

Unlocking Climate Finance for Transport Transformation

Tools and resources for governments

SUMP Türkiye Project Webinar: Green Bonds and Other Green
Financing Mechanisms

15 May 2025

Yiqian Zhang

Senior Manager, Climate & E-Mobility
WRI Ross Center for Sustainable Cities
World Resources Institute (WRI)



WORLD
RESOURCES
INSTITUTE





1

About World Resources Institute (WRI)

2

Setting the scene: Why transport?

3

Urban climate finance landscape

4

Improving access to climate finance for transport: resources, tools, examples

Agenda



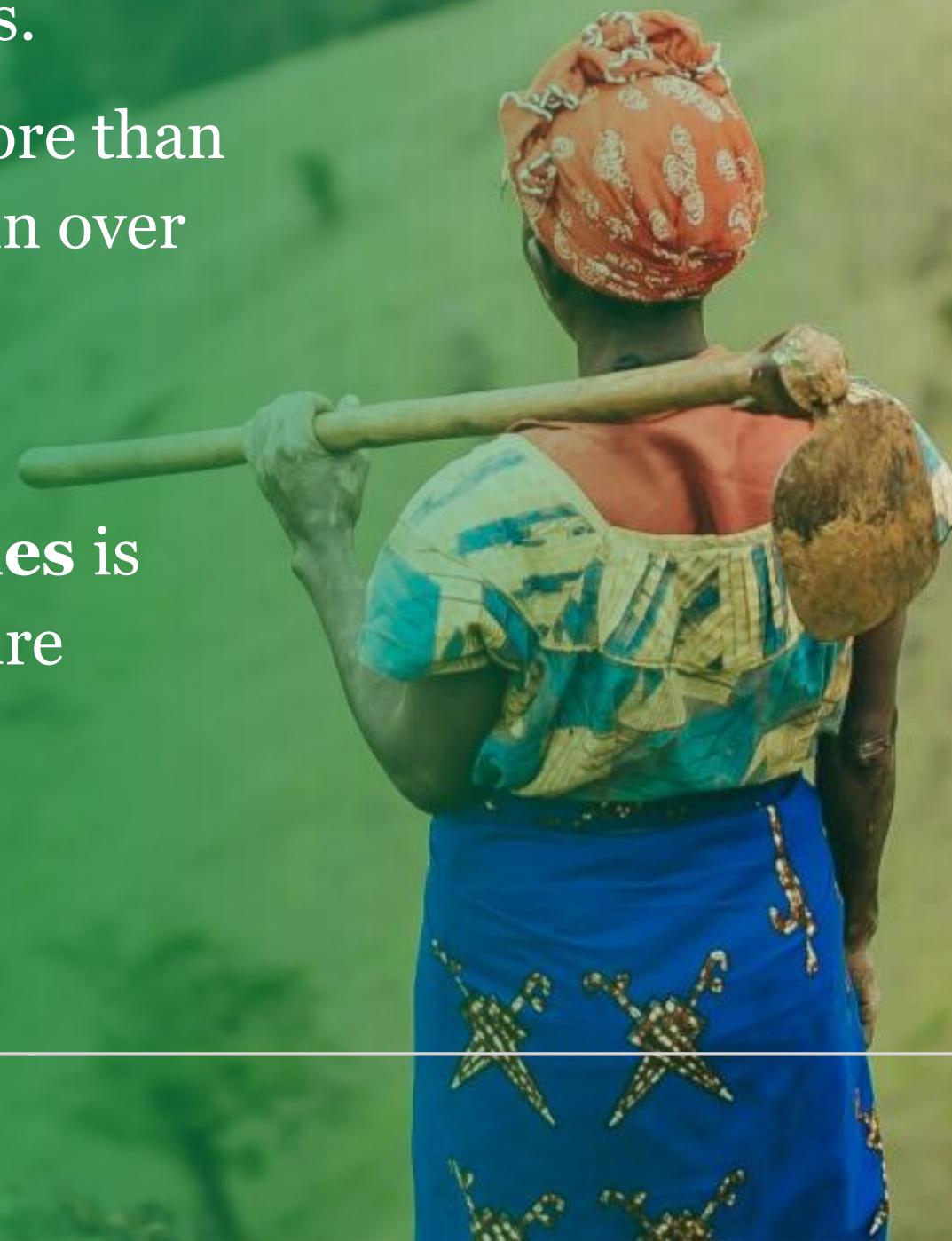
WRI is a global research organization working to improve people's lives, protect nature and halt climate change.

What do we do?

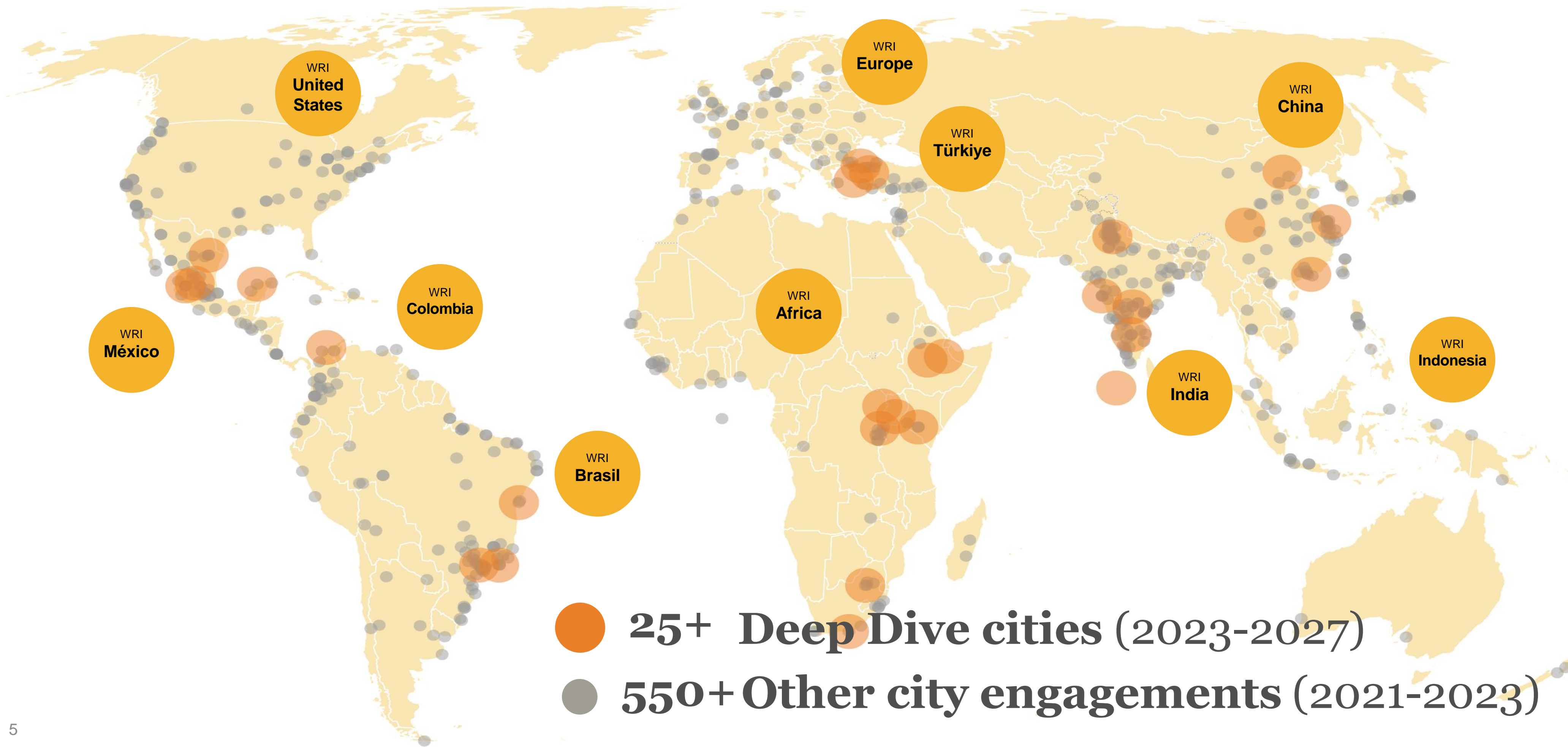
As an independent research organization, we leverage our data, expertise and global reach to influence policy and catalyze change across systems like food, land and water; energy; and cities.

Our 2,000+ staff work on the ground in more than a dozen focus countries and with partners in over 50 nations.

