SPAR6C
Supporting Preparedness for Article 6 Cooperation

SPAR6C Transport Sector Study

Findings and Financing Pathways

Jonas Hagen

17 December 2025

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UN environment programme
copenhagen climate centre
GFA CONSULTING GROUP

Supported by:
Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety
based on a decision of the German Bundestag
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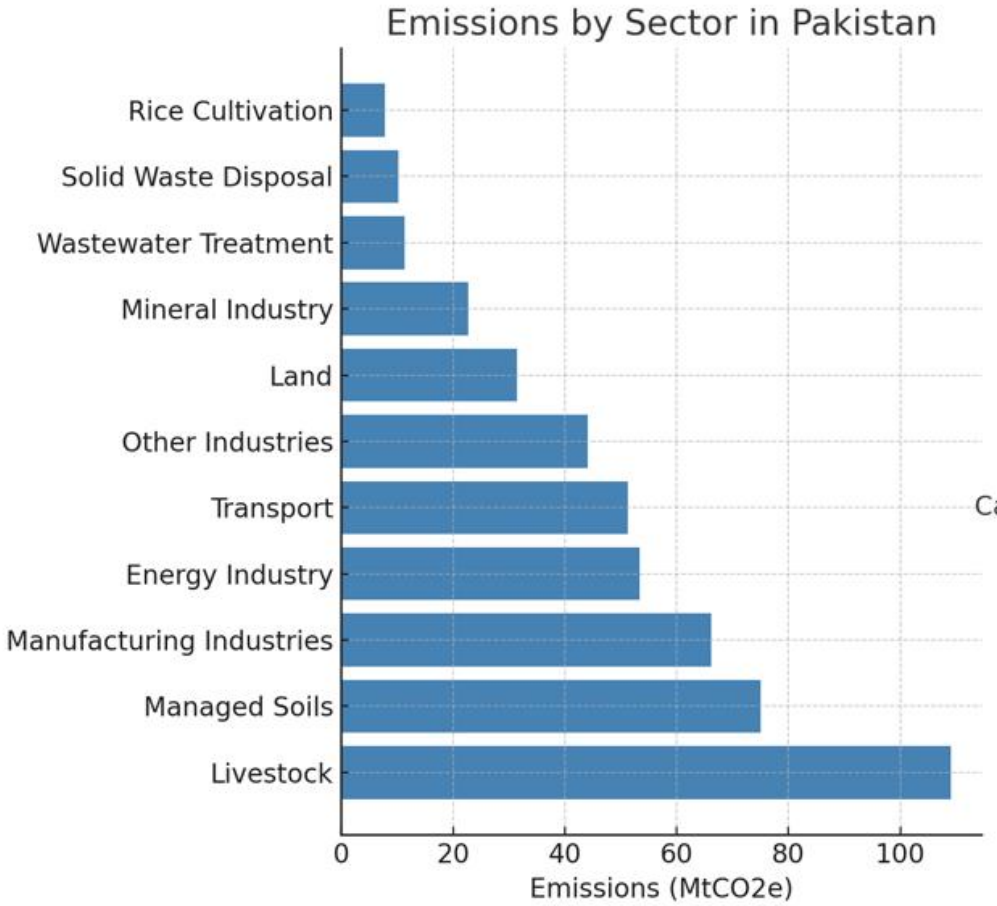
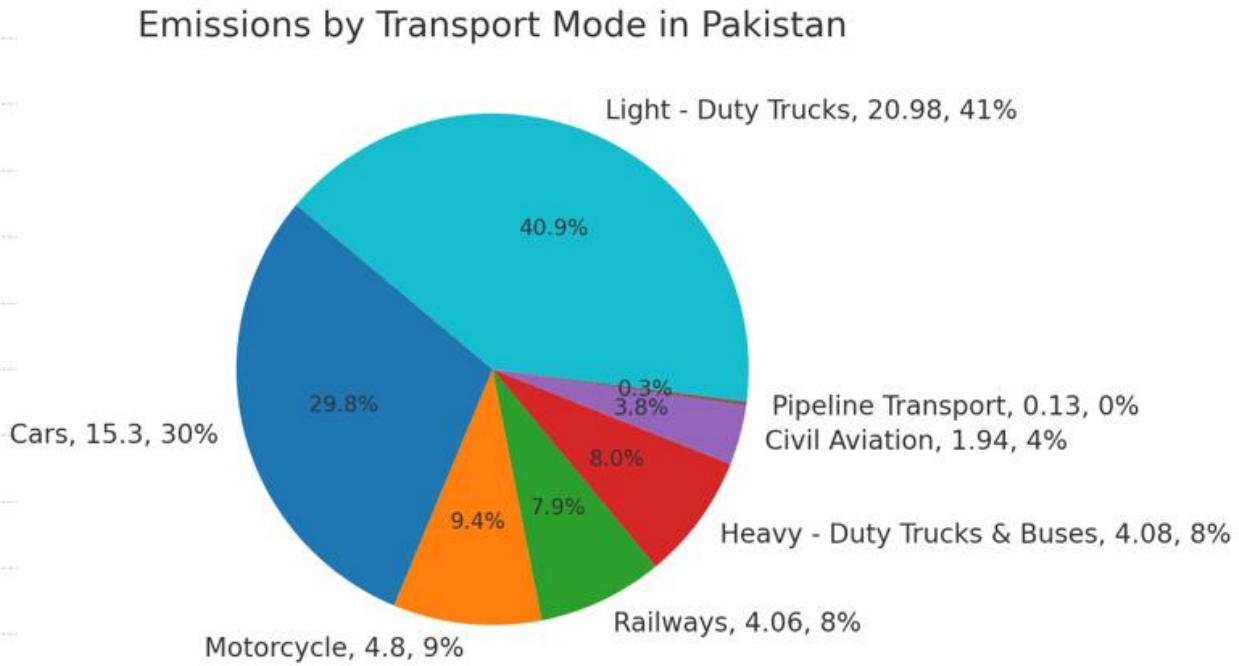
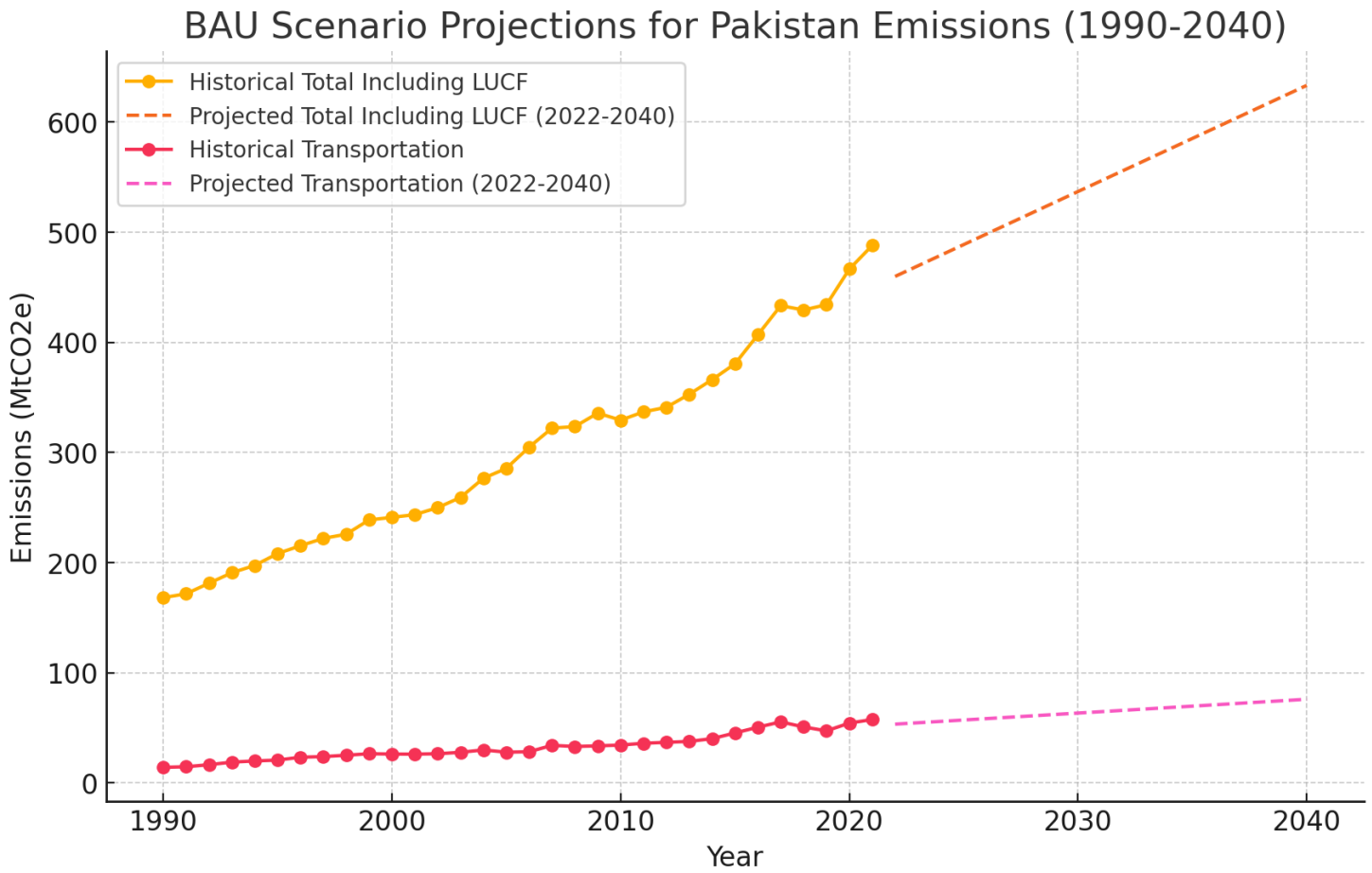




