

DECARBONISING PATHWAYS FOR URBAN MOBILITY IN CENTRAL ASIA

Case studies for Tashkent and Ulaanbaatar

12 September 2023



On behalf of:

About ITF

An Intergovernmental Organisation

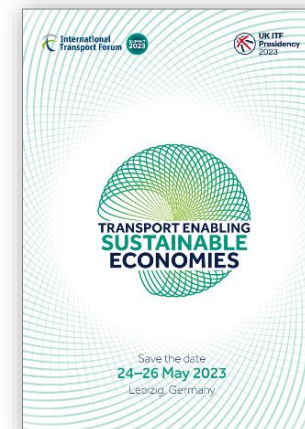
- **66 member countries** on five continents
- Administratively integrated with OECD, politically independent
- An interactive forum at the cross-road of policymakers, private actors, academia and beyond
- Bridging gaps and sharing best practices for enhanced cooperation

A Think Tank

- Policy-relevant research and analysis (more than **60 reports** per year)
- Modelling, data and statistics
- Identification of best practices for enhancing connectivity, governance, financing among others

The Annual Summit

- The world's **largest gathering of transport ministers**
- The premier global transport policy event



ITF Summit 2023

<https://www.itf-oecd.org/itf-2023-summit>

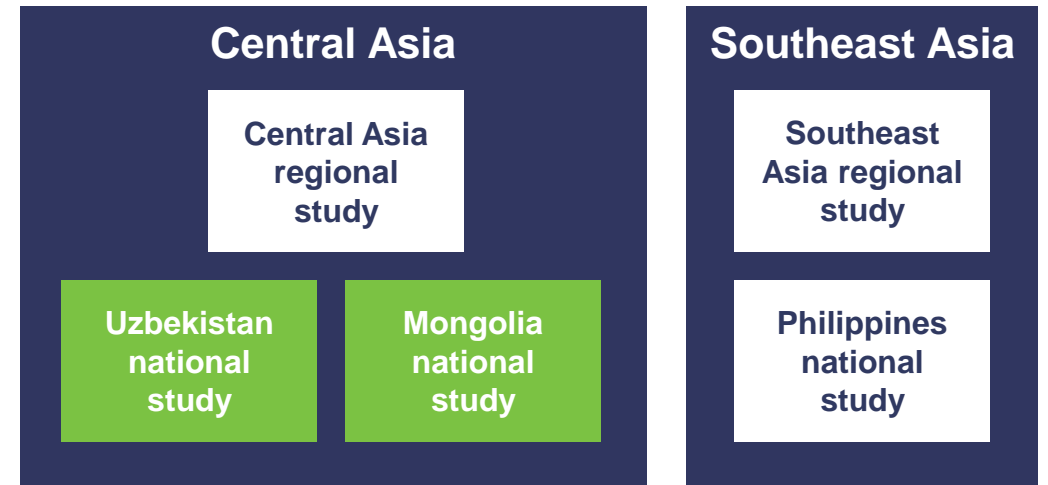
May 24-26,
Leipzig, Germany

SIPA overview

What is the Sustainable Infrastructure Programme in Asia (SIPA)?

- A four-year program supporting the development of **cleaner infrastructure** in Central and Southeast Asia
- Led by the **OECD** and funded by the International Climate Initiative (IKI) of **Germany's Ministry for the Environment**
- The ITF leads transport-related studies. It aims to provide **transport policy guidance** with a focus on **decarbonisation** and enhanced **connectivity** by:
 - Producing an **assessment of transport infrastructure** at both **regional** and **national** levels
 - Providing policymakers with **simulation tools** to assess the impact of policy options and identify effective decarbonising measures

Sustainable Infrastructure Programme in Asia – Transport (SIPA-T)



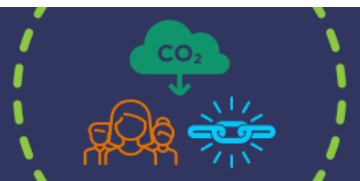
Central Asia national studies

What is the national roadmap study for Central Asia?