WRI Ross Center for Sustainable Cities is WRI's program dedicated to shaping a future where cities work better for everyone.



Where do we work?



01

Setting the scene

The role of transport in achieving net zero

Transport accounts for 14% of GHG emissions.

- 56% of the world's population live in cities and 70% of people are expected to live in urban areas by 2050.
- Transport is one of the fastest-growing sources of emissions globally.

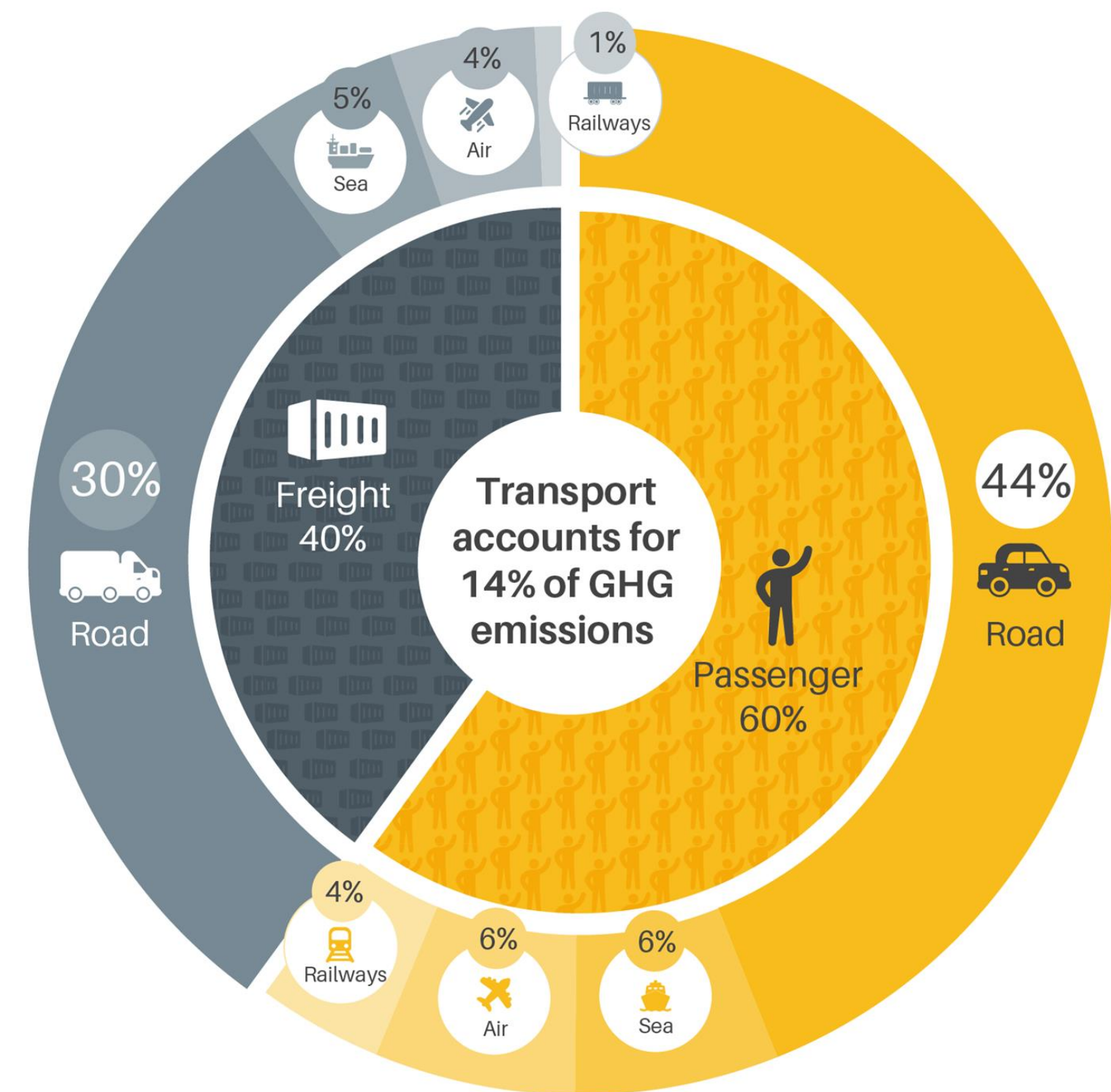
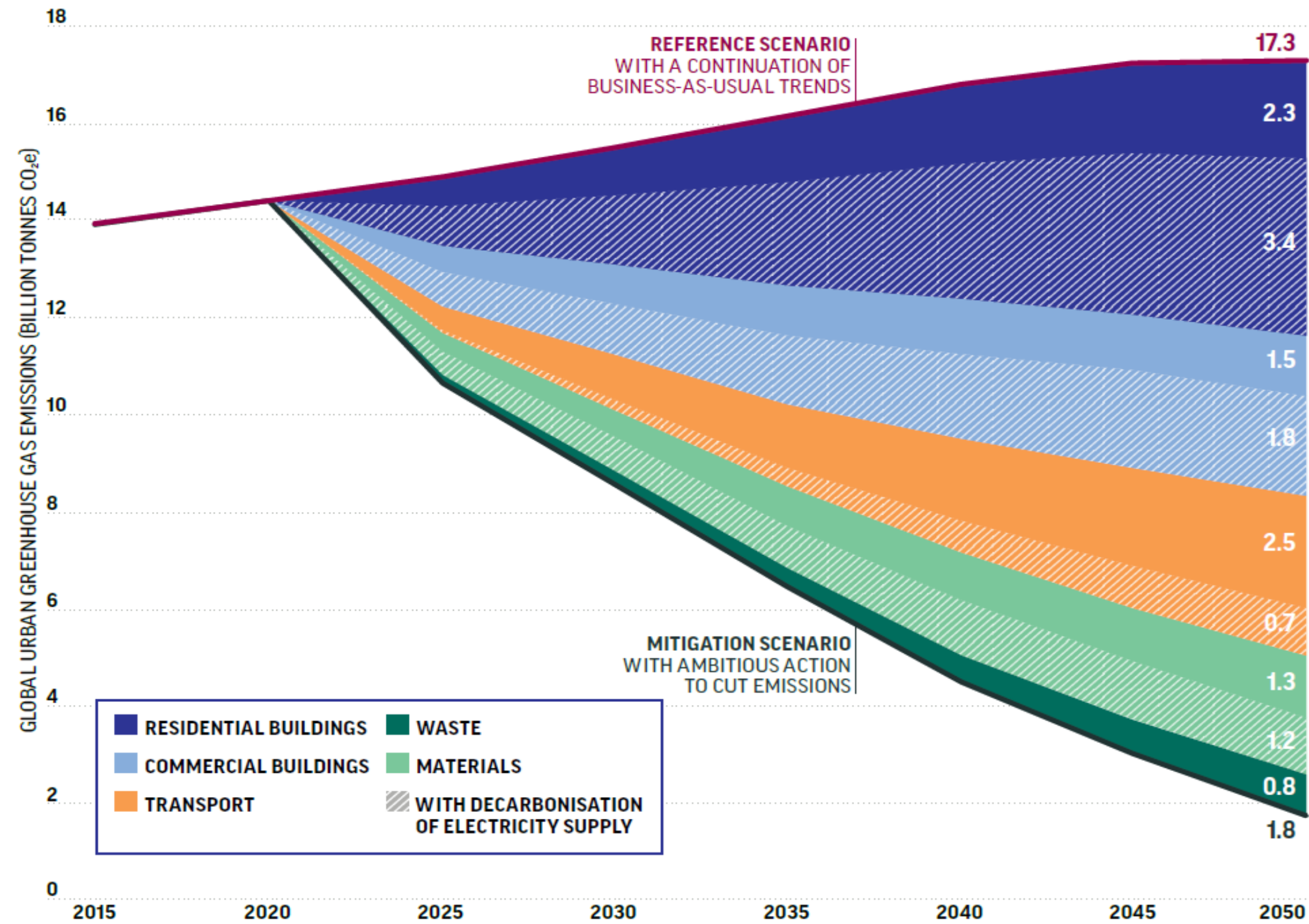


Figure. Technically feasible potential to reduce GHG emissions from cities, by 2050, by sector