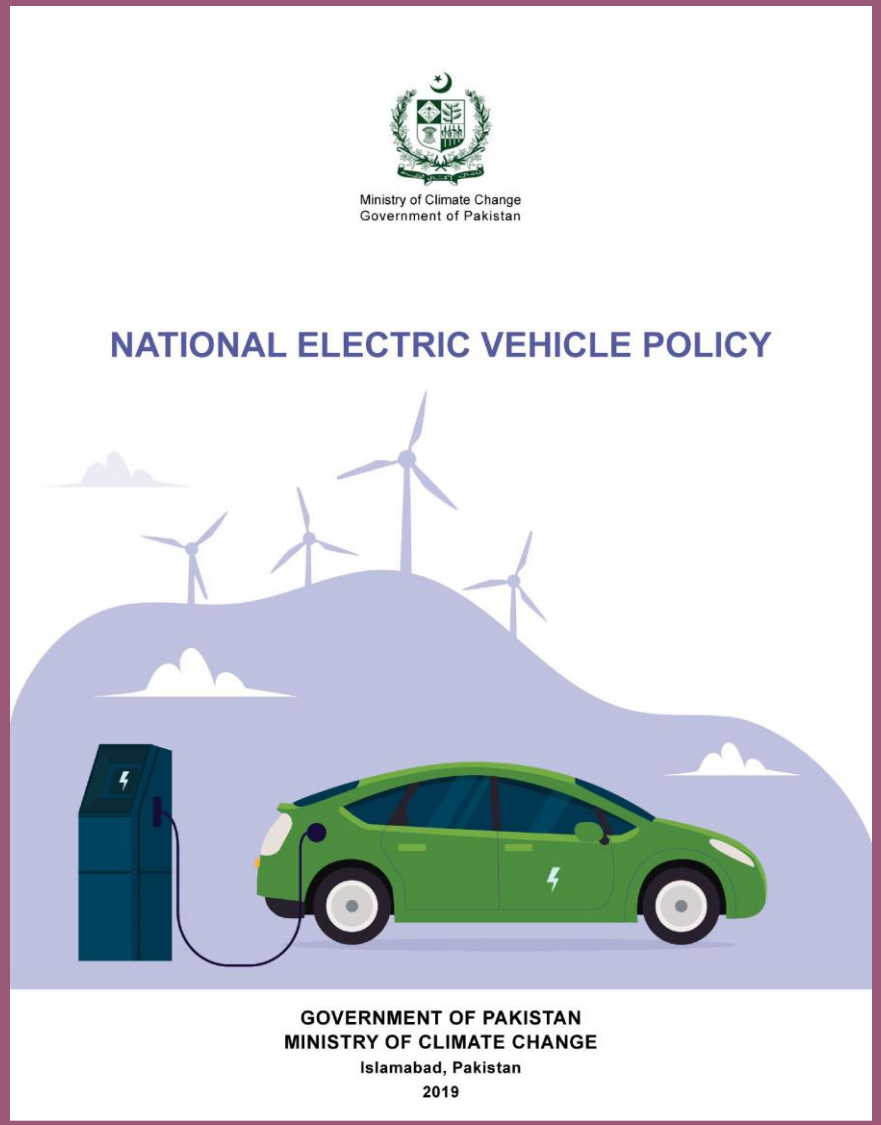
Summary of Sectoral GHG Emissions and Emissions from Transport Sector 2018 ($MtCO_2e$)

