Enhancing Ambition and Transparency in the Next Round of NDCs

Good Practice from the Transport Sector

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CHANGING TRANSPORT

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1 Introduction

Dramatic reductions in greenhouse gas (GHG) emissions will be needed in the coming decades to keep global warming well below 2°C and avoid dangerous climate change. While the power sector has made great strides towards decarbonisation, the transport sector has done relatively little, with transport sector emissions continuing to increase in most countries after the drop caused by the corona pandemic in 2020.

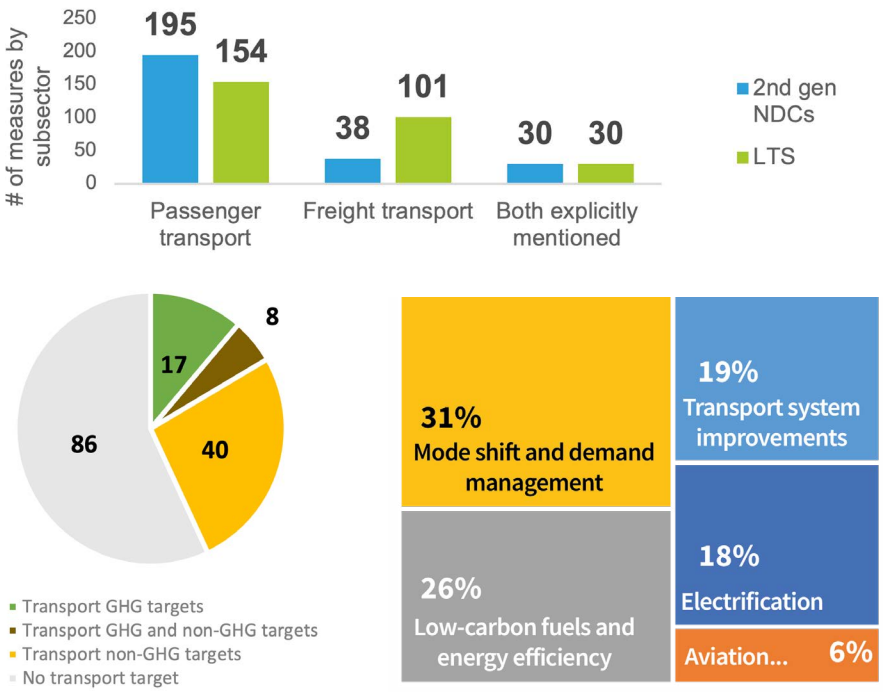
Long-term low-emission development strategies (LTS) and nationally determined contributions (NDCs) aim to trigger national action and help to showcase action already happening around the world. GIZ and SLOCAT have analysed these documents from the first round of submissions starting in 2015. This analysis shows that there has been substantial progress in the first round of NDC updates, but this still falls short to deliver the needed paradigm shift in the sector. The next round of updates, due by February 2025 opens the opportunity to enhance ambition and put the sector on a path that can effectively lead to decarbonisation.

This publication builds on the six action recommendations for policymakers to align transport with the Paris Agreement and the Sustainable Development Agenda, developed by GIZ in 2020, and highlights good practices of countries in relation to each of the recommendations. We hope they can inspire others to follow their lead and bring new ideas to the NDC update processes.

Additionally, we showcase some best practices how to enhance the transparency of NDCs. Clearly communicating commitments, measures and investment needs helps the international community to assess global progress towards the Paris Agreement objectives and it helps funders to direct support to where it is most urgently needed.