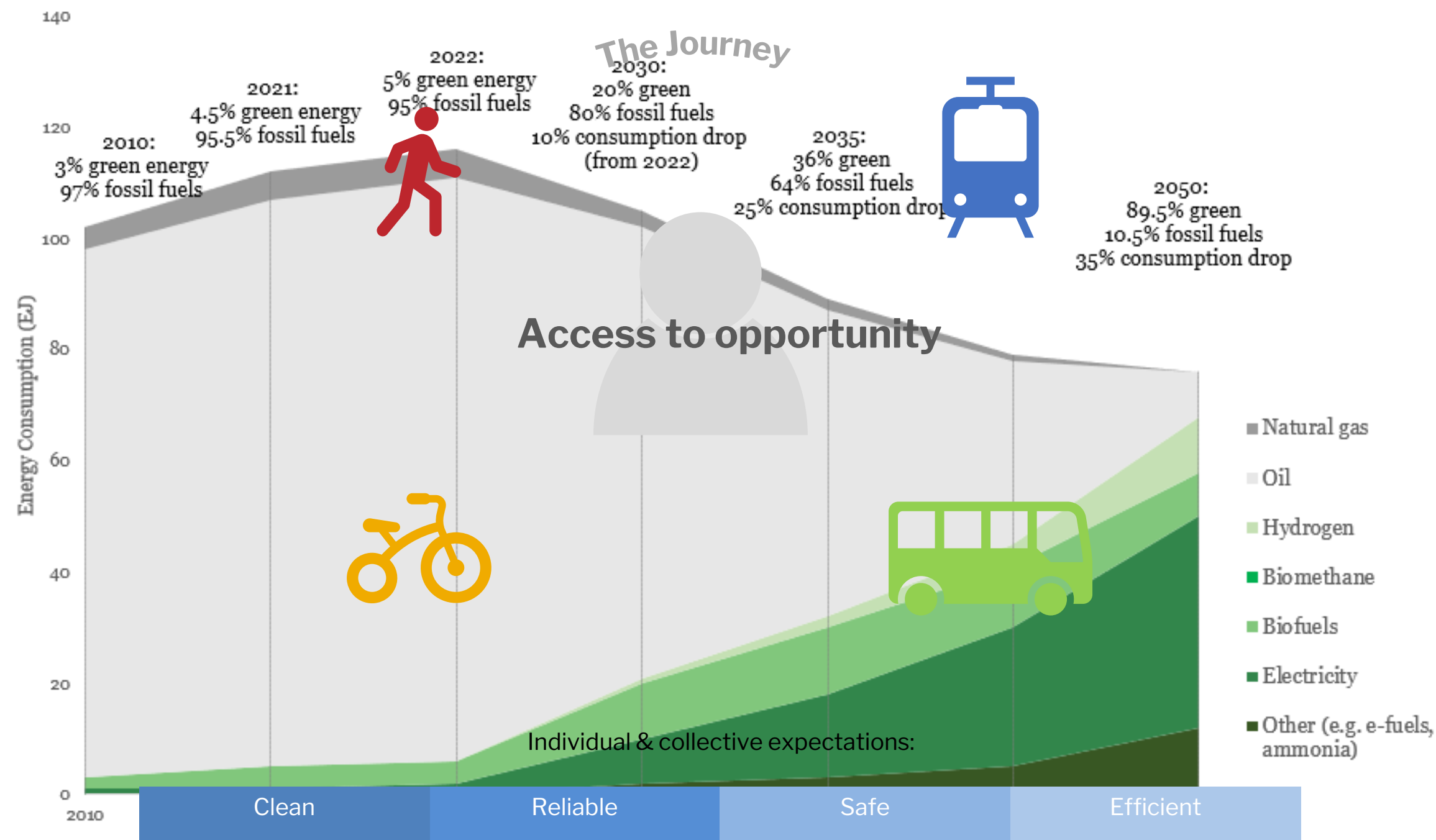


Net zero by 2050

- Solutions possible today can cut emissions by 90% by 2050.
- 21% of the carbon savings will from **transport**.

Net zero by 2050

Figure. Road to fossil free transport



- By 2035, the transport sector will need achieve a **25% reduction** in energy consumption (compared to 2022), and a shift to **35% green fuels**.
- This also includes the need to **double the share** of fossil-fuel free land transport.

Net zero by 2050

02

Why climate finance?

What is climate finance? How does the global climate finance landscape look like?

What is climate finance?

- What activities does climate finance fund?

The UNFCCC defines climate finance as the financial resources, whether from *public, private, or alternative* sources, that support efforts to *mitigate and adapt* to climate change.



Urban climate finance landscape

– Where are we now?

- Urban climate finance has more than doubled between 2017 and 2022, reaching USD 831 billion.
- Most of this growth is due to an increase in mitigation finance from the transport, energy systems, and buildings and infrastructure.
- Private finance accounted for 49% of total urban climate finance.
- Tracked urban climate finance remained heavily skewed toward developed economies.

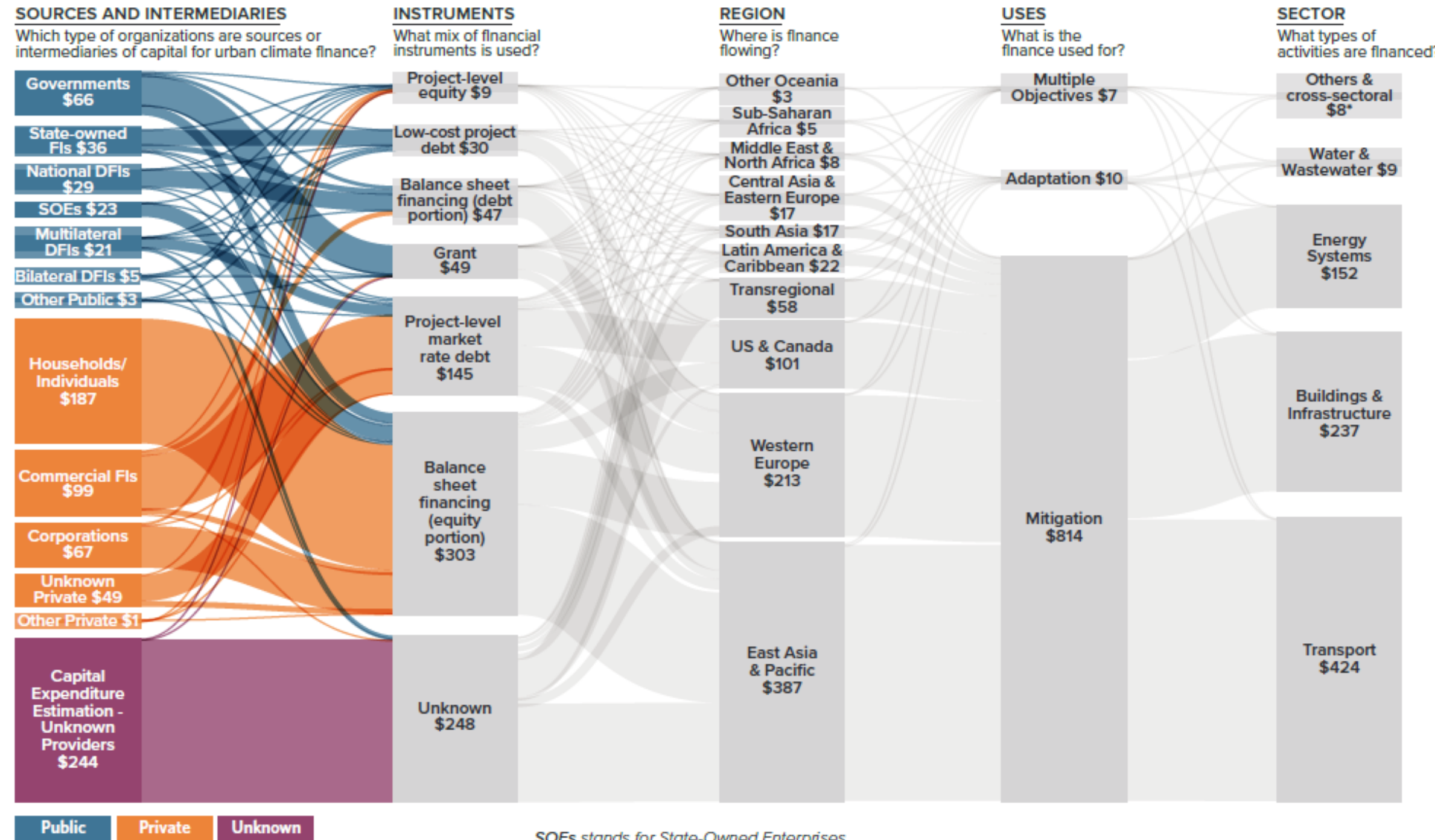
Figure. Landscape of urban climate finance in 2021/2022

USD billion

LANDSCAPE OF URBAN CLIMATE FINANCE IN 2021/2022

Global urban climate finance flows for 2021 and 2022. Values are averages of two years' data to smooth out fluctuations, in USD billions.

