

Indonesia Transport Scoping Study

Executive Summary



Published by:
**ITDP Indonesia and RUJAK Centre
for Urban Studies (RCUS), 2026**

1. Research Introduction

Reflecting on Just Energy Transition in Mobility Sectors

Indonesia's national climate strategy aims for net zero emissions by 2060, heavily implicating the transportation sector which generates roughly 22 percent of energy related greenhouse gas emissions. However, the current framework relies on a narrow technological substitution paradigm that focuses on electric vehicle subsidies and tailpipe emissions while ignoring systemic mobility flaws. Consequently, despite an ambitious national target of 90 percent public transit electrification by 2030, progress in 2026 remains stalled at a critical 2 percent due to inadequate institutional frameworks and uneven municipal readiness. Most Indonesian cities still lack formal public transport entirely, relying instead on unregulated private operators with substandard service levels.

Transitioning the transport system requires a comprehensive framework that moves beyond technological solutions toward structural change, involving city and transportation planning as well as traffic management. This approach must be coupled with an inclusive and universal framework that puts residents and users as the main beneficiaries of the plan. However, the reality is sustainable mobility still has not been well received by the regional government. Among cities in Indonesia, besides Jakarta as a megacity, only Semarang managed to reach a 4 percent budget allocation for the development of public transportation (ITDP, 2025). On average, municipal budget allocations for public transportation remain critically low at just 0.66 percent of the total budget.

Furthermore, a critical equity gap exists within the national electrification roadmap, which presumes that all citizens possess the financial and physical capacity to adopt electric vehicles. The current subsidy structure for EV is not able to capture the ownership, financial, and infrastructure difficulty for low-income families. This mismatch directs national subsidies toward wealthy consumers while excluding high mileage platform gig workers and captive transit users. Addressing these systemic gaps is essential to ensure that Indonesia's mobility transition delivers genuine decarbonization rather than compounding historical urban inequalities.

Research Objectives

1. Map the current landscape of Indonesia's urban transport interventions and roadmaps, including existing studies, projects, national and city-level policies, roadmaps, and urban transport initiatives, and diagnose justice gaps, institutional barriers, and governance challenges, with a focus on how current strategies overlook distributive, procedural, and recognition/restorative justice as well as GEDSI dimensions
2. Capture and elevate the lived experiences, needs, and coping strategies of marginalized groups, especially women, youth, persons with disabilities, and informal workers, to ensure that national strategies for a just transport transition are inclusive and context sensitive.
3. Formulate strategic opportunities and intervention areas to support a more just, inclusive, and sustainable transport transition

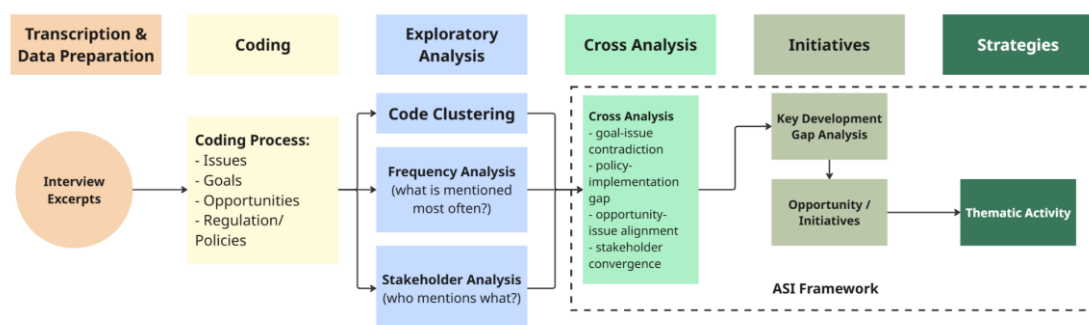
Research Approach

Just Transition	Vulnerability	Avoid - Shift - Improve
A justice lenses to uncover the systemic burden of urban transition from three interrelated dimensions: • Distributive Justice • Procedural Justice • Restorative Justice	Vulnerability as the inability of institutional structures and systems to serve vulnerable groups and mitigate the impacts of shocks from policy changes, thereby making certain social groups even more vulnerable	Comprehensive framework in the sustainable mobility with three categories of development • Avoid • Shift • Improve
Expected Impact		
Burden and benefits of urban transport fall into four domains: • Environment • Health • Economic and social conditions • Work		

Research Method

This research adopts a multiscale approach, viewing the phenomenon as the result of complex, dynamic, and cross-level interactions. These interactions often trigger a cascading effect that requires a comprehensive response. The multiscale approach used by ITDP and RCUS is explained below:

1. ITDP: Structural regulation and governance scale



This process analyses various stakeholders' perspectives to gather insights, supported by an understanding of the regulatory context. To operationalize this method, ITDP conducts qualitative coding and thematic analysis to identify recurring issues, goals, and opportunities. This process leads to systemic findings where issues are interconnected and synthesized into main development themes.