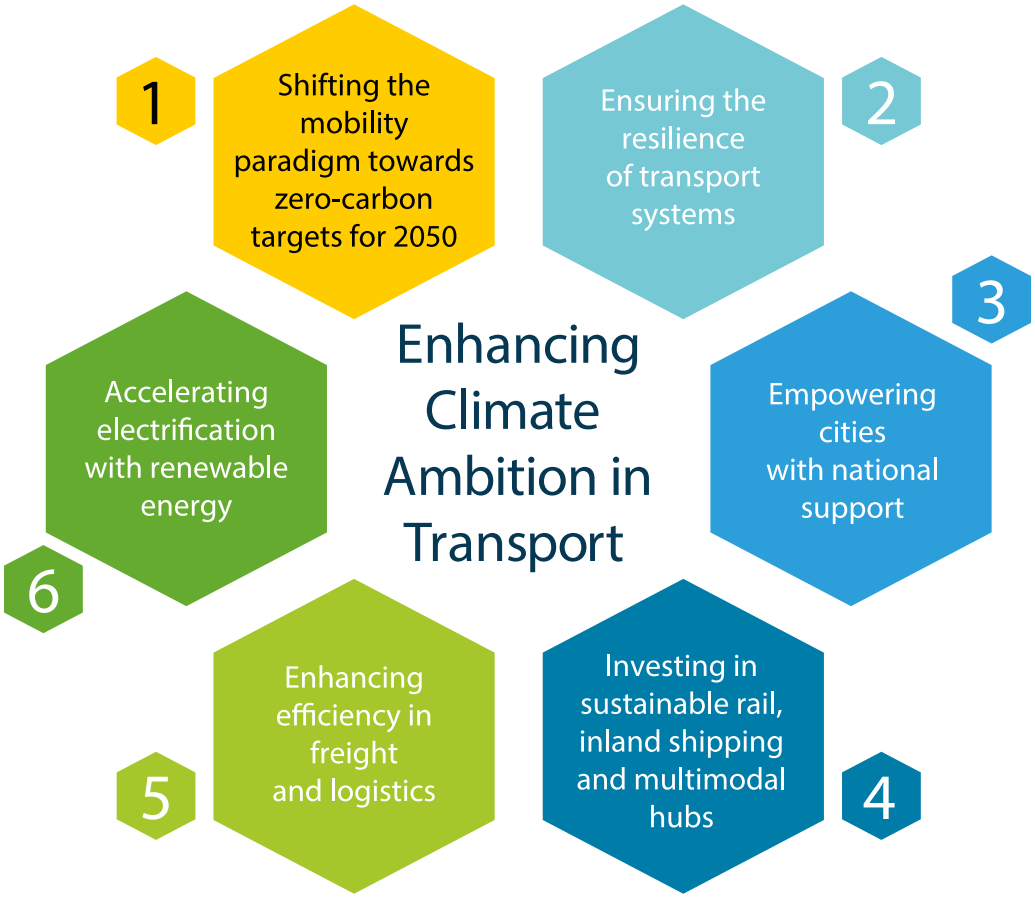
As of May 2024, 151 countries submitted updates to their NDCs, covering 96 % of global transport sector emissions based on 2019 data. However, only 21 % of the sector's emissions is covered by transport GHG or non-GHG targets. The number of LTS submitted has increased steadily over the past years, showing that countries are advancing their long-term thinking on climate action. Submitted LTS now cover 82 % of the sector's emissions and a much higher share of emissions is covered by some form of transport-related target, with 61 %.

Targets and focus of measures in NDCs



Source: Changing Transport

2 Enhancing Climate Ambition in Transport: Targets and Measures in NDCs



Source: Changing Transport

The recommendations aim to facilitate more ambitious climate action in the transport sector. The aim is to support policymakers in better understanding options for additional climate action, particularly during upcoming NDC revisions. Yet beyond their value for international climate policy, these recommendations can help various departments of government to revise their transport-related policies and plans.

Recommendations for NDC revisions

- While the overall level of ambition is increasing, especially for the long-term, countries need to outline the path towards these more clearly in their NDC, providing intermediate targets that are in line with long-term ambitions and that are underpinned by concrete measures for the short- and medium-term.
- Resilient mobility will be key for future development. Countries that consider including adaptation in their NDC update should look beyond roads and assess the vulnerabilities and adaptation responses across modes and at all levels of transport planning.
- Urban mobility already features in many NDCs and LTS. Urban stakeholders should be an essential partner in NDC development. Clear targets for urban transport underpinned by concrete measures at the national and local level can help align national and local action.
- There are very few NDCs and LTS that comprehensively address the decarbonisation of freight transport. There is an urgent need to enhance ambition for the freight sector and to start planning and implementing the necessary infrastructure, including rail, waterways and multimodal hubs.
- Electrification in the transport sector needs to go hand in hand with decarbonising power generation. The linkage between the sectors should be clearly outlined in NDCs and underpinned with measures how to address growing electricity demand from electric vehicles.