831 BILLION USD ANNUAL AVERAGE



SOEs stands for State-Owned Enterprises.
 FIs stands for Financial Institutions.
 DFIs stands for Development Finance Institutions.
 Transregional refers to financing that was tracked for multiple regions.

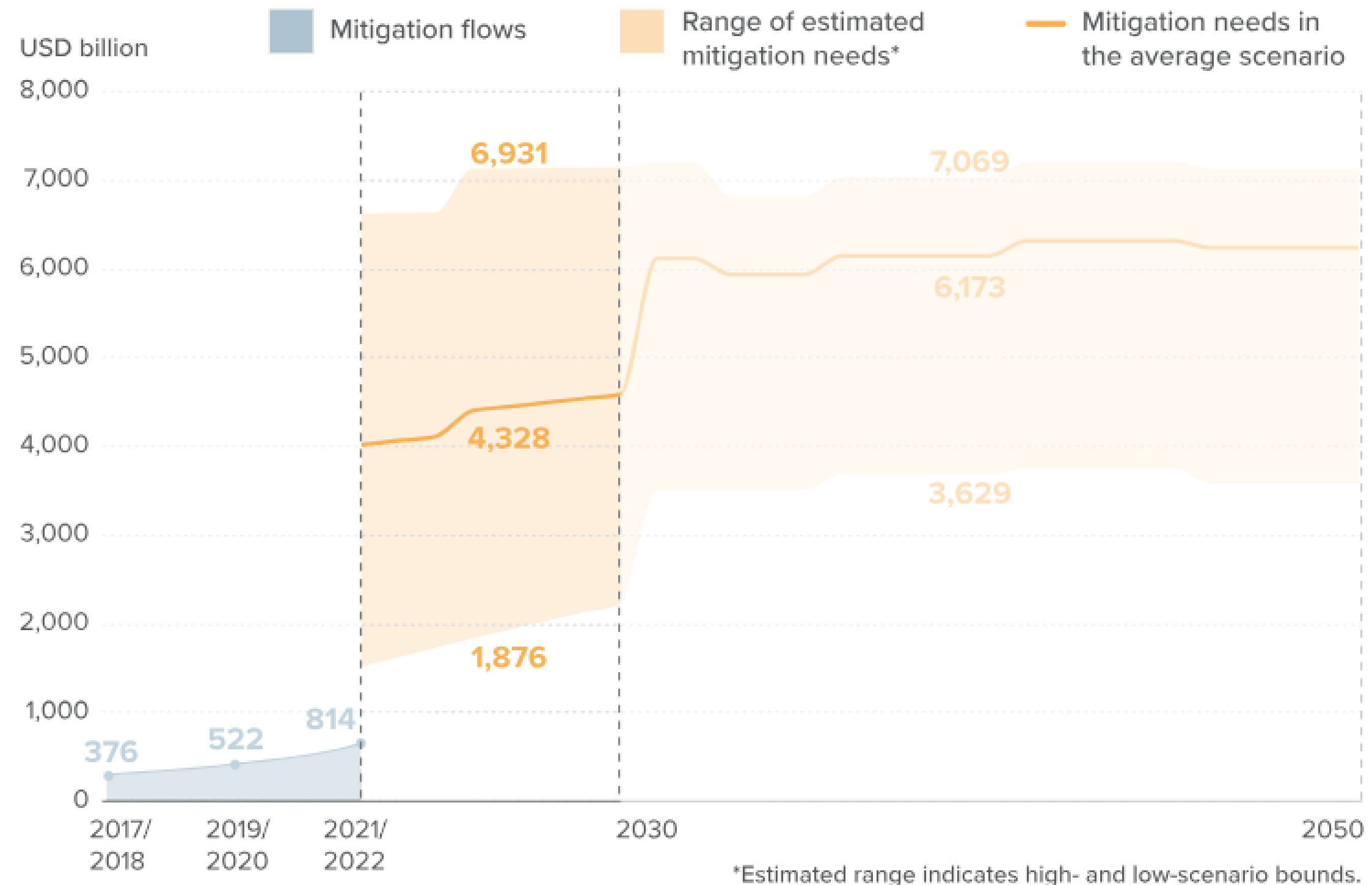
* Includes waste, agriculture, forestry and other land use, information and communications technology, and industry

Urban climate finance landscape

– What do cities need?

- Cities require an estimated **USD 4.3 trillion** annually from now until 2030, and **over USD 6 trillion** per year from 2031 to 2050, for mitigation alone.
- **Transport, energy, and buildings** dominate cities' mitigation investment needs.

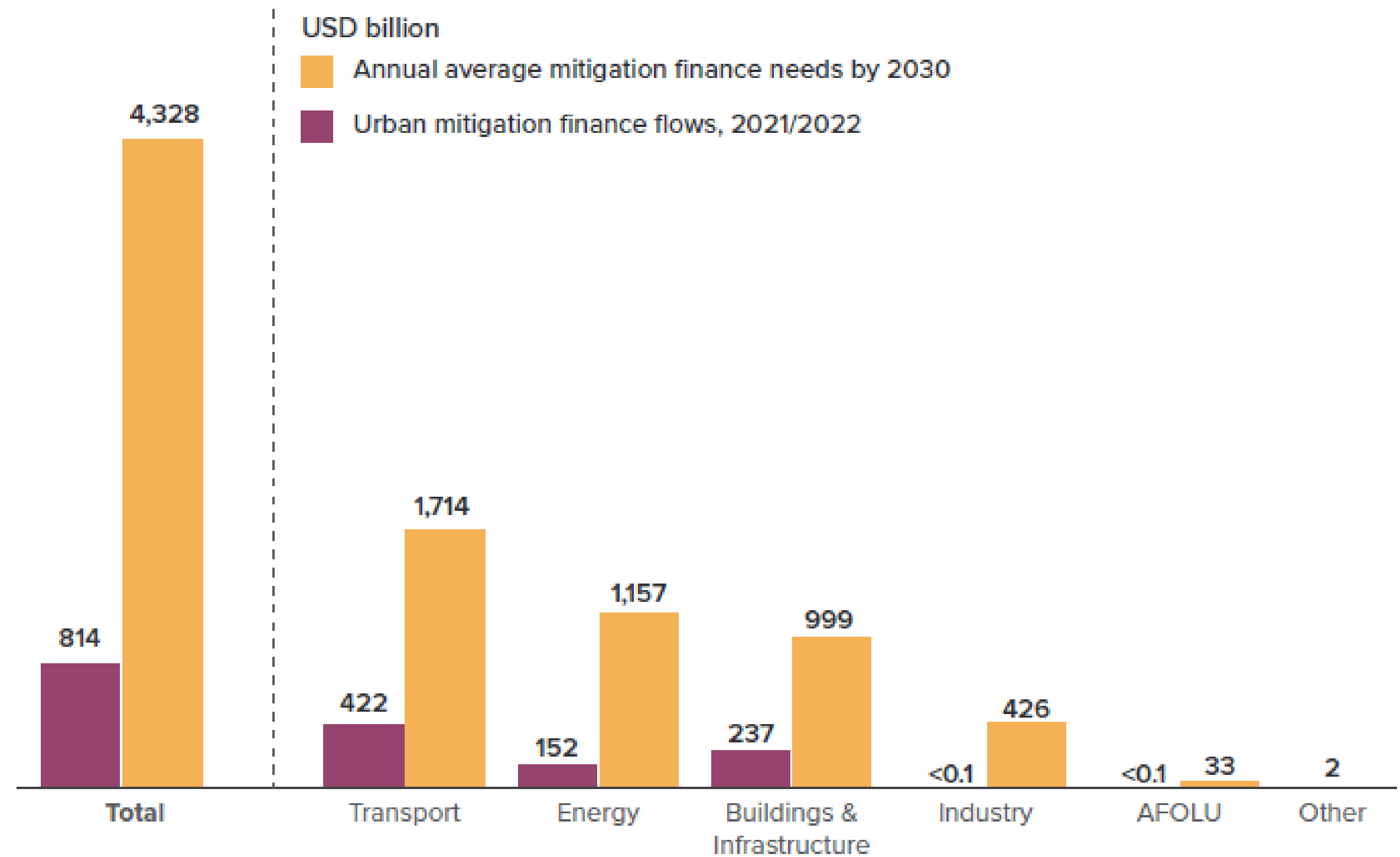
Figure. Urban climate finance needs by 2030 and 2050



Climate finance in key sectors vs finance needs

- Urban transport received 52% (USD 422 billion) of these funds, with a focus on electric cars and metro infrastructure.
- Through 2030, cities require USD 1.7 trillion annually for transport solutions—four times what is currently being spent.