2. *RCUS: Grounded Experience and Impact Scale*



The study follows a five-stage bottom-up methodology, moving from a desktop review of policy and regulatory context (Stage 1) and GIS-based urbanization and density mapping (Stage 2) into city-specific fieldwork across Jakarta, Bandung, and Tegal (Stage 3), each using a tailored mix of methods suited to its context. The evidence is then integrated through data analysis; combining thematic development, Causal Loop Diagrams, and a justice analysis matrix (Stage 4); before being translated into targeted recommendations (Stage 5).

2. Main study findings

Structural and Governance Findings

Indonesia's transport challenge is increasingly **less about infrastructure provision alone and more about establishing the institutional, governance, spatial, and financing mechanisms required to sustain integrated and inclusive transport systems**. While policy recognition and implementation initiatives have expanded significantly, many reforms remain constrained by fragmented responsibilities, weak incentive structures, limited implementation capacity, and the absence of long-term mechanisms capable of translating strategic ambitions into sustained outcomes.

From several analytical stages identifying and cross analysis of stakeholders' perspectives, ITDP produced several key implementation gaps using A-S-I framework:

Subsector	Key Implementation Gap	Why it matters
AVOID		
Telecommuting	<u>Unclear Impact of Telecommuting</u> Telecommuting is only partially implemented, and its full impact remains unmeasured.	Environmental Impacts: Reduces total daily trip generation, directly lowering fuel consumption, greenhouse gas (GHG) emissions, and peak-hour urban air pollution. Socio-economic Impacts: Provides empirical justification for regional governments to expand remote-work policies, unlocking household transport cost savings and alleviating peak-period road congestion to reduce regional productivity losses.
Integrated and compact land use (i.e. TOD, compact city)	<u>Unclear Implementation Framework</u> /Regulatory framework: The regulatory framework for TOD implementation procedures remains unclear. /Multi-level governance: A multi-level governance framework to coordinate vertical and horizontal institutions is not yet in place. /Land-Based Financing: Land-Based Financing (LBF) schemes, including Land Value Capture (LVC) and asset management, are regulated but require more contextual nuance. /Planning metrics: A lack of comprehensive planning KPIs prevents the effective integration of multiple agencies. <u>Land Management Challenges</u> /Fragmented ownership: Fragmented land and asset ownership hinders efficient area management. /Exclusive development: TOD projects remain exclusive in terms of both spatial design and target demographics.	Environmental Impacts: Institutional gridlock and fragmented ownership halt TOD execution, driving low-density urban sprawl that permanently increases vehicle kilometers traveled (VKT), land conversion, and per-capita carbon intensity. Socio-economic Impacts: Unaligned Land-Based Financing (LBF) schemes leave immense land value and municipal revenue untapped. Spatial fragmentation results in exclusive developments targeting only high-income groups, which pushes lower-income populations to peripheral areas, increases their travel expenses, deprives public transit systems of

Subsector	Key Implementation Gap	Why it matters
	/Unreliable transit: Unreliable mass public transit undermines the foundational basis of TOD.	ridership revenue, and depresses overall urban labor productivity.
SHIFT		
Road based public transportation	<u>Political and Financing Difficulties</u> /Low interest and political constraints: There is a lack of legal enforcement to compel regional governments to build transit networks. /Lack of evidence-based policy: The positive impacts of public transportation systems are often poorly understood or rejected by the legislature, the public, and even the executive branch. /Budget ceilings: Systems face severe funding caps, prompting local leaders to prioritize short-term improvements over long-term solutions. <u>Limited Capacity in Delivering Services</u> /Capacity limitations: Local governments face difficulties accessing external capital due to a lack of bankable project concepts. /Implementation challenges: Local capacity remains insufficient to effectively maintain and expand public transport services.	Environmental Impacts: Lack of mandated regulations and constrained regional budgets force route expansions to pause, leading to private vehicle dominance, delayed fleet modernization, and worsening air pollution. Socio-economic Impacts: Commuters suffer longer travel times and daily transport expenses. Prioritizing short-term political fixes over systemic intervention will impact the seamless mobility needs and overall economic activity in the region.
Rail based public transportation	<u>Fragmented Governance and Limited Capacity</u> /Diverging orientation: The national railway company often fails to align its plans with local government strategies. /Multiple operators without integration: Unintegrated railway governance creates critical connectivity gaps among operators like PT MRT, LRT Jakarta, and PT KCI. /Minimal fiscal capacity: Railway operators and regional governments are frequently burdened with long-term loans. /Limited production capacity: The national railway company lacks the financial and manufacturing capacity to meet rising demand.	Environmental Impacts: Unintegrated rail operations and regional development imbalances perpetuate private vehicle reliance in secondary cities, worsening regional carbon footprints. Socio-economic Impacts: Poor physical and fare integration increases transfer friction and daily travel costs for commuters. Uncoordinated operator investments and heavy debt burdens risk long-term fiscal instability for municipalities and transit authorities.
Multimodal and multigovernmental integration	<u>Fragmented Governance for Multimodal Services</u> /Diverging objectives: Local leaders within the metropolitan area often have conflicting political priorities. /Uneven burden sharing: Financing for cross-boundary public transit routes relies too heavily on the core city or the provincial government. /Disintegrated services: Public transport systems remain disconnected in terms of physical accessibility, payment methods, and overall operations. /Siloed authority: Institutional integration between regional governments is often limited to superficial MoUs, leaving the transit system vulnerable to regime changes.	Environmental Impacts: Failing to integrate cross-boundary networks leaves commuter mobility (such as the 40% of regional mobility originating from satellite cities around Jakarta) dependent on private vehicles, escalating regional traffic emissions. Socio-economic Impacts: Disintegrated systems force commuters to absorb excessive transfer and ticket costs. Conflicting

