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Intended Nationally-Determined Contributions (INDCs) Offer Opportunities for Ambitious Action on Transport and Climate Change



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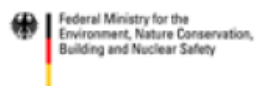


Intended Nationally-Determined Contributions (INDCs) Offer Opportunities for Ambitious Action on Transport and Climate Change

*Partnership on Sustainable Low Carbon Transport
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List of Abbreviations

2DS	Two Degree Scenario
AR5	Fifth Assessment Report
ASI	Avoid-Shift-Improve
ATAG	Air Transport Action Group
BAU	Business-as-usual
BUR	Biennial Update Report
CAO	International Civil Aviation Organization
CO2	Carbon Dioxide
COP	Conference of Parties
ECF	European Cyclists' Federation
Gt	gigatonnes
IEA	International Energy Agency
INDC	Intended Nationally-Determined Contribution
IPCC	International Panel on Climate Change
ITS	Intelligent Transport Services
LCS	Low carbon scenario
LPAA	Lima-Paris Action Agenda
MRV	Measurement, reporting and verification
NC	National Communication
PPMC	Paris Process on Mobility and Climate
SLCP	Short-lived climate pollutant
UEMI	Urban Electric Mobility Initiative
UIC	International Union of Railways
UITP	International Association of Public Transport
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WCA	World Cycling Alliance

Key Findings

Intended Nationally-Determined Contributions (INDCs) represent a unique opportunity to increase bold mitigation and adaptation measures in transport and other sectors, as for the first time, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) countries are communicating their commitment to reduce emissions and increase resilience on sectorial scales in the context of the UNFCCC system.

Among 133 INDCs representing 160 countries that were submitted as of November 12, 2015, 77% explicitly identify the transport sector as a mitigation source, and more than 61% of INDCs propose transport sector specific mitigation measures. In addition, 10% of INDCs include a transport sector emission reduction target, and 14% of INDCs include assessments of country-level transport mitigation potential.

Transport related actions in the INDCs are heavily skewed towards passenger transport, which is included in 89% of INDCs identifying specific transport modes. Among these, urban transport measures are mentioned in 86% of INDCs, and heavy rail and inland waterway are also well represented, while strategies such as high-speed rail (2%), and walking and cycling (12%) have received relatively less attention.

On an economy-wide scale, mitigation measures proposed in INDCs are expected to fall short of a two-degree Celsius scenario (2DS). Based on existing policies and levels of ambition expressed in INDCs, it is also unlikely that the transport sector will attain a 2DS by 2030 through the targets and measures proposed. In order to achieve deeper emission cuts that would put the transport sector on track for a 2DS, transport mitigation ambition as expressed in INDCs would need to be intensified and additional transport measures would need to be prioritized in implementation strategies.

Adaptation, although being mentioned in an economy-wide scope in 82% of 133 INDCs submitted to date, has generally received less attention than mitigation in INDCs. The transport sector is mentioned in general terms among climate adaptation measures in 17% of INDCs, and only 5% of countries identify transport-specific adaptation strategies.

Table of Content

List of Abbreviations.....	3
Key Findings	4
Table of Content.....	5
List of Figures.....	5
List of Tables.....	5
Transport sector emissions trends and mitigation potential	6
INDC Background and Process.....	7
INDC Analysis	9
Overview	9
Transport Mitigation Measures and Targets.....	10
Transport Sector Adaptation Measures.....	22
Conclusions and Recommendations	24
Conclusions	24
Recommendations.....	24
Annex I: Transport Measures in INDCs (as of November 12, 2015)	26

List of Figures

Figure 1 Global Economy-wide Baseline and 2DS Scenarios (UNEP Emission Gap Report).....	7
Figure 2. INDCs Submitted by Region.....	10
Figure 3. Share of Mitigation Measures in INDCs by Mode and Sub-Sector.....	13
Figure 4. Typology of Transport Mitigation Interventions in INDCs	14
Figure 5. Typology of Transport Mitigation Strategies in INDCs	15
Figure 6. Comparison of Transport Sector Emissions Scenarios.....	21
Figure 7. Transport Mitigation and Adaptation Priority in INDCs.....	23

List of Tables

Table 1: Assessment of mitigation ambition INDCs	8
Table 2. Comparison of Transport and Economy-wide Direct Emission Reduction Targets.....	19
Table 3. Indirect Transport Sector Emission targets in INDCs	19
Table 4. Transport Sector Investment Requirements Included in INDCs	22
Table 5. Transport-Specific Adaptation Measures in INDCs	23

Transport sector emissions trends and mitigation potential

The transport sector is responsible for approximately 23% of total current energy-related CO₂ emissions, and therefore represents a critical sector for climate action. A recent SLoCaT Partnership [analysis](#)¹ revealed that transport is the largest energy-consuming sector in 40% of countries worldwide, and the second-largest energy-consuming sector in most of the remaining countries. The global transport sector emitted about 8.7 gigatonnes (Gt) CO₂e in 2012.

Transport, which had an average annual growth rate of 2% from 1990 to 2012, is among the fastest growing sectors of CO₂ emissions from fuel combustion, with passenger transport accounting for nearly 60% and freight transport accounting for 40% of total transport energy demand in 2012.² Urban transport constitutes 40% of total transport energy consumption³ and is poised to double by 2050⁴, despite ongoing improvements to vehicle technology and increases in global fuel economy.

In the absence of aggressive mitigation policies, transport emissions could reach about 12 Gt CO₂e annually by 2050, with transport emissions from Non-Annex I countries surpassing those of Annex I countries in the coming two years. To meet a 2DS scenario, CO₂ emissions from transport would need to decline to 5.7 Gt by 2050.⁵ The transport sector offers considerable potential for climate change mitigation. The International Panel on Climate Change (IPCC) states that a 15-40% reduction of CO₂e from transport sector baseline growth is plausible by 2050.⁶

The United Nations Environment Programme (UNEP) [2014 Emissions Gap Report](#)⁷ estimates that the transport sector has the potential to contribute up to 3 Gt CO₂e annually in the period to 2020 towards needed reductions to follow a 2DS trajectory (**Error! Reference source not found.**). Furthermore, the New Economy Report indicates that transport represents roughly a third of global urban mitigation potential in the period leading up to 2050.⁸

¹ SLoCaT Partnership. 2015. Differentiating National Transport Sector Emissions Trends to Better Inform National Targets and Implementation Strategies. <http://goo.gl/jqnQ82>

² International Energy Agency (2014), Tracking Clean Energy Progress 2014.

³ Sims R., et al. Transport (chapter). Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. 2014.

⁴ Policy Pathways: A Tale of Renewed Cities, IEA, 2013

⁵ https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter8.pdf and

International Energy Agency (2014), Tracking Clean Energy Progress.

⁶ https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter8.pdf

⁷ <http://www.unep.org/publications/ebooks/emissionsgapreport2014/>

⁸ PPMC. 2015. Investing in Sustainable Transport Can Save Cities Up to \$500bn by 2030, Says New Climate Economy Report. <http://ppmc-cop21.org/?p=1754>

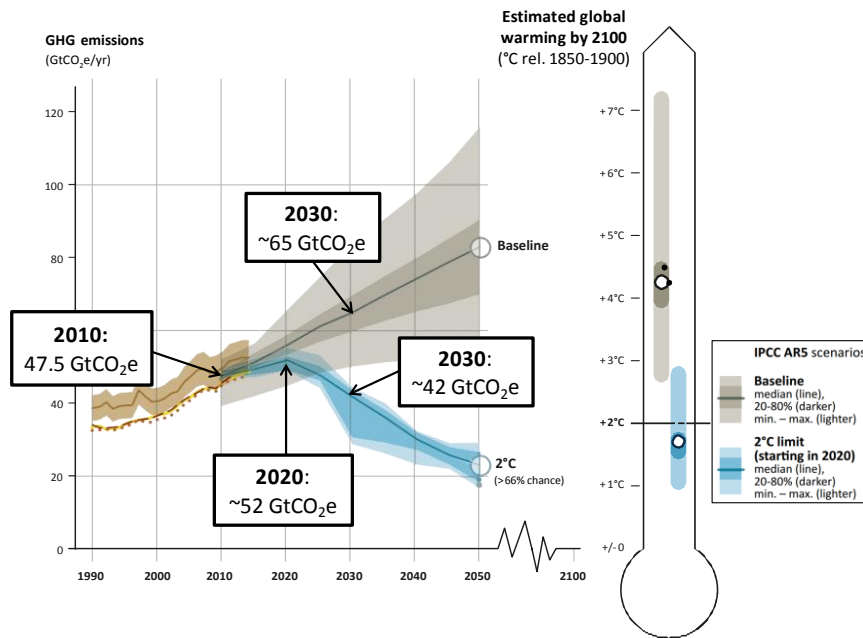


Figure 1 Global Economy-wide Baseline and 2DS Scenarios (UNEP Emission Gap Report)

From 1990 to 2013, the transport sector grew at a faster rate than other sectors, and thus, the transport sector will need to provide a high intensity of reductions out to 2030 compared to historic growth. A recent analysis⁹ by the International Energy Agency (IEA) confirms that the majority of required reductions from the transport sector could be achieved by available technologies and policies, without reducing development prospects in any region.

INDC Background and Process

INDCs communicate to the UNFCCC secretariat country-level commitments and strategies to reduce carbon emissions and increase resilience for the post-2020 period¹⁰. 'Intended' refers to planned country commitments, and 'Nationally Determined' acknowledges that each country faces a unique set of circumstances influencing its emission reduction strategies, including socio-economic development patterns, historic emission trajectories, and varying financing requirements.

In setting country specific targets on climate change mitigation, INDCs represent a departure from the top-down approach that had been taken in the UNFCCC process up to the 15th Conference of Parties (COP15) Copenhagen. They introduce a bottom-up process to define country-level mitigation and adaptation efforts that are guided by national development priorities, equity, and common responsibility. Since INDCs represent a nationally determined process, they have the potential to drive progress in countries, especially in the global south, that are increasingly shaping emerging climate policies.

⁹ International energy Agency. 2015. World Energy Outlook Special Report: Energy and Climate Change.

<http://bit.ly/1fJlufF>

¹⁰ http://unfccc.int/focus/indc_portal/items/8766.php

Therefore, INDCs represent a unique opportunity to increase mitigation and adaptation ambitions in transport and other sectors, as for the first time in history, countries are communicating their intended actions to reduce emissions and increase resilience on sectorial scales in the context of the UNFCCC system.

To be effective in helping to arrive at an ambitious global climate agreement in December 2015, INDCs were to be communicated by each Party to the UNFCCC secretariat well in advance of COP21 Paris.¹¹ The information to be provided in INDCs may include quantifiable information on base years, time frames and/or periods of implementation, scope and coverage assumptions, and methodological approaches to mitigation and adaptation actions for the 2020-2030 period. Levels of ambition in INDCs are to be 'ratcheted up' in subsequent periods of evaluation, with re-evaluation intervals (e.g. 5- or 10-year periods) still under discussion within the UNFCCC process.

Investigations of submitted INDCs in recent months carried out by a number of research institutions point to a projected economy-wide emission gap of 10-17 billion tons between committed INDCs and the Two-Degree Scenario (2DS) scenario by 2030 (see Table 1).

Table 1: Assessment of mitigation ambition INDCs

	INDCs Considered	Study	Findings	Emission Gap with 2DS
1	All INDCs submitted as of 20 July 2015	Rodney Boyd et al. ¹²	There is a mismatch between the ambitions embodied by the INDCs and the overall objective of having a reasonable chance of avoiding global warming of more than 2°C	15-17 billion tons by 2030
2	All INDCs submitted as of 31 August 2015	PBL ¹³	INDCs submitted to date could reduce emissions by 3.5 to 4.0 billion tons by 2030, compared to the level under current policies.	15-16 billion tons CO ₂ e by 2030
3	All INDCs submitted as of Mid-October 2015	IEA ¹⁴	The cumulative effect of implementing all INDCs submitted by mid-October would lead to an average global temperature increase of around 2.7°C by 2100, which falls short of the "major course correction necessary" to stay below an average global temperature rise of 2°C.	-
4	All INDCs submitted till 1st October	Climate Action Tracker ¹⁵	The INDC process has led to a significant improvement in promised action compared to earlier pledges of action and informal announcements. However, If fully implemented, the submitted INDCs for 2025 and 2030 are projected to lead to a warming of around 2.7°C by 2100.	11-13 billion tons CO ₂ e by 2030
5	All INDCs submitted till	UNFCCC ¹⁶	The implementation of the communicated INDCs is estimated to result in aggregate global	15 Billion Tons by 2030

¹¹ <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>.