Figure. Urban climate finance in key mitigation sectors in 2021/2022 vs finance needs by 2030



03

How to Improve Access to Climate Finance for Transport?

Tools and resources available for governments, particularly in less developed countries



Tools and resources

1. State of knowledge research report
2. Digital climate finance toolkit
 - Climate Finance for Transport Course
 - Funding Eligibility Catalogue
3. Climate finance policy guide

WORKING PAPER

Access to climate finance in low- and middle-income countries: 14 case studies in the transport sector

Yiqian Zhang, Molly Caldwell, Valerie Laxton, Ben Welle, Kangjie Zé Liu

CONTENTS

Highlights.....1
 Executive summary.....3
 1. Introduction.....6
 2. International climate finance landscape.....7
 3. Methodology.....10
 4. Observations regarding the climate finance providers' databases, and the financial instruments deployed.....13
 5. Barriers to accessing climate finance for the transport sector in LMICs.....16
 6. Opportunities to improve access to climate finance for transport.....23
 7. Conclusion.....26
 Appendices.....27
 Endnotes.....33
 References.....39
 Acknowledgments.....40

Working Papers contain preliminary research, analysis, findings, and recommendations. They are circulated to stimulate timely discussion and critical feedback, and to influence ongoing debate on emerging issues.

HIGHLIGHTS

- Much has been written about scaling climate finance, but less is known about its use in specific sectors such as transport.
- We examined the landscape of international climate finance for transport in Asia, Africa, and Latin America, looking at 839 transport projects and conducting 14 case studies. The international climate finance mechanisms we studied include climate funds, multilateral development banks, donor governments, and private investors.
- We found that a third of the transport projects that received climate finance involved building roads. Fewer public transport and electric vehicle projects accessed climate finance, and only 20 percent of projects explicitly aimed at improving resilience.
- The common barriers to accessing climate finance were inadequate policy frameworks, limited project preparation capacity, high upfront costs and risk perceptions, complex funding requirements, and difficulties in assessing projects' broader socioeconomic benefits.
- Countries can address these roadblocks by creating an enabling environment with sustainable policies and transport targets, attracting private investments with de-risking instruments, building capacity to design and implement bankable projects, and doing more to monitor and evaluate the impacts of transport measures.

State of Knowledge Research Report

- Reviewed global databases on 13 climate funds, MDBs, bonds and private finance
- Collated data of 840 transport projects that accessed climate finance (2015-2023)
- Explored 14 cases to identify key barriers & constraints



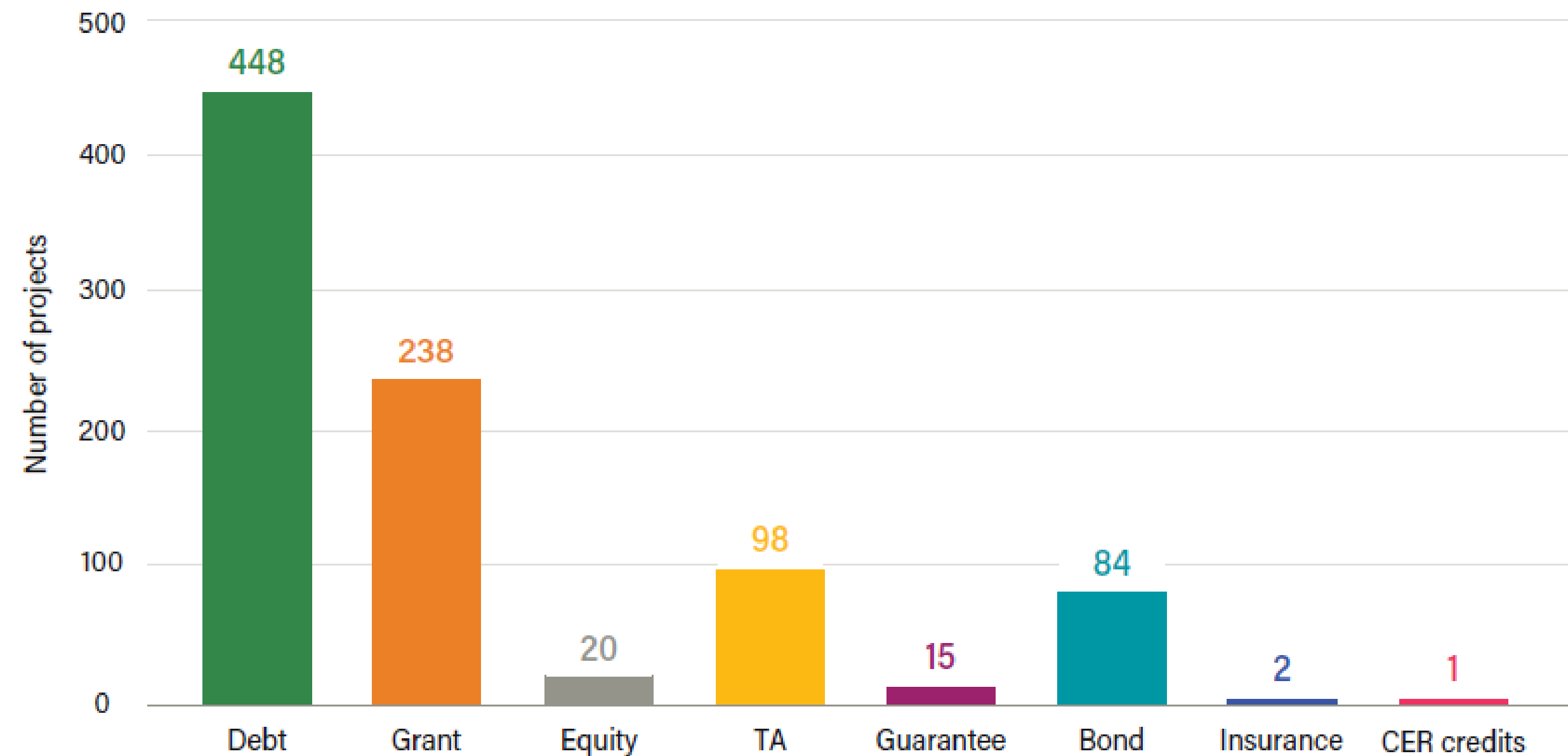
Observations regarding the climate finance providers' databases

SOURCE OF CLIMATE FINANCE	REGIONS COVERED	TRANSPORT MODES SUPPORTED			INSTRUMENTS DEPLOYED							
		Road	Rail	IWT/ Maritime	Grant	Loan	Guarantee	Debt	Equity	Insurance	TA	
African Development Bank	Africa	x	x	x	x	x						
Asian Development Bank	Asia-Pacific	x	x	x	x	x						x
Convergence Blended Finance	Global	x	x	x	x		x	x	x	x		x
Clean Development Mechanism	Asia-Pacific											
Climate Investment Funds	Asia-Pacific											
Global Environment Facility	Global	x	x	x	x							x
Green bond	Global	x	x						x			
Green Climate Fund	Global	x	x	x	x	x				x		
Inter-American Development Bank	LAC	x	x	x		x						
International Climate Initiative	Global	x	x	x	x							x
Joint Crediting Mechanism	Asia-Pacific	x	x									
Nationally Appropriate Mitigation Actions	Global	x										x
Nordic Development Fund	Africa, Asia	x	x			x						
World Bank	Global	x	x	x	x	x						x

Different financing instruments and models

- Loans are the most common financial instrument used for financing transport projects via international public sources.
- Concessional loans far outstrip other financial instruments.
- Grants are commonly deployed.
- Blended finance has been used for more than 30 transport projects.
- Our database includes 84 transport-related green bonds.

