 2015 | GIZ

Figure 5: Potential emission reductions resulting from actions in the A-S-I framework⁶

Avoid and *Shift* measures (for example, allocating road space for dedicated bus lanes) may be far less costly for improving transport access than many *Improve* measures, particularly in rapidly urbanising developing countries.

The narrative of sustainable mobility has evolved over the decade since the creation of the A-S-I concept.; In response, SLOCAT is leading a number of stakeholders to engage in a [process to refocus the framework](#), integrating decades of experience and harnessing momentum on green, equitable pandemic recovery and an unprecedented disbursement of funds through recovery packages. A renewed focus on the framework presents an opportunity to optimise A-S-I strategies through novel lenses, including gender and geographic equity; freight transport; and renewable energy (see [Avoid-Shift-Improve Refocusing Strategy](#)).

An enhanced focus on *Avoid* and *Shift* is of particular relevance to fast-growing, middle-income and low-income economies working to increase access in response to development demands. However, *Avoid* is often subject to political resistance. In areas where the majority of the workforce needs to travel for livelihoods, the call is to *Shift* to more sustainable modes. However, travel alternatives are often limited, especially for lower-income riders. An intended outcome of the refocusing process that SLOCAT is facilitating is to build upon the strengths of the framework to achieve systemic shifts through a more balanced and cost-effective application of A-S-I measures.

1.3. COVID-19 impacts and responses to implement the SDGs in the transport sector

In 2021, many countries worldwide continued to operate under the shadow of the COVID-19 pandemic, causing significant setbacks to the achievement of the SDGs in the transport sector. At the same time, the pandemic is pushing us to reflect on how we move people and goods, as well as what transformations will affect the future of transport.

The COVID-19 pandemic has transformed transport and mobility patterns in every part of the world. The health crisis brought transport demand to a temporary standstill in much of the world due to lockdowns and distancing measures. While a significant population shifted to work from home, many of those who were required to commute faced reduced transport options. Demand for public transport and air travel plunged and global maritime trade dropped 4% in 2020, while in many cities around the world, walking and cycling rates surged on reconfigured streets. These trends caused oil demand to plummet temporarily and brought transport emissions to a near halt. While global CO₂ emissions dropped an estimated 5% overall in 2020, emissions from transport fell nearly 20%, more than any other sector.⁷

The impact of the COVID-19 pandemic on freight transport has highlighted the interconnectedness of the global economy and revealed underlying vulnerabilities in international supply chains and the transport of goods. Many countries reported significant disruptions in supply chains and the loss of revenue in a number of key industries dependent on the transport of people and goods, including tourism. This has impacted the implementation of **SDG 8** (decent work and economic growth).

The COVID-19 pandemic has also revealed weaknesses in the transport sector's preparedness for disasters and global shocks (and the implementation of **SDG 11** on sustainable cities and **SDG 13** on climate action). In many cities, public transport systems were pressured to the verge of collapse in 2020, following significant declines in ridership, revenue and passenger trust. Many people returned to private vehicles as their first choice of mobility, while others, lacking access to safe and reliable transport services, were stranded by lockdowns and deprived of work to maintain their livelihoods, resulting in greater impoverishment among the most vulnerable groups (impacting **SDG 1** on no poverty). The COVID-19 pandemic also severely impacted access to education in many countries, impeding the achievement of **SDG 4** (quality education).

The pandemic has also underscored the need for policy makers to take bold steps to address catastrophic impacts to transport and mobility systems. The decisions that governments make to support economic recovery from the pandemic will determine the degree of transformation that will be achieved through the next decade and beyond.

Several 2021 VNRs highlighted actions to help address and recover from the COVID-19 crisis, for example:



Azerbaijan implemented a 50% simplified tax exemption for taxpayers engaged in passenger transportation and Spain committed aid to support local public transport systems.



Indonesia implemented new digital programmes to help facilitate the delivery of food and essential goods and enhanced safety protocols for motorcycle taxis transporting passengers.



Qatar significantly increased operations of Qatar Airways to support global trade and transport relief shipments, vaccines, medicines, medical devices and vital supplies using its global network to reach affected areas.

Pandemic recovery packages so far have proven a mixed bag for climate action in the transport sector.

While a number of national recovery packages have firmly embraced a goal to 'build back better' (e.g., by promoting electric vehicles or shifting from air travel to rail), many have upheld the status quo (e.g., by backtracking on fossil fuel subsidy reform or providing unconditional airline bailouts) rather than adopting green and equitable recovery strategies for transport systems. The pandemic has also led to severe budget cuts in some national aid programmes, threatening to widen social and economic divides between the Global North and South and to push meaningful climate action even further into the future.⁸

Yet, in this difficult moment, some governments are using the 2030 Agenda and VNR process as a road map and opportunity to improve development patterns and emerge from the crisis stronger by building a better, more sustainable future while leaving no one behind.

For more information on the impact of COVID-19 on sustainable, low carbon transport and implementation of the SDGs, please see:

- [SLOCAT Transport and Climate Change Global Status Report - 2nd Edition](#), including information on COVID-19's impact on transport in all global regions and ten specific transport areas and a [Focus Feature on the Impact of COVID-19 on Travel Behaviour](#);
- [SLOCAT Morning Commute Blog Series](#);
- [In the International Road Federation's Global Transport Knowledge Partnership COVID-19 Knowledge Hub](#) with data and knowledge contributions from SLOCAT;
- [LEDS Global Partnership COVID-19 Series](#) authored by SLOCAT-VREF Young Leaders Programme fellows.

Section 2. Transport dimension in 2021 Voluntary National Reviews of the SDGs

2.1. General overview

40 countries presented their VNRs at the 2021 HLPF,⁹ out of which 8 countries presented for the first time. All 2021 VNRs include references to sustainable transport policies and measures to realise the SDGs for the first time since the inaugural HLPF in 2016, demonstrating that countries see transport action as a vital component for the implementation of the 2030 Agenda (Figure 6).¹⁰

How many VNRs have included transport references since 2016?