2.1 Shifting the paradigm towards zero-carbon targets for 2050

What does this mean for NDCs?

Short- and medium-term commitments, such as those formulated in NDCs, need to align with the long-term vision. There should be a clear and feasible trajectory that leads from today's emissions towards stated long-term goals.

Example: Andorra – charting a path to zero emissions transport

Andorra not only has an economy-wide net-zero emissions target, but a specific target to achieve zero emissions in the transport sector by 2050 outlined in its updated NDC. Targets to support this overall goal include:

- Emissions from road transport decrease by 50 % by 2030.
- A 20 % share of electric cars in the national passenger car fleet by 2030 and 50 % by 2050.
- A 30 % share of electric cars in the public fleet by 2030 and 70 % by 2050.
- To reduce 84 % of private vehicle trips in the Central Valley and to make active mobility the main mode of mobility.
- Increasing the share of renewables in electricity generation to 70 % in 2030 and to 85 % by 2050.

Andorra implemented a carbon tax in 2021. Together with income from vehicle ownership tax, the proceeds fund incentives for electric mobility and public transport. Since 2022, this enabled the government to offer free public transport for parts of the population, increasing ridership by over 100 %.

Example: Oman – Underpinning targets with measures

Oman's NDC sets out a 2030 target of reducing emissions by 19 % below BAU or 3 % compared to 2021 levels, transitioning to a 34 % reduction below 2021 by 2040 and net zero emissions by 2050. The NDC clearly outlines current policy levers and future initiatives needed to achieve the set targets. This includes the formation of a National Program for Carbon Neutrality, which operates across sectors as well as sector-specific activities.

Source: Changing Transport

Moving away from the marginal reduction of emissions and towards the creation of a zero-carbon transport system by 2050 is essential for reaching global climate goals – and for making transport more equitable, sustainable and safe. We cannot rely on technologies that only reduce; we need a comprehensive approach to avoid, shift, improve and electrify. Decarbonisation targets should reflect this multifaceted approach.

2.2 Ensuring the resilience of transport systems

Source: Changing Transport

Transport systems are vulnerable to climate change. Slow-onset impacts, such as sea level rise and increasing temperatures, as well as extreme climate events can disrupt services and destroy infrastructure. Governments need to ensure that all levels of transport planning develop resilient solutions to address the effects of a changing climate.

What does this mean for NDCs?

Many countries are already adding adaptation components to their NDCs to highlight the importance of adaptation. Commitments and information on adaptation should emphasise the need for resilient transport infrastructure, going beyond roads, and outline how resilience considerations are integrated at all levels of transport planning.

Example: Republic of Moldova – creating resilient transport systems

- Improve understanding of climate change related risks and support planning capacities for climate-resilient infrastructure in the transport sector.
- Improve access to climate-resilient and safe public transport.
- Create sustainable transport infrastructure.

These priorities are supported by several concrete actions and measures. Additionally, the NDC highlights investment priorities for adaptation in the sector:

- Resilient urban infrastructure with reduced exposure to climate risks.
- Increased climate resilience of transport infrastructure (roads, bridges, viaducts, railways, tracks).
- Adoption of climate resilience codes, protocols and standards.
- Improved access of the rural population to a climate-resilient road system and public transport that considers social, age and gender aspects.

The NDC further details investment needs related to adaptation at the cross-sectoral as well as sectoral levels.

2.3 Empowering cities with national support

What does this mean for NDCs?

City representatives should be an integral part of the NDC update process and help national policymakers better understand the potentials and needs for the urban transformation. Specific target and measures to support urban decarbonisation can help align national and local action.