¹² [Tracking intended nationally determined contributions: what are the implications for greenhouse gas emissions in 2030?](#)

¹³ <http://infographics.pbl.nl/indc/>

¹⁴ [World Energy Outlook Special Briefing for COP21](#)

¹⁵ http://climateactiontracker.org/assets/publications/CAT_global_temperature_update_October_2015.pdf

¹⁶ [Synthesis report on the aggregate effect of the intended nationally determined contributions](#)

	INDCs Considered	Study	Findings	Emission Gap with 2DS
	1st October		mission levels of 56.7 (53.1 to 58.6) Gt CO ₂ eq in 2030	
6	All INDCs submitted till 1st October	UNEP ¹⁷	Full implementation of unconditional INDCs results in emission level estimates in 2030 that are most consistent with scenarios that limit global average temperature increase to below 3.5 °C (range: 3 - 4 °C) by 2100 with a greater than 66 % chance.	12 Billion Tons by 2030
7	INDC pledges as of October 20, 2015	Climate Scoreboard ¹⁸	Our analysis shows that the national contributions to date, with no further progress post-pledge period, result in expected warming in 2100 of 3.5°C	About 78 billion tons by 2100
8	October 2015	JRC Policy Brief ¹⁹	The submitted INDCs on climate policy can put the world on a path to reduce emissions in a more anticipated manner compared to current policies. Unconditional INDCs would lead to 56.6 GtCO ₂ e in 2030 (excl. sinks; +17% 2010 with 42.2 GtCO ₂ e) while conditional INDCs combined would lead to a clear peak shortly before 2030 at 54.0 GtCO ₂ e (+12% vs. 2010)	About 10 Billion tons by 2030
9	All INDCs submitted till 1st October	Danish Energy Agency ²⁰	Combined mitigation efforts of submitted INDCs reduce global GHG emissions in 2030 by around 7 GtCO ₂ e compared to current policy projections.	12 Billion Tons by 2030

From these projections, it is clear that more sustained mitigation efforts at an economy-wide level are required to achieve a 2DS. Since the transport sector represents a significant share of total emissions and also holds great mitigation potential, it will be essential that INDCs incorporate bold transport mitigation measures in successive revisions and in detailed implementation plans.

INDC Analysis²¹

Overview

As of November 12, 2015, 133 INDCs representing 160 countries had been submitted to the UNFCCC, which represent about 93% of economy-wide global greenhouse gas emissions²². Figure 2 gives a breakdown of INDCs submitted by geographical region²³:

¹⁷ http://uneplive.unep.org/media/docs/theme/13/EGR_2015_ES_English_Embargoed.pdf

¹⁸ [Climate Scoreboard](#)

¹⁹ [Analysis of scenarios integrating the INDCs](#)

²⁰ [Analyzing the 2030 Emission gap](#)

²¹ The analysis presented in this section is based on review of INDCs submitted as of November 12, 2015. See Annex I for further detail on country-level targets and proposed measures.

²² UNFCCC Newsroom. 2015. Unprecedented Global Breadth of Climate Action Plans Ahead of Paris. <http://bit.ly/1Pf1fq7>

²³ Regional breakdown is based on World Bank classification, in which 'North America' includes Bermuda, Canada and the United States, and 'Latin America & Caribbean' includes Mexico, Central America, South America, and Caribbean countries.

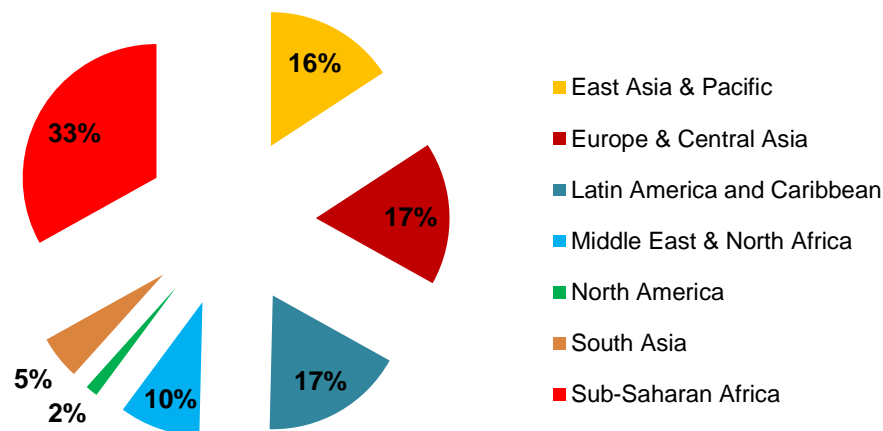


Figure 2. INDCs Submitted by Region

Transport Mitigation Measures and Targets

Among the 133 INDCs investigated, 77% explicitly identify the transport sector as a mitigation source, while in a further 21% of INDCs the transport sector is reflected as an intrinsic component of the energy sector. Among INDCs submitted to date, only 2% (i.e. Afghanistan, Belarus, Bolivia, Comoros, Guinea Bissau, Guyana, Sao Tome and Principe, and Sudan) make no reference to mitigation from the transport sector.

Transport Mitigation Measures by Mode

In total, there are 81 INDCs with transport emission interventions proposed, out of which 46 INDCs have proposed one or two interventions, 35 INDCs have proposed three or more strategies, and 20 INDCs have proposed four or more strategies.

Box 1: Identification and prioritisation of transport measures²⁴

A review by Ricardo – Energy and Environment of INDC development in selected countries indicates that countries mostly selected adopted bottom-up approaches using a range of sources to identify **mitigation** measures: international research, local and international expert advice, national policy documents and existing pilot projects, feasibility studies, and stakeholder workshops. In many countries, the timetable for the production of the INDC meant that there was insufficient time to undertake a comprehensive review of all mitigation options. Some countries have commented that they would like to undertake further analysis in the future and may possibly ratchet-up their mitigation efforts as a result.

The approach to prioritisation varies considerably across countries: some countries provide no prioritisation of measures while others have developed a more consultative process and used a range of criteria (e.g. co-benefits, feasibility) to identify the most appropriate measures. Measures promoting the uptake of alternative fuelled vehicles (e.g. biofuel or electric vehicles) and improvements to public transport systems are frequently proposed.

²⁴ The content of this Box was provided by Ricardo – Energy and Environment

One specific gap which was encountered in a number of countries was analysis to estimate the cost of measures

Countries proposing a range of complementary transport mitigation measures to increase their overall mitigation potential can be found at all levels of development, including low-, middle-, and high-income countries e.g.:

- **Benin** (low-income) has pledged as part of its INDC to improve traffic flow in large cities; introduce duty relief for taxes on public transit vehicles; develop a river-lagoon transport system with navigable rivers; modernize and extend its rail infrastructure; and further develop its urban public transport.
- **Jordan** (upper middle-income) has proposed transport measures which include increasing public transport mode share to 25% by 2025; reducing vehicle fuel consumption and emissions; and reducing motorized vehicle travel, particularly in densely populated areas.
- **Japan** (high-income) has proposed transport measures which include promoting modal shift to public transport and railways; improving fuel efficiency and promoting next-generation automobiles; improving traffic flow; promoting eco-driving and car sharing; and introducing low-carbon aviation and maritime strategies.

It is notable that only about 7% of high-income country INDCs have proposed four or more transport mitigation measures, while 55% and 26% of middle- and low-income country INDCs, respectively, have proposed four or more transport mitigation measures, which can help to increase the success of individual mitigation strategies.

Box 2: Case study Bangladesh INDC²⁵

Bangladesh set targets for an economy-wide reduction of 5% in GHG emissions compared to BAU by 2030 covering the power, transport and industry sectors based on existing resources. This includes an estimated 9% reduction in transport. Higher economy-wide reductions are deemed possible (15%) subject to appropriate international support in the form of finance, investment, technology development and transfer, and capacity building. This would involve a 24% reduction in transport emissions. In both scenarios, transport has the largest reduction potential.

Bangladesh used the LEAP model to produce GHG emission projections. For modeling purposes, the transport sector in Bangladesh was divided into four sub-sectors: road transport; rail transport; waterborne transport; and aviation.

National data was fed into the model, mainly from the BBS2012a Statistical Yearbook and the Second National Communication. Some local surveys were also undertaken in order to improve base year data and refine modeling assumptions. This was particularly important in view of the very high congestion levels in Dhaka. However, there still remain issues of data quality and traceability. For example, vehicle efficiency data is not publicly available on a consistent, regular and verified basis. Furthermore, projections of future transport activity are not available and in most cases had to simply be extrapolated using historic trends, which may not necessarily be an accurate guide to future trends.

A long list of mitigation measures was produced by the team and shortlisted through discussions with the Government and local consultants. The mitigation actions included in the INDC are

²⁵ The content of this Box was provided by Ricardo – Energy and Environment.

based on measures already been identified by the Government (especially in the Second National Communication) and deemed feasible. They focus on two strands of action:

- Modal shift from road to rail, delivered through a range of measures, including underground metro systems and bus rapid transit systems in urban areas.
- Reduced congestion and improved running of traffic. This will be achieved by a number of measures, including building of expressways to relieve congestion and public transport measures.

Low, medium and high assumptions were used for the improvement in fuel efficiency for road transport and modal shift to rail in order to estimate emissions impacts under different scenarios.

A range of criteria were taken into account when assessing the mitigation options. These included: mitigation potential, co-benefits (e.g. air quality, road safety, jobs, access to energy) and technical feasibility. Cost-effectiveness was also considered albeit at a high level only as no specific costing was produced.

No transport-specific adaptation measures were identified for Bangladesh. However, it is clear from the INDC that any infrastructure investment will need to take adaptation needs into account so adaptation planning is likely to be a key element of any transport investment going forward.

Bangladesh is already monitoring fuel burn from various sources but no other transport-specific MRV indicators were specified as part of the INDC. However, the INDC highlights the need to develop a national MRV system as part of its implementation.

Box 3: Case study Cambodia INDC²⁶

Cambodia proposes a GHG emissions reduction of 27% compared to the baseline scenario in 2030, conditional upon the availability of support from the international community. This includes a 3% reduction in GHG emissions from transport compared to the baseline.

In the business-as-usual scenario, the model anticipates that the transport sector will be the greatest source of emissions in Cambodia by 2050.

In order to estimate future GHG emissions, the LEAP model was used. Inputs into the model were supplied by several Government ministries as well as a range of reports and research by local consultants.

Input data for the transport sector mainly stemmed from the available sources within the Ministry of Public Works and Transport (MPWT). These provide data on vehicle registration, vehicle type (i.e. cars, vans, minibuses etc.), vehicle costs or annual mileage. This data was supplemented with fuel economy assumptions for the different vehicle types and emission factors based on IPCC guidelines.

Modeling could be strengthened by: updating the underlying vehicle registration data which dates back to 2007; using actual fuel economy of vehicles rather than fuel economy per type; increasing transparency with regards to assumptions used (e.g. for mileage, vehicle stock or emission factors).

Mitigation options were identified on the basis of existing knowledge of the members of the inter-ministerial working group and a long list of around 35 options was produced.

The prioritisation process involved ranking mitigation options against thirteen feasibility indicators, which broadly cover varying aspects of implementation, sustainability and alignment with the

²⁶ The content of this Box was provided by Ricardo – Energy and Environment.

development goals of the Government of Cambodia. Preliminary rankings were carried out by the project team and were then refined by means of a stakeholder workshop, attended by members of the Cambodian Climate Change Department and representatives from a number of relevant ministries. However, there was insufficient time in the INDC process to carry out a rigorous assessment of the criteria. In particular, current documentation suggests that 'only' the more 'easily' assessable mitigation options have undergone a cost assessment.