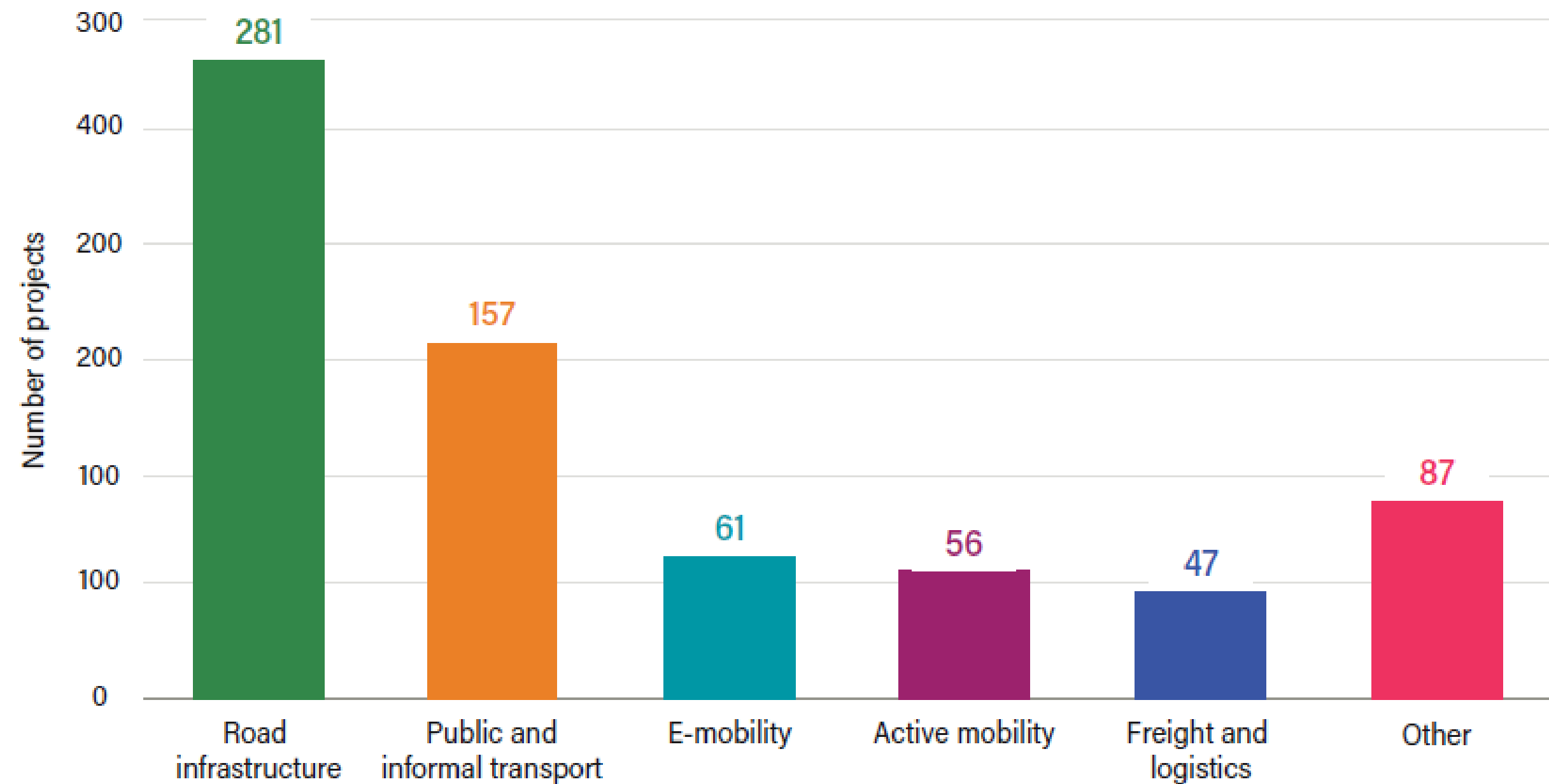
Figure. Number of projects by instrument deployed in our database



Different modes of transport

- Land transport projects account for 75% of the total projects.
- One-third of these projects are related to constructing, rehabilitating & maintaining roads, highways, and bridges and enhancing connectivity.
- There are significant adaptation needs in the sector for all-weather roads and other improvements.

Figure. Number of projects by transport mode in our database



Stakeholder consultations

- Consulted climate, transport, and finance experts from governments, MDBs, DFIs, private companies & other NGOs
- Focus country stakeholder consultations



Picture above: Climate finance roundtable discussion during Transforming Transportation in March 2023



Pictures above: Stakeholder consultation workshop in Nairobi, Kenya in May 2024



Picture above: Stakeholder consultation workshops in Hanoi & Ho Chi Minh, Vietnam in May 2024