Subsector	Key Implementation Gap	Why it matters
		inter-governmental political priorities results in inefficient spending across administrative boundaries.
Walking and cycling	<u>Weak Institutionalization</u> The provision of Non-Motorized Transport (NMT) infrastructure is not viewed as a statutory obligation, leaving its implementation fragmented among various agencies. <u>Weak policy continuity:</u> There is no clear master plan framework to ensure NMT infrastructure development is sustained across administrative boundaries. <u>Insufficient investment:</u> Scaling up NMT networks involves significant financing requirements that are currently unmet. <u>Network Continuity and Accessibility Challenges</u> <u>Disconnected network planning:</u> NMT infrastructure is often restricted to tourist destinations instead of adopting a comprehensive, area-wide development approach. <u>Limited implementation guidance:</u> Local governments possess varying capacities to adopt the universal NMT design principles developed by the national government. <u>Incomplete universal design implementation:</u> The actual execution of universal NMT infrastructure depends heavily on the technical and financial capacity of local stakeholders.	Environmental Impacts: NMT infrastructure is not prioritized, which prevents zero-emission active transport from replacing short, motorized trips, sustaining localized emissions. Socio-economic Impact: Fragmented capital expenditure causes inefficient spending. Incomplete universal design reduces the usability of the public transit infrastructure for vulnerable groups (e.g., Persons with Disabilities) and lowers commercial property values surrounding transit stations.
Bike sharing	<u>Lack of System Integration</u> <u>Limited regulatory framework:</u> Regulations for bike-sharing operations remain limited and depend heavily on individual local government initiatives. <u>No standard governance model:</u> There is a lack of proven governance frameworks for bike-sharing implementation in Indonesia. <u>Differing policy priorities:</u> Bike-sharing is still not viewed as a viable alternative for First-Mile/Last-Mile (FMLM) connectivity. <u>Operational and Integration Challenges</u> <u>Uncertain operating model:</u> Bike-sharing systems require local customization to match the specific needs of regional governments and private operators. <u>Incomplete cycling infrastructure:</u> Potential bike-sharing users would feel safer if there were adequate cycling lane infrastructure. <u>Limited commercial viability:</u> Bike-sharing services will require alternative sources of financing to remain sustainable.	Environmental Impacts: Without standard governance and proper cycling lane infrastructure, bike-sharing fails to serve as a viable zero-emission First-Mile/Last-Mile (FMLM) feeder mode, leaving commuters reliant on motorized transport. Socio-economic Impacts: Unclear operational structures and financially unsustainable models hinder private investment and missing opportunities to build a cost-effective feeder network for mass transit revenue.
Low Emission Zone	<u>Regulatory and Institutional Gap</u> <u>Lack of planning and implementation guidelines:</u> The Low Emission Zone (LEZ) is still a relatively new concept, and a standardized framework remains nonexistent outside of Jakarta.	Environmental Impacts: Isolated LEZ initiatives without clear guidelines or enforcement fail to achieve measurable air quality improvements.