While transport is expected to be the greatest source of GHG emissions in 2050, it became clear during the INDC preparation process that mitigation measures in the transport sector are not currently well researched and understood with the result that they were generally deemed unfeasible as part of the process. This suggests that Cambodia would gain substantial benefit from a more rigorous analysis of mitigation options in the transport sector, or from some targeted policy support.

Transport has not been identified as a priority focus for adaptation action.

Cambodia has already taken steps to ensure that its monitoring and evaluation (M&E) system includes indicators to measure progress, including INDC implementation, both for adaptation and mitigation. The MRV system will build on the greenhouse gas inventory. A national M&E framework will be developed, while activities to operationalise it in key sectors have already begun. No transport-specific detail are provided at this point however.

Figure 3 gives a breakdown of relative focus on passenger and freight transport in INDCs, as well as describing the share of INDCs focusing on various transport sub-sectors.

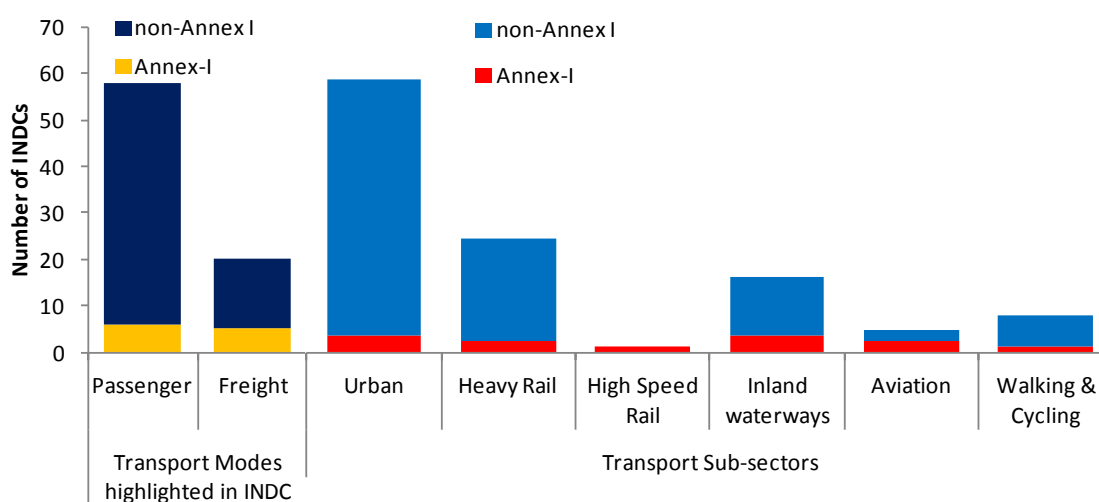


Figure 3. Share of Mitigation Measures in INDCs by Mode and Sub-Sector

INDC transport mode share is heavily skewed towards passenger transport, which is included in 89% of INDCs identifying specific transport modes. Among passenger transport modes, urban transport measures are mentioned in 86% of measures, followed by measures on heavy rail and inland waterways. In contrast, high-speed rail (2%), and walking and cycling (12%) have received relatively less attention among passenger transport mitigation strategies.

Freight is currently relatively neglected across INDCs, and is included in just 31% of INDCs identifying specific transport modes. Although in terms of energy consumption, current passenger and freight mode shares are about 60% and 40%, respectively,²⁷ and recent estimates suggest that freight demand (in ton-km) could increase by 350% between 2010 and 2050 in the absence of policies to improve freight efficiency²⁸, a trend which would justify a greater emphasis on freight related measures in INDCs.

Transport Mitigation Measures by Type

Generally, low carbon transport interventions can be categorized using the ‘Avoid-Shift-Improve’ (ASI) typology. ‘Avoid’ strategies describe measures to reduce motorized trips and trip length; ‘Shift’ strategies transfer travel activity to more energy-efficient modes; and ‘Improve’ strategies focus on increasing vehicle energy efficiency and decarbonizing energy sources.

Figure 4 indicates that the majority of proposed measures (about 63% of nearly 224 proposed mitigation measures) in INDCs represent ‘Improve’ strategies. This focus on technological measures helps to explain that INDCs as formulated at present do not fully optimize the mitigation potential of the transport sector. As indicated in the IPCC Fifth Assessment Report (AR5), an integrated set of ‘Avoid’ and ‘Shift’ strategies (e.g. urban development and infrastructure investment, linked with more compact urban form to support cycling and walking), to complement technological measures could potentially reduce GHG intensity by 20–50% below a 2010 baseline by 2050.²⁹

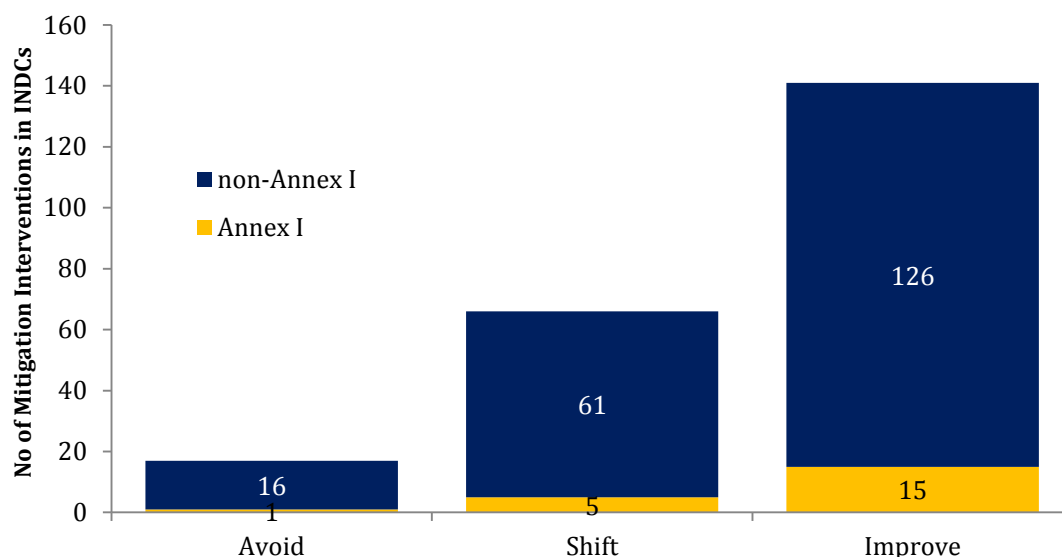


Figure 4. Typology of Transport Mitigation Interventions in INDCs

Figure 5 gives a breakdown of specific transport mitigation strategies, as distinguished among countries of different income categories.

²⁷International Energy Agency. 2015. Tracking Clean Energy Progress 2015. <http://bit.ly/1FMWLNx>

²⁸International Transport Forum. 2014. ITF Transport Outlook: Scenarios to 2050. <http://bit.ly/1ZBFggO>

²⁹ IPCC Fifth Assessment Report. https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter8.pdf

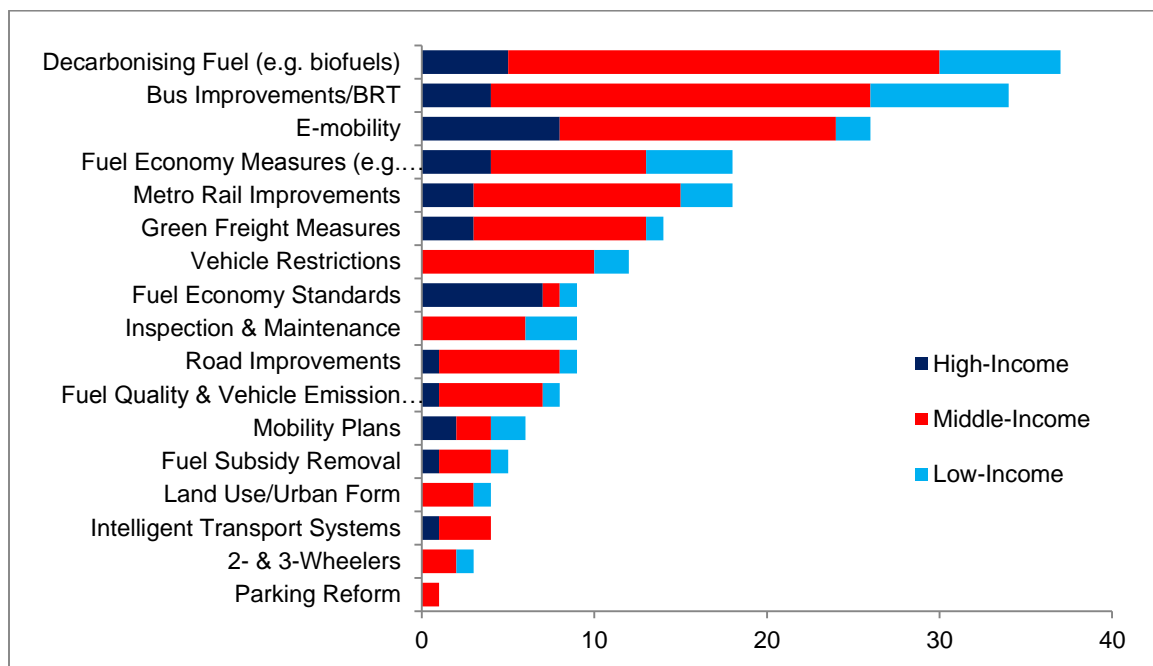


Figure 5. Typology of Transport Mitigation Strategies in INDCs

In high-income countries, nearly 60% of mitigation strategies are directly related to fuel efficiency improvement or decarbonizing fuel, while in middle- and low-income countries, mitigation strategies are relatively more balanced, with strategies directly related to fuel efficiency improvement or decarbonizing fuel contributing less than 40% of mitigation strategies. While fuel economy standards and e-mobility are prioritized in high-income countries, middle and low-income countries rely more heavily on public transport improvements, which account for about a quarter of planned mitigation measures. Further, low and middle-income countries tend to prioritize import restrictions based on vehicle age (e.g. Gabon) along with instruments to improve fleet fuel efficiency (e.g. eco-driving in Cambodia, fuel efficient vehicle incentives in Grenada and Cameroon). Middle-income countries also prioritize improvement in inspection and maintenance, fuel quality and vehicle emission standards, which could provide significant reductions in air pollutants. In addition, proposed green freight measures involve shifting from road to railways and waterways.

About 4% of countries (including the Central Africa Republic, Chile, Mauritius) include plans to reduce short-lived climate pollutants (SLCPs) by controlling black carbon emissions from the combustion of fossil fuels. These proposals can help to manage a significant contributor to short-term climate-warming potential while simultaneously reducing harmful effects on health, agriculture and ecosystems.

Subsidized fossil-fuel use accounted for 14% of total global CO₂ emissions in 2012, and the cost of such subsidies totaled \$510 billion in 2014.³⁰ A recent analysis from IEA suggests that for global energy-related emissions to peak by 2020, it is essential to eliminate fossil-fuel subsidies in net importing countries within the next 10 years, which would provide a emission reduction of about 160 Mt CO₂e in 2020³¹. However, among 160 countries with INDCs, only five (Ethiopia, India, Morocco, Viet Nam and United Arab Emirates) include fuel subsidy reduction among their proposed mitigation strategies.

The transport sector can also benefit from decarbonizing efforts in the electricity sector, with many countries including measures in INDCs to expand e-mobility (e.g. Barbados and Republic of Korea to provide tax incentives for electric vehicles; and Kiribati, Marshall Islands, and New Zealand to increase use of renewable energy in the transport sector). IEA estimates that renewable energy could become the leading source of electricity by 2030, and the carbon intensity of the power sector is projected to improve by 30% during the same period³². More than 100 countries have established renewable energy targets over the last decade³³, and one third of INDCs have established renewable energy targets in the electricity sector.