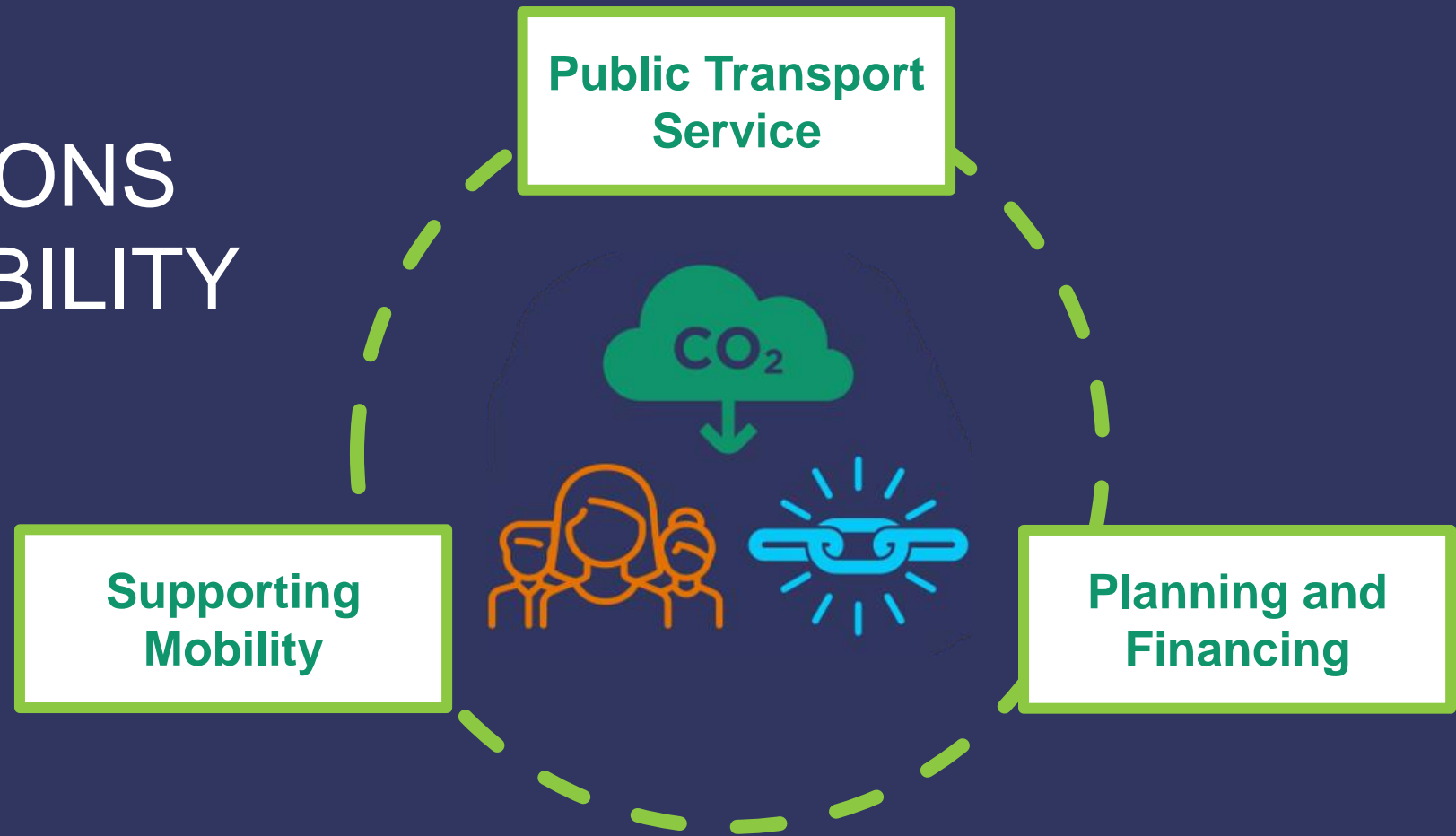
The national roadmap studies developed **decarbonising pathways** for **urban passenger transport** in the capital cities, Tashkent and Ulaanbaatar. They emphasised the role of public transport and its development. They comprise four parts:

- 1 Understanding the urban transport context in the capital city:** data collection, analysis of policy priorities
- 2 Developing a public transport improvement plan (Tashkent only):** strategies to meet Uzbekistan's goals regarding sustainable mobility
- 3 Quantitatively assessing decarbonising pathways for the capital city:** tailor the ITF modelling tool to estimate carbon emissions under three different scenarios (Baseline, Current Policy, Climate Ambition)
- 4 Disseminating best practices for low-carbon transport systems**

Study timeline



POLICY DIRECTIONS FOR URBAN MOBILITY



Improving planning and financing

Current situation

- **Inefficient governance process**, with a limited degree of transparency, integration, responsibility allocation and institutional capacity
- **Fragmented public transport provision** with minimal incentives for better performance
- **Insufficient financing system** leading to limited economic support for public transport
- **Lack of integration of land-use and transport planning** undermining the importance of mobility in sustainable urban development

Policy recommendations



Restructure governance and establish a **Metropolitan Transport Authority (MTA)**