Example: Costa Rica – developing a vision for urban development

In its LTS, Costa Rica outlines its long-term vision for the future of the Greater Metropolitan Area:

- In 2050, the public transport system (Buses, Taxis, Passenger Electric Train) will operate in an integrated way, replacing the private automobile as the first option of mobility for the population.
- In 2050, Compact Cities will have been consolidated in the main urban areas of the GMA and main secondary cities of the country, with an increase of 10 % of non-motorized journeys.

The LTS, submitted in 2019, details concrete short-term activities up to 2022 with clear goals for the period. It further outlines medium term actions up to 2030 and aspirational actions up to 2050.

The NDC, submitted in 2020, sets targets for 2030 relevant for urban decarbonisation that align with the activities outlined in the LTS:

- By 2021, public bus concessions will be renewed with decarbonisation criteria, including sectorisation, electronic payment and multimodal integration of public and active transport modes.
- By 2030, infrastructure is expanded and improved to increase non-motorised mobility trips (including pedestrian and bicycle mobility) by at least 5 % over the current trajectory.
- During the period of compliance with the NDC, the Electric Passenger Train in the Greater Metropolitan Area, powered by renewable electricity, will come into operation.
- By 2030, at least 8 % of the country's public transport fleet will be zero-emission.

[1] The Greater Metropolitan Area includes the four largest cities in the country, with around 3 million inhabitants, representing 60 % of the population.

Source: Changing Transport

The world's population predominantly lives in urban areas. Accordingly, important aspects of the transport transformation will take place in cities. In many places, urban transport is associated with significant impairments to quality of life due to congestion, noise and poor air quality, among other factors. National policymakers must actively support cities in building sustainable urban transport systems. This will not only help decarbonise the transport sector; it will also improve the quality of urban life.

2.4 Investing in sustainable rail, inland shipping and multimodal hubs

Source: Changing Transport

Investing in clean, efficient rail infrastructure and multimodal hubs will be essential for increasing the availability of mobility options while drastically reducing energy demand in long-distance passenger and freight transport. Combined with increased electrification and innovative zero-emission technologies for shared mobility, trucks and ships, these investments will enable cleaner, healthier and safer transport. Ideally, these investments should go hand-in-hand with the phasing out of fossil fuel subsidies.

What does this mean for NDCs?

LTS, NDCs and national policy should provide a clear vision how to support decarbonisation in the freight sector through enhancing multimodal transport and thus facilitating a shift towards more efficient modes of moving freight. This requires hefty investment and should reflect in specific targets, measures and funding strategies.

Example: China – Investing in multi-modality

China's LTS sets out the vision to build a comprehensive three-dimensional transportation network and to accelerate the optimization and adjustment of the transportation structure. It specifically aims to develop multi-modal high-efficiency transport modes, such as combined transportation, drop-and-pull transportation and joint distribution.

The NDC further details the required actions to achieve this:

- Channel energy into multi-modal transportation.
- Increase the share of railways and waterways in the integrated transportation.
- Constantly reducing the energy consumption and carbon intensity of transportation.

Example: India – Expanding rail freight capacity

India's first NDC, submitted in October 2016, contained very concrete investments in dedicated freight corridors:

- 1,520 km Mumbai-Delhi (Western Dedicated Freight Corridor, WDFC)
- 1,856 km Ludhiana-Dankuni (Eastern Dedicated Freight Corridor, EDFC)

As of April 2024, 1,337 km of the EDFC were in operation, with the last section inaugurated in March 2024. Of the WDFE, 1,211 km were inaugurated, and from the remaining route 186 km are commissioned and the final 109 km connecting the corridor to Mumbai's Jawaharlal Nehru Port are planned to be completed by the end of 2024.[2]

[2] https://dfccil.com/Home/ProgressStatusImage

2.5 Enhancing system efficiency in freight and logistics

What does this mean for NDCs?

Vehicle efficiency needs to be complemented by reducing inefficiencies in the system, such as empty hauls, non-optimal routing and driving and using the most efficient transport mode. Very few NDCs currently consider the overall system efficiency for moving cargo, even though there are multiple benefits, including cost savings for businesses. Updated NDCs offer the opportunity to assess such options and formulate measures and targets.