Identified barriers

Lack of enabling policy and regulatory framework

Limited capacity for project preparation and implementation

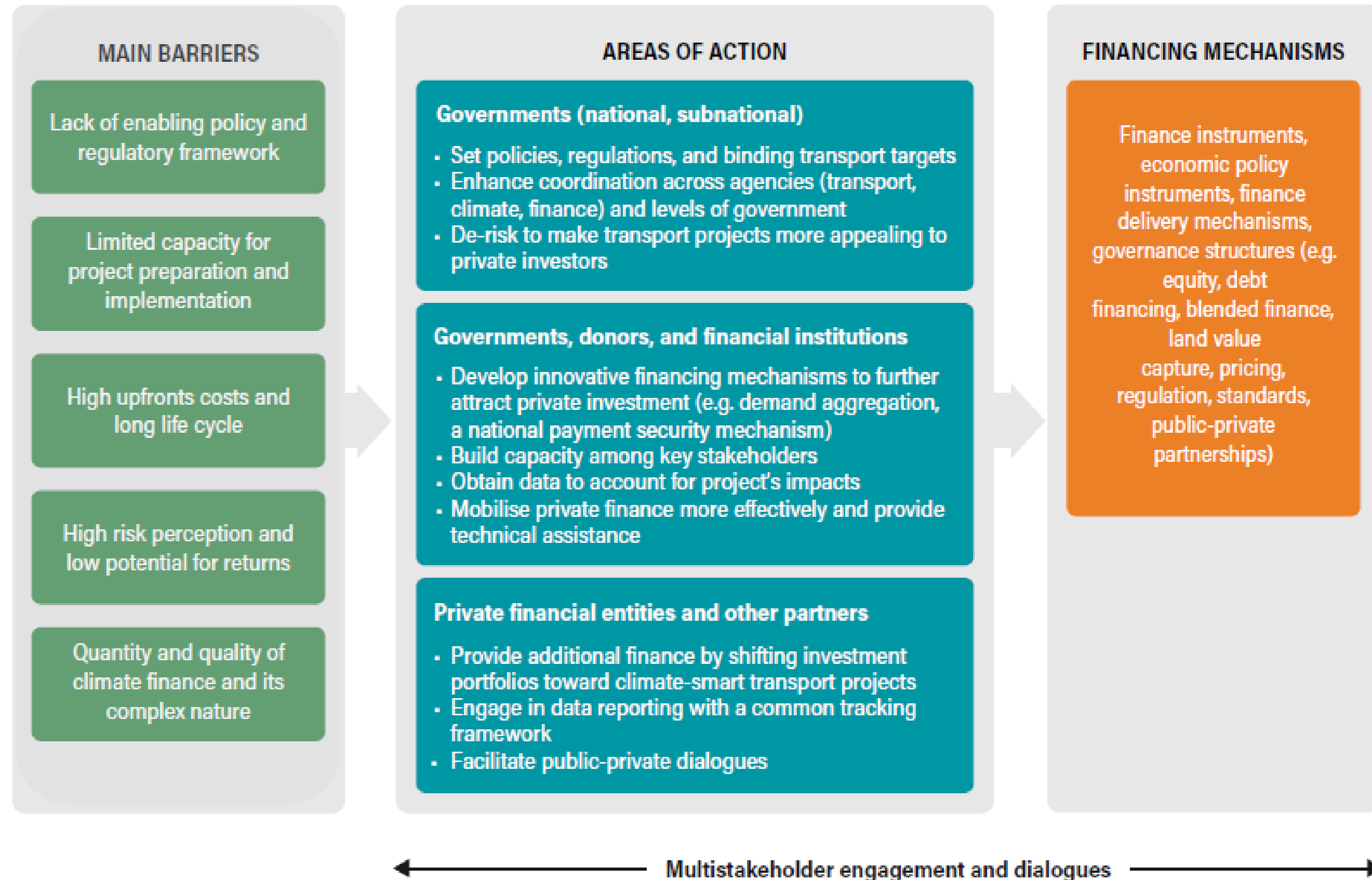
High upfront costs and long life cycle

High risk perception and low potential for returns

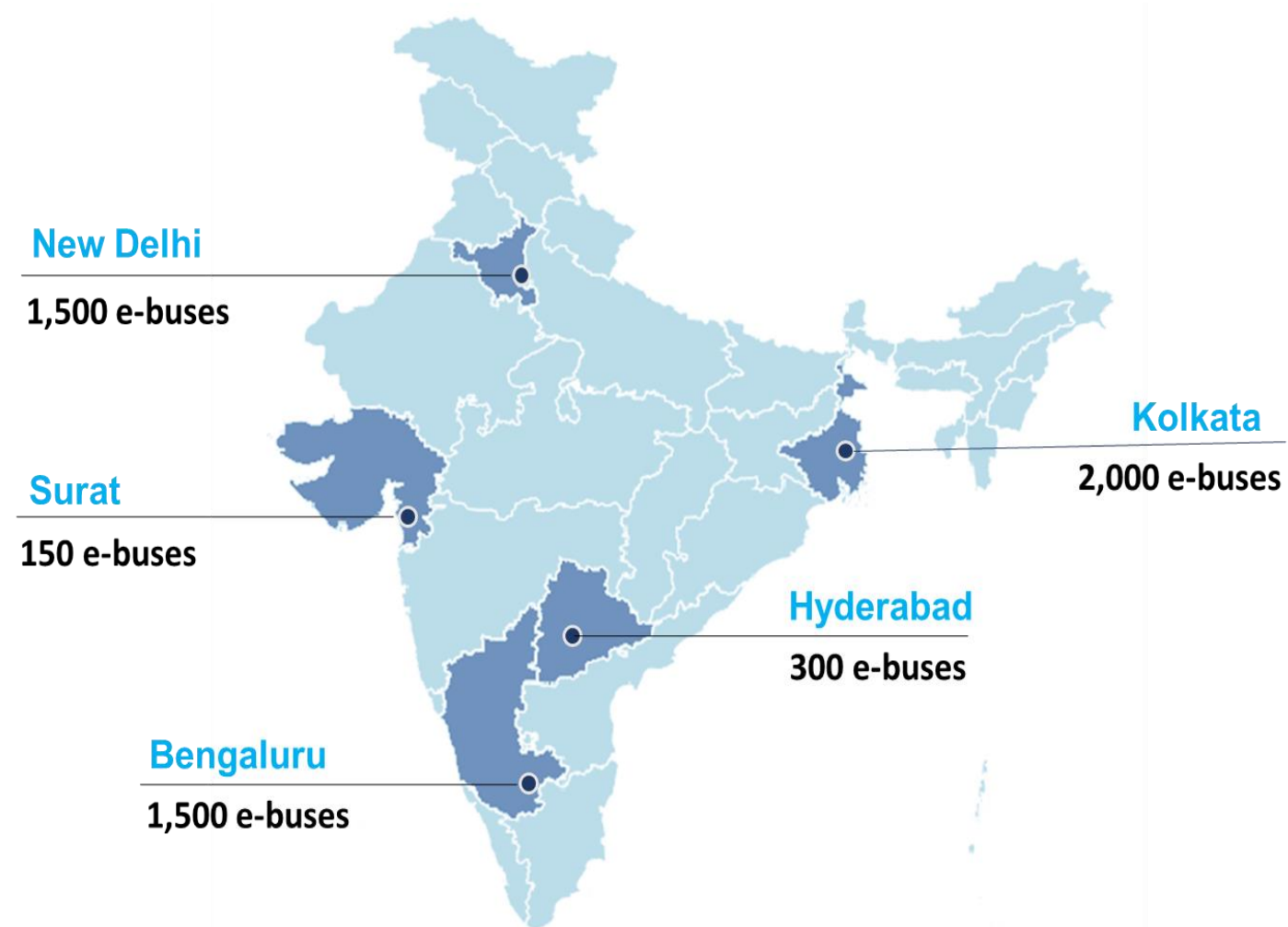
Quantity and quality of climate finance and its complex nature

- Uncertainty around laws, regulations, government processes and approval requirements
- Fossil fuel subsidies favor ICE vehicles, disincentivizing investment in e-mobility.
- Lack of robust regulatory frameworks to access & manage financing e.g., carbon markets
- Technical and human resource constraints in governments (national, subnational)
- Poor coordination among ministries (climate, transport, finance)
- Limited experience in project design and funding structuring
- Significant upfront costs for e-mobility, incl. vehicle procurement, charging infrastructure, grid
- Challenges in securing financing for large-scale transport projects such as rail, public transport
- Long payback periods with limited mechanisms for payment guarantees.
- New technologies perceived as uncertain, unproven and costly
- Lack of standards and awareness in some regions increases their perceived risks
- Small project sizes, insufficient financial information and performance data deter investment.
- Slow, uncertain, resource-intensive access to climate finance
- Technical and administrative complexities of funder requirements
- High interest rates and growing debt levels in LMICs
- Challenges in quantifying socioeconomic benefits e.g., job creation, reduced air pollution
- Lack of reliable monitoring tools and data to effectively track and access climate finance

Areas of action to scale up financing for low-carbon and resilient transport projects



Aggregated demand model & Payment security Mechanism



India “Grand Challenge” scaling up e-buses

- The world’s largest e-bus tender in May 2022, 5,450 buses across five cities in India
- Reduced costs 23-27% compared to diesel/CNG with subsidies
- Standard technical and contractual terms (e.g., delays, termination, bus safety standards)
- A National level Payment Security Mechanism (PSM)
- Delinking components like bus, battery, charging infrastructure, parking and depot space, operations and financing can bring down the risks borne by various players.

Lessons learned

- Aggregate projects into investor-friendly products/vehicles incl. aggregation & standardization to achieve size
- Payment security systems can reduce financial uncertainty and enhance contract viability

De-risking private finance & blended finance

Bogotá, Colombia

- Purchased a new fleet of 401 electric buses using \$134 million in development finance from the IADB Invest and private sources

Dakar, Senegal

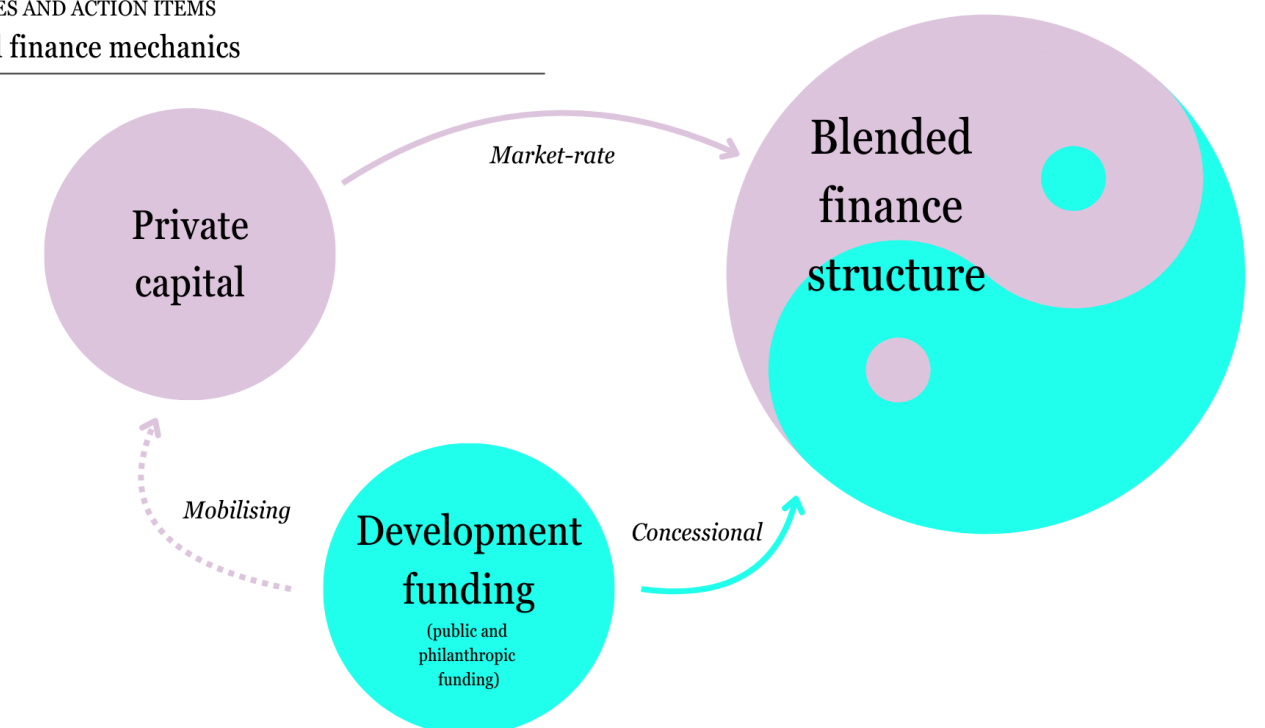
- Its BRT project included a World Bank guarantee of 19.9 million euros to Meridiam, a private investor and asset manager
- The first BRT line in Africa with all e-buses, with the 18.3 km line boasting a fleet of 144 e-buses to start

Lessons learned

- Concessional loans and grants from MDBs and DFIs have been critical in getting projects off the ground.
- Blended finance reduces perceived risks and increases investor confidence.



