Third Global Dialogue on the Impacts of the Implementation of Response Measures – 2026

Session 2: Evidence-based policy design for economic diversification

21 September 2026, Bangkok

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ESCAP
Economic and Social Commission for Asia and the Pacific

Strengthening Capacity of ESCAP Member States to Implement Low Carbon and Resilient Transport Action Plans in Asia and the Pacific

Introduction

- **Project Timeline:** 2025 – 2028
- **Implementing Entity (Lead):** United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
- **Jointly Implementing DA Entities:** United Nations Economic Commission for Europe (ECE)
- **Other Collaborating Entities:** United Nations Framework Convention on Climate Change (UNFCCC), Resident Coordinator Offices (RCOs), United Nations country teams (UNCTs) of the four target countries, GIZ, and the NDC Partnership, ADB, and ATO
- **Target Countries:** Fiji, Indonesia, Pakistan, and Tajikistan

Project Outcomes and Key Outputs

Outcome 1: Improved national capacity of target countries to develop and implement low carbon and resilient transport policies, strategies and roadmaps for their NDCs

- Organize national consultations with cross-sectoral policy makers to collect relevant information (2025)
- **Develop policy scenarios and transport carbon emission reduction targets and incorporate the results into each country's revised NDCs (2025 and 2026)**
- Conduct one multistakeholder policy dialogue and one technical training workshop in each target country (2026)

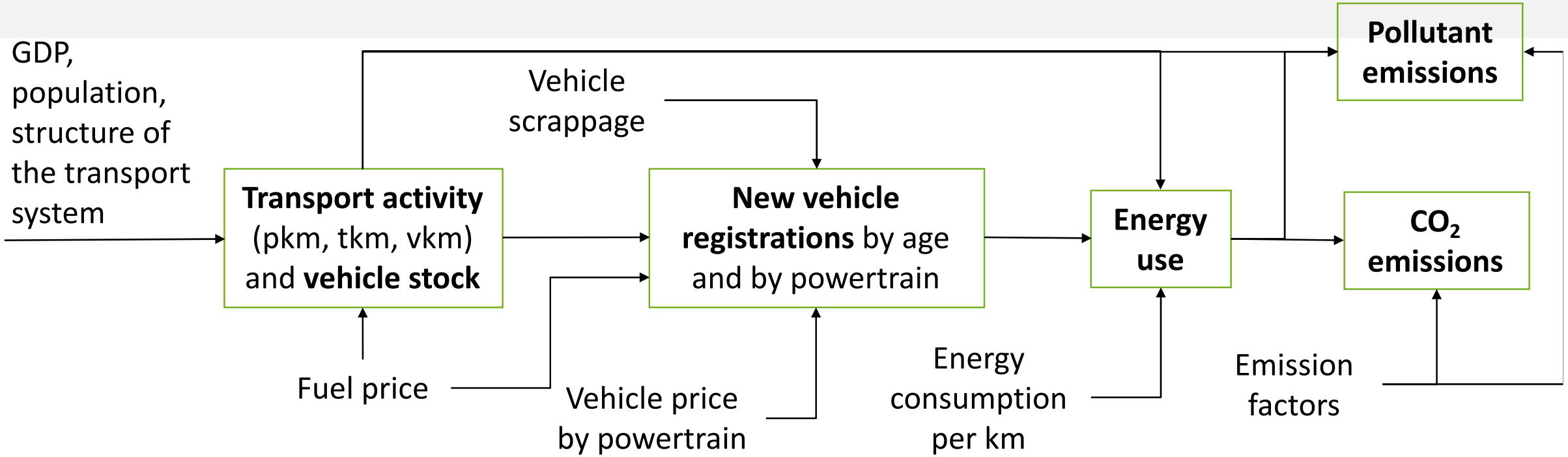
Outcome 2: Strengthened capacity of transport policymakers to implement low carbon and resilient transport policies, strategies and roadmaps

- Develop one implementation action plan for each target country (2026)
- Publish one report on low carbon and resilient transport implementation action plan for each target country (2027)
- Create a knowledge bank on transport, climate change and gender equality (2027)
- Develop one regional action plan for low carbon and resilient transport (2027)
- Organize one inter-regional capacity building meeting (2027 or 2028)

How to track emissions and why model them?