Adopt a **Sustainable Urban Mobility Plan (SUMP)**



Improve and **diversify funding streams** for public transport



Modernize procurement by introducing **Quality Incentive Contracts**



Adopt **data-driven transport planning and policymaking**



Integrate **land-use and transport development**

Enhancing public transport service

Current situation

- Imbalanced **network coverage** that **lacks optimisation** – no hierarchy with overlapping and lengthy routes
- Insufficient level of service with **unsatisfactory reliability**, convenience and user-friendliness
- **Insufficient bus fleet** with **low fuel efficiency** and a significant share of ageing vehicles
- **Outdated fare system** with no support to targeted users and multimodal trips

Policy recommendations



Create a **hierarchical** and **intermodal public transport** network to increase ridership and meet future demand



Transform informal public transport services to strengthen transport supply and improve connectivity



Implement a **new fare structure** with single ticket for seamless trips



Expanding supporting mobility

Current situation

- Suboptimal legislation, working conditions, and weak enforcement lead to low-quality taxi services
- Unorganised parking in the city resulting in extra congestion and compromised road safety
- Application of digital solutions and Intelligent Transport Systems (ITS) is at the early stage
- Underdeveloped micromobility is not yet a feasible transport alternative

Policy recommendations



Formalise the taxi market and reduce its competitiveness



Leverage micromobility, shared mobility and digitalisation for convenient multimodal integration



Regulate private mobility to maximize the benefits of sustainable urban mobility



Policy scenarios for CO₂ reduction

The ITF designed **three distinct scenarios** to assess the **CO₂ reduction potential** of different policy pathways. The scenarios explore alternative futures, their impacts on the transport system and their externalities.

- 1 Baseline scenario:** no measures are implemented for sustainable mobility
- 2 Current Policy scenario:** expected and planned measures are implemented
- 3 Climate Ambition scenario:** planned measures are enhanced, and new measures are introduced

Data collection in cooperation with local stakeholders



Development of tailored strategic urban mobility models based on city-specific data and methodology from the ITF



Scenario definition with partners in each country: analysis of existing, planned and potential measures