Subsector	Key Implementation Gap	Why it matters
	Weak enforcement mechanisms: Although LEZs are being announced, vehicle restriction mechanisms and supporting technologies are not yet optimal. Diverging agency objectives: There is no clearly defined, shared objective for LEZ initiatives among participating agencies. Standalone strategy: LEZs are often treated as isolated initiatives, whereas they are actually multi-layered strategies that require integrated planning. Negative Perception The LEZ is seen as a restrictive policy, although the public generally agrees with its objectives.	Socio-economic Impacts: Uncoordinated deployment leads to inefficient resource allocation without achieving health cost savings. The lack of a comprehensive cost-benefit analysis risks policy opposition and increases individual health risks, leading to higher healthcare expenses.
Parking Management	Conflicting Objectives and Stagnant Regulations Conventional parking management strategy: Parking management still follows the paradigm of maximizing the availability of parking spaces. Enforcement challenges for parking violations: The public continues to use sidewalks and roadways as illegal parking spaces. Conflicting perceptions of parking management: Executive officials still perceive parking primarily as a source of regional revenue rather than a demand-management tool.	Environmental Impacts: Treating parking as a revenue driver encourages private vehicle ownership, exacerbating congestion, illegal street parking, idling, and tailpipe emissions. Socio-economic Impacts: Underpriced parking distorts the optimal value of parking spots. Without a parking management strategy, cities cannot convert these spots into more functional uses, such as public facilities or housing.
Electronic Road Pricing	Regulatory and Institutional Gap Regulatory gaps at the local level: Electronic Road Pricing (ERP) regulations are still confined to Jakarta, despite a clear enabling framework provided by national regulations. Lack of institutional capacity: The current ERP institution in Jakarta still requires capacity building to independently manage its own earmarked financing. Duality of retribution prerequisites: Jakarta's proposed dynamic fare structure directly contradicts existing national laws regarding public levies. Negative Perception The ERP is an unpopular policy that carries a negative perception among both the legislature and the general public. The potential benefits of ERP for transit improvement have not been clearly communicated.	Environmental Impacts: Regulatory delays and negative perceptions prevent traffic volume reduction along congested corridors, maintaining dominated private vehicles mode share and air pollution from transportation sectors. Socio-economic Impact: Without dedicated institutions and traffic reduction measures, cities cannot collect congestion charges to reinvest in public transit, trapping the economy in massive annual productivity losses from traffic and fuel waste.
IMPROVE		
Private E4W	Regulatory Gap Unclear incentive mechanisms: The national government has not yet provided a comprehensive framework for EV incentives.	Environmental Impacts: Delayed demand- and supply-side regulations slow clean vehicle adoption, prolonging reliance on internal combustion engine (ICE) vehicles and tailpipe emissions.
Private E2W	Lack of Supply-Side Regulations (SSR): Supply-side regulations have not yet been implemented, despite their potential to create a significant impact on low financing needs.	Socio-economic Impacts:

Subsector	Key Implementation Gap	Why it matters
	<u>Implementation Challenges</u> /Unfavorable contractual schemes for EV adoption: Logistics and ride-hailing companies offer EV adoption programs that place an unfair financial burden on drivers. /Unclear home charging infrastructure strategies: Potential EV users remain unprepared to install their own charging infrastructure due to multiple technical and regulatory limitations.	Ambiguous frameworks deter buyer confidence and charging infrastructure investments, while unfair fleet transition schemes place an excessive financial burden on drivers.
Public EV	<u>Regulatory and Institutional Capacity Limitation</u> /Lack of an adoption framework: The national framework for EV bus adoption remains heavily restricted due to limited central government guidance. /Low institutional capacity: Scaling EV bus adoption requires a higher level of institutional capacity, not just in EV technology but also in general public transit operations. /Limited conceptual scope for EV adoption: The electrification of public transport fleets is often viewed merely as a technological upgrade rather than an opportunity for comprehensive transit reform. <u>Financing Challenges</u> The deployment of electric transit fleets is constrained by significant capital costs, despite a Total Cost of Ownership (TCO) that remains lower than that of conventional internal combustion engine (ICE) fleets.	Environmental Impacts: High upfront procurement costs cause cities to revert to conventional ICE buses, while electrification without broader transit reform limits systemic emission reductions and traps heavy-duty diesel pollution fleets. Socio-economic Impacts: Electrification without institutional reform leaves regional governments with high maintenance costs, and ignoring the favorable Total Cost of Ownership (TCO) traps operators in high ongoing fuel expenses.
Emission standard	<u>Fragmented Institution Visions and Implementing Capacity</u> /Lack of institutional coordination: The Ministry of Environment (MoE) and the Ministry of Energy and Mineral Resources (MoEMR) have different priorities regarding vehicle emission standards. /Strong public opposition: Upgrading emission standards requires more advanced fuel technologies, which drives fuel pricing. /Untapped green financing schemes: Capital demands for adopting tighter emission standards could be fulfilled by tapping into green financing mechanisms. /Substandard fuel quality: The majority of fuel distributed in Indonesia still exceeds allowable sulfur limits, and the national government faces technical limitations in refining it.	Environmental Impacts: Delayed adoption of tighter emission and fuel standards elevates dangerous pollutants (SOx, NOx, PM2.5), particularly from heavy-duty vehicles (HDVs) that contribute a disproportionate share of total urban emissions. Socio-economic Impacts: Substandard fuel emissions lead to severe public health costs and medical expenditure. Untapped green financing schemes result in missed international funding for clean fuel refining infrastructure.