- VNRs with transport references
- VNRs with no transport references

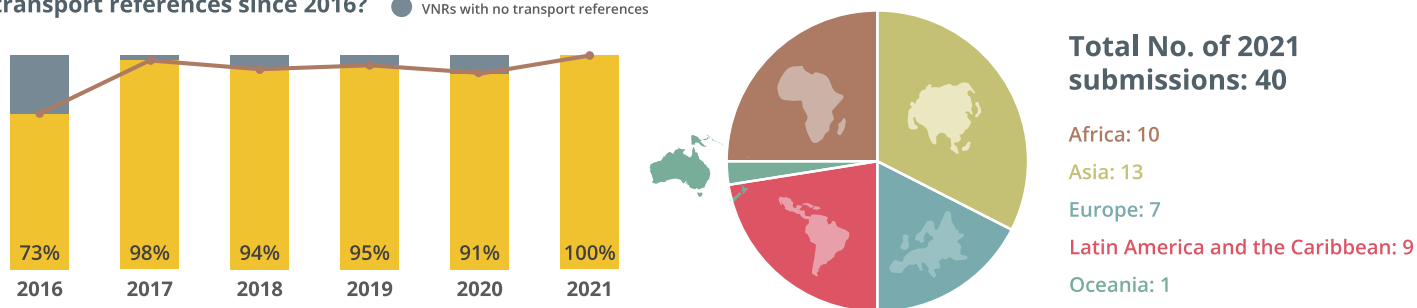


Figure 6: % of 2021 VNRs with transport references (2016 - 2021)

As presented in the SLOCAT Wheel on Transport and SDGs, sustainable transport is a powerful driver to achieve various SDGs and a number of specific targets (see Section 1.1). Figure 5 above shows how the 2021 VNRs countries connect transport infrastructure and services to different SDGs.

% of 2021 VNRs connecting transport with different SDGs

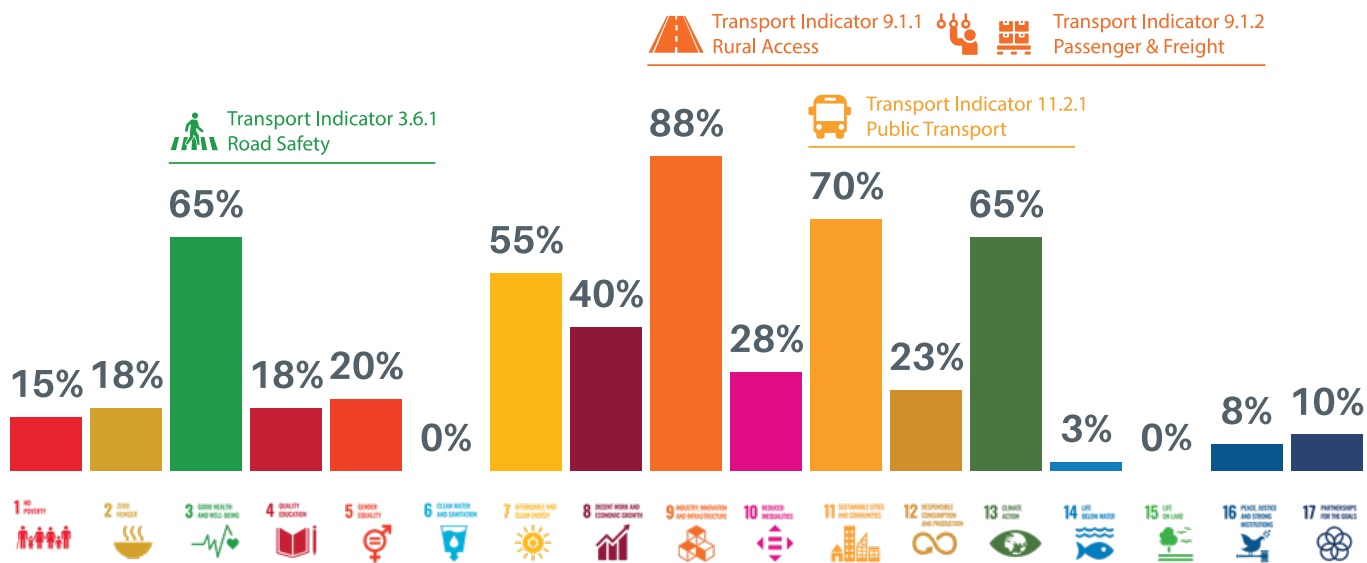


Figure 7: % of 2021 VNRs connecting transport with different SDGs

In 2021 VNRs, a familiar pattern appears with **the majority of transport references focusing on transport infrastructure development** in the context of:



Passenger and freight activities (SDG 9)



All-season rural roads (SDG 9)



Public transport systems (SDG 11)

Significant attention is also given to:



Reducing traffic fatalities and injuries (SDG 3)



Curbing mobile-source GHG emissions (SDG 13)



Increasing the share of renewable energy and reducing final energy consumption in the transport sector (SDG 7)

Among other SDGs, relatively more attention is given to the role of transport in:



Facilitating better access to jobs and economic opportunities (SDG 8)



Reducing inequalities through the provisions of equitable, safe and affordable mobility services and infrastructure (SDG 10)



Phasing out fossil fuel subsidies (SDG 12)

A handful of 2021 VNRs, mostly submitted by countries from the Global South, report pro-poor and gender-sensitive transport policies (SDG 1 and SDG 5). The first challenge facing low income populations, who either live in or have been displaced into marginal or peripheral urban areas, is that they typically have limited transport options (walking, cycling and at best some public or paratransit). The life of these low-income urban/rural residents largely remains one of long wait and travel times, multiple transfers, long travel distances, and a significant percentage of income spent on declining and poor-quality transport options. Road safety, particularly for women and children, is an issue along rural transport corridors as they typically do not have facilities for pedestrian mobility and protection. In fact, globally, 88% of roadways do not meet minimum walking safety requirements, and 86% do not meet minimum cycling safety requirements.¹¹ Regarding sexual and gender-based nuances, violence is widely prevalent in public spaces related to transport. The absence of safety measures poses a threat to women's rights and thus additionally the mobility of women and girls. Women also have less access to employment generated within the transport sector (in construction and maintenance, transport services and transport agencies) due to under-representation across political, economic, social and cultural lines. Cultural issues over women working outside the home and difficulties organising childcare are also key barriers to women's participation in the transport workforce.

In 2021 VNRs, the linkages between transport and the SDGs oriented around infrastructure, public transport, energy, road safety and climate mitigation are clear. There is growing attention given to the social dimension of sustainable development, which helps to establish a stronger case for how transport contributes to the overarching goals of the 2030 Agenda on poverty alleviation, social equity and 'Leaving No One Behind'.