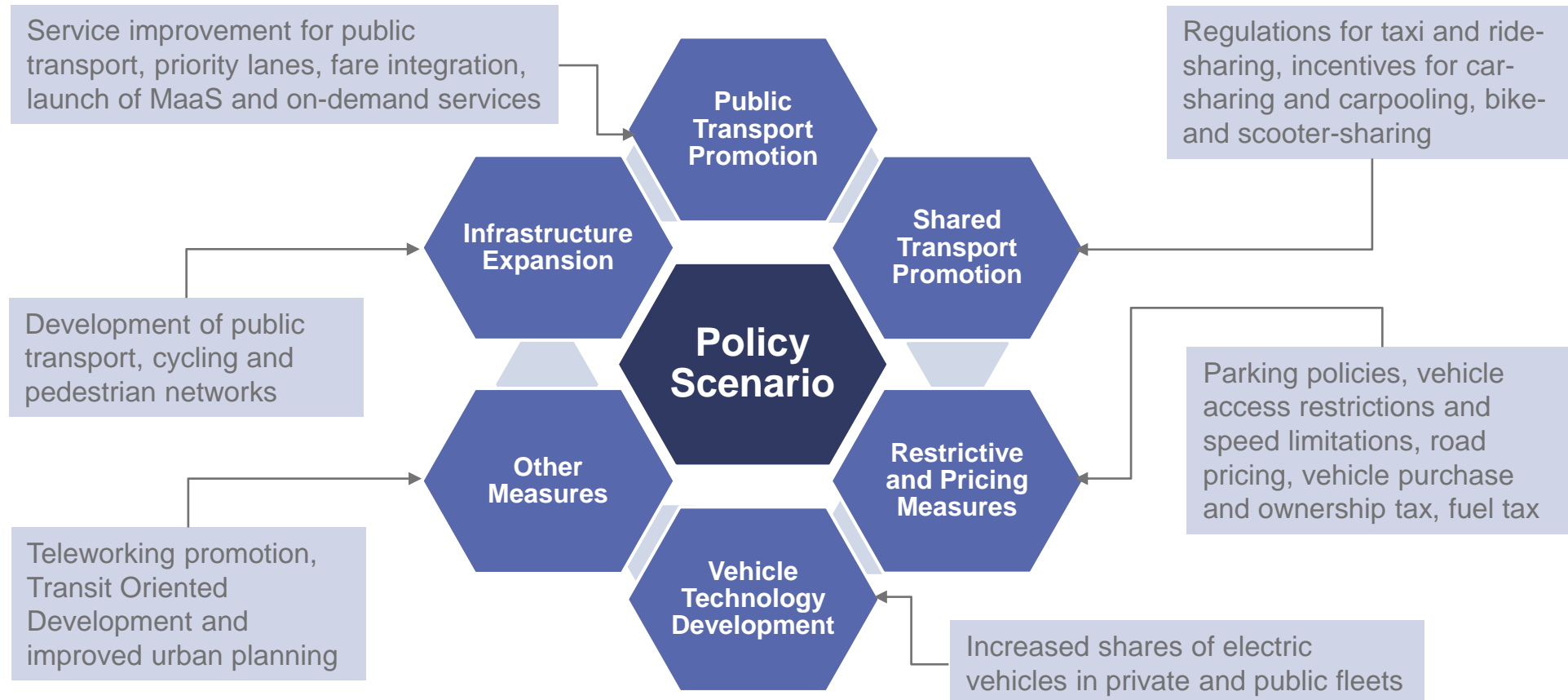


Model handover to the Ministries of Transport for supporting local policy building



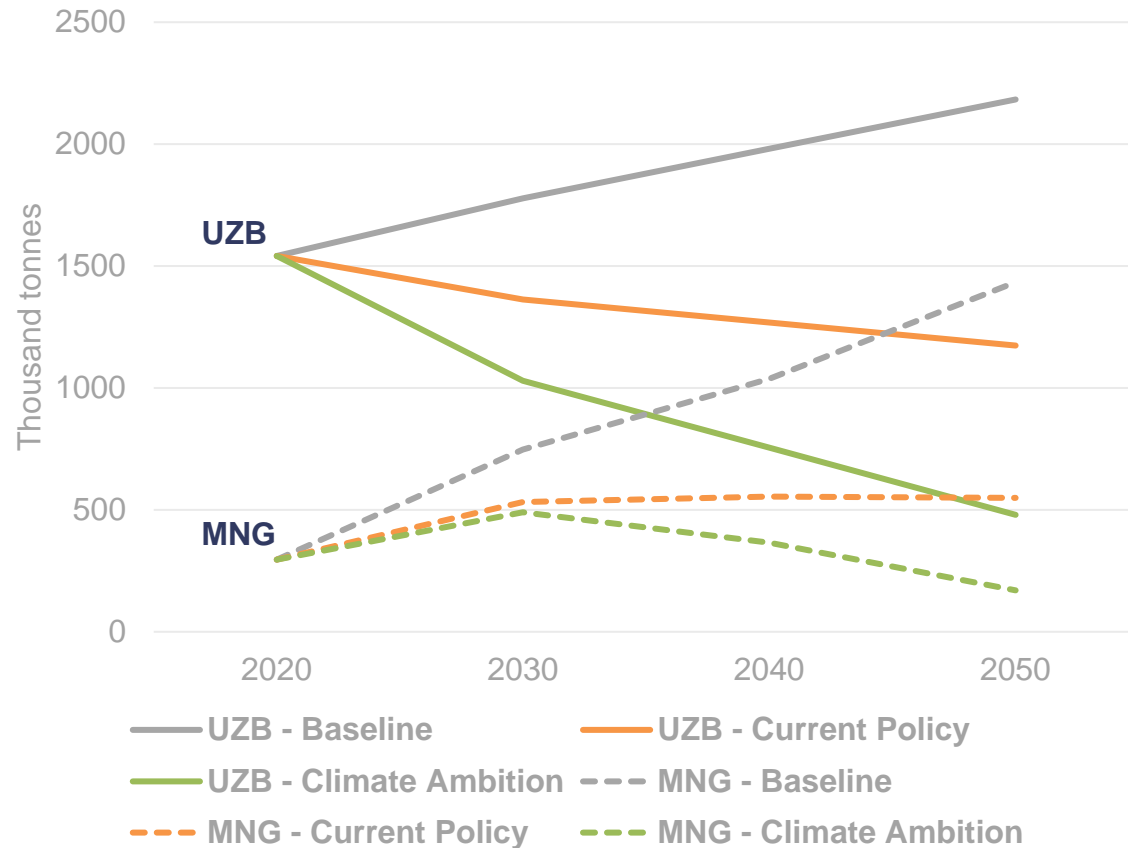
Policy scenario composition

The exact selection of measures and their degree of implementation depends on the scenario.