- Emissions can be tracked based on data on fuel use and the carbon intensity of the fuels (IPCC Guidelines for National Greenhouse Gas Inventories approach)
- Models help to link energy consumption and related emissions with the activity parameters that determine them
- In transport, activity parameters are mainly related with passenger and freight movement, generally expressed in passenger-km (pkm) and tonne-km (tkm)
- Energy consumption, the shares of different vehicle types and how the stock evolves can also be modelled

Sketch of a transport model



- **Generation of transport demand** (pkm, tkm, vkm) and **vehicle stock modelling**
- **Vehicle and fuel choices**: vehicle scrappage, new vehicle registrations by powertrain, vehicle and fuel techno-economic cost assessments
- **Calculation of the energy use, by fuel**
- **Estimation of CO_2 and pollutant emissions**

Key data required

Data on the number of vehicles (stock, sales, used imports)

How far they travel (on average, per year)

What are their powertrains – energy sources (e.g. gasoline, diesel, electric)

What is the energy use per km, for each vehicle category and powertrain

Data on energy consumed by transport vehicle, by type of energy (e.g. gasoline, diesel)

Vehicle loads are also relevant to have estimations of travel activity in terms of passenger-km (pkm) and tonne-km (tkm) (*1 tonne of goods transported 1 km = 1 tonne-km*)

Example: Modelling approach adopted for Tajikistan

- Energy consumption calculated bottom-up, from transport activity (vkm) and specific energy consumption (energy/vehicle-km) (*vehicle-km = annual km travelled by stock*)
- CO_2 emissions calculated from energy consumption and carbon intensities of fuels
- Number of vehicles (on-road stock) and related mileage are the basis for vkm estimates
- Specific energy consumption estimated from typical values by transport mode (two wheelers, three wheelers, cars, LCVs, minibuses, buses, medium trucks, heavy trucks)
- Top-down data on energy use are an important reference to check for consistency, and also key to estimate scrappage age profile and annual mileages

Policy scenarios

Business as Usual scenario

- Reflects existing policies and currently observed market trends, including recent growth in electric vehicle sales. Under this scenario, recent EV market shares are maintained at constant levels over the projection period.

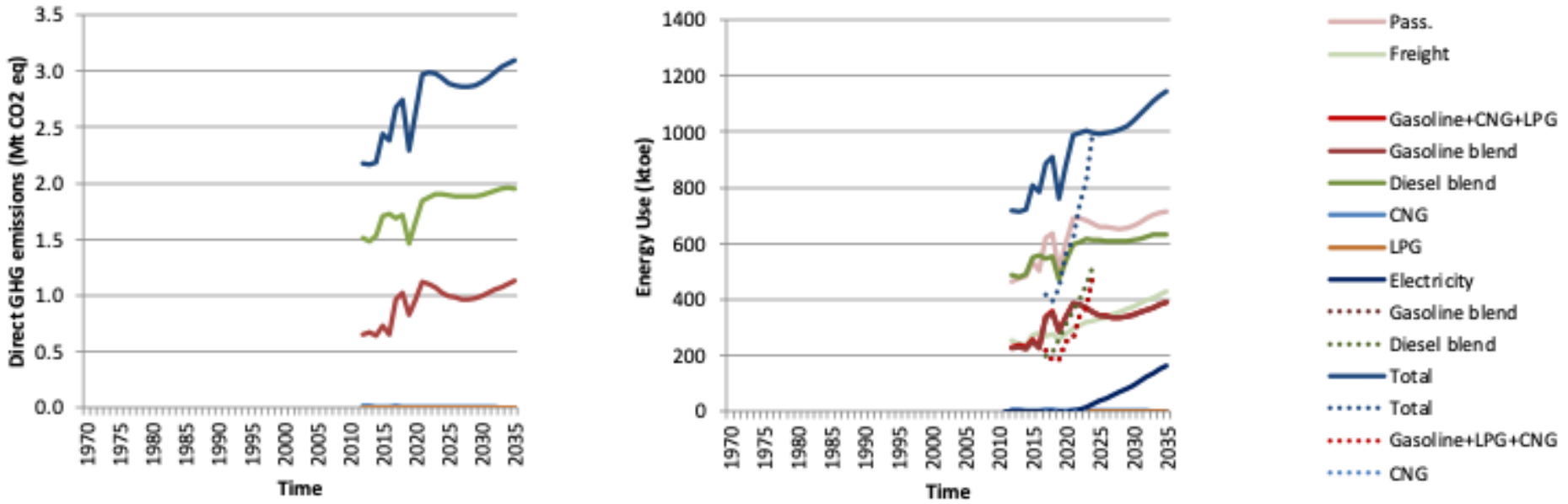
Unconditional mitigation scenario

- Assumes moderate strengthening of existing policies, including improvements in public transport services, urban mobility measures, freight efficiency, and gradual increase in EV adoption. In this scenario, electric vehicles reach a 50 per cent share of new passenger car registrations by 2035.