% of 2021 VNRs with references to transport sub-sectors

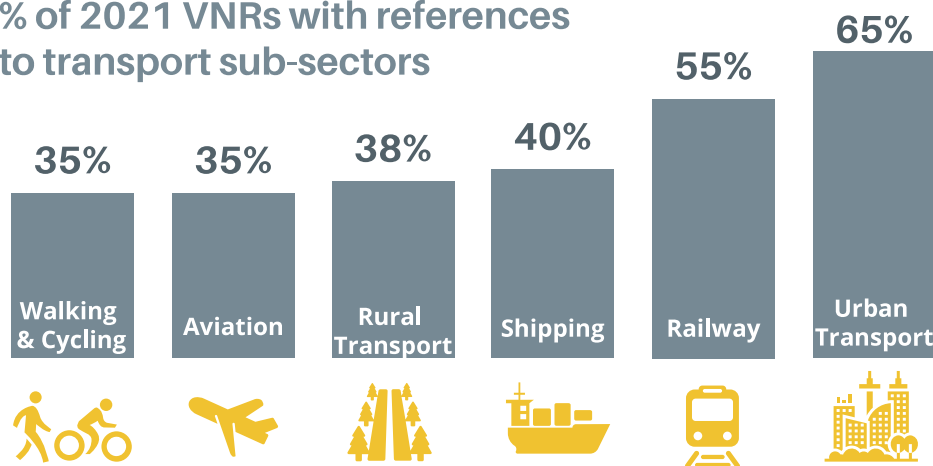


Figure 8: % of 2021 VNRs with references to transport sub-sectors



On the basis of the transport-relevant indicator 11.2.1 (public transport), there is ample attention to **urban transport** measures in the 2021 VNRs (Figure 8). However, references addressing the transport-relevant indicator 9.1.1 (rural access) are significantly less.



Among the **high-volume transport modes** (e.g., maritime, aviation and rail), many countries report on railway and maritime transport measures in the context of enhancing regional and cross-border connectivity and facilitating trade development.



Similar to previous years, **active mobility** solutions are still largely overlooked in the 2021 VNRs. At little to no monetary cost, walking and cycling enable large segments of the world's population – including the poor, the young and the elderly – to independently fulfil their daily transport needs, while improving their personal health and posing little risk to other road users. Walking and cycling are particularly well-suited transport solutions for addressing the ongoing and interlinked crises of climate change, road deaths, physical inactivity and urban liveability. They have proven to be the most resilient forms of transport and have been integral to mobility responses in the face of natural disasters and health crises, including the COVID-19 pandemic.¹² When developing VNRs, countries must not lose sight of how walking and cycling can strengthen social cohesion and improve overall quality of life.

2.2. Specific transport targets reported in 2021 VNRs

Robust coordination and support from SDG-lead agencies is required to maximise the contribution of the transport sector within national development frameworks for short-, medium- and long-term planning. Establishing a common vision or strategy articulated around defined targets can significantly accelerate the uptake and integration of sustainability measures within the transport sector. Vision and target-setting should be informed by the following principles:¹³

- Define long-term vision and targets with multi-year sectoral development strategies and plans;
- Recognise the synergies and differences in timelines between SDGs and traditional transport sectoral development strategies;
- Illustrate how the targets contribute to local development priorities;
- Outline the details of the proposed activities, timings and responsibilities;
- Coordinate with SDG-lead agencies to maximise the contribution of the transport sector within the national development framework for short-, medium- and long-term planning.

In 2021, **20% of VNRs report specific transport targets** (Figure 9), which is slightly more than in 2019 and 2020 (17% and 18% respectively).

No. of specific transport targets reported in 2021 VNRs

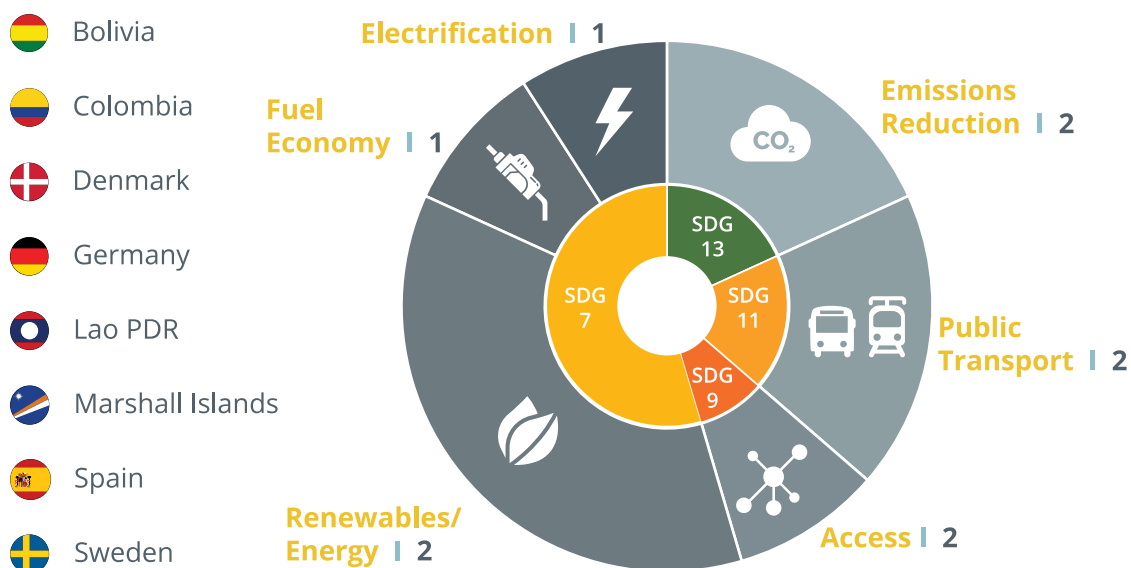


Figure 9: Number of 2021 VNRs with specific transport targets

Table 1: Specific transport targets reported in 2021 VNRs

Countries	Topic	Targets
Bolivia		Increase the share of paved roads to at least 70% by 2025.
Colombia		Ensure all vehicles manufactured, assembled or imported comply with Euro VI or higher technologies by 2030.
		Public transport systems account for at least 20% of the total new fleet of zero emission technology by 2030.
		Increase daily public transport trips by 75% by 2030 (from 2015 baseline).
Denmark		Increase the number of electric vehicles from 1,695 in 2015 to 600,000 in 2030.
		Achieve zero carbon emissions in Sønderborg municipality by 2029. Invest 14% of the Danish Recovery Funds for the green transition of road transport and reduce 2.1 million tonnes of CO ₂ emission.
Germany		Reduce energy consumption in passenger transport to 80-85% by 2030 (2005 baseline).
Lao PDR		Increase the share of biofuel in transport to 10% by 2025.
Marshall Islands		Increase energy efficiency of the transport sector by 20% .
Spain		Increase use of renewables in transport to 28% by 2030.
Sweden		Reduce CO ₂ emissions of domestic transport (excluding domestic aviation) by at least 70% by 2030 (2010 baseline).