Box 4:
Transport Mitigation Actions by Non-State Actors in the Transport Sector

Non-state actors are making valuable contributions to transport mitigation actions in parallel to country-level efforts outlined in the INDCs. As a follow-up to the call to action by Secretary General Ban Ki-moon in September 2014 and since COP20 in December 2015 by the Lima-Paris Action Agenda (LPAA) 14 transport related voluntary commitments were made, which provide examples of non-state actors taking concrete measures to complement INDC proposals.

The 14 voluntary transport commitments include, among others, the following initiatives:³⁴

- The **Airport Carbon Accreditation** initiative aims to reduce carbon emissions and achieve best practices in carbon management at airports.
- The **C40 Clean Bus Declaration of Intent** is designed to help manufacturers and other stakeholders to make advanced bus technologies more affordable for cities.
- The **Global Green Freight** Action Plan promotes the development of green freight programs.
- The **ICAO/ATAG Climate Action in Aviation** initiative promotes short, medium and long-term goals to cut emissions from aviation.
- The **International Zero Emissions Vehicle Alliance** encourages an accelerated adoption of Zero-emission vehicles.
- The **ITS for the Climate** initiative focuses on the use of Intelligent Transport Services to reduce CO₂ emissions from transport.
- **Low Carbon Road and Road Transport Initiative (LC2RTI):** Green Roads-Clean Growth
- The **Navigating a Changing Climate** Initiative promotes a shift towards low-carbon inland and maritime navigation infrastructure.
- The **UIC Low Carbon Sustainable Rail Transport Challenge** calls for energy and CO₂

³⁰ International Energy Agency. 2015. Energy and Climate Change - World Energy Outlook Special Report. <http://bit.ly/1FW2d1Y>

³¹ International Energy Agency. 2015. Energy and Climate Change - World Energy Outlook Special Report. <http://bit.ly/1FW2d1Y>

³² International Energy Agency. 2015. Energy and Climate Change - World Energy Outlook Special Report. <http://bit.ly/1FW2d1Y>

³³ IRENA. 2015, Renewable Energy Target Setting. <http://bit.ly/1RGq90i>

³⁴ <http://ppmc-cop21.org/transportinitiatives/>

emission reductions and a greater mode share for rail transport.

- The **UITP Declaration on Climate Leadership** encourages member public transport agencies to reduce carbon emissions and strengthen resilience within their cities and regions.
- The **Action Platform on Urban Electric Mobility (UEMI)** is an initiative to increase the market share of electric vehicles in cities to at least 30% of all new vehicles sold by 2030.
- The **MobiliseYourCity** partnership helps local governments in developing countries plan sustainable urban mobility, to reduce GHG emissions and develop more efficient cities.
- The **Vehicle Fuel Efficiency Accelerator** aims to double fuel economy and reduce fuel waste.
- The **World Cycling Alliance (WCA)/European Cyclists' Federation (ECF)** seeks to increase modal shift to cycling worldwide and double cycling mode share in Europe by 2020.

Transport Emission Targets in INDCs

While about 61% of INDCs propose transport sector mitigation measures; a much smaller share of INDCs (10%) have proposed a transport sector emission reduction target. In addition, 9% of INDCs include national transport business-as-usual (BAU) emission projections, and 14% of INDCs include estimates of country-level transport mitigation potential.

Box 5: Transport Emission Reduction Targets among INDCs³⁵

Emissions impacts of transport policies are difficult to quantify when compared with other energy consuming sectors, since there is a great diversity of transport mitigation strategies among individual countries. In addition, there exist limited data on vehicles, usage, fuel, and per-kilometer CO₂ emissions in developing countries³⁶. For these reasons, many countries have traditionally focused on energy sector-related measures to set reduction targets.

Countries often do not allocate emissions targets to specific sectors (including transport), as they do not have detailed data on the costs and benefits of comparative sectorial reductions. Thus, the 2030 targets established in INDCs of most countries are generally economy-wide, and are often not represented as a single unconditional value, but rather as a range of values or a conditional value. In some cases this is due to the fact that countries prefer to have flexibility in operationalizing their INDC commitments, and in other cases conditional commitments hinge on external funding (especially in the case of developing countries)³⁷.

The low prioritization of the transport sector relative to the energy sector among INDCs reflects ongoing discussion from a recent technology needs assessment report, in which 90% of Parties prioritized the energy sector as an area of need, while within the energy sector, the transport sector was prioritized among only 41% of Parties.³⁸ In addition, fuel switching was among the highest-priority technology categories among transport sub-sectors, which is consistent with the fact that decarbonizing fuel is the most frequently proposed transport sector mitigation strategy among INDCs.

³⁵ The content of this Box was provided in part by Ricardo – Energy and Environment.

³⁶ Due to this inherent complexity, the sustainable transport sector has traditionally received less attention than other sectors in climate finance.

³⁷ UNFCCC. 2013. Quantified economy-wide emission reduction targets by developed country Parties to the Convention: assumptions, conditions, commonalities and differences in approaches and comparison of the level of emission reduction efforts. <http://bit.ly/1MxY5ME>.

³⁸ UNFCCC. 2013. Third synthesis report on technology needs identified by Parties not included in Annex I to the Convention. <http://bit.ly/1LteZuS>.

A review by Ricardo – Energy and Environment of INDCs representing 15 countries with a combined population of more than 500 million people indicates that the majority of the countries advised on INDCs by Ricardo have produced national emission reduction targets relative to projected future emissions in 2030, rather than reductions against a historical base year or an absolute level of reduction. While only a few countries produced both economy-wide and sectoral targets (including transport), most aimed to quantify the reduction potential from transport to inform their national targets.

Most countries differentiate between unconditional targets – i.e. what they can achieve with existing resources – and conditional targets which rely on financial support from international sources.

Many of the countries considered have relied on the use of quantitative models in order to estimate future emissions, with LEAP being the most popular choice. The main differences between countries relate to the availability and quality of national data being fed into the models, and to the level of detail in the analysis e.g. the breakdown by transport modes, and inclusion of aviation and shipping. Where national data was not available, assumptions from international sources (e.g. IPCC) were used.

In all cases, there is significant room for improvement in the quality of data. The main issues relate to:

- uncertainties in the base year data and inconsistencies between different data sources;
- uncertainties in the future evolution of emissions where economic growth and ongoing structural and socio-economic change may impact emissions in unexpected ways;
- the limited amount of time available to address these uncertainties and the lack of resources to verify existing data sources;
- the extent to which assumptions from international sources (e.g. on emission factors, fuel efficiency, mileage, stock turnover) are adequate for a given country.

Most countries acknowledge that data quality is an issue given the importance of transport in total country emissions. This issue will remain in further work that aims to develop more detailed transport decarbonisation plans. Innovative and novel ways, such as the use of proxy datasets, will be required.

Table 2 provides a comparison of *direct* transport-specific emission targets relative to economy-wide targets. Notably, Burkina Faso and Trinidad and Tobago have set transport reduction targets that are at least twice as ambitious as their economy-wide emission reduction targets.

Country	Transport CO2 Reduction Target	Economy-wide CO2 Reduction Target
Bangladesh	24% reduction from 2030 BAU	15% below BAU (power/transport/industry)*
Burkina Faso	42% below BAU	18.2% below BAU
D.R. Congo	10Mt CO2e reduction (urban transport)	17% below BAU by 2030
Dominica	16.9% below 2014 levels by 2030	44.7% below 2014 levels by 2030
Ethiopia	10 MT by 2030	64% compared to BAU in 2030*
Gabon	20% reduction below 2025 BAU	At least 50% reduction from BAU by 2025
Grenada	20% reduction below 2010 by 2025	30% reduction below 2010 levels by 2025
Ivory Coast	5.73% reduction below 2030 BAU	28% reduction from 2030 BAU scenario
Japan	27% below 2013 by 2030	26% by FY 2030 compared to 2013
Marshall Islands	27% below 2010 by 2030	32% below 2010 levels by 2025
Moldova	15% below BAU by 2020	78% below 1990 levels by 2030*

Seychelles	30% below BAU by 2030	29% below BAU by 2030
Trinidad/ Tobago	30% below BAU by 2030	15% below BAU by 2030*

Table 2. Comparison of Transport and Economy-wide Direct Emission Reduction Targets (* = conditional reduction target)

In addition, a number of countries have established *indirect* transport emission reduction targets in their INDCs, which target variables other than CO₂ emissions reduction (e.g. public transport mode share, renewable energy share, fuel consumption reduction, fuel efficiency) as a means to reach desired emission reductions (Table 3).

Country	Indirect Transport Sector targets
Barbados	29% reduction in non-electric energy consumption (including transport) in 2030 compared to BAU
Bangladesh	Shift in passenger traffic from road to rail of up to around 20% by 2030 compared to BAU; 15% improvement in vehicle efficiency
Belize	Minimum 20% reduction in conventional transport fuel use by 2033
Burkina Faso	42% lower consumption of oil in transport
Canada	Renewable fuels regulations require that gasoline contain an average 5% renewable fuel content and that most diesel fuel contain an average 2% content
China	Promote public transport mode share in large- and medium-sized cities, targeting 30% by 2020
Congo	Limit transport energy consumption growth to 70% of baseline by 2025
India	Increase share of railways from 36% to 45% of total land transport
Israel	20% mode shift from private to public transport
Jordan	Increase public transport mode share to 25% by 2025; deploy 3,000 charging stations to support 10,000 ZEVs by the private sector
Lao PDR	Increase share of biofuels to meet 10% of demand for transport fuels by 2025
Liberia	Blend up to 5% of palm oil biodiesel with gasoline and diesel by 2030
Malawi	Increase number of public transport users by 30%
Morocco	Reduce energy consumption in transport 23% by 2030
Mongolia	Increase share of private hybrid vehicles from about 6.5% in 2014 to about 13% in 2030
Namibia	Commission mass transport system in Windhoek to reduce number of private cars and taxis by about 40%
Republic of Korea	Strengthen average emission standard from 140g/km in 2015 to 97g/km in 2020
South Africa	Investment in public transport to grow at 5% per year
Seychelles	30% reduction in transport fuel use
Togo	20% fossil fuel reduction in road transport sector

Table 3. Indirect Transport Sector Emission targets in INDCs

Measuring the Impact of Transport Targets and Measures vis-à-vis 2DS

A quantitative assessment of transport targets and measures in the INDCs vis-à-vis a targeted 2DS is challenging for two primary reasons. First, many countries have not included all existing and potential transport related measures in their INDCs, and as a consequence, an impact assessment of transport components among INDCs is likely to fall short of actual emission reductions realized by 2030. Second, measurement, reporting and verification (MRV) mechanisms for the transport sector within the UNFCCC framework are generally weaker than for other sectors, as described in the following box.

Box 6:
Measurement, Reporting and Verification of INDC Commitments

The 2007 Bali Action Plan defined the principle of measurement, reporting and verification (MRV) for both developed and developing countries. This principle was further improved through a number of subsequent Conference of the Parties (COP) decisions, resulting in a comprehensive MRV framework under the UNFCCC. National communications (NCs), biennial reports (BURs) and biennial update reports (BURs) are at the heart of the MRV framework to mark progress toward UNFCCC objectives.

However, based on a review of 85 NCs and 50 BURs/BRs submitted to UNFCCC, it was found that only about 65% of NCs and 80% of BURs include transport emissions projections, and only about 50% of NCs include transport activity data.³⁹ Thus, it is necessary to ensure that transport data are fully incorporated in NCs/BURs – and that these be submitted at regular intervals and based on recent emissions reporting – to facilitate effective MRV of transport sector contributions toward INDC implementation.

Analysis of the INDC targets indicates that implementation of currently proposed economy wide targets and measures proposed within INDCs will not keep emissions within a 2DS (for both economy-wide and transport-specific emissions). In order to achieve 2DS scenario within the transport sector, emissions must be below 2010 levels by 2030; however, under a BAU scenario developed by the SLoCaT Partnership, transport emissions would continue to rise sharply.⁴⁰ With implementation of a low carbon scenario (LCS) (developed by the SLoCaT Partnership, based on more than 350 global mitigation potential studies), the projected BAU emission gap of 41% (3.4 Gt CO₂e) could be reduced to a gap of about 23% (1.5 Gt CO₂e) from 2DS (Figure 6).