Example: Latvia – vision for an efficient freight system

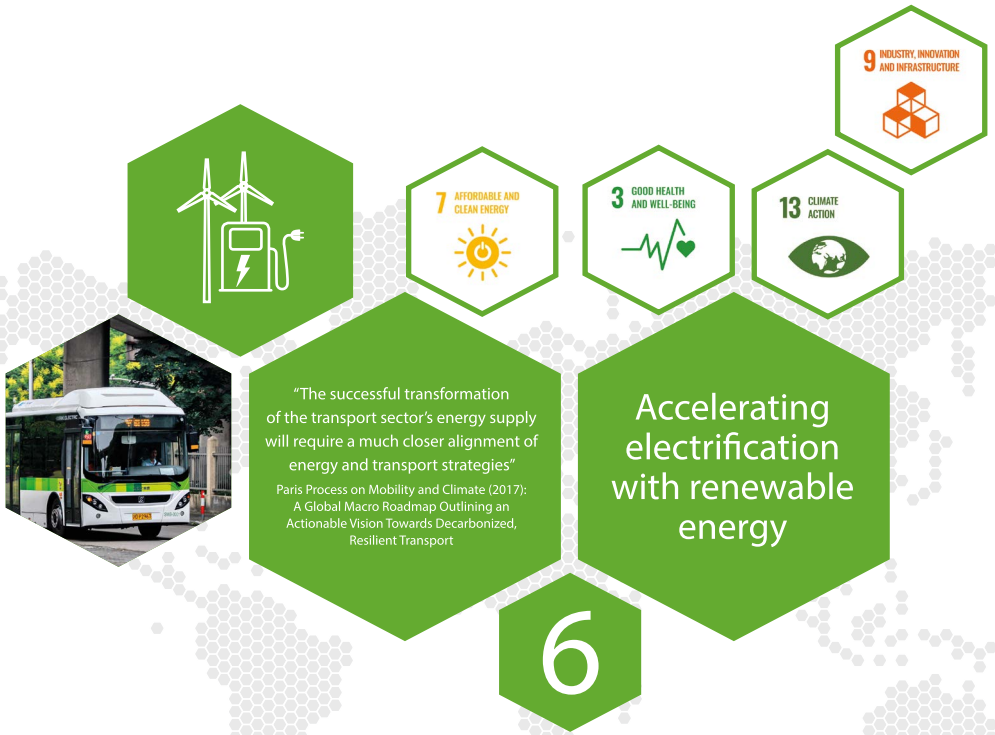
Latvia's LTS outlines the ambition to achieve an interlinked, efficient, and smart transport system, including seamless multi-modal transport. The goal is to reduce fuel consumption and GHG through a shift to rail and waterways. This is to be achieved through:

- Enhanced use of electric trains to allow for faster and cheaper delivery of freights to logistics centres which are connected to local carriers.
- A developed port infrastructure that allows for efficient servicing of the incoming freight ships.
- Logistics algorithms that are widely used for planning of routes.
- The use of multi-modal transport, where freight is reloaded from one type of transport carrier to another, and transport chains at different points allows to choose the most optimal and environmentally friendly mode of transport in individual distances.

Source: Changing Transport

The movement of freight is essential for modern economies, but increasingly it also contributes to greenhouse gas emissions, air pollution and congestion, among other negative effects. Governments need to direct developments towards long-term sustainability and competitiveness, which also means reducing emissions in the sector. Currently, these issues are receiving too little attention.

2.6 Accelerating electrification with renewable energy



Source: Changing Transport

The use of electric vehicles powered exclusively by renewable electricity is the most efficient way to decarbonise the transport sector. Electrification will also reduce air and noise pollution, and, when combined with shared mobility options, will substantially reduce overall system costs. The freight sector should become electric wherever possible and hydrogen or e-fuels should be used as needed to supplement electrification.

What does this mean for NDCs?