Growth and Projections GHG Emissions Total vs. Transport



Author's calculations using data from: www.gcisc.org.pk/GHGINVENTORY2011-2012_FINAL_GCISCRR19.pdf & www.globalcarbonproject.org

https://tribune.com.pk/story/2514696/citys-roads-blocked-by-incessant-traffic-jams



- 2030 – 30%
- 2040 – 50%
- 2050 – 100%



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MINE SMART

Rank	City	Province / Territory	Population (2023 Census)
1	Karachi	Sindh	18,868,021
2	Lahore	Punjab	13,004,135
3	Faisalabad	Punjab	3,691,999
4	Rawalpindi	Punjab	3,357,612
5	Gujranwala	Punjab	2,511,118
6	Multan	Punjab	2,215,381
7	Hyderabad	Sindh	1,921,275
8	Peshawar	Khyber Pakhtunkhwa	1,905,975
9	Quetta	Balochistan	1,565,546
10	Islamabad	Islamabad Capital Territory	1,108,872

PAKISTAN BUREAU OF STATISTICS (PBS). 7th Population and Housing Census – 2023. Islamabad: Government of Pakistan, 2023. Available at: https://census23.pbos.gov.pk/.

Bangkok E-bus Programme

Energy Absolute Public Company Limited (project developer)+ private operators

500+ tonsCO_2 (maximum transferred mitigation outcomes)
122 bus routes

1,913 e-buses
2022 – 2030 (implementation period)

https://www.klik.ch/en/international/activities/bangkok-e-bus

MADD:
www.dcce.go.th/wp-content/uploads/2025/08/MADD-of-E-Bus-Program.pdf

Electric bicycle manufacturing and distribution for Gig Economy workers in Ghana

WAHU Mobility

100,000+ e-bikes

Until 2030

www.klik.ch/en/news/news-article/wahu-electric-bicycles-mitigation-activity-authorized

Swedish Energy Agency (SEA) & Solar Taxi Ltd

48,000 e-motorcycles

2025 – 2030

200,000+ tCO_2

www.energimyndigheten.se/en/news/2025/ sustainable-transport-and-solar-energy---new-projects-in-ghana/
www.southpole.com/news/ south-pole-e-mobility-programme-ghana-article-6

Project Idea Note (PIN) Template

for Collecting a Long List of Article 6 Project Opportunities under the SPAR6C

SPAR6C (Supporting Preparedness for Article 6 Cooperation) is a 5-year program (2022-2027) funded by the German government. Pakistan is one of the four participating countries of SPAR6C and the focal point for SPAR6C is Saima Shafique, Division Director at the Ministry of Climate Change and Mitigation. The SPAR6C Program will support Pakistan establish governance framework for Article 6 activities approval and authorization and develop at least Article 6 Projects/programs and bring them to financial closure. More details about the SPAR6C project are available at https://www.greengrowthknowledge.org/initiatives/SPAR6C

This template serves as the starting point for Article 6 project/program idea collection. The ideas collected will be assessed and screened and the shortlisted ones will receive technical support from the SPAR6C.