2.3. References to transport sustainability impacts in 2021 VNRs

More than 60% of 2021 VNRs have explicit references to transport sustainability impacts. Figure 10 shows the percentage of VNRs that report how transport is related to the four themes of the SLOCAT Wheel on Transport and the SDGs: Equitable, Green, Healthy and Resilient. Table 2 presents selected examples of these references.

Figure 10: % of 2021 VNRs with references to the four themes of the SLOCAT Wheel on Transport and the SDGs

% of 2021 VNRs with references to the four themes on transport and sustainability



Table 2: Selected examples of 2021 VNRs references to the four themes of the SLOCAT Wheel on Transport and the SDGs



Equitable

Angola reinforced its national transport network to improve regional connectivity with better infrastructure quality and reduced operational costs.

Cabo Verde scaled up investments to densify, rehabilitate and modernise its national and municipal road network to alleviate poverty and improve the overall quality of life of isolated communities.



Tunisia developed an awareness campaign for its public transport system to counteract violence against migrant women and low-income families. It also initiated a nation-wide, USD 2 million transport subsidies programme in which 55,000 students from poor families have benefited.

Zimbabwe rehabilitated the Beitbridge-Harare highway which has significantly increased employment opportunities for local women in the male-dominated road construction industry.

Bhutan and **Thailand** introduced new transport subsidies programmes to enhance the mobility of people living in the most remote parts of the country.

Indonesia (Bandung City) implemented the OMABA Cooking Center Program: A Bottom-Up Solution in Alleviating Stunting which provides healthy food for consumption of malnourished children through motorbike delivery.



To prevent job losses for motorcycle taxi drivers during the pandemic, **Indonesia** established an online engagement mechanism to recruit drivers interested in basic food delivery and distribution. 9,474 basic food packages were delivered with high compliance to health protocols. Transport data collected by the programme offers insights to potential recipients as well.

Japan initiated a road construction programme specifically to improve access to humanitarian relief, promote stronger social development interactions and facilitate reconciliation among local communities.

Lao People's Democratic Republic incorporated specific measures for gender equality in its transport strategic plan to improve year-round regional connectivity of the poorest districts. Local women were consulted in the design of transport infrastructure and gender-specific data were collected to monitor impacts. Women representatives also participated in community road maintenance funds.

Denmark, the Czech Republic, Cyprus, Spain (Galicia region) and **Sweden**, instituted programmes to offer alternative transport options for persons with disabilities, the elderly, children, youth, students and low-income earners.



Norway developed digital tools to make it easier for people (including children) to participate in planning cycling paths and ecovillages in Oslo and Hurdal.

98% of the population in **San Marino** has convenient access to public transport, which has been made free for all students and with reduced fares for pensioners. The Disability and Residential Care Unit and the Territorial Home Service Unit were set up to manage daily transport services for persons with disabilities and the elderly.



Since 2007, **Nicaragua** has invested an annual average of USD 23 million to maintain stable and affordable public transport rates for the poor.



Green



Egypt launched two rail megaprojects (high speed rail and the Cairo driverless Monorail projects) that will significantly decrease commute time and reduce carbon emissions.

Bhutan announced its Sustainable Low-Emission Urban Transport Systems project will replace 300 internal combustion engine taxis with electric vehicles by 2022.



China conducted spatial layout programmes for road planning and cleaned up sidewalks with designated new bike lanes. The rail electrification rate has reached 74.9% and the number of new energy vehicles now accounts for more than half of the world's total.

Malaysia expanded its urban public transport system in the Greater Kuala Lumpur area where the new metro system receives an estimated daily ridership of 400,000 people.

Cyprus adopted an excise tax programme on road transport fuels exceeding the minimum levels of EU legislation. Sustainable Urban Mobility Plans (SUMPs) were developed for Lemesos and Larnaka which enhanced multimodality by promoting public and active transport, creating dedicated sidewalks and cycling paths, redistributing existing road space, and relieving traffic congestion.



Denmark initiated a green transition programme to put 1 million electric vehicles on the road by 2030. This includes large investments in green infrastructure and technology, cycle paths, car-sharing schemes; restructuring of car registration fees and greater incentives and taxation reduction to green vehicles.



Through the National Future of Mobility Platform, **Germany** introduced carbon pricing in the transport sector and developed alternative drive technologies and fuels.

Norway incorporated specific measures to accelerate modal shift from road to sea and rail freight. Investments for road construction were reallocated to improve efficiency of existing harbours and rail terminals. Improving railways and terminals has increased rail freight transport capacity by 40% without building new tracks.

Czech Republic's National Recovery Plan offered USD 185 million to public and private recharging infrastructure and dynamic charging for public transport. In 2021, Ostrava became the first city in the country to eliminate diesel buses.

-  **Antigua and Barbuda**'s adopted a roadmap to increase its renewable energy share to 100% through a mix of solar, wind, hydrogen and biodiesel for both the power and transport sectors.
-  **Colombia**'s efforts to scale up electric mobility have resulted in an increase of 153% in registered electric vehicles from 2018 to 2020 (4259 in 2020). The goal is to achieve 600,000 electric vehicles by 2030.