Overall CO₂ emissions

Trajectories of CO₂ emissions until 2050 by scenario

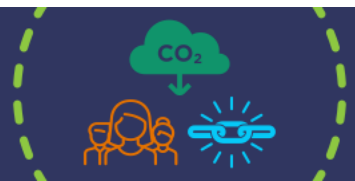


Main findings

- **Baseline scenario**, strong population and income growth and shift towards private vehicles result in a sharp increase in CO₂ emissions.
- **Current Policy scenario**, planned policy actions reverse the emission trajectory; however, they are not sufficient to achieve Tashkent's and Ulaanbaatar's climate goals.
- **Climate Ambition scenario**, effective policy measures allow for cutting CO₂ emissions further and achieving decarbonisation goals.

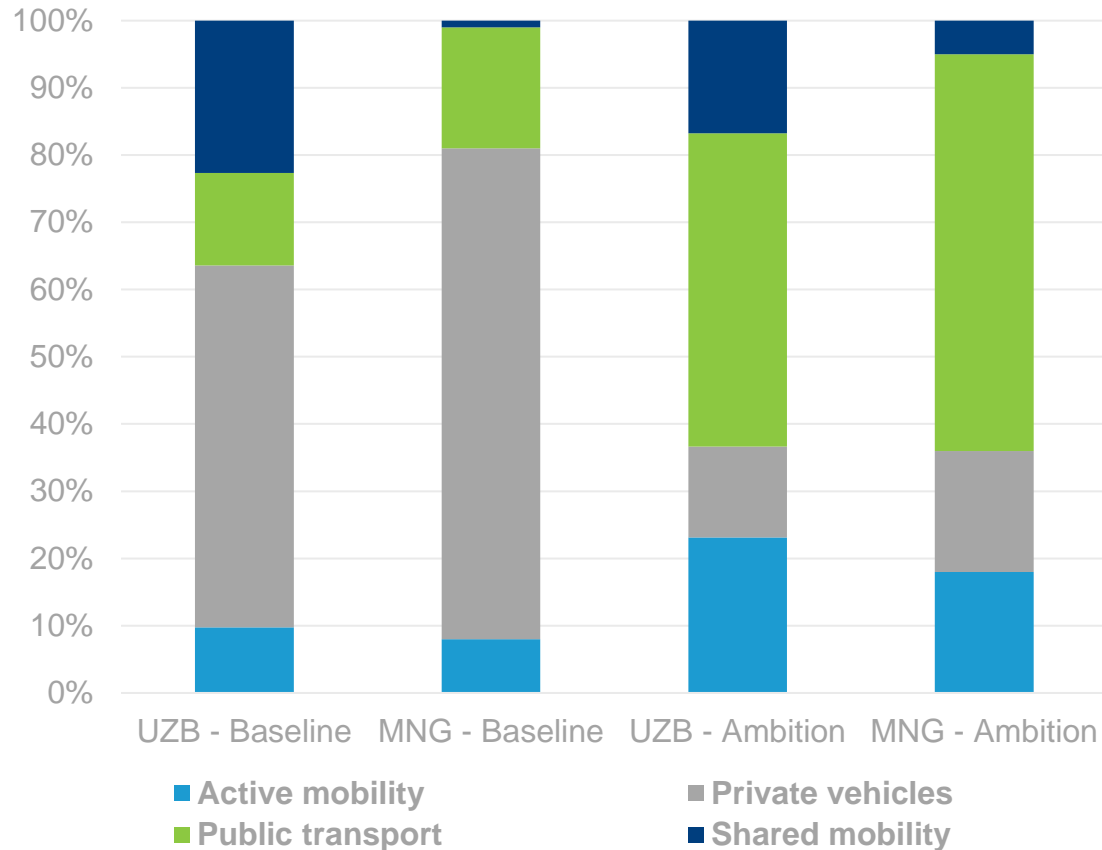
Evolution of CO₂ emissions from 2020 to 2050

	Current Policy Where we are heading	Climate Ambition How far we must go
Tashkent	-24%	-68%
Ulaanbaatar	+86%	-58%



Mode share

Mode share in 2050 by scenario



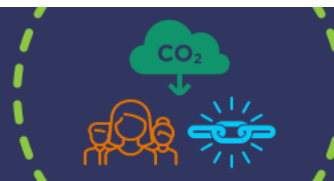
Main findings

- **Baseline scenario**, income and area growth leads to a noticeable increase in private vehicle ownership
- **Current Policy scenario**, investments in active mobility, public transport infrastructure and service improvement favour a shift to sustainable modes
- **Climate Ambition scenario**, additional measures boost modal integration as well as target private vehicles allowing for a further decrease in the usage of carbon-intensive modes

Share of sustainable modes* by 2050

	Baseline Business as usual	Climate Ambition How far we must go
Tashkent	46%	87%
Ulaanbaatar	27%	82%