³⁹ This analysis corroborates the evidence presented in the UNFCCC sixth review of non-Annex I national communications that "regarding energy use, most Parties reported broadly or specifically on the lack of activity data on household biomass consumption, vehicles and equipment efficiency in the transport and industrial subsectors, and international bunker fuels."

⁴⁰ See: <http://ppmc-cop21.org/emission-reduction-potential-in-the-transport-sector-by-2030/> for the analysis of the Emission Reduction Potential in the Transport Sector by 2030 carried out by the SLoCaT Partnership

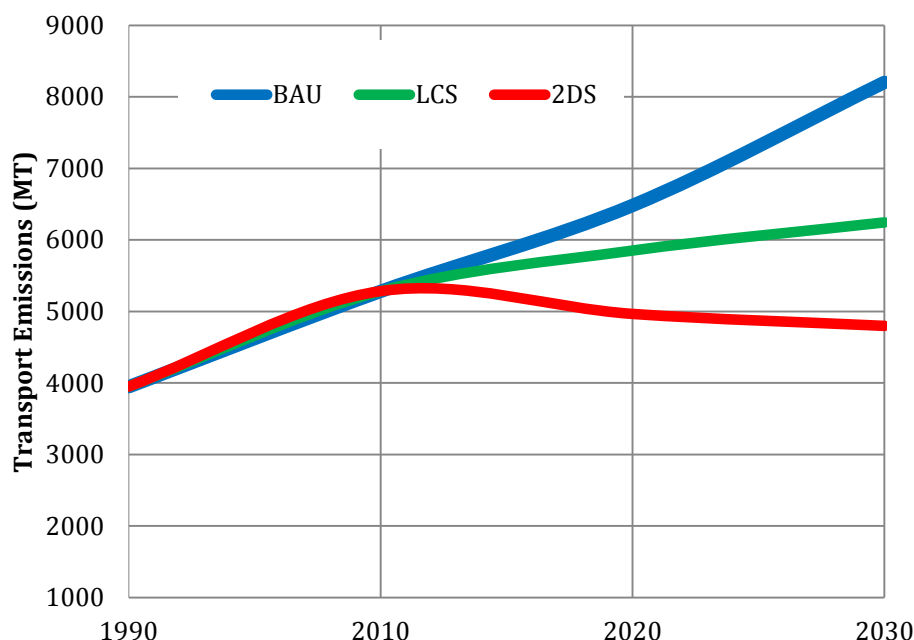


Figure 6. Comparison of Transport Sector Emissions Scenarios

Based on current emission trajectories, expected low carbon projections, and actual transport emission targets, it is evident that mitigation ambition in current INDCs will not be sufficient to achieve a 2DS within the transport sector by 2030. The SLoCaT 2030 Emission Reduction Potential in the Transport Sector concludes that without significant low carbon policy interventions, a continuation of current transport activity trends could lead to a 55% increase in global transport CO₂ emissions by 2030 compared with 2010 levels. Most of the projected transport sector emissions growth would be concentrated in developing countries where emissions are set to grow at a higher intensity (i.e. two to four times greater) than economy-wide emissions.

As was described in the case studies for Bangladesh and Cambodia transport measures in the INDCs are mostly based on existing plans. They do not fully include the mitigation potential included in the Low Carbon Scenario developed by SLoCaT based on the review of 350 global mitigation potential studies. This indicates that as part of the expected ratcheting-up of mitigation ambition in the INDCs there is the possibility to increase the relevance of INDCs for the 2DS, but as shown in Figure 6 not even the full implementation of the LCS would enable the transport sector to comply with the 2DS. Thus, any attempt at achieving a 2DS would require significant scaling-up of mitigation contributions from the transport sector as defined in INDCs.

Transport Mitigation Investment Requirements

Globally it has been estimated that roughly \$13.5 trillion in investments in energy efficiency and low-carbon technologies will be required over the next 15 years to implement the INDCs⁴¹. Investments required for the transport sector to achieve desired mitigation goals is highlighted in about 11% of INDCs, and for countries with transport sector emission targets, 29% of INDCs provide investment estimates.

⁴¹ <http://www.climatefinancelandscape.org/>

Table 4 gives examples of projected investment requirements to implement proposed transport mitigation measures among INDCs.

Country	Priority Transport Projects	Investment Requirements (USD)
Bangladesh	Dhaka MRT and elevated highway	5.3 billion (2011-2030)
Benin	Development of intra- and inter-urban transit	2.78 billion (2011-2030)
Burkina Faso	Improvement of public transport; use of biofuel	98 million
Eritrea	Improve rail and bus transport	1 billion
Lao PDR	Implementation of nationally-appropriate mitigation actions (NAMA) in transport sector	105 million (2015-2020)
Lesotho	Improvement of vehicle efficiency, modal shift to public transport	Additional investment of 1.5 million (2020), 2.0 million (2030)
South Africa	1. Electric vehicles 2. Hybrid electric vehicles (20% by 2030)	1. 513 billion (2010-2050) 2. 488 billion
Togo	Promotion of low carbon transport modes	40 million

Table 4. Transport Sector Investment Requirements Included in INDCs

10% of INDCs emphasize co-benefits such as reduced congestion, reduced air pollution and resultant health benefits, improved mobility, increased road safety, and synergies between adaptation and mitigation actions, which can help to establish total project benefits relative to total costs. 8% of INDCs make explicit reference to transport mitigation strategies using quantitative approaches such as cost-benefit analyses, multi-criteria analyses (incorporating co-benefits), and/or marginal abatement curves, which can help to further support analyses of investment needs.

Increasing details on needed investments can help to ensure that bold transport measures proposed in INDCs will be matched with required sources of funding (e.g. public or private sector finance, climate finance instruments, development banks).

Global transport investment could be significantly scaled up through fossil fuel subsidy reform. To this end, several countries have included fossil fuel subsidy reform in their INDCs (i.e. Ethiopia, India, Morocco, Viet Nam, United Arab Emirates). Introducing a fossil fuel extraction levy could provide up to \$50 billion annually for sustainable transport and other mitigation activities.⁴²

Transport Sector Adaptation Measures

Adaptation in the transport sector is necessary for both developed and developing countries, as transport systems worldwide are vulnerable to increasing impacts of extreme weather, and rapid urbanization and motorization increase the potential for catastrophic impacts. Sustainable transport systems must adapt to climate change to maintain reliability and increase ridership, and thus to achieve full mitigation potential. However, adaptation is generally less well represented than mitigation in the transport sector, as shown in **Error! Reference source not found..**

⁴² "Dollars," ECO NGO Newsletter 3.

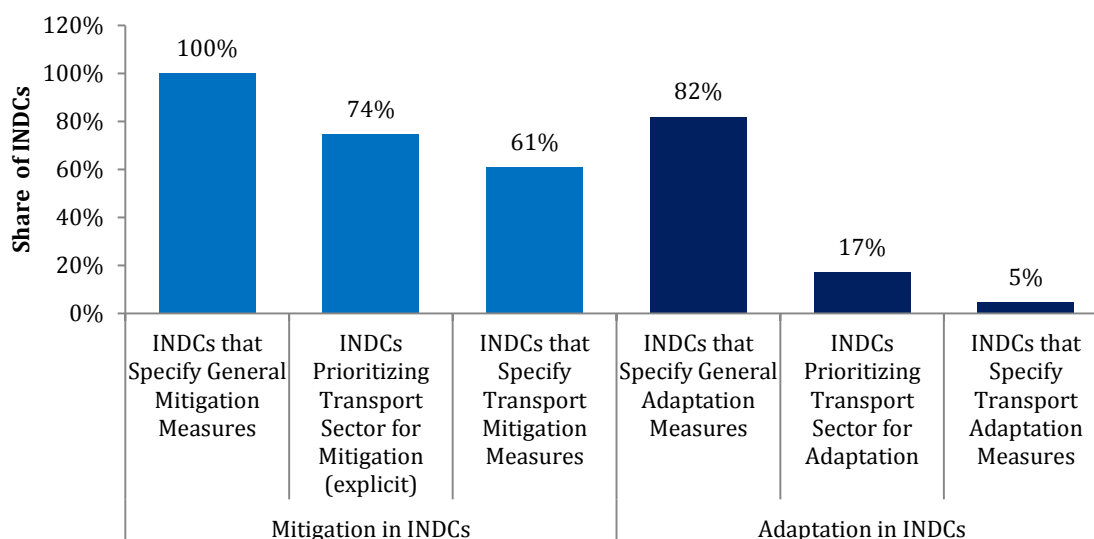


Figure 7. Transport Mitigation and Adaptation Priority in INDCs

Adaptation has generally received less attention than mitigation in INDCs, although being mentioned in an economy-wide scope in 133 INDCs submitted. The transport sector is mentioned in general terms among climate adaptation measures in 17% of INDCs, and 5% of countries identify transport-specific adaptation strategies, which focus mainly on vulnerability assessments and infrastructure resilience planning (Table 5).

Country	Transport-Specific Adaptation Measures
Bangladesh	Adaptation priorities include climate resilient infrastructure, and improvement of drainage systems. Projects underway through the Inland Water Transport Authority and the Ministry of Road Transport and Bridges.
Belize	Vulnerability assessment of transport infrastructure, particularly in urban areas and areas critical to sustaining the country's productive sectors (tourism, agriculture and ports).
Gambia	Improved resilience of road networks under changing climate conditions.
Madagascar	Effective application of existing or newly established sectorial policies, including flood-resistant terrestrial transport infrastructure standards.
Maldives	Coastal protection measures to protect the shoreline of Hulhule, the island that contains Ibrahim Nasir International Airport, as well as for other air and seaports.
Republic of Moldova	Analyzing adaptation options, including altering assumptions about infrastructure design and operations, and incorporating uncertainty into long-range decision making.

Table 5. Transport-Specific Adaptation Measures in INDCs

Raising the profile of transport adaptation measures in the detailed implementation plans of current INDCs (as well as in future iterations of INDCs) can help to ensure the long-term success of mitigation investments, which can be achieved by incorporating in INDCs a growing number of transport adaptation and resilience efforts currently underway at national and regional levels.⁴³

⁴³ A separate SLoCaT Partnership study: "Expanding Efforts on Climate Change Adaptation and Resilience in the Transport Sector" provides an overview of the rapidly growing knowledge base on adaptation to

Conclusions and Recommendations

Conclusions

- INDCs mark the first instance of defining country-driven sector-specific contributions through the UNFCCC.
- INDCs open the door for more ambitious action on transport and climate change, allowing the transport sector to make a substantive contribution to economy-wide emission reductions.
- INDCs present an opportunity to raise collective mitigation and adaptation ambition through appropriate low-carbon transport strategies, as demonstrated in bold submissions from countries across global regions and at varying levels of development.
- Proposed transport mitigation *measures* are featured in more than half of submitted INDCs, which focus primarily on urban transport, heavy rail, and waterways, and secondarily on freight transport, walking and cycling and high-speed rail.
- Transport sector *targets* (with varying baselines) have been included in a smaller number of INDCs, including both *direct* GHG emission reduction targets, and *indirect* targets based on transport mode share, renewable energy share, or fuel efficiency.
- According to a separate SLoCaT analysis, transport related targets and measures in INDCs do not reflect the full mitigation potential of the transport sector, and thus it will be necessary to intensify low carbon transport strategies well beyond those included in INDCs in order to achieve a 2DS.
- Transport adaptation measures generally contain less detail than mitigation measures in INDCs submitted, which reflects a similar prioritization of adaptation relative to mitigation at an economy-wide level.