Healthy

-  **Angola** launched road fatalities prevention campaigns and set up the Integrated Center for Public Safety. As a result, 65% of the country's population feels safe walking alone in the area where they live.
-  **Namibia**'s Windhoek-Okahandja road project has significantly reduced congestion due to the dual carriage-way and the number of fatal road accidents, especially head-on collisions.
-  **Azerbaijan** launched road safety campaigns specifically targeting youth to prevent vehicle-pedestrian collisions, with a traffic rules textbook designed for minors disseminated on social media and television.
-  **Sweden (Vinnova)** established the Street Moves initiative to transform car parks into areas where people can exercise, socialise, teach and grow plants. The Re:El project explores user behaviour, business models and technology for electric freight transport.
-  **San Marino**'s road rehabilitation and safety programme replaced grade intersections with roundabouts, modernised guardrails, assessed the most dangerous pedestrian crossings and subsequently constructed safer under- and overpasses.
-  **Bolivia** initiated an import control policy for vehicles that meet Euro VI or higher emissions standards.
-  **Paraguay** developed a safe and inclusive mobility training programme with 800 volunteers. An awareness campaign, 'Vale 1 lifetime' and a study program on sustainable urbanism and transport were developed to incorporate child-sensitive urban planning concepts in construction projects. 1,800 adolescents with and without disabilities and more than 3,000 boys and girls from 29 schools were covered.



Resilient

-  **Niger**'s National Transport Strategy specifically focused on developing resilience of the transport sector and conducted an assessment of the climate and flooding models of the Niger River.
-  **Bhutan** developed a set of guidelines for climate-resilient road infrastructure. 18,264 kms of all-season roads were constructed, linking the country from the west to the central, east and southern districts.
-  In **China**, rail transport replaced highways, air and marine transport as a reliable passenger and freight service due to the pandemic. Both the volume and number of train trips increased by 56% (cargo) and 50% (passenger) respectively in 2020 despite the negative impact of COVID-19. Special trains were launched to deliver prevention and control materials, transporting 9.39 million items weighing 76,000 tonnes.
-  The **Qatar** Airways played a crucial role in shipping and securing the transport of basic supplies and medical aid to local communities and other countries in need during the pandemic. It has transported more than 250,000 tonnes of medical supplies and aids.
-  Design and construction of **San Marino**'s Hamad Port reused rocks from the port's drilling to raise the ground level of future harbours in order to strengthen resilience against sea level rise.
-  **Antigua and Barbuda** developed strategic plans to rehabilitate and upgrade transport infrastructure (air and sea) in order to enhance the competitiveness of its tourism industry.

2.4. References to the Avoid-Shift-Improve Framework

Applying *Avoid-Shift-Improve* (A-S-I) measures through integrated, inter-modal and balanced approaches is critical to unleash the full benefits of sustainable, low-carbon transport (see Section 1.2). The A-S-I approach helps reduce environmental impacts, improve access to socio-economic opportunities, increase logistics efficiency, reduce congestion, improve air quality and increase road safety.

Shift and *Improve* measures – and the overall decarbonisation of the transport sector – are most effective when combined with *Avoid* measures. *Avoid* measures allow cities to limit vehicle traffic to within the capacity of roadways, and they reward travellers who use transport modes that are resource, space and energy efficient. Many *Avoid* measures aim to actively manage transport demand, with approaches such as congestion charging, carbon pricing for all transport modes, and incentives for behavioural modifications leading to wide-scale changes.

% of VNRs with references to transport measures

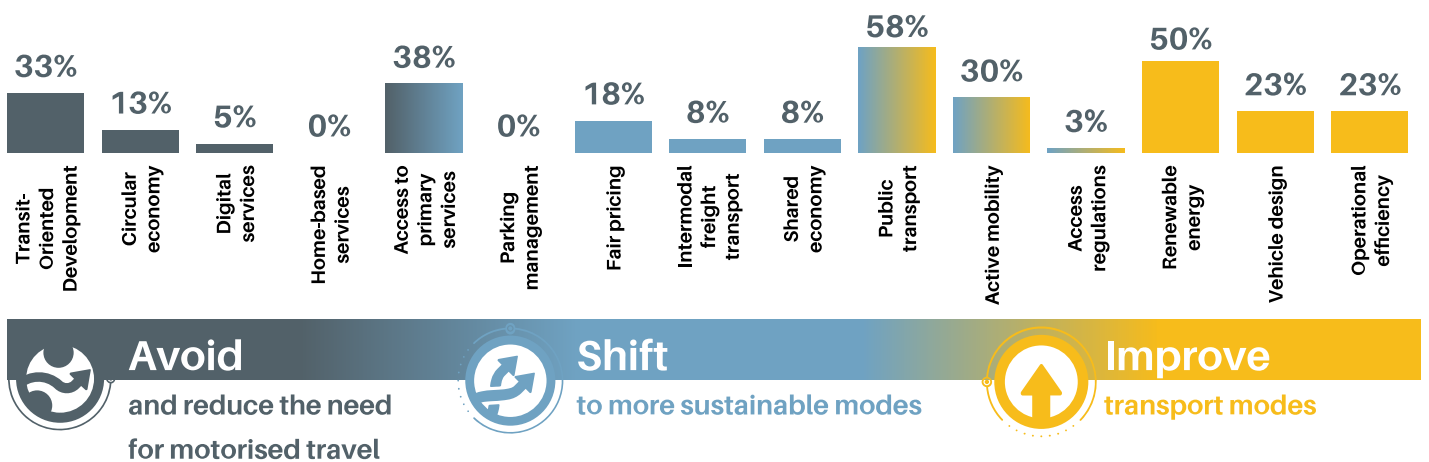






Figure 11: % of VNRs with references to A-S-I transport measures¹⁴

In previous years, VNRs focused strongly on *Improve* measures, with the majority of references related to electric mobility. Relatively less attention was paid to *Shift* and *Avoid* measures. In 2021, VNRs give a more balanced attention across *Avoid*, *Shift* and *Improve* measures:

-  58% include references on public transport (*Shift*).
-  50% include references on renewable energy and electric mobility measures (*Improve*);
-  38% include references on access to primary services (*Avoid-Shift*);
-  33% include references on transit-oriented development (*Avoid*).

Nonetheless, some key *Avoid* and *Shift*-related measures remain in the shadow. Only 8% of VNRs include measures on intermodal freight transport (e.g. use of delivery lockers, cargo e-bikes or dollies) and shared economy (e.g. bike sharing systems or car clubs). 5% refer to measures related to digital tools for passenger and freight transport services and access regulations (e.g. congestion charges, low, ultra-low or zero emission zones). No reference is made to home-based services (e.g. use of telework or remote meetings to avoid travel) or parking management measures.