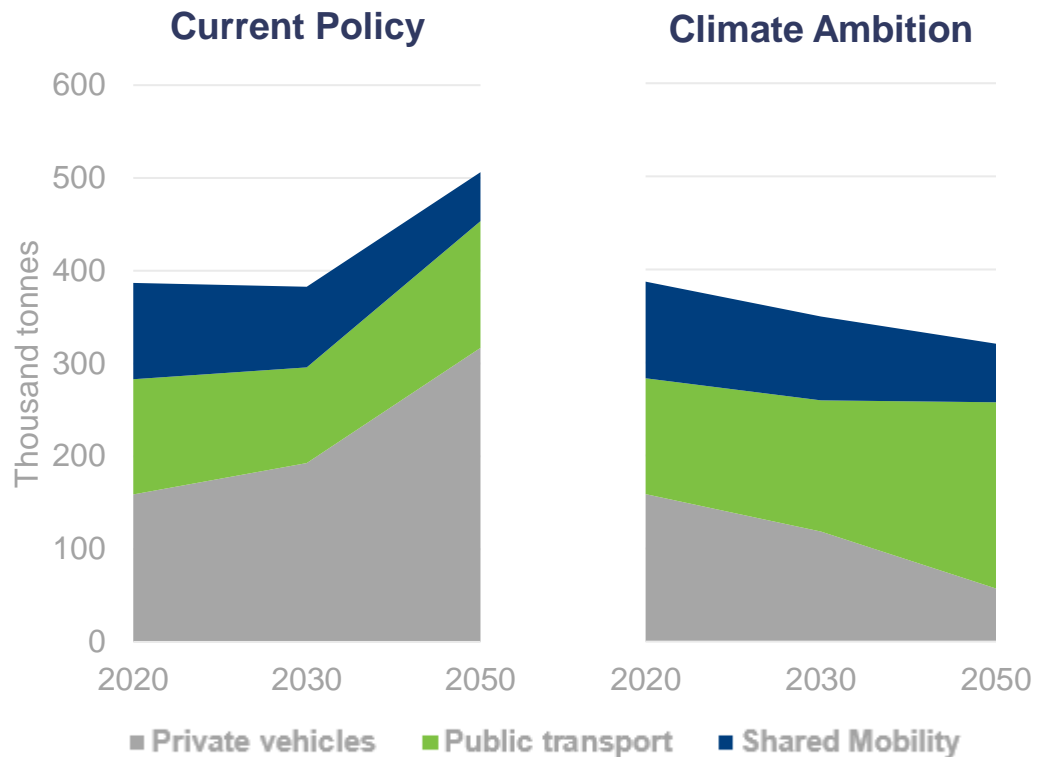
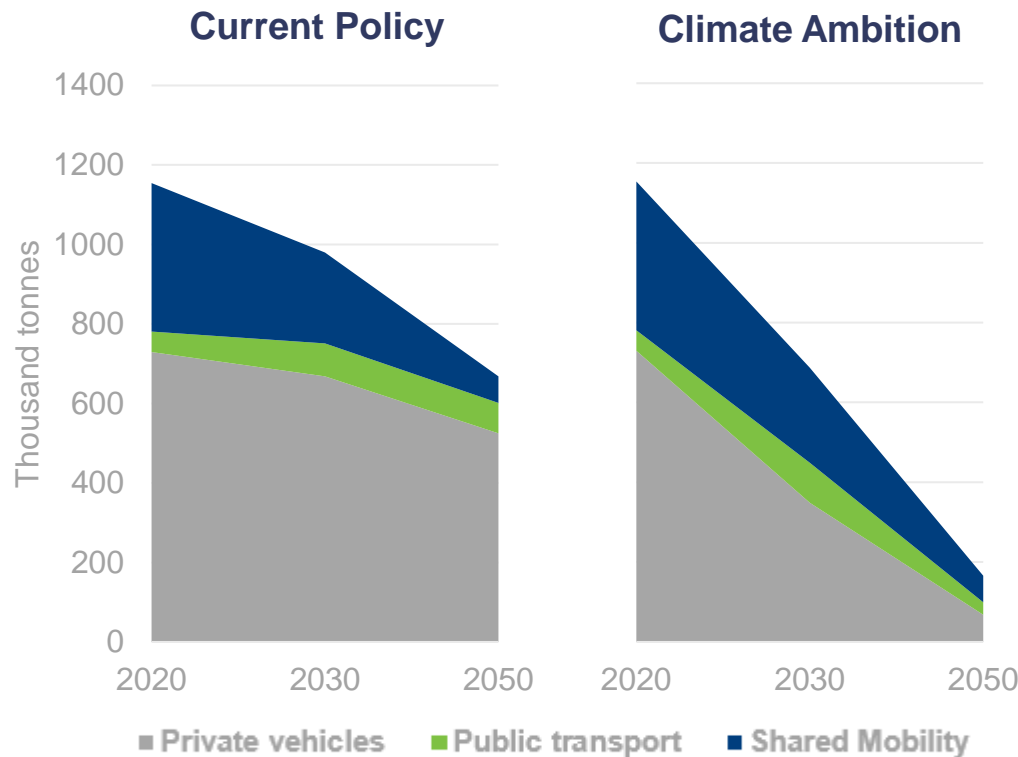
* sustainable modes include walk, bicycle, public transport and shared mobility