Conditional mitigation scenario

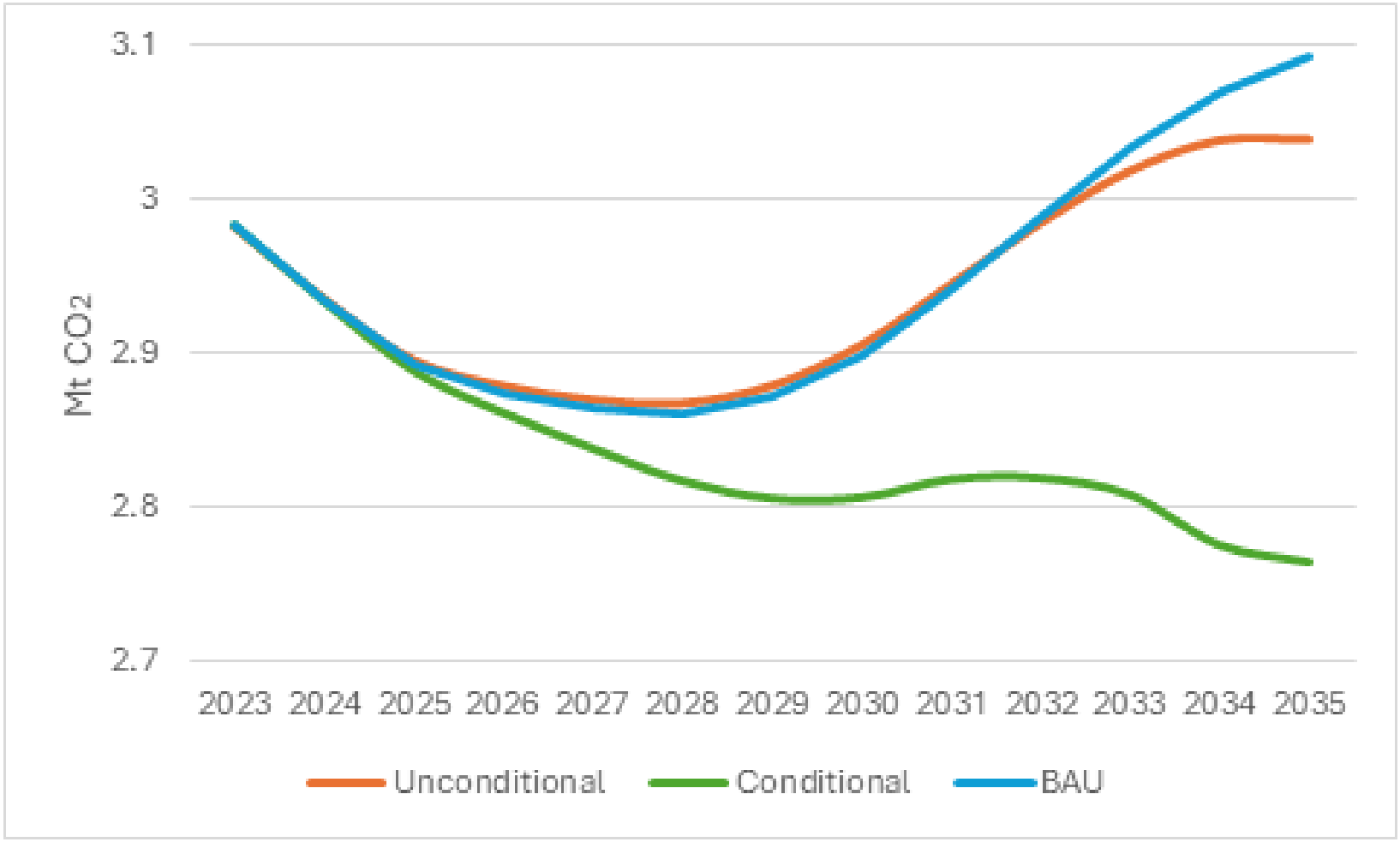
- Assumes enhanced international support and accelerated implementation of transformative measures. In this scenario, electric vehicles reach a 75 per cent share of new passenger car registrations by 2035. Electrification is also extended to other vehicle categories, with EV shares reaching a 50 per cent share of new registrations by 2030 and 75 per cent by 2035 for two- and three-wheelers and buses. By 2035, EV shares increase to 57 per cent for light commercial vehicles, 38 per cent for medium-duty trucks, and 19 per cent for heavy-duty trucks.

Model results: Business as Usual scenario



- Energy demand by fuel type can be reproduce
- Hard to reproduce historical trend: data quality is a limiting factor
- BAU energy demand grows, driven by GDP, population and modal mix growth
- Electrification accelerated very fast recently, with significant impacts on emission trends

Model Results: Transport Carbon Emissions by Scenario



Policy implications of modelling results

- Inclusion of transport sector CO_2 emission reduction by **6 per cent below 2023 levels by 2030 and 7 per cent below 2023 levels by 2035** in Tajikistan's NDC3.0

- Transport carbon emission reduction targets included in Tajikistan's national low carbon and resilient transport action plan

- Evaluation of the carbon emission reduction impact of different policies

Conclusions

Data availability issues limit scope for accuracy

Modelling approaches can effectively include transport emissions projections

Transport, energy and emission model can help evaluate the impact of different policies

Approaches similar to the one taken for transport can be applied to other energy end-uses and for an economy-wide energy demand model

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