RESOURCES AND ACTION ITEMS
Blended finance mechanics



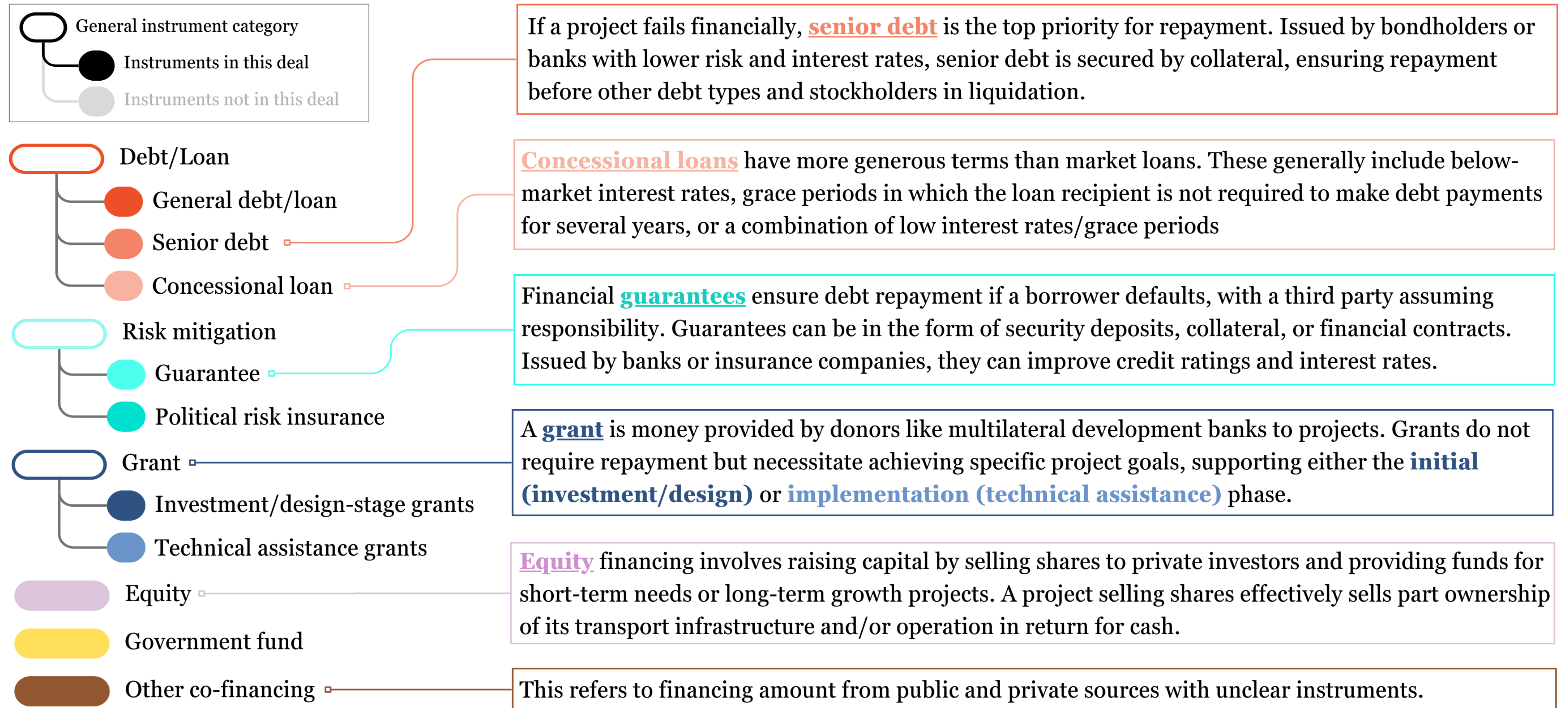
Digital climate finance toolkit

bit.ly/hvt-toolkit

- Toolkit = **Course** and **Catalogue**
- **Climate Finance for Transport Course**
 - Case studies on rail, inland water transport, public transport and e-mobility
- **Funding Eligibility Catalogue**
 - Identifies who, what entity, and where are eligible for the funding opportunities
 - Highlights transport-specific eligibility criteria
 - Provides examples of transport project(s) funded



Understanding the different project finance instruments





A Policy Guide to Improving Access to Climate Finance for Transport

December 2024

HVT/056

Improving Access to Climate Finance for Transport Projects in Low- and Middle-Income Countries

Climate Finance Policy guide

Key features

- Resource boxes
- Good practices
- Examples for specific actions
- Insights from surveys



Appendices

- Overview of further resources
- Stakeholder survey insights
- Climate finance workshop consultations
- Climate finance mechanism profiles
- Project Preparation Facilities

Step-by-step guide

Step 1: Secure the necessary enabling environments

- Secure an enabling policy environment
- Secure an enabling financial environment
- Involve the relevant stakeholders and entities



Step 2: Develop capacity on sustainable, low-carbon transport

- Acquire knowledge on sustainable, low-carbon transport
- Gather good quality data, monitor and evaluate impacts
- Raise awareness and address informational barriers of sustainable transport projects and initiatives
- Leverage technology solutions for better knowledge

Step 3: Develop capacity on finance mechanisms

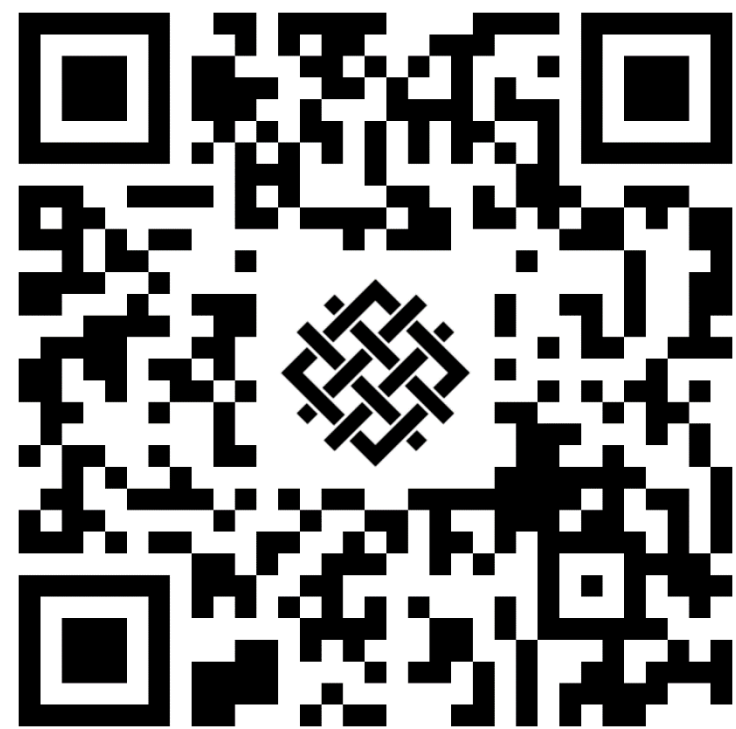
- Build capacity in accessing climate finance across various sources
- Make smart use of financial instruments
- Attract private investments with derisking instruments

Step 4: Design suitable and impactful projects

- Develop bankable projects and improve project implementation
- Improve pipeline development and project design
- Ensure a robust project preparation

Thank You.

Scan the QR code below to visit our website
and learn more →



wri.org/cities



[@WRIRossCities](https://twitter.com/WRIRossCities)



For any questions:

[Yiqian Zhang](mailto:yiqian.zhang@wri.org)

Senior Manager, Climate & E-Mobility

WRI Ross Center for Sustainable Cities

yiqian.zhang@wri.org

[Güneş Cansız](mailto:gunes.yerli@wri.org)

Director

WRI Türkiye

gunes.yerli@wri.org