Tank-to-wheel vs Well-to-tank CO₂ emissions

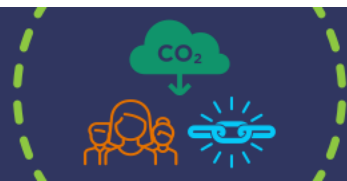
Tashkent tank-to-wheel CO₂ emissions

Tashkent well-to-tank CO₂ emissions

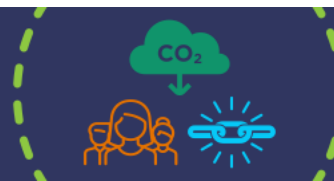
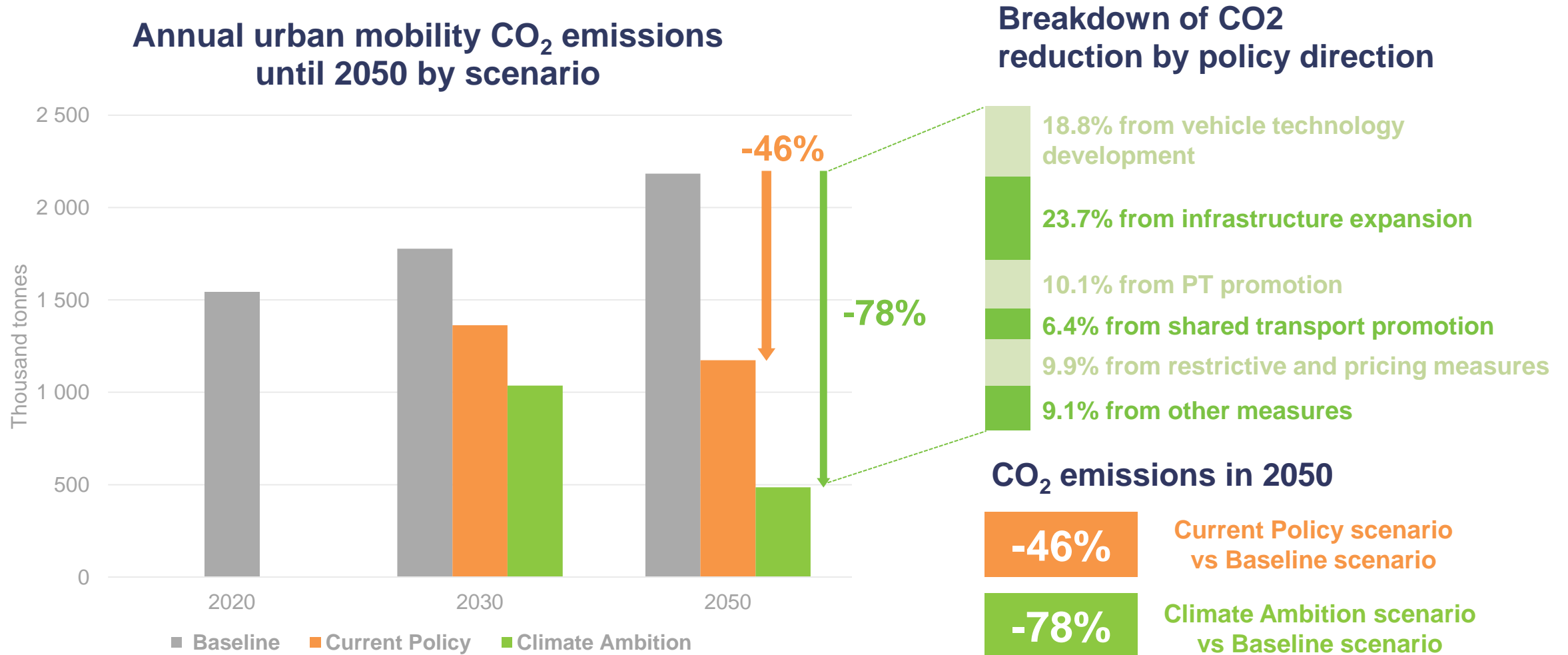


- CO₂ emissions from private vehicles remain almost unaffected by the current policies, contributing to approximately 80% of the total emission volume in 2050.