Recommendations

- Ratcheting up transport sector measures and levels of ambition in successive INDC revisions can maximize sectorial leverage to reduce economy-wide emissions.
- Taking a more balanced approach to transport mitigation in INDC implementation plans, including integrated 'Avoid,' 'Shift,' and 'Improve' strategies, can create multiplier effects, and could increase overall emission reduction impact.

climate change in transport, as well as growing number of toolkits and (pilot) projects. See: <http://ppmc-cop21.org/expanding-efforts-on-climate-change-adaptation-and-resilience-in-the-transport-sector/>

- Quantifying investment requirements for proposed low-carbon transport measures in INDC implementation plans is a key step towards generating needed funding. Strategies to generate additional funding could be complemented by elimination of fossil fuel subsidies, which could in turn be invested in sustainable transport measures.
- Compiling country-level transport data at more regular intervals could facilitate more effective MRV of transport sector contributions during INDC implementation. Emerging technologies could help to improve the quality, frequency, and affordability of collecting and analyzing transport data.
- INDCs could spur regional dialogue among countries to implement a more comprehensive set of transport measures based on common demographic trends and development priorities. This could benefit the ratcheting up of transport mitigation and adaptation measures in INDCs.
- INDCs could be used to stimulate ‘matchmaking’ among national and sub-national entities. INDCs represent ‘demand-side’ commitments that can be complemented by ‘supply-side commitments’ represented by a series of low-carbon transport commitments under the [Lima-Paris Action Agenda \(LPAA\)](#)⁴⁴.
- The global sustainable transport community could support countries in shaping detailed implementation plans for general mitigation and adaptation strategies proposed in INDCs. Global expertise could be leveraged to help refine and expand country-specific transport specific mitigation and adaptation strategies.
- Parties could further leverage emerging quantitative tools to help optimize transport sector mitigation ambition in INDCs. The [Paris Process on Mobility and Climate \(PPMC\)](#) is creating a set of [knowledge products](#) that can be used to assist national climate planning entities in determining transport sector mitigation potential and ratcheting up transport mitigation targets in successive iterations of INDCs.

⁴⁴Lima-Paris Action Agenda. <http://newsroom.unfccc.int/lpaa/> and www.ppmc-cop21.org/transport commitments.

Annex I: Transport Measures in INDCs (as of November 12, 2015)

Country	<u>Economy-wide Target</u> (Unconditional)	<u>Economy-wide Target</u> (Conditional)	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
Afghanistan		13.6% below 2030 business as usual (BAU) scenario	No Information	More efficient vehicles, clean fuels, and alternative fuels.
Albania	11.5% below 2030 BAU scenario		No Information	No Information
Algeria	7% below 2030 BAU scenario	Up to 22% reduction by 2030	No Information	Increased share of liquefied petroleum gas and natural gas in fuel consumption between 2021 and 2030.
Andorra	37% below 2030 BAU scenario		No Information	No Information
Antigua and Barbuda			No information	By 2020, establish efficiency standards for the importation of all vehicles and appliances.
Argentina	15% below 2030 BAU scenario	30% below 2030 BAU scenario	No Information	Reactivation of passenger and cargo railways, renewal and improvement of rail infrastructure, and incorporation of technologies and services to contribute to the modernization and efficiency of the rail public transport system.
Armenia	Limit to 633 MtCO ₂ e by 2050		No Information	Development of electric transport.
Australia	26% to 28% below 2005 levels by 2030		No Information	National Energy Productivity Target of a 40% improvement between 2015 and 2030, (with an investigation of opportunities to improve the efficiency of light and heavy vehicles.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Azerbaijan	35% below 1990 levels by 2030		No Information	<ul style="list-style-type: none"> - Use of environmentally friendly forms of transport; - Enhancement of the use of electric vehicles for public transport; - Electrification of railway lines and the transition to alternative current system in traction; - Improvement and expansion of the scope of intellectual transport management system; - Development of metro transport and increase in number of metro stations; - Elimination of traffic jams through construction of road junctions and underground and surface pedestrian crossings.
Bangladesh	Reduce GHG emissions in the power, transport, and industry sectors by 12 MtCO ₂ e by 2030 or 5% below BAU emissions for those sectors	Reduce GHG emissions in the power, transport, and industry sectors by 36 MtCO ₂ e by 2030 or 15% below BAU emissions for those sectors	24% deduction from 2030 BAU	<ul style="list-style-type: none"> - Modal shift from road to rail delivered through a range of measures including underground metro systems and bus rapid transit systems in urban areas. Co-benefits will include reduced congestion, improved air quality and improved traffic safety; - Reduced congestion and improved running of traffic. This will be achieved by a number of measures, including building of expressways to relieve congestion and public transport measures.
Barbados	44% below 2030 BAU scenario		No Information	Investigate alternative vehicles and fuels such as compressed natural gas, liquid petroleum gas, ethanol, natural gas, hybrid and electric vehicles, and encouraging their adoption through tax incentives.
Belarus	28% below 1990 levels by 2030		No Information	No Information

<u>Country</u>	<u>Economy-wide Target</u> <u>(Unconditional)</u>	<u>Economy-wide Target</u> <u>(Conditional)</u>	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
Belize		Reduction of 24 million metric tons of CO ₂ e over the period 2014-2033.	No Information	<p>Achieve at least a 20% reduction in conventional transport fuel use by 2033 and promote energy efficiency in the transport sector through the following policies and investments:</p> <ul style="list-style-type: none"> - Undertaking a traffic management study that aims at reducing traffic congestion in urban areas and along the Philip Goldson Highway into Belize City; - Improving public transport; - Upgrading maintenance of bus fleet; - Improving scheduling; - Upgrading the industrial fleet; - Promoting the use of bio-fuels. <p><u>Adaptation measures:</u> Vulnerability assessment of transport infrastructure, particularly in urban areas and areas critical to sustaining the country's productive sectors (tourism, agriculture and ports).</p>
Benin	3.5% below 2030 BAU scenario	17.9% below 2030 BAU scenario	No Information	<ul style="list-style-type: none"> - Promote public transport and clean vehicles; - Introduce duty relief of taxes on public transit vehicles; - Improve traffic flow in urban crossings of large cities; - Develop a river-lagoon transport system with navigable rivers; - Modernize and extend rail infrastructure; - Develop a collective urban transport system.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Bhutan	Remain carbon neutral with sequestration, estimated at 6.3 MtCO ₂ e		No Information	Promotion of low carbon transport system by: <ul style="list-style-type: none"> - Improving mass transit and demand side management of personal modes of transport; - Exploring alternative modes of transport to road transport such as rail, water and gravity ropeways; - Improving efficiency in freight transport; - Promoting non - motorized transport and non - fossil fuel powered transport such as electric and fuel cell vehicles; - Improving efficiency and emissions from existing vehicles through standards and capacity building; - Promoting use of appropriate intelligent transport systems.
Bolivia			No Information	No Information
Bosnia and Herzegovina	2% below 2030 BAU scenario	23% below 2030 BAU scenario	No Information	No Information
Botswana		15% below 2010 by 2030	No Information	No Information
Brazil	43% below 2005 levels in 2030		No Information	Further promote efficiency measures, and improve infrastructure for transport and public transport in urban areas.
Burkina Faso	6.6% below 2030 BAU scenario	11.6% below 2030 BAU scenario	42% below 2030 BAU scenario (conditional)	Faster improvement in vehicles (a 30% reduction in consumption by 2025 instead of 20% for 2030), and the use of alternative hydrocarbon biofuels. Bioethanol production units substitute 10% of consumption in 2030 and substitute 5% of diesel consumption in 2030.
Burundi	3% below 2030 BAU scenario	20% by 2030 relative to BAU scenario	No Information	Urban transport with low GHG emissions.

<u>Country</u>	<u>Economy-wide Target</u> <u>(Unconditional)</u>	<u>Economy-wide Target</u> <u>(Conditional)</u>	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
Cabo Verde	30% renewable energy penetration rate into the electric grid by 2025.	100% renewable energy penetration rate in 2020-2025.	No Information	<ul style="list-style-type: none"> - Seek to develop a NAMA that increases energy efficiency of the transport sector, including domestic shipping and domestic air travel, and evaluates options for policies and actions available to reduce the impact of GHG emissions originating from this sector; - The NAMA will initially be focused on the collection of relevant data for the sector, including, among others, fuel type and consumption per transport mode, technology performance, fuel substitution possibilities, estimation of costs, and an updated GHG emissions profile for light-duty vehicles as well as for freight and passenger transport services; - This NAMA will also consider options for expanding hybrid and electric fleets in the country, in particular, the feasibility of making government vehicles electrically powered by 2030.
Cambodia		27% below 2030 BAU scenario	No information	<ul style="list-style-type: none"> - Promote mass public transport; - Improve operation and maintenance of vehicles through motor vehicle inspection and eco-driving, and the increased use of hybrid cars, electric vehicles and bicycles.
Cameroon	Reduce GHG emissions by 32% compared to 2035 BAU		No information	<ul style="list-style-type: none"> - Limit mobility constraints and develop low-carbon transport offerings; - Promote an integrated approach to the sector and the development of low-carbon transport through a national transport infrastructure scheme; - Integrate climate in territorial planning documents to limit distances and propose efficient transport policies; - Support state and local authorities in the development of public transit and inter- and intra-city low carbon development plans

Country	<u>Economy-wide Target</u> (Unconditional)	<u>Economy-wide Target</u> (Conditional)	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
				(e.g. tramways in Yaounde and Douala); - Encourage the purchase of low-emission vehicles and scrapping of high-emission vehicles through standards, incentives or obligations.
Canada	30% below 2005 levels by 2030		No Information	Introduce more stringent greenhouse gas emission standards for passenger automobiles and light trucks, as well as regulations for heavy-duty vehicles.
Central African Republic	Reduce emissions by 5% compared to the 2030 BAU reference level		No Information	Black carbon reduction plan
Chad	18.2% below 2030 BAU levels	71% level 2030 BAU	No Information	No Information
Chile	CO2 emissions per unit of GDP reduced by 30% by 2030 over the 2007 level achieved	Reduction of CO2 emissions per unit of GDP between 35% to 45% over the level reached in 2007	No Information	Black carbon reduction plan
China	Peak CO2 emissions around 2030 and make best efforts to peak early and lower CO2 emissions per unit of GDP by 60% to 65% from 2005 levels		No Information	<ul style="list-style-type: none"> - Integrate low-carbon development in the entire process of urban planning; - Improve the quality of gasoline and new types of alternative fuels; - Promote the share of public transport in motorized travel in large- and medium-sized cities (targeting 30% mode share by 2020); - Promote the development of dedicated transport system for

Country	<u>Economy-wide Target</u> (Unconditional)	<u>Economy-wide Target</u> (Conditional)	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
				<p>pedestrians and bicycles in cities;</p> <ul style="list-style-type: none"> - Advocate green travel and accelerate development of smart transport and green freight transport.
Colombia	20% below BAU by 2030	30% below BAU by 2030	No Information	No Information
Comoros		84% reduction from 2030 BAU scenario	No information	No Information
Congo	48% below BAU scenario by 2025		No Information	Develop public transport services (particularly in Brazzaville and Pointe-Noire) to fight against congestion or introduce changes in legislation (e.g. prohibit import of vehicles older than 5 years). In a conditional low carbon scenario, it is proposed to control the rise in transport-related energy consumption to 70% of baseline scenario in 2025 with an option for renewable fuel to account for 21-43% of consumption.
Costa Rica	44% below BAU by 2030		No information	<ul style="list-style-type: none"> - Develop an integrated public transport system where routes are improved, train service strengthened, and availability of non-motorized transport enhanced; - Improve the freight sector through multi-modal options.
D.R. Congo	17% below BAU by 2030		10Mt CO2eq reductions	Urban transport improvements
Djibouti	40% below BAU by 2030	60% below BAU by 2030	No information	<ul style="list-style-type: none"> - Construct a 752-km railway line between Djibouti City and Addis Ababa; - Set up a maintenance service for two-wheel vehicles and raise awareness about their use; - Eliminate the import of 10,000 old cars that produce excessive pollution.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Dominica	44.7% below 2014 levels by 2030		16.9% below 2014 levels by 2030	<ul style="list-style-type: none"> - Introduce tax on imported vehicles, ranging from 1% of total value (including freight charges) on vehicles less than 5 years to EC\$3,000 on vehicles more than 5 years old; - Introduce a policy requiring that all government vehicles, at their time of replacement, will be replaced by hybrids vehicles; - Introduce market-based mechanisms to motivate the private sector to buy hybrid vehicles when replacing current vehicles.
Dominican Republic		25% below 2010 levels by 2030	No information	No information
Ecuador	Energy sector; 25% below 2025 BAU scenario	Energy sector; 45.8% below 2025 BAU	No Information	Develop electric rail (Trans-Amazonian)
Egypt			No information	<ul style="list-style-type: none"> - Increase share of railway, bus, microbus, and river passes; - Improve road transport efficiency; - Switch from road to rail and river transport.
Equatorial Guinea	20% below 2030 BAU		No Information	<ul style="list-style-type: none"> - Acquire high technology equipped aircraft; - Improve air traffic management, land and sea; - Continue modernization of airport infrastructure, road traffic and port infrastructure; - Promote urban and intercity public transport to reduce emissions due to the proliferation of individual transport.
Eritrea	39.2% below BAU scenario	80.6% below BAU scenario	No Information	No Information
Ethiopia		255 Mt CO ₂ e, or 64% compared to BAU emissions in 2030	10 MT by 2030	Clean rail transport, compact development.