Many countries already have electrification targets or targets for zero-emission vehicles, although so far mostly for cars. In light of market developments, these targets can be enhanced, broadened to other vehicle types and taken up by more countries. This, however, needs to go hand-in-hand with ambitious renewable electricity targets to decarbonise the electricity consumed.

Example: Sri Lanka – setting consistent targets

Sri Lanka's LTS outlines a clear pathway how transport electrification and decarbonisation of electricity generation develop jointly:

- Renewable energy production exceeds 100 % of domestic power needs by 2040.
- 50 % of new road vehicles are electric or hybrid by 2030, 90-100 % of new road vehicles are electric or hybrid by 2035.
- 50 % by 2030 and 100 % by 2035 of public transportation, including suburban railway, is electrified including through retrofitting.

However, the updated NDC contains a comprehensive list of potential measures, including to support electrification, but falls short of indicating which measures are already in place and which are concretely planned to achieve the stated targets.

Example: Barbados – powering EVs with renewables

The updated NDC of Barbados also commits to ambitious electrification targets as well as high shares of renewable electricity generation:

- A 95 % share of renewable energy in the electricity mix by 2030.
- 100 % electric or alternatively-fuelled vehicles in the passenger fleet by 2030.

Additionally, the NDC outlines steps already taken to support these goals, such as a prioritization of electric or hybrid vehicles in government procurement and the ongoing development of an Integrated Resource and Resilience Plan to guide the transition in the power sector.

3 Enhancing Transparency: Structuring the NDC

NDCs are at the heart of the Paris Agreement. Their joint level of ambition is assessed through the Global Stocktake, every five years and through the NDC Synthesis reports produced by the UNFCCC Secretariat annually. To facilitate the assessment of global ambition and progress towards the goal of the Paris Agreement to limit global average temperature increase to well below 2°C, NDCs need to communicate countries' commitments and mitigation measures in a transparent way.

To further enhance transparency and contribute to the information available for the international community to assess progress, the Enhanced Transparency Framework under the Paris Agreement will require countries to report on the progress towards their NDC commitments on a two-yearly basis. Reporting on indicators and progress towards the defined targets will be much easier, if these targets are already formulated in a way that makes tracking easy.

Additionally, reporting on mitigation priorities, their expected impacts and related investment requirements will enable the international donor community to better understand countries needs and enable them to provide targeted support that will enable countries to achieve their NDC ambitions.

Recommendations for NDC revisions

- Transport sector commitments should be formulated in a way that allows the easy formulation of indicators to track progress, in light of the upcoming transition to the Enhanced Transparency Framework under the Paris Agreement. Ideally, they contain clear quantitative goals that reflect available data to assess level of implementation.
- Targets need to have a clear timeframe and reference value. For non-GHG targets a suitable indicator should be defined and a quantitative target set. It needs to be clear if the target is set against a historical value or projections and actual values should be provided.
- Mitigation actions should be structured in a way that shows how they will contribute to achieving any targets that were defined. The time frame of actions needs to be clear and should demonstrate the evolution of action over time, i.e. be clear which measures are already in place, which ones are to be implemented in the short term and which ones are planned for the longer term.
- Providing additional information for mitigation actions, such as responsible entities, expected benefits and estimated GHG impacts, will enhance transparency and allow for continuous monitoring at the national level.
- If available, investment needs should be reported at a granular level, specifying funding requirements for individual activities and clearly outlining which part of overall investment needs to come from international sources.

3.1 Clearly communicating commitments

Commitments in the transport sector can take a variety of forms. There are also several ways to present these targets. Here we point out a few good examples how transport targets have been presented and outline what makes them best practice.

Transport sector GHG target in Oman's 2nd NDC

Baseline GHG Emissions in 2021	15.9 MtCO2e
BAU GHG Emissions by 2030	18.62 MtCO2e
Mitigation Target by 2030 (Percentage from BAU)	19%

Source: UNFCCC

Both target and reference value are provided, which allows calculating remaining emissions in the target year. Additionally, the latest available historical data year to provide additional context. This allows the reader to easily understand the level of ambition.