Grounded Experience Findings

Across all three cities, popular transport such as the Angkot and paratransit networks that have long served students, women, the elderly, and informal workers, is widely regarded as outdated, and its potential as an essential service goes largely unrecognised. Yet the study finds this popular transport remains structurally important, even as platform-based ride-hailing has penetrated all three urban scales; from the megapolitan agglomeration of Jakarta to the dense major city of Bandung, to the medium city setting of Tegal. This penetration has coincided with declining public interest in formal public transport, particularly where that transport is not yet reliable, as residents turn to individual ride-hailing to escape the uncertainty of long headways, poor information, and fragmented service.

More significant than the shift itself, however, is the dual role ride-hailing now plays. It has come to fill the first- and last-mile (FM/LM) connectivity gap that formal networks leave open, but in Jakarta this feeder function has reached maturity and generated a new set of problems that converge on the drivers. Every day, they have to deal with precarious working conditions and volatile earnings, a burdening EV-transition costs yet no access to its incentives, and exposure as outdoor workers to air quality and climate risks like pollution and extreme heat that erode health. The study also shows that transport cannot be treated in isolation: it is closely bound up with wider issues such as poverty, because in the absence of a reliable, affordable system the financial burden of mobility falls directly on households. Where no dependable transport system exists, transport cost itself becomes a driver of economic hardship; making the reform of popular transport not merely a mobility question but a question of equity and household welfare.)

Key Development Gaps	Why It Matters
A Safe Equitable Pathway for Paratransit/Popular Transit	
The absence of a public service obligation mandate for popular transport leaves service provision to structurally failing market mechanisms; as a result, there are no financial supports, fair transition schemes, or tariff subsidies to sustain traditional paratransit operators	Socio-economic Impacts: /No mandate means no legal or fiscal basis to invest, subsidize, or set standards, leads to provision defaults to a market that fails the transport-dependent and slides into accelerating service collapse (route loss, fleet decline), potentially creates "transit deserts" that sever peripheral low-income communities from job centers, healthcare, and education, compounding existing socio-economic marginalization. /Those most dependent (low-income workers, women, the elderly, persons with disabilities), have no recourse when the market exits and price hikes forcing them to spend a higher percentage of their disposable income on essential daily travel / Formalization or abrupt shift to EVs without subsidies/fair buyout schemes risks pushing low-income driver households deeper into poverty and economic informality.
No fleet safety, emissions, or service quality standards applied to popular transport, enabling a vicious cycle of quality decline, ridership loss and uncontrolled emission.	Environmental Impacts: Aging, unregulated paratransit fleets contribute to urban air pollution (PM_{2.5} and NO_x) directly exposing low-income commuters and roadside users to severe respiratory health risks. Socio-economic Impacts:

	/Without standards, quality decline goes unregulated (such as aging fleet, uncontrolled emissions, unreliable service), triggering a vicious cycle: ridership falls, revenue collapses, investment stalls, quality deteriorates further. /Service contraction hits peripheral and low-income areas hardest, deepening spatial and social inequality in access.
Formalization and modernization programs lack participation and equity safeguards for those most affected, so reform displaces operators, prices low-income riders, and strands those who cannot motorize.	Socio-economic Impacts: /Top-down modernization displaces informal operators (livelihood loss), and erases the social capital (community trust, flexibility, affordability) that makes popular transport usable for the poorest, and when it overrides existing route rights (trayek) without resolution, triggers operator resistance and service disruption that undermine the reform itself. /For those who cannot motorize (such as the elderly, persons with disabilities, safety-constrained women) paratransit loss is not redirection but exclusion; they are the most invisible in transition planning and the most harmed by its absence of safeguards.
Platform and Delivery Workers Transition Challenges	
Existing platform-worker relationship frameworks operate on a binary system (either formal employee or partner/independent contractor) compounds the challenge of worker representation, as platform operators often navigate algorithmic management systems with limited direct input into policy design or transition planning. Addressing this requires a modernized, intermediate regulatory framework that preserves driver flexibility and platform operational agility, while simultaneously establishing baseline standards for a decent working environment and structured dispute resolution mechanisms.	Socio-economic Impacts: /Moving past the rigid "employee vs. contractor" choice stabilizes the gig economy rather than limiting it. A middle-ground framework allows platforms to safely provide benefits without legal risks (for instance, facilitating BPJS Ketenagakerjaan to certain extent, which is traditionally restricted to formal employment); ensuring drivers in keeping their flexibility while gaining dependable protections. /Current regulations lack standardized frameworks for transparency regarding tariff-setting mechanisms and dynamic pricing architectures, particularly for delivery services. The gap lies in the absence of democratic mechanisms that align algorithmic supply-demand optimization with sustainable, predictable earnings for drivers. /Unilateral algorithmic management removes workers' agency over their own conditions, while transition policy (EV mandates, incentive structures, service regulations) is designed by platforms and government without workers as parties; without collective bargaining rights /Because drivers alone bear the full weight of asset costs, depreciation, and income volatility that a formal employer would otherwise share, household economic stability rests entirely on individual risk absorption; without employer-side contribution to safety nets, a single accident, illness, or slow week can push a driver's household into debt with no institutional buffer.
While macro-level climate and energy policies focus heavily on aggressive EV adoption targets, they often overlook the distinct operational realities of informal platform workers. Current frameworks lack provisions for infrastructure standardization, exclude commercial gig drivers from individual-focused purchase subsidies, and fail to offer tailored utility tariffs for home-charging or targeted non-fiscal incentives to ease the transition for platform operators.	Socio-economic Impacts: /Current commercial EV rental and rent-to-own mechanisms allocate substantial asset and technological risks to independent operators. Because these frameworks typically feature limited contract pause options, drivers frequently face continuous payment obligations during periods of health-related downtime, potentially converting green transition initiatives into an added economic challenge for lower-margin workers. /There's ongoing stigma towards EV which triggers order cancellations and avoidance, reducing income and indirectly penalizing drivers who adopt EV even when the vehicle performs adequately /Transition burden remains inadequately shared across the ecosystem; while green policies achieve macro-level climate benefits, independent workers manage significant financial exposure largely because public EV incentives are structured exclusively for individual, non-commercial consumers.