Country	<u>Economy-wide Target</u> (Unconditional)	<u>Economy-wide Target</u> (Conditional)	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
European Union	40% reduction in 2030 compared to 1990		No Information	<ul style="list-style-type: none"> - Rail transport to cover about 400km for mass transport of freight, with estimated cost of about USD 1 billion; - Use of large buses for passenger transport over long distances.
Fiji	~30% reduction from BAU in energy sector by 2030.		No Information	Fuel switching (biofuels, electricity).
Gabon	At least 50% reduction from BAU by 2025		20% reduction below BAU (1.6 MT reductions)	Infrastructure investments (with many planned routes); public transport services (e.g. congestion reduction in Libreville), and restrictions on importation of vehicles more than 3 years old.
Gambia	45.4% below 2030 BAU scenario		No Information	<ul style="list-style-type: none"> - Reduce fuel consumption through efficiency standards; - Adaptation Proposal: Improved resilience of road networks under changing climate.
Georgia	15% below BAU by 2030	25% below BAU by 2030	No information	Vertically integrated NAMA for the urban transport sector.
Ghana	15% below 2030 BAU scenario	45% below 2030 BAU	No Information	Expansion of inter- and intra-city mass transport modes (rail and bus) in four cities.
Grenada	30% below 2010 levels by 2025		20% below 2010 levels by 2025	Undertake several policies/actions, including introduction of biofuel blends (specifically liquefied natural gas and diesel blend), implementation of gasoline and diesel taxes, and implementation of fuel efficiency standards for vehicles through incentives.
Guatemala	11.2% below 2005 levels by 2030		No Information	Improvements in urban mobility based on efficient mass transport that promotes productivity in all sectors of the country and contributes to a significant reduction in emissions.
Guinea		Mitigate 76 cumulative Mt CO ₂ eq over next 15 years	No Information	Improve the quality of the transport fleet, the promotion of public transport, and the implementation of efficiency standards in building design.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Guinea Bissau		80% renewable energy in the national energy mix by 2030	No Information	No Information
Guyana	Mitigate 52 MtCO ₂ by 2025		No Information	No Information
Haiti	5% below 2030 BAU	26% below 2030 BAU	No Information	Develop and implement NAMAs in the transport sector.
Honduras		15% below 2030 BAU	No Information	No Information
Iceland	40% reduction of greenhouse gas emissions by 2030 compared to 1990 levels		No Information	No Information
India	Reduce emissions intensity of GDP by 33 to 35 percent by 2030 from 2005 levels		No Information	<ul style="list-style-type: none"> - Increase the share of railways in total land transport from 36% to 45%; - Construct two dedicated freight corridors: 1520 km Mumbai-Delhi (Western Dedicated Freight Corridor) and 1856 km Ludhiana-Dankuni (Eastern Dedicated Freight Corridor); - Promote growth of coastal shipping and inland water transport; - Construct 550 km plus 600 km of metro lines; - Approve construction of 39 urban transport and mass rapid transport projects; - Construct solar powered toll plazas; - Develop Green Highways Policy; - Accelerate manufacturing and adoption of hybrid and electric vehicles; - Set passenger vehicle fuel-efficiency standards; - Develop national policy on biofuels.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Indonesia	26% below BAU scenario by 2020	Additional 15% reduction	No information	No information
Israel	26% below 2005 levels by 2030		No Information	<ul style="list-style-type: none"> - 20% shift from private to public transport; - Further development of public transport systems in major metropolitan areas, such as the construction of the Tel Aviv metropolitan light rail, the extension of the intercity rail system and the Jerusalem light rail.
Ivory Coast	28% reduction from 2030 BAU scenario		5.73% reduction from 2030 BAU	<ul style="list-style-type: none"> - Integrate climate in territorial planning documents in order to limit travel distances - Propose efficient transport policies; - Advance urban transport plan development (e.g. urban train in the district of Abidjan); - Facilitate purchase of low-emission vehicles and scrapping of high-emission vehicles through standards, incentives or obligations.
Japan	26% by fiscal year 2030 compared to 2013		27% below 2013 (or 163 MT by 2030)	<ul style="list-style-type: none"> - Improvement of fuel efficiency, promotion of next-generation automobiles, and other measures in transport sector (e.g. traffic flow improvement); - Promotion of public transport, modal shift to railway, and comprehensive measures for eco -friendly ship transport; - Reduction of land transport distance by selecting nearest port, and comprehensive low-carbonization at ports; - Optimization of truck transport, energy consumption efficiency improvement of railways, energy consumption efficiency improvement of aviation, and accelerated promotion of energy saving ships; - Making vehicle transport business more eco-friendly by eco-driving and promotion of collective shipments; - Promotion of Intelligent Transport Systems ITS (e.g. centralized control of traffic signals); -Development of traffic

Country	<u>Economy-wide Target</u> (Unconditional)	<u>Economy-wide Target</u> (Conditional)	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
				<p>safety facilities (e.g. improvement of traffic signals, and promotion of the use of LED traffic lights);</p> <ul style="list-style-type: none"> - Promotion of automatic driving, eco-driving and car sharing; - Utilization of 'special zones system' for structural reform of global warming measures; - Promotion of inter-ministry collaborative measures following roadmap of global warming measures.
Jordan	1.5% below 2030 BAU emissions	14% below 2030 BAU emissions	No Information	<ul style="list-style-type: none"> - Launch the Ministry of Transport's long term national transport strategy in 2014 with sustainable transport as a key strategy; - Increase the total number of commuters using public transport as a percentage of the total number to 25% by 2025; - Reduce all emissions from the transport sector (i.e. CO₂, CO, PM); - Reduce percentage of fuel consumption achieved through the implementation of the transport strategy; - Reduce vehicle kilometers at national level and in densely populated areas by type of vehicle (i.e. car, HGV, LGV); - Implement a national BRT system; - Implement the railway system, which would be a cornerstone of the planned multimodal network and would play a major role in the transport of goods within the country and the surrounding region; - Adopt and implement policies related to fleet characteristics to enhance efficiency and reduce emissions.
Kazakhstan	15% reduction from 1990 levels by 2030	25% reduction from 1990 levels by 2030	No Information	Development of sustainable transport.

<u>Country</u>	<u>Economy-wide Target</u> <u>(Unconditional)</u>	<u>Economy-wide Target</u> <u>(Conditional)</u>	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
Kenya		30% by 2030 relative to the BAU scenario of 143 MtCO ₂ eq	No Information	Low carbon and efficient transport systems.
Kiribati	12.8% by 2030 compared to BAU projection	Reduce emissions more than 60% (61.8%) by 2030	No Information	Use of coconut oil as biodiesel for transport.
Kyrgyzstan	13.75% below BAU in 2030	30.89% below BAU in 2030	No Information	No Information
Lao PDR		Cumulative energy sector reduction to 2025 of 1468 MtCO ₂ eq	No Information	<ul style="list-style-type: none"> - Increase the share of biofuels to meet 10% of the demand for transport fuels by 2025; - In one NAMA feasibility study, road network development is identified as a first objective, which will reduce the number of kilometers traveled. The second objective is to increase the use of public transport compared to business as usual (BAU); - In addition to a reduction in GHG emissions the activity will lead to a reduction in NO_x and SO_x emissions, which will have significant co-benefits such as improvement in air quality which in turn will have positive impacts on human health.
Lebanon	15% below 2030 BAU scenario	Up to 30% reduction compared to the BAU scenario in 2030	No Information	Restructuring of transport is planned through a number of large infrastructure initiatives aiming to revive the role of public transport and achieving a significant share of fuel-efficient vehicles.
Lesotho	10% below 2030 BAU scenario	Up to 35% by 2030	No Information	Promote transport mitigation options including vehicle efficiency, modal shift from private to public transport, and investments in fuel-efficient vehicles.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Liberia	Reduce GHGs by at least 10% by 2030 from BAU scenario		No Information	<ul style="list-style-type: none"> - Mainstream climate change into existing transport management plans to strengthen emission controls; - Strengthen institutional capacity for developing strategies for integrated transport services; - Develop technical and safety standards and the enforcement of policies including emission control; - Improve the quality and reliability of transport infrastructure and services; - Develop emission reduction and tracking systems of pollutants from vehicles; - Blend up to 5% of palm oil biodiesel with both gasoline and diesel by 2030.
Liechtenstein	40% compared to 1990 by 2030		No Information	Transport measure to be revised in 2016-2017
Macedonia	Reduce CO2 emissions from fossil fuels combustion by 30% by 2030 compared to BAU scenario		No Information	Climate change and clean energy plan, transport sector strategy: <ul style="list-style-type: none"> - Extension of railway to Bulgaria; - Electrification of transport, increased use of railway; - Renewal of the vehicle fleet; - Increased use of bicycles and walking; - Introduction of a parking policy.
Madagascar	14% below 2030 BAU scenario, and an increase of GHG absorption of at least 32% compared to BAU scenario		No Information	<u>Adaptation measures:</u> Effective application of existing or newly established sectorial policies, including flood-resistant terrestrial transport infrastructure standards.
Malawi		0.7 to 0.8t CO2e per capita in 2030	No Information	<ul style="list-style-type: none"> - Unconditionally produce 2 million liters of biodiesel/year, conditionally increase this to 20 million liters/year; - Unconditionally produce 18 million liters of ethanol/year, conditionally increase this to 40 million liters/year; - Unconditionally increase passengers using mass transport