Table 3: Selected examples of A-S-I references from 2021 VNRs

A-S-I	Illustrative measures	Selected examples of A-S-I references from 2021 VNRs
	 Transit-oriented development	<p>Cyprus developed Sustainable Urban Mobility Plans for Lemesos and Larnaka to facilitate a multimodal mobility system with public transport, walking and cycling as the backbone. The plans include expansion of sidewalks and cycling lanes, redistribution of road space and traffic management to relieve congestion. Special attention was given to cater to the mobility needs of vulnerable groups.</p> <p>Malaysia enhanced its first-mile and last-mile connectivity through urban and rural planning and a focus on shared mobility services.</p>
	 Circular economy	<p>Germany conducted research programmes to increase recycling of electric vehicle battery cells so that valuable raw materials can be brought back into circulation.</p> <p>In San Marino, rocks extracted from the Hamad Port’s drilling have been re-used to raise the ground level of the future harbours, thus ensuring the port’s resilience against future sea level rise.</p>
	 Digital services	<p>Korea launched the Digital Republic Program to make more than 800 services for public transport, health and higher education, among others, available online.</p>
 	 Home-based services	<p>No reference</p>
	 Access to primary services	<p>In Tunisia, approximately 55,000 students from poor families have benefited from a free transport programme to maintain stable access to education.</p> <p>In Bhutan, new public routes with subsidies were introduced to enhance the mobility of people living in the most remote parts of the country.</p>
	 Parking management	<p>No reference</p>
	 Fair pricing	<p>Denmark restructured car registration fees and ensured a low electricity tax in connection with charging electric vehicles.</p>
	 Intermodal freight transport	<p>Egypt is constructing its first electric high speed rail connecting the Red Sea to the Mediterranean, functioning as an ‘inland Suez Canal’ with a transit time of only three hours.</p>
	 Shared economy	<p>China continued to accelerate shared mobility services across the country: in 2019, ride-hailing services were available in more than 400 cities, with an average daily use of 20 million times; bikesharing services were used 45.7 million times per day.</p>

 	 Public transport	<p>Indonesia prioritised the expansion and upgrade of urban mass public transport systems in six major metropolitan cities (Jakarta, Surabaya, Bandung, Medan, Semarang and Makassar) with better modal transfer facilities and subsidy schemes.</p> <p>Thailand's Mega Public Transportation Development Plan aims to construct an additional 103 metro stations by 2029 and expand bus networks in three major cities to improve mobility access and support sustainable tourism.</p> <p>Zimbabwe is rebuilding a mass transit system to help curb traffic congestion and the rise of unregulated paratransit services.</p>
	 Active mobility	<p>Thailand (Thonburi and Rattanakosin) regenerated the old unfinished structure of the Lavalin Skytrain that was left unused for more than 30 years and transformed it into a new public space. A new walkway and bicycle lane was built to connect the transportation systems between the river banks.</p>
	 Access regulations	<p>In Spain, 150 cities with more than 50,000 inhabitants are mandated to introduce "environmental zones" (low or zero emission zones).</p>
	 Renewable energy	<p>Czech Republic (Ostrava) became the first city in the country to completely eliminate diesel buses. The region aims to become the "Hydrogen Valley in the Czech Republic".</p> <p>The Marshall Islands launched the Cerulean Wind Hybrid Ship Project to build and operate a low-carbon sailing vessel for commercial cargoes and communities on outlying islands with little/no transfer infrastructure. A solar-powered electric motor-board initiative for boats was also launched in 2021 for inter-lagoon travel.</p>
	 Vehicle design	<p>Colombia implemented the Freight Vehicles Modernisation Programme with four voluntary alternatives to replace 25,000 heavy goods vehicles and vehicles over 20 years old in the next five years.</p>
	 Operational efficiency	<p>Qatar's Hamad International Airport is the first airport in the region to achieve the Level 3 'Optimisation' status in the Airports Council International (ACI) Airport Carbon Accreditation program, acknowledging their efforts in measuring CO₂ emissions of the airport, adopting a program for energy reduction and engaging relevant stakeholders to measure and manage the airport emissions.</p>



Section 3: Moving Forward in Times of Change

SLOCAT's assessment of the first VNR reporting cycle (2016-2019) shows that there was a general consensus that the transport sector is a key contributor to the implementation of the SDGs. In this first reporting cycle, 92% of VNRs highlighted progress made in the transport sector.¹⁵ 18% of VNRs reported specific targets covering 12 areas in sustainable transport. The majority of targets were short-to-medium term targets (2020 and 2030), with five countries setting long-term targets for 2050.

2021 marks the halfway point of the second quadrennial SDGs reporting cycle, which spans from 2020 to 2023. The transport dimension of the VNRs reported in 2020 and 2021 follows a similar pattern. 95% of VNRs have highlighted progress made in the transport sector. 18.5% reported specific targets and more than 60% included explicit references to the four themes of the SLOCAT Wheel on Transport and the SDGs: Equitable, Green, Healthy and Resilient.

Since 2016, the HLPF has received 247 presentations from 176 countries out of its 197 member countries.¹⁶ The UN system continues to provide support for the remaining 21 countries in order to achieve universal reporting within the second reporting period. It is expected that:

- **As more countries submit VNRs, the wealth of information and data on SDG implementation in the transport sector continues to grow.** This knowledge is essential in aiding governments, development partners and stakeholders in identifying the challenges and gaps faced by the transport sector, and drawing attention to areas where urgent action is needed.
 - **Attention to cross-cutting matters and interlinkages in SDG implementation is as important as ever.** Research indicates that, at an economy-wide scale, most of the SDGs have the potential to bring progress towards other SDGs. However, at the same time, advancement in some goals could negatively affect growth in other areas without careful policy design.¹⁷ Thus, transport-sector stakeholders should comprehensively analyse and anticipate possible interactions among various SDGs (for example, policy coherence between urban development, health, energy and transport) to maximise potential positive synergies and avoid unsustainable lock-in effects. This should be incentivised in the development of VNRs and the programme of future HLPFs.
 - **VNRs help provide evidence of the indispensable role of transport plays in ensuring a sustainable and resilient recovery from the pandemic.** They also help accelerate the integration of the SDGs into national-level planning, legislation and policy critical to the implementation of sustainable, low carbon transport and mobility.
- With the on-going restraints caused by COVID-19, countries will have to utilise more innovative policies and tools to collect transport data and information** through online surveys, virtual platforms, and remote collaboration. This requires stronger horizontal coordination among transport ministries with the agencies and units responsible for SDG reporting. HLPFs is a fundamental review mechanism of the progress of SDGs implementation that cannot be left to lose impact even in hybrid configurations. Virtual exchanges on VNRs can provide opportunities to open the discussion to a more global audience, enabling higher visibility to a global viewership of diverse stakeholders.¹⁸