	Environmental Impacts: /The reversion of drivers back to internal combustion vehicles after failed EV attempts, alongside the deterrence of new adopters, keeps ageing petrol fleets in continuous high-intensity operation, sustaining PM2.5 and NOx emissions concentrated along dense urban corridors that electrification was intended to reduce; the transition's environmental gains are thus deferred precisely within the vehicle segment that operates most intensively.
Platform and delivery workers, as outdoor workers, face escalating climate risks, such as extreme heat, air pollution, flooding; with no protection in platform regulation, labor policy, or urban climate adaptation.	Socio-economic Impacts: Directly exposed to extreme heat, unfiltered air pollution, and urban flooding, with no shade, rest facilities, hazard pay, or climate & health protocols, while platform companies and consumers bear none of this physical exposure Environmental Impacts: Climate exposure is also an earnings and expenditure burden: with 86% of two-wheeled drivers reporting extreme heat as disruptive to work, the common response of sheltering through peak midday hours removes several of the day's working hours and the orders they would have carried, while coping costs (bottled water, iced drinks) and heat- or flood-related health expenses are absorbed directly by drivers.
Forced Motorization and Mobility Poverty Without an Enabling Policy Base	
In the absence of viable shared transport, households are forced into private motorcycle ownership: draining income, accumulating debt, and deepening mobility poverty.	Socio-economic Impacts: Forces households into high-interest vehicle debt and recurring operational costs (fuel, maintenance), turning transport into a regressive financial burden that consumes a disproportionate share of daily income. Environmental Impacts: Accelerates carbon lock-in, increases urban traffic congestion, and worsens localized air pollution (PM_{2.5} and NO_x) due to the mass surge of fossil-fueled private vehicles.
People who cannot motorize (persons with disabilities, the elderly, children, and safety-constrained women) are stranded when shared transport fails, not redirected.	Socio-economic Impacts: Policy assumptions falsely presume users will simply switch to motorcycles. Captive groups who cannot motorize face complete spatial isolation, stripping them of access to jobs, education, and healthcare Environmental Impacts: Over-reliance on private vehicles deprioritizes pedestrian infrastructure and micro-mobility, creating hostile, highly polluted urban environments that make active travel (walking/wheeling) unsafe and unviable.

3. Strategic activity recommendation

The following operational matrix provides a structural course of action that addresses both macro-level governance and micro-level grassroots issues. This framework shifts the just energy transition paradigm away from simple technological vehicle substitution toward a holistic, just mobility ecosystem by mapping concrete policies, institutional arrangements, pilot activities, and citizen movements. This matrix provides a list of activities organized by thematic issues, alongside their outputs, three-year intermediate outcomes.