Transport sector non-GHG targets in Vanuatu's updated NDC

Mitigation Priority Area	#	Commitment	Policy Notes	NSDP Reference	SDG Goal Most Relevant	Conditionality (Expressed as %)	Finance Required USD
Transport	M2	By 2030, 10% improvement in transport (land and marine) energy efficiency.	NA	ECO 2.2	7 AFFORDABLE AND CLEAN ENERGY	100	Already budgeted under NERM
	M3	Electric Vehicles (e-mobility): by 2030, (a) Introduce e-buses for public transportation (10% of total public buses); (b) Introduce e-cars in Vanuatu (10% of government fleet); and (c) 1000 electric two wheelers (e-bikes)/three wheelers (e-rickshaw).	NA	ECO 2.2	7 AFFORDABLE AND CLEAN ENERGY	100	8,500,000
	M4	By 2030, 20 % bio-diesel (bio-fuel) blending in diesel.	NA	ENV 2.3	7 AFFORDABLE AND CLEAN ENERGY	100	1,250,000
	M5	By 2030, Mileage and Emission Standards for Vehicles.	NA	ENV 2.3	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	100	500,000

Source: Efate, Vanuatu © Stuart Chape

The NDC contains several non-GHG targets and outlines not only their linkage to the National Sustainable Development Plan 2016-2030, but also the level of conditionality and the finance requirements to achieve the target. Ideally, this table should also include reference values for the quantitative targets, such as current levels of energy efficiency, electric buses and cars in the respective fleets, and the share of bio-diesel in total diesel consumption.

3.2 Matching measures with targets and timelines

Many countries underpin their commitments with measures in their NDC. It is not always clear whether these are already in place or being planned. It is also important to be clear whether they are conditional to support or are implemented using national resources. The examples illustrated here showcase how some, if not all, of these elements can be communicated.

Providing a comprehensive overview in Malawi's updated NDC

NDC MEASURE	LINE MINISTY (FOCAL POINT)	OTHER KEY IMPLEMENTING	TOTAL ESTIMATED	ADAPTATION AND RESILIENCE CO-BENEFITS	ALIGNMENT WITH SDGs	TIMELINE		
Modal shift: private to passenger transport Increasing the share of passenger transport from around 10% at present to around 30% in 2040, reducing GHG emissions from gasoline and diesel use.	MOTPW, MOLG (Department of Road Traffic and Safety Services)	Passenger Associations, Bus Operators Associations, City Councils, private transport cos	US$ 138 million uc: US$ 41m c: US$ 97m	Increased resilience of transport infrastructure. Improved health and reduction of harmful local air pollutants, enhacing resilience of population to disease and adverse climate impacts.		✔	✔	✔
Modal shift: road to rail freight Increased use of rail under the National Transport Master Plan, resulting in reduced diesel consumptions and GHG emissions from road freight transport.	MOTPW (Department of Rail and Public Transport)	Road Transporters Association, Railway Operator, District and City Councils	US$ 12.9 billion uc: US$ 6.45m c: US$ 6.45m	Increased resilience of transport infrastructure. Improved health and reduction of harmful local air pollutants, enhacing resilience of population to disease and adverse climate impacts.		✔	✔	✔
Increasing ethanol blending with gasoline as a transportation fuel Achieving an average national blend rate of 20% ethanol, resulting in reduced GHG emissions from gasoline consumption in road transport.	MOTPW, MOE (Department of Energy Affairs)	MERA, private sector	US$ 506 million uc: US$ 253m c: US$ 253m	Decreased dependence on imported fossil fuel energy products. Improved health and reduction of harmful local air pollutants, enhacing resilience of population to disease and adverse climate impacts.		✔	✔	✔
Blending biodiesel with diesel as a transportation fuel Commercial production of biodiesel fuel reaching 55 million litres and resulting in reduced GHG emissions from diesel consumption in road transport.	MOTPW, MOE (Department of Energy Affairs)	MERA, MOA, DADOs, private sector	US$ 157 million uc: US$ 141m c: US$ 16m	Decreased dependence on imported fossil fuel energy products. Improved health and reduction of harmful local air pollutants, enhacing resilience of population to disease and adverse climate impacts.		✔	✔	✔

Source: REPUBLIC OF MALAWI

Malawi's updated NDC presents a tabular overview of its measures, including responsibilities and timelines. It additionally links individual actions to funding needs and makes the link to adaptation and resilience as well as the SDGs.