The pandemic has underscored the need for policy makers to take bold steps to address catastrophic impacts to transport and mobility systems. However, while some leaders and practitioners – often at the local level – have demonstrated willingness to take short-term action on mobility to increase access and well-being (e.g., by reallocating road space and supporting public transport - SDGs 3, 9 and 11), others have hesitated to take bold steps. These mixed responses have catalysed renewed commitments from policy makers and activists to stabilise the climate while increasing equity, inclusion and social justice, through climate strikes and other actions.

Pandemic recovery packages so far have proven a mixed bag for sustainable, low carbon transport action in the transport sector. While a number of national recovery packages have firmly embraced a goal to ‘build back better’ (e.g., by promoting electric vehicles or shifting from air travel to rail), many have upheld the status quo (e.g., by backtracking on fossil fuel subsidy reform or providing unconditional airline bailouts) rather than adopting green and equitable recovery strategies for transport systems. The pandemic has also led to severe budget cuts in some national aid programmes, threatening to widen social and economic divides between the Global North and South and to push meaningful sustainable, low carbon transport action even further into the future.

Threats, opportunities and uncertainties for sustainable, low carbon transport actions¹⁹



Threats

Top or 2nd-highest CO₂-emitting sector in over 3/4 of countries.

Transport emissions decreased in only 1/5 of countries in 2010-2019.

Transport resilience falling short in country plans. Only 28% of revised Nationally Determined Contributions (NDCs) included specific measures.

Fossil fuel subsidies continue to outpace renewable energy spending in transport by orders of magnitude.

Electric mobility is not a silver bullet. A holistic notion of sustainable low carbon mobility required.



Opportunities

Internal combustion engines phase out: Commitments of 19 countries + 11 cities/ regions + at least 6 car manufacturers

Technological advances: Dropping batteries prices, fuel economy commitments especially in Global South.

Quick and inexpensive low carbon transport measures e.g. open streets in more than 194 cities globally as of October 2020.



Uncertainties

Will **recovery packages** yield unintended consequences? Or will there be accountability in how public funds are deployed?

Will **public transport systems** struggle due to underinvestment and remote work? Or will they recover ridership and gain public trust?

Potential to **enhance, accelerate or reverse** the positive impacts of climate action in transport

Radical action is needed to implement the SDGs and achieve Paris Agreement targets to fulfill an equitable and sustainable 1.5 °C world. Radical action will necessitate taking unprecedented risks and creating positive disruptions. It is critical to anticipate and embrace short-term turbulence to ensure a more just transition in the long term. There are four primary building blocks to harness momentum on sustainable, low carbon transport:

Where do we go from here to achieve more equitable transport trajectories?²⁰



Tackling major threats

Raising mitigation ambition will require demonstrating that making systemic changes to reduce transport emissions can enhance rather than diminish quality of life – i.e., sustainable urban mobility plans can lead to economic prosperity, personal well-being and decoupling of transport emissions.



Expanding and scaling up opportunities

Expanding opportunities for sustainable, low carbon transport will require adopting measures that support the Sustainable Development Goals, such as decent work and economic prosperity, and affordable and clean energy (e.g., electric freight vehicles powered by small-scale renewables).



Responding to uncertainties

Navigating changing economic conditions will require maintaining accessible and affordable transport systems that facilitate and maintain economic growth and drive more predictable investment patterns (e.g., reduced congestion, increased economic activity in commercial centres).



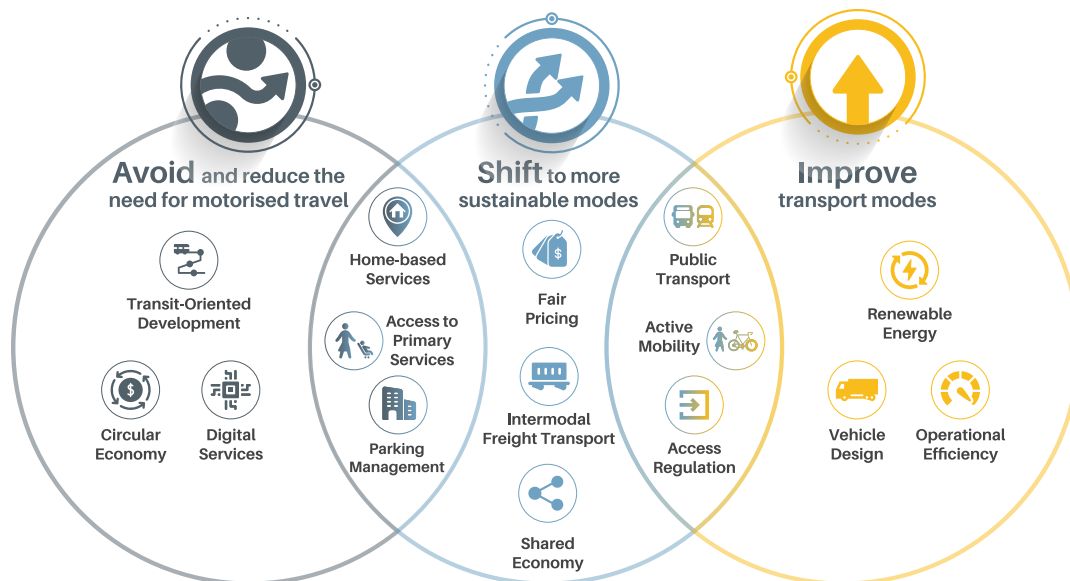
Strengthening the transport community

Engaging additional stakeholders in energy (e.g., planning renewable electricity generation in concert with ZEV demand), the just transition (e.g., enabling cycling jobs that benefit local economies and offer a variety of jobs for a skilled workforce) and social services (e.g., ensuring equitable access to low carbon transport for all ages, genders and abilities).