Activity	Output	Outcomes
1. Integrated Public Transport Reformation		
Regulatory and Institutional Preparedness for Public Transport Reform 1. Formulate a strategic recommendations proposal to define public transportation deployment as essential public services supported with minimum funding requirement by the regional government according to the governance level. 2. Draft policy briefs and legislative whitepapers to revise institutional mandates for public transit fund allocation 3. Develop Cost Benefit Analysis (CBA) of public transport investment towards socio-economic-environment development of cities 4. Provide sustained capacity building, pilot to scale implementation, move, knowledge transfer for public transport planning and implementation 5. Design and execute institutional advocacy programs, social campaign, data driven workshop for executive and legislative bodies to demonstrate the benefit of transit funding.	1. Technical policy proposal and strategic recommendation framework for public transportation as essential public services 2. Legal statutes (national or local government regulation) draft supported with technical documents 3. Cost Benefit Analysis (CBA) for selected public transportation projects 4. Capacity building workshop for regional government stakeholders 5. Technical capacity building workshop modules, public communication toolkit and targeted events	1. Mandated public transport service provision: formal adoption of public transport provision mandates at the national to encourage sub-national public transport reform 2. Secured sustainable funding: dedicated transit fund allocations and minimum funding requirements within regional government budget, justified by the completed CBA and extensive advocacy (<i>at least in 3 priority cities from identification process</i>)
Integrated Metropolitan Transport Services 1. Formulate strategic recommendations for integrated public transportation institution to diverse metropolitan scale and typologies including burden sharing mechanism 2. Establish and facilitate an executive multi-stakeholder	1. Strategic institutional framework recommendations for cross-jurisdictional and multi-tier transit authorities 2. Active multi-tier stakeholder coordination platform for national, provincial, and municipal governments 3. Audit report and recommendation framework for	1. Establishment of cross jurisdictional governance: operationalization of a formalized, multi tier metropolitan transport authority or coordination platform 2. Standardized performance tracking:

coordination platform to align national ministry, provincial and municipal executives on metropolitan agency arrangements (responsibility in planning, operation, and asset management) 3. Evaluate the existing and develop key performance indicators (KPIs) used by central and subnational government to evaluate regional transit performance	shared public transportation KPIs	implementation of a unified KPI framework push for integrated planning and accountable service standards 3. Data driven planning: institutionalization of cross-border mobility planning and optimized route structures
2. TOD and Active Mobility Improvement		
Comprehensive TOD Governance and Implementation 1. Evaluate TOD governance model and develop multi-level TOD governance framework according to the local context 2. Staging the implementation strategies for comprehensive LVC instruments and asset management framework for TOD 3. Develop planning and implementation guideline according to the local context to be integrated into long term development plan 4. Formulate strategic recommendations for inclusive and just development regarding accessibility, housing, and public facilities, using a participatory approach in selected locations	1. Institutional capacity assessment diagnostic report and Mult governance institutional framework of TOD 2. LVC implementation playbook instruments and asset management framework and for TOD project 3. TOD planning & design guideline and MEL framework according to the local context 4. Audit and development of social safeguarding strategy for TOD projects	1. Institutionalized TOD guidelines: successful integration of context specific TOD planning and design guidelines into official long term municipal development plans 2. Adoption of alternate TOD financing: LVC instruments and asset management playbooks strategy are adopted in the formal regulation (<i>at least in 3 cities with different typology</i>) 3. Adoption of equitable TOD strategy: regional government adopts equitable TOD framework in the formal regulation
Integrated Walking and Cycling Improvement 1. Build integrated agency capacity to provide NMT infrastructure. 2. Evaluate and develop local adoption strategies for NMT masterplan and guidelines to integrate them with local regulations.	1. Strategic institutional framework recommendations for integrated NMT planning and implementation 2. Local master plans and design guidelines for NMT infrastructure.	1. Implementation of standardized inclusive active mobility: formal adoption of NMT masterplans and design standards (at least in 3 cities with different typology).
3. Traffic Management Strategy		
Comprehensive TDM Strategy Implementation	1. Conceptual design and operational framework of	1. TDM strategies implemented: TDM

Framework

1. Conduct an analytical readiness study on Traffic Demand Management (TDM) instruments across different city typologies.
2. Develop a regulatory framework covering the planning, implementation, operation, and governance arrangements for selected TDM measures.
3. Draft policy briefs and legislative whitepapers for the selected TDM measures. Improve institutional capacity and readiness for the selected TDM strategy.
4. Develop a communication strategy to support TDM strategy implementation, highlighting its benefits.
5. Develop and draft dedicated earmarking mechanism for TDM measures to be reinvested again in public transport improvement programs
6. Develop CBA report for TDM instruments across cities typologies

TDM measures across city typologies

2. Recommendation of planning and technical aspect of selected TDM measures
3. Regulatory policy briefs and legislative whitepapers for TDM implementation
4. Communication strategies for TDM strategy
5. Earmarking mechanism framework at the national level
6. CBA report

recommendations are adopted into local regulations (at least in 2 cities with different typology)

2. Earmarking mechanism integration:

establishment of legally binding national earmarking mechanism for TDM strategy

4. Cleaner Vehicle Emission Initiatives

Supportive Regulatory Framework for Cleaner Vehicle Initiatives

1. Integrated roadmap and scenario to electrify all modes and incentives-disincentives scheme
2. Evaluate existing contracts to design mutually beneficial frameworks for EV adoption in logistics and ride-hailing services.