- CO₂ emissions are expected to rise with the current policies. Stricter upstream measures are needed to reduce the carbon intensity of fuel production and distribution.



Breakdown by policy direction: Tashkent example



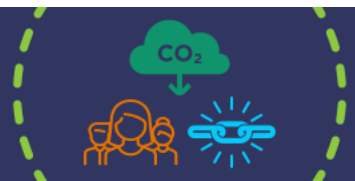
Comparison and summary

	Vehicle Technology Development	Infrastructure Expansion	Public Transport Promotion	Shared Transport Promotion	Restrictive Measures	Pricing Measures	Other Measures
Tashkent 2050*							
Current	-19%	-22%	-8%	-0.2%	-4%	-2%	0%
Ambition	-27%	-34%	-15%	-9%	-5%	-9%	-13%
Ulaanbaatar 2050*							
Current	-36%	-15%	-2%	-8%	-1%	-2%	-4%
Ambition	-62%	-20%	-3%	-9%	-9%	-3%	-7%

Policy priorities

- ✓ Begin with “soft” measures requiring less time and resources to implement while planning for “hard” structural changes
- ✓ Develop a hierarchical and integrated public transport network that will become the backbone of urban mobility
- ✓ In parallel, introduce and enhance shared and micromobility to further support public transport
- ✓ Following the establishment of sustainable modes as a feasible alternative, target the use of private vehicles

*The sum does not equal to total CO₂ emissions reductions as the analysis by individual policy direction does not account for combined effects



Other non-measured benefits



Decrease of local air pollutants
(NO_x, PM_{2.5}, SO₄)



Healthier community



Increased use of active mobility and
more walkable city



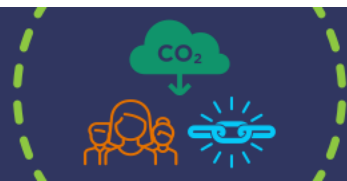
Increased safety



Decrease of PKM travelled by car



Reduced congestion



Download study materials

International Transport Forum **SIPA**
Sustainable Infrastructure Programme in Asia

DECARBONISING PATHWAYS FOR ULAANBAATAR'S URBAN MOBILITY

Model Manual for Urban Mobility Model Ulaanbaatar, Mongolia
September 2023

On behalf of:
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
of the Federal Republic of Germany

International Transport Forum **SIPA**
Sustainable Infrastructure Programme in Asia

TASHKENT URBAN MOBILITY MODEL

Version: July 2023
Last update: 10/07/2023

DISCLAIMER

The results presented in the model should be regarded as an estimation derived from the best available data and information collected during the project. Its primary value lies in facilitating scenario comparisons rather than providing precise future values for certain indicators.

The ITF warrants the output validated by the technical team for alternative scenarios by adjusting the source of any manual scenario.

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INTRODUCTION

The ITF Urban Mobility Model

SIPA
Sustainable Infrastructure Programme in Asia

URBAN MOBILITY IMPROVEMENT PLAN FOR TASHKENT, UZBEKISTAN

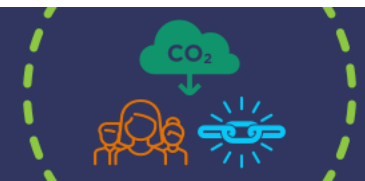
Policy directions for sustainable urban mobility development with focus on public transport

On behalf of:
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
of the Federal Republic of Germany

IKI **INTERNATIONAL CLIMATE INITIATIVE** **OECD** **MINISTRY OF TRANSPORT REPUBLIC OF UZBEKISTAN**

More information and study materials are available on the **ITF website**:

- [Decarbonising Pathways for Urban Mobility in Uzbekistan](#)
- [Decarbonising Pathways for Urban Mobility in Mongolia](#)
- [Sustainable Infrastructure Programme in Asia – Transport \(SIPA-T\)](#)





INTERNATIONAL TRANSPORT FORUM

**2 RUE ANDRÉ PASCAL
F-75775 PARIS CEDEX 16**

PROJECT TEAM

Yaroslav KHOLODOV

SIPA Uzbekistan Study Lead

Email: yaroslav.kholodov@itf-oecd.org

Mallory TROUVÉ

SIPA Mongolia Study Lead

Email: mallory.trouve@itf-oecd.org

Guineng CHEN

SIPA Transport Programme Lead

Email: guineng.chen@itf-oecd.org