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
				by 1%, conditionally increase this to 30%.
Maldives	10% below BAU by 2030	Up to 24% below BAU by 2030	No Information	<ul style="list-style-type: none"> - No information on mitigation measures; - Adaptation measures: Coastal protection measures to protect the shoreline of Hulhule, the island that contains Ibrahim Nasir International Airport, as well as for other air and seaports.
Mali		31.6% reduction from 2030 BAU scenario	No Information	No Information
Marshall Islands	32% below 2010 levels by 2025		Reduce transport emissions by 16% in 2025 and 27% in 2030	Replace more than one-third of fossil fuels (with renewables) for electricity and transport by 2030.
Mauritania	22.3% below 2030 BAU levels		No Information	Limit import of cars aged 8 years or more; create tax exemptions for bus factories.
Mauritius	30% below 2030 BAU scenario		No Information	<ul style="list-style-type: none"> - Acquisition of hybrid and electric means of mass transport. - Black carbon reduction plan
Mexico	22% reduction of GHG for 2030 compared with BAU scenario	36% reduction of GHG for 2030 compared with BAU scenario	No Information	No Information
Monaco	50% by 2030 compared to 1990 levels		No Information	Continue mobility policy of development of clean public transport, development of soft modes (pedestrian walkways, bicycle trips) and development of electric mobility.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Mongolia	14% below 2030 BAU levels		No Information	<ul style="list-style-type: none"> - Improve national paved road network (upgrade/pave 8000 km by 2016, 11000 km by 2021); - Improve Ulaanbaatar city road network to decrease all traffic by 30-40% by 2023; - Increase the share of private hybrid road vehicles from approximately 6.5% in 2014 to approximately 13% by 2030; - Shift from liquid fuel to LPG for vehicles in Ulaanbaatar and provincial centers by improving taxation and environmental fee systems; - Improve enforcement mechanism of standards for road vehicles and non-road based transport.
Montenegro	30 % reduction by 2030 compared to 1990		No Information	No Information
Morocco	13% reduction from 2030 BAU scenario	32% below BAU emission levels by 2030	No Information	Reduce fossil fuel subsidies and promote use of natural gas.
Mozambique		Total reduction of about 76,5 MtCO ₂ eq in the period from 2020 to 2030	No Information	Project of urban mobility in the municipality of Maputo.
Myanmar		Remain a net GHG sink country	No Information	<ul style="list-style-type: none"> - National Transport Master Plan and National Implementation Plan on environmental improvement in the transport sector are being developed; - Cities (e.g. Yangon) are studying options for sustainable transport development for example, and CSOs are engaged in proposing solutions to challenges for implementation.
Namibia	9% reduction from 2030 BAU	89% reduction from 2030 BAU	No Information	<ul style="list-style-type: none"> - Commission of a mass transport system in City of Windhoek to reduce number of taxis and private cars by about 40%; - Implement a car pooling system to reduce fossil fuel

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
				consumption; - Improve freight transport to reduce the number of light load vehicles by about 20%.
New Zealand	30% below 2005 levels by 2030		No Information	Increase renewable electricity usage in transport and increase uptake of low emission technologies.
Niger	3.5% below 2030 BAU scenario	34.6% below 2030 BAU	No Information	No Information
Norway	40% reduction in 2030 compared to 1990 levels.		No Information	Reduce emissions in the transport sector and introduce environmentally friendly shipping.
Oman		2% below 2030 BAU	No Information	Pursue low carbon transport initiatives
Pakistan	Pending reliable data on peak emission levels	Pending reliable data on peak emission levels	No Information	No Information
Papua New Guinea		Carbon-free electricity generation sector by 2030	No Information	- Improve public transport by introducing energy efficient buses in the main urban centers; - Introduce future infrastructure for more sophisticated modes of public transport, such as trains and trams.
Paraguay	10% by 2030 relative to BAU scenario	A further 10% by 2030 relative to BAU scenario	No Information	Promote efficient multi-modal transport.
Peru	20% below 2030 BAU	30% by 2030 relative to BAU scenario	No Information	No Information
Philippines		Reduction of about 70% by 2030 relative to BAU	No Information	No Information

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Republic of Korea	37% below 2030 BAU		No Information	<ul style="list-style-type: none"> - Expand infrastructure for environmentally friendly public transport, while introducing low-carbon standards for fuel efficiency and emissions produced from automobiles; - Strengthen the average emission standard from 140g/km in 2015 to 97g/km in 2020; - Create incentives, including tax reductions, for electric and hybrid vehicles.
Republic of Moldova	64-67% reduction by 2030 compared to 1990 levels	Up to 78% reduction below 1990 levels	15% GHG emissions reduction compared to BAU scenario by 2020	<ul style="list-style-type: none"> - Adopt new technical and normative standards in transport and building sectors (adoption of Euro codes); - Adaptation measures: Analyze adaptation options, including altering assumptions about infrastructure design and operations, and incorporating uncertainty into long-range decision making.
Republic of Serbia	9.8% below 1990 levels by 2030		No Information	No Information
Russia		Limit anthropogenic greenhouse gases to 70-75% of 1990 levels by 2030	No Information	No Information
Rwanda		Estimated impact of policies is underway and will be informed by the Third National Communication Report to be completed by 2017.	No Information	<ul style="list-style-type: none"> - Develop efficient resilient transport systems; - Improve vehicle efficiency through vehicle and fuel quality regulations and taxation policies; - Promote new technologies to reduce transport emissions; - Establish an integrated multi-modal urban transport system.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Samoa	100% renewable electricity generation target in 2017		No Information	Implement regulations to restrict vehicle emissions.
San Marino	20% below 2005 levels by 2030		No Information	No Information
Sao Tome and Principe	24% emission reduction by 2030 relative to 2005		No Information	No Information
Saudi Arabia	130 million tons of CO ₂ eq avoided by 2030		No information	Introduction of efficiency standards in the transport sector; Encourage actions that promote the development and use of mass transport systems in urban areas; Expedite development of metro system in Riyadh; Expedite planning/development of metro systems in Jeddah and Dammam.
Senegal	5% below 2030 BAU scenario	21% below 2030 BAU scenario	No Information	Implement Bus Rapid Transit (BRT) pilot in Dakar/Guédiawaye
Seychelles	29% below 2030 BAU scenario		Reduction in emissions of 50.13 ktCO ₂ in 2030	Maintain a high penetration of public transport, target fuel efficiency and biofuels in import regulation, and move towards electric vehicles and two-wheelers, with potential to reduce oil imports for transport purposes by 15% to 30% (or more) by 2030 compared to BAU.
Sierra Leone		Maintain emission levels close to the world average of 7.58 MtCO ₂ e by 2035	No Information	<ul style="list-style-type: none"> - Develop and enforce regulations on regular maintenance of vehicles and vehicle emission testing; - Formulate transport plans; - Improve and promote use of public transport (e.g. road, rail and water) for passengers and cargo to reduce traffic congestion and GHG emissions; - Diversify economic growth through strengthened transport sub-sector (particularly infrastructure) to reduce regional and global emissions and build a stable economy.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Singapore	36% below 2005 levels by 2030, and stabilize emissions with the aim of peaking around 2030		No Information	No Information
Solomon Islands	30% below 2015 level by 2030	45% reduction in GHG emissions by 2030, compared to BAU	No Information	No Information
South Africa	Limit emissions to maximum 614 MTCO ₂ eq by 2030		No Information	Integrate electric vehicles and target 20% hybrid-electric vehicles by 2030.
Sri Lanka	7% below 2030 BAU scenario	23% below 2030 BAU scenario	No Information	<ul style="list-style-type: none"> - Energy efficient and environmentally friendly transport systems; - 25-40% of public transport to be green fuelled by 2030; - Development of electric rail; - Mode shift from unproductive modes; - Improve transport efficiency.
Sudan			No Information	No Information
Suriname		Greater than 25% renewable energy by 2025	No information	No Information
Swaziland	Develop a mitigation goal and associated action plan by 2020		No Information	Target 10% ethanol blend in petrol by 2030.
Switzerland	50% by 2030 compared to 1990 levels		No Information	No Information
Tajikistan	Not to exceed 80-90% of 1990 levels by 2030	65-75% of 1990 levels by 2030	No Information	Modernize industry and transport.

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
Tanzania	10% by 2030 relative to the BAU scenario	20% by 2030 relative to the BAU scenario	No Information	Promote low emission transport systems through deployment of mass rapid transport systems and investments in air, rail, marine and road infrastructures.
Thailand	20% below 2030 BAU scenario	Up to 25% below 2030 BAU scenario	No Information	<ul style="list-style-type: none"> - Environmentally Sustainable Transport System Plan proposes ambitious actions to promote road-to-rail modal shift for both freight and passenger transport, including extensions of mass rapid transit lines, construction of double-track railways and improvement of bus transit in the Bangkok Metro area; - A vehicle tax scheme based on CO2 emissions will become effective beginning 2016.
Togo	11.4% below 2030 BAU	31.14% below 2030 BAU	No Information	<ul style="list-style-type: none"> - Planned actions are designed to reduce fossil fuel consumption; - Improvement of the road network; - Promotion of public transport, limiting age of imported vehicles to 5-7 years; - Promotion of active transport (bicycles, walking, bike path development).
Trinidad and Tobago		15% below 2030 BAU emission levels.	30% reduction in by 2030 in public transport sector compared to BAU	No Information
Tunisia	13% reduction in carbon intensity relative to 2010	41% compared to 2010	No Information	Around 20 energy efficiency actions have been included, covering the entire industrial, building, transport and agricultural sectors.
Turkey	21% reduction in GHG emissions from BAU by 2030		No Information	<ul style="list-style-type: none"> - Ensure balanced utilization of transport modes in freight and passenger transport by reducing the share of road transport and increasing the share of maritime and rail transport;

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
				<ul style="list-style-type: none"> - Implement sustainable transport approaches in urban areas; - Promote alternative fuels and clean vehicles; - Reduce fuel consumption and emissions of road transport with National Intelligent Transport Systems Strategy Document (2014-2023) and Action Plan (2014-2016); - Complete high speed railway projects; - Expand urban railway systems; - Achieve fuel savings through tunnel projects; - Scrapping old vehicles; - Implement green port and green airport projects to ensure energy efficiency; - Implement special consumption tax exemptions for maritime transport.
Turkmenistan		Stabilize or begin to reduce GHG emissions by 2030	No Information	No Information
Uganda	22% reduction from BAU in 2030		Reductions of 24-34% from BAU projections for road transport	Develop and implement long-term transport policy on climate change mitigation; Fuel Efficiency Initiative NAMA: Policies and regulations to promote cleaner fuels and more fuel-efficient vehicle technologies.
Ukraine	Not to exceed 60% of 1990 emissions		No Information	No Information
United Arab Emirates	Increase clean energy to 24% of total energy mix by 2021		No Information	<ul style="list-style-type: none"> - Introduction of new fuel pricing policy, to put the UAE in line with global prices and lower fuel consumption; - Federal freight rail network to be integrated into the Gulf Cooperation Council (GCC) network; - Emirate of Abu Dhabi has set targets to shift 25% of government vehicle fleets to compressed natural gas;

Country	Economy-wide Target (Unconditional)	Economy-wide Target (Conditional)	Transport Sector Target	Summary of Proposed Transport Measures
				- Emirate of Dubai has to continue to add new lines to metro and light rail systems.
United States	Reduce emissions by 26-28% below 2005 levels in 2025		No Information	Introduce fuel economy standards for light-duty vehicles for model years 2012-2025 and for heavy-duty vehicles for model years 2014-2018.
Uruguay	Reduce CO2 emissions by 25%, CH4 by 44% and N2O by 40% per unit GDP by 2030	Reduce CO2 emissions by 40%, CH4 by 68% and N2O by 41% per unit GDP by 2030	No Information	<ul style="list-style-type: none"> - Implement BRT corridors for metropolitan public transport; - Introduce electric and hybrid private and public vehicles; - Increase the percentage of biofuels in gasoline and diesel oil blends; - Introduce public and private vehicles that support a higher percentage of biofuel blends; - Enhance vehicle fleet through higher power efficiency standards and lower emissions; - Improve cargo transport, through the incorporation of new multimodal systems, and increased use of railroad and inland waterway transport.
Vanuatu		30% reduction in energy sector below 2030 BAU scenario	No Information	No Information
Vietnam	8% below BAU scenario	25% below 2030 BAU scenario	No Information	<ul style="list-style-type: none"> - Develop public passenger transport, especially rapid transit in large urban centers; - Restructure freight to reduce share of road transport and increase share of transport via rail and inland waterways; - Encourage buses and taxis to use compressed natural gas and liquefied petroleum gas; - Implement management solutions for fuel quality, emissions standards, and vehicle maintenance.
Zambia	25% below 2030 BAU scenario	47% below 2030 BAU scenario	No Information	Promote fuel switching (e.g. diesel to biodiesel).

<u>Country</u>	<u>Economy-wide Target</u> <u>(Unconditional)</u>	<u>Economy-wide Target</u> <u>(Conditional)</u>	<u>Transport Sector Target</u>	<u>Summary of Proposed Transport Measures</u>
Zimbabwe		47% below 2030 BAU scenario	0.341 MtCO ₂ eq reduction in 2030	Refurbish and electrify the rail system.