1. Integrated roadmap of electrification
2. Incentive and disincentive mechanism
3. Cost Benefit Analysis (CBA) of cleaner vehicles adoption

1. Adoption of cleaner vehicles initiatives to the national regulation

5. A Safe Equitable Pathway for Paratransit/Popular Transit

1. Establish a baseline (including current paratransit/popular-transit mode share) and conduct stakeholder engagement (FGD, survey, interviews).
2. Audit and spatial analysis of routes (spatial mobility analysis).
3. Co-design and route experiments (e.g. Angkot Day).
4. Recommendations/policy brief/draft mayoral regulation.

A technical/academic basis for a mayoral regulation (perwali) on paratransit transformation; route and fleet recommendations; a running pilot transformation programme; secured local-government budget commitment; and central-government endorsement of the national guidance.

1. Government and operators commit to establishing an authority body to oversee transport transformation.
2. The transformation programme secures sustainable funding.
3. Popular-transport workers are protected through decent-work schemes (social security: accident,

5. Capacity-building and organising of transport workers. 6. Upgrading transit facilities and EV transition infrastructure (stops/stations, battery charging). 7. Piloting and scaling up. 8. Policy and budget advocacy to local government. 9. Advocacy for national guidance to central government.	(depends on the city's stage.)	health, pension). (outcomes vary depending on each city's starting stage.)
6. Platform and Delivery Workers Transition Challenges		
Platform Worker Wellbeing 1. Establish a decent-work baseline and convene platform workers, platform operators, and government to define the protection gap: income volatility, accident and health exposure, and current social-security coverage, disaggregated by gender. 2. Grassroots organizing to build worker-led welfare systems, including collective enrollment in BPJS Ketenagakerjaan BPU (accident and death cover), cooperative savings, and mutual-aid schemes; through capacity-building on worker rights, organizational management, financial literacy, etc. 3. Advocacy with platforms, government, and international bodies (ILO), anchored in the international standards, such as ILO Convention No. 193	1. A decent-work baseline for Indonesian platform drivers, benchmarked against recognised standards (Fairwork, WIEGO, relevant ILO instruments). 2. A policy-advocacy package anchored in decent work standards, supporting stronger protection, fair co-contribution, and progress toward ratification of relevant international labor commitments. 3. Organised driver entity (e.g. cooperatives) with xxx active members	1. Decent work standards are acknowledged by government and platform 2. Drivers can draw on collective and pooled funding (beyond individual earnings) to achieve decent-work conditions.
Support equitable EV transition 1. Design and pilot tiered financing and ownership schemes (individual, collective, cooperative). 2. Redesign the incentive mechanism to reach renting and rent-to-own drivers, not only outright buyers. 3. Map and plan charging and battery-swap infrastructure, with a focus on the periphery. 4. Differentiate the model for 2W and 4W segments, reflecting their distinct ownership, financing, and charging needs.	An equitable EV-transition model (80% 2W : 20% 4W) for platform drivers that accommodates a range of ownership and access options (from individual to collective and cooperative schemes) paired with supportive incentive design and periphery-focused charging access.	An equitable, tested EV-transition model is established and demonstrated: tiered financing and ownership options are piloted, an inclusive incentive mechanism is designed, and periphery-focused charging provision is mapped; showing improved affordability and access for participating drivers across both 2W and 4W segments.
Natural disaster-related 1. Establish a climate-risk baseline (air pollution, UHI, flooding) for outdoor platform workers through a GEDSI lens	A gender-sensitive climate-risk baseline and vulnerability assessment for outdoor platform workers (covering heat and urban heat island, air pollution, and	The foundations for climate resilience are established and tested: air quality and climate risks to outdoor platform workers are evidenced, a multi-

(physical & mental health, road-safety consequences) 2. Map climate risk against high-order-density locations to identify priority hotspots 3. Develop a multi-level mitigation and adaptation plan and propose it to city & national stakeholders 4. Pilot a rest-point model (50 spots) and an alert system at priority locations	flooding, and their physical-health, mental-health, and road-safety consequences) mapped against high-order-density locations.	level mitigation and adaptation plan is in place, and a rest-point and alert model is proven at priority sites, with reduced heat exposure demonstrated among participating drivers.
7. Forced Motorization and Mobility Poverty Without an Enabling Policy Base		
1. Diagnostic study of which routes and accessibility improvements most benefit low-income households. 2. Establish a baseline of current mobility-poverty conditions, including household transport expenditure. 3. Benchmark the target areas against affordability and accessibility thresholds, against better-served areas, and against comparable low-cost mobility interventions. 4. Co-plan an upward-mobility route/service in one or two subdistricts (e.g. Penjaringan).	A mobility-poverty baseline and analysis; co-designed route-planning guidance; and a running pilot in Jakarta. (Depends on the city's stage; thematic approach replicable in other cities.)	Participating low-income households see increased disposable income and reduced transport-related expenses, measured against the baseline established under this pathway.