These building blocks demonstrate that **radical action in the transport sector is both an imperative and a possibility**. Radical action means empowering both large and small carbon emitters to collaborate in shared solutions and to take action on calls for action on transport, sustainable development and climate change. It means moving on to scaling up and accelerating actual on-the-ground actions, which translate to increased access and mobility, helping to lead to more equitable global development.

While 2019 and 2020 have revealed substantive threats to the world in general and to the transport sector in particular, these years set the stage to transform a time of uncertainty into a moment of opportunity. Capitalising on this opportunity will create a lasting positive transformation of transport and mobility for the benefit of the climate, people, the planet and the achievement of the 2030 Agenda for Sustainable Development.

Annex: Illustrative measures of the Avoid-Shift-Improve Framework



*The A-S-I diagramme presents a non-exhaustive list of measures for illustrative purposes only.

Transit-Oriented Development	Planning approach that aims to integrate land use planning and transport planning. One of its main objectives is to encourage people to use active mobility and public transport to substitute car travel.
Circular economy	Enable the reduction of raw materials needed for the transport sector, while at the same time enhancing local services through repairs and other products and services. This will add resilience to local communities and reduce the pollution impacts from vehicles and their waste.
Digital services	Use of digital tools to provide or improve transport services for both freight and passengers.
Home-based services	Use of telework, remote meetings, among other strategies to avoid travel.
Access to primary services	Allow people to satisfy most of their basic needs within their communities. Shorter distances allow for more options in travel, whether it's to use health services, to go to education centres, for shopping purposes, to work, or for other entertainment or social functions. This concept allows for the reduction of VKTs and it is perfectly illustrated through the new 15-minute cities plans
Parking management	Parking policies represent a hidden subsidy for vehicles and tend to present challenges for downtown developments and increase costs for buildings.
Fair pricing	Costs of travel tend to only be seen as out-of-pocket costs. Pricing should incorporate negative externalities such as air pollution, road crashes, noise, greenhouse gas emissions, among others. Subsidies to fossil fuels should also be removed in transport.
Intermodal freight transport	Freight movement can be made more efficient by using more sustainable modes of transport, such as rail, shipping or active mobility. Consolidation centres, the use of delivery lockers or cargo e-bikes or dollies could be some of the measures on intermodal freight transport.

Shared economy	Shared services such as bike sharing systems or car clubs would provide mobility options to people without the need of ownership.
Public transport	Improvement of public transport systems, through network design, electric fleets, and information or payment services is key to enhance its use.
Active mobility	Walking and cycling are considered active modes of travel due to their physical requirements that the human body exerts. The use of personal mobility devices is considered among active travel (scooters, skateboards, wheelchairs, among others)
Access regulations	The use of restrictions to certain areas of a city to pursue different objectives. Among the currently used ones are congestion charges, low, ultra-low or zero emission zones, historical areas of the cities. They can be used to prevent pollution, congestion or protect heritage.
Renewable energy	Provision of renewable electricity as an energy source for transport.
Vehicle design	Vehicle design will need to improve to also consider different impacts such as safety, energy consumption, space allocation, and in general, more sustainable travel. These objectives can be achieved through a combination of measures such as safer and lighter materials, reduction in vehicle size, improvements in aerodynamics, among others.
Operational efficiency	Practices such as preventive maintenance, route optimisation, driver training can improve energy consumption, therefore reducing fuel use.

Endnotes

1 United Nations, (2015). Transforming our world: the 2030 Agenda for Sustainable Transport. Available at: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

2 Previous assessments conducted by SLOCAT on the VNRs are available at: www.slocat.net/vnr

3 United Nations, (2015). Transforming our world: the 2030 Agenda for Sustainable Transport. Available at: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

4 See Annex I for descriptions of the illustrative measures included in the A-S-I diagramme.

5 Umwelt Bundesamt, (2016). Klimaschutzbeitrag des Verkehrs bis 2050. Available at: <https://bit.ly/3uPHaQn>

6 *ibid.*

7 SLOCAT (2021), Tracking Trends in a Time of Change: The Need for Radical Action Towards Sustainable Transport Decarbonisation, Transport and Climate Change Global Status Report – 2nd edition, www.tcc-gsr.com.

8 *ibid.*

9 40 VNRs are accessible on the official VNR database: <https://sustainabledevelopment.un.org/vnrs/>. Initially, Bahamas and Guatemala expressed interest to submit their VNRs in 2021 but no reports can be found from the database as of 23 September 2021.

10 SLOCAT has compiled all the transport references of 2021 VNRs and the matrix is available [here](#).

11 SLOCAT, (2021), Tracking Trends in a Time of Change: The Need for Radical Action Towards Sustainable Transport Decarbonisation, Transport and Climate Change Global Status Report – 2nd edition, www.tcc-gsr.com.

12 *ibid.*

13 Islamic Development Bank and SLOCAT Partnership, (2020). Transport, Climate Action and Sustainable Development: Synergies across NDCs and VNRs. <https://bit.ly/2WpRhLf>

14 See Annex 1 for further description of the illustrative measures presented in the A-S-I Framework.

15 SLOCAT, (2019). Sustainable Transport: A Critical Driver to Achieve the Sustainable Development Goals: An analysis of 2016 - 2019 Voluntary National Reviews. Available at: <https://bit.ly/2WWj7CJ>

16 All countries of the Eastern European group have presented a VNR. Africa still has eight countries that have not yet prepared a VNR, followed by the Asia Pacific region with six, Latin America and the Caribbean with five, and the Western Europe and Others group with two. See more at: <https://bit.ly/3Dn9BrV>

17 There are instances where an action in one agenda may undermine the achievement of the other (for example first-generation biofuels use in the 'food vs fuel' debate). See more at: Islamic Development Bank and SLOCAT Partnership, (2020). Transport, Climate Action and Sustainable Development: Synergies across NDCs and VNRs. <https://bit.ly/2WpRhLf>.

18 For example, the First Global VNR Webinar was organised in October-November 2020 to facilitate knowledge exchange where over 50 UN entities and SDG-related organisations presented tools and approaches that could support VNR countries in their preparatory process and SDG implementation.

19 SLOCAT, (2021), Executive Summary for Decision Makers, Tracking Trends in a Time of Change: The Need for Radical Action Towards Sustainable Transport Decarbonisation, Transport and Climate Change Global Status Report – 2nd edition, <https://tcc-gsr.com/preface/executive-summary/>

20 *ibid.*



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