Linking measures and period goals in Costa Rica's LTS

Activities to foster change: 2019-2022

1. To modernize public transport and to create an integrated and intermodal system

Period goals

- 8 main trunk lines in operation.
- At least one public transport mode operates with a system of integrated electronic payment.
- Electric Passenger Train tendered.

Activities

1.1.1 To implement the sectorization of the public transport services, in bus modality, in a manner aligned with the mobility needs of the citizens and firstly focused on the GMA.

- To reorganize public transport routes; set trunk lines into operation in exclusive lanes.
- To modernize the concession scheme for 2021, which will reward efficient and decarbonized service provision.
- To develop a profitable and innovative financial model that promotes efficiency and transparency in the service operation.

Source: DECARBONIZING COSTA RICA

Costa Rica divided its activities into different periods, 2019-2022 for concrete short-term actions, 2023-2030 for medium-term planned activities and then envisaged areas of activities up to 2050. It also defined period goals for the short term. These are underpinned by several, very detailed activities.

3.3 Underpinning targets and measures with investment needs

Several NDCs already highlight the investment needs linked to their commitments and/or the proposed mitigation actions. Being specific about where and how much funding is required can help the international donor community to better target financial flows and align their spending with countries' NDC ambitions. Statements on overall funding requirements are less helpful in this context. Here we highlight a few examples where investment needs are well presented.

Investment needs outlined in Bangladesh's updated NDC

Mitigation Measure	**Estimated investment required (million USD, 2021-2030)**	
	Unconditional	**Conditional**
Implementation of MRT and BRT	4200	12470
Multi modal Hub development	800	200
Widening of roads, improving road quality and construct NMT and bicycle lanes	1500	700
Construction of Expressways		1000
Establish charging station network and electric buses in major cities		60000
Purchase of modern rolling stock and signaling system for railway	5000	5000
Electrification of railway system and double track construction		20000
Improved and enhanced Inland Water Transport	3000	10000

Source: Ministry of Environment, Forest and Climate Change

Investment needs align with very concrete measures proposed to achieve Bangladesh's transport sector target. They are clearly presented for the conditional and unconditional components of the commitment. This could be further improved by clarifying if the investment needs for the conditional scenario are on top of unconditional investments or including these.

Linking investment needs with expected reductions in Namibia's updated NDC

Description of measures and actions		Year	Emissions reduction	Cost (M USD)
Measure 3. Transport – Road Transportation – Substitute fossil fuel with green H2 and convert fossil fuel powered vehicles to electric ones				
Convert from ICEVs to BEVs (96,500 Light vehicles)		2030	0.607	2,316
Convert from ICEVs to BEVs (7,000 Heavy vehicles)		2030	0.414	840
Convert from ICEVs to Green H2 (96,500 Light vehicles)		2030	0.607	1,158
Convert from ICEVs to Green H2 (7,000 Heavy vehicles)		2030	0.414	126
Indicator/s	No. of vehicles converted			
Benefits	Lower emissions; Better air quality; FOREX savings			
Measure 4. Transport – Rail – Replace all diesel/HFO powered locomotives with new ones running on green H2				
1. Convert all diesel locomotives to use green H2		2030	0.057	300
Indicator/s	No. of locomotives running on green H2			
Benefits	Lower emissions; Better air quality; FOREX savings			

Source: Namibia´s Nationally Determined Contribution

Namibia's NDC not only directly links individual actions to required funding needs, but also identifies indicators for tracking as well as benefits from the overall measure. Additionally, measures are further detailed, where appropriate, to provide even more transparency on the intended action and related investments.

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