Project proponent details

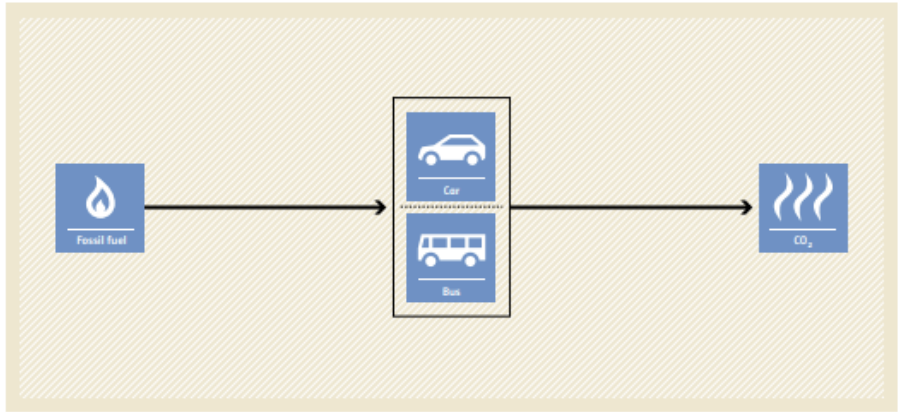
Project name	
Date of submission	

Project initiator

Name of submitting entity/person	
Organisational category	
Core business	
Role in the project	
Main Contact person	
Title	
Street/P.O. Box	
Postal Code, City	
Telephone	
Email	

Project partners (if applicable; for all project partners)

AMS-III.C. Emission reductions by electric and hybrid vehicles

Typical project(s)	Operation and/or charging of electric and hybrid vehicles for providing passenger and/or freight transportation services.
Type of GHG emissions mitigation action	• Fuel switch. Displacement of more-GHG-intensive vehicles.
Important conditions under which the methodology is applicable	• Project and baseline vehicles should belong to the same vehicle category. Vehicles under a category have comparable passenger/load capacity and power rating with variation of no more than 20%; • The prevailing regulations pertaining to battery use and disposal shall be complied with; • Procedure for avoiding double counting of emission reductions should be documented in the PDD.
Important parameters	At validation: • If applicable: grid emission factor (can also be monitored ex post). Monitored: • Number of electric/hybrid vehicles operated under the project; • Quantity of fossil fuel used e.g. for hybrid vehicles and electricity consumption for all electric and hybrid vehicles to determine specific electricity/fossil fuel consumption per km; • Annual average distance driven by project vehicles; • Electricity consumed by the project vehicles.
BASELINE SCENARIO Operation of more-GHG-emitting vehicles for providing passenger and/or freight transportation services.	

PROJECT OVERVIEW

200-300 Electric Trucks

- Medium-duty: 200km range
- Heavy-duty: 300km range
- 150-350kW charging stations
- Stations every 100-150km
- Government role: Infrastructure
- Grid connection guarantees
- Road tax incentives for e-trucks
- Freight electrification policy

Environmental Benefits

- 35-50% reduction in air pollution
- Reduced carbon footprint
- Lower heat emissions in urban areas

Strategic Corridors

- Karachi-Lahore (M-9): Major economic artery
- Lahore-Islamabad: Capital connection
- Karachi Port-Industrial Zone: 24/7 operation
- Future expansion to CPEC routes

Fleet Management System

- Real-time fleet tracking & management
- Range and charge optimization
- Route planning for efficiency
- Vehicle performance monitoring

Business Model

- Special purpose vehicle (SPV) structure
- Anchor customers: Major retailers & FMCG
- Guaranteed volume contracts
- TCO advantage over diesel fleets

Implementation Timeline

- 2025: Pilot with 30 trucks
- 2026: Karachi-Hyderabad corridor
- 2027: Lahore-Islamabad corridor
- 2028: Full network deployment

Project Financing & Carbon Revenue

Capital Investment Structure

Investment Component	Amount (USD)
Total CAPEX (250 trucks + infrastructure)	**$102.5 million**
Equity Component (25%)	$25.6 million
Debt Financing (75%)	$76.9 million

Carbon Credit Revenue Stream

Carbon Revenue Parameters	Value
Annual Emission Reduction	40,000 tCO_2e
Carbon Credit Price	$12/$tCO_2e$
Annual Carbon Revenue	**$480,000**
10-yr NPV (8% discount rate)	$3.3 million

Business Case Analysis

Financial Component	Per Truck
Average Electric Truck Cost	$350,000
Annual Debt Service	$41,600
Annual Fuel & Maintenance Savings	$45,000
Carbon Revenue Contribution	$1,920
Lifetime Cost Savings (10yr)	**$150,000+**

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SPAR6C

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Thank you

Contact information

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