GREENING ROADWAYS:

The Role Of ADB's Green Roads Toolkit In Building Sustainable Infrastructure In Asia And The Pacific

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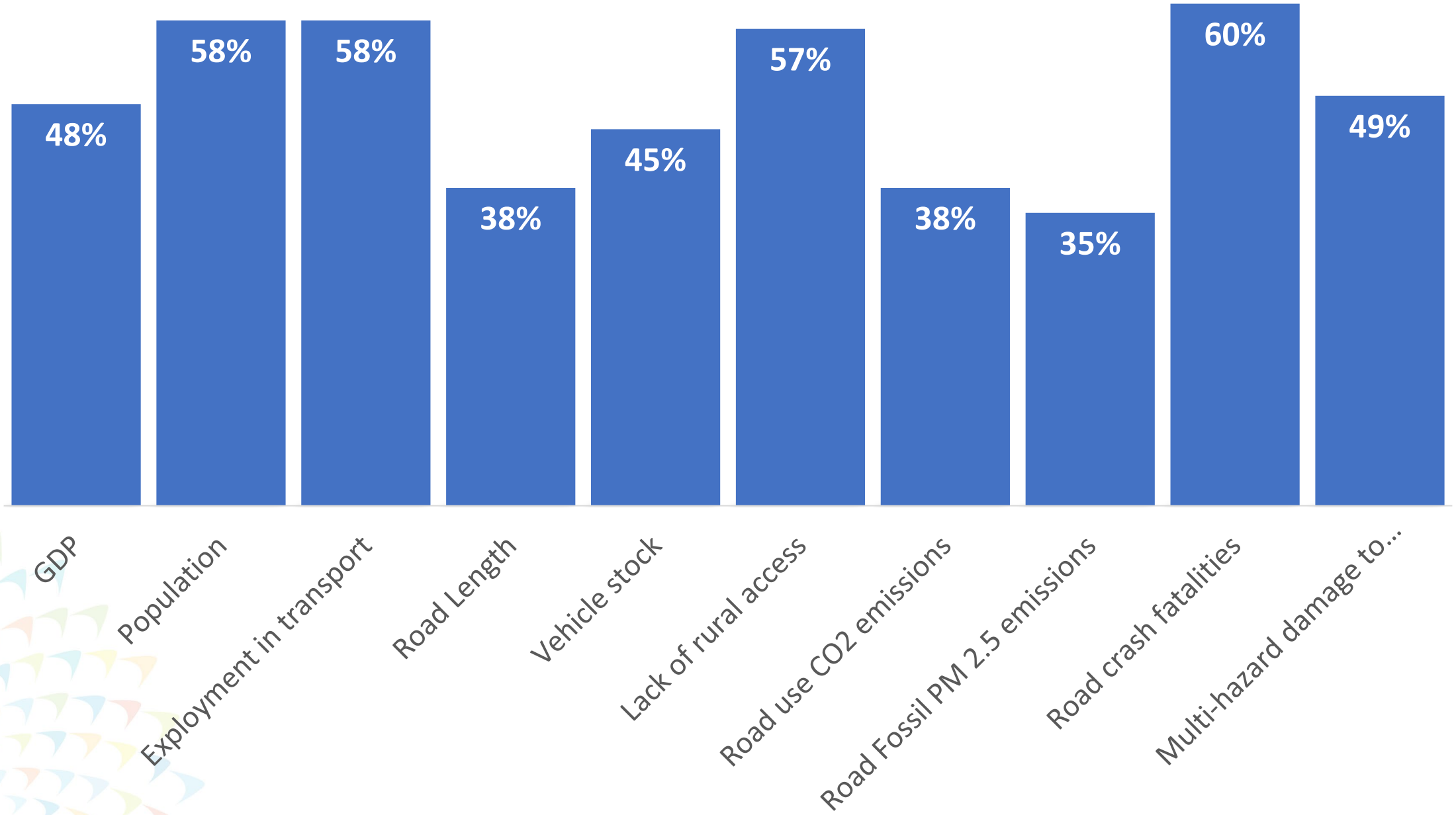
Asia-Pacific Share of Global



GRT was launched at the Asia-Pacific Transport Forum 2024

Green Roads Launch Video

Green Roads Toolkit & Application

- Total good practices is 120+ can be applied to road management, planning, design, construction, and asset management
- Organized around 9 green themes, searchable on basis of different filters
- Combined with checklists and other tools, including assessment of enabling framework.
- Supports preparation of road projects and programs.
- Supports preparation of project pipelines.

EXAMPLE GRT PRACTICE DOCUMENTATION

2.4.1.	Staying Current on Road Maintenance
Description	Many roadway drainage problems occur because of lack of maintenance, where ruts form or a road is flat, concentrating water, and leading to erosion and formation of gullies. Culverts that are not cleaned lead to plugging and then damage to re roadway from local flooding. Raveling of a road surface can be a safety problem, as well as dust problems and loss of valuable roadway materials

Area of applicability

Geography and Climate	Mountainous	Flat	Arid	Tropical	Pacific Islands
	x	x	x	x	x

Standard of road	Low-Volume/rural	Paved highways	Expressed highways	Urban roads
	x	x	x	x

Road project stage	Planning	Design	Construction/Implementation	Maintenance
	x			x

Degree of impact	Incremental	Progressive	Transformative
	x		

Green Road objectives served	1 C02	2 Res	3 W&L	4 Pol	5 QoL	6 Bio	7 Dis	8 Mtl	9 Inc	10 Con	11 Saf	12 Aff
		●	○					○				

Details of the good practice, incl. examples

Road maintenance is a fundamental part of road management so planned ongoing and recurrent maintenance is a must. Additionally, some maintenance items are occasional and may be in the category of deferred maintenance. A road maintenance plan needs to be developed and executed.

Road maintenance typically includes grading and reshaping the road surface, cleaning ditches, clearing brush for sight distance, cleaning culverts, filling potholes, painting or replacing signs, replacing riprap armoring, and periodically surface treatments such as seal coats.

Environmentally Sensitive Maintenance is a concept used today to accomplish needed timely maintenance but also to not create environmental problems by excessive grading, removal of too much vegetation, or conducting maintenance at a time harmful to wildlife.

Maintenance can be accomplished in a variety of ways, including contracts, Performance based contracts, force account teams, micro-enterprises, or community-based maintenance. All have advantages and disadvantages, but the key is that some maintenance scheme is set up for every road network. Ideally a maintenance group will consist of some mechanized equipment, (such as a grader, compactor, water, and dump trucks, backhoe), and hand laborers to do brushing, pothole filling, culvert cleaning, etc. A road should not be built unless a guaranteed maintenance plan is in place!!

Photos/Graphics




LACK OF MAINTENANCE ON ROADS AND CULVERTS


HAND AND MACHINE MAINTENANCE WORK ALONG A ROAD

Enabling factors

Improved Design Standards	x	Public Awareness and Education:	
Modified Tendering Procedures	x	Collaborative Partnerships	x
Policy Development		Roadmaps for Green Roads	x
Environmental Standards	x	Supply systems: available Resources and Materials	x
Regulatory Frameworks		Application of New Technologies	x
Improved Planning Systems	x	Connection with other programs	x

Costs/Benefits

Maintenance costs will vary widely, depending on how the work is done, geographic location, and work needed. Whatever the cost, the initial investment in a road will be lost if the road is not maintained. Deterioration curves on asphalt roads show the significant benefits of early and periodic maintenance.

Remarks/Further reading or viewing/References

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TAJIKISTAN GREEN ROADS CORRIDOR DEMONSTRATION PROJECT

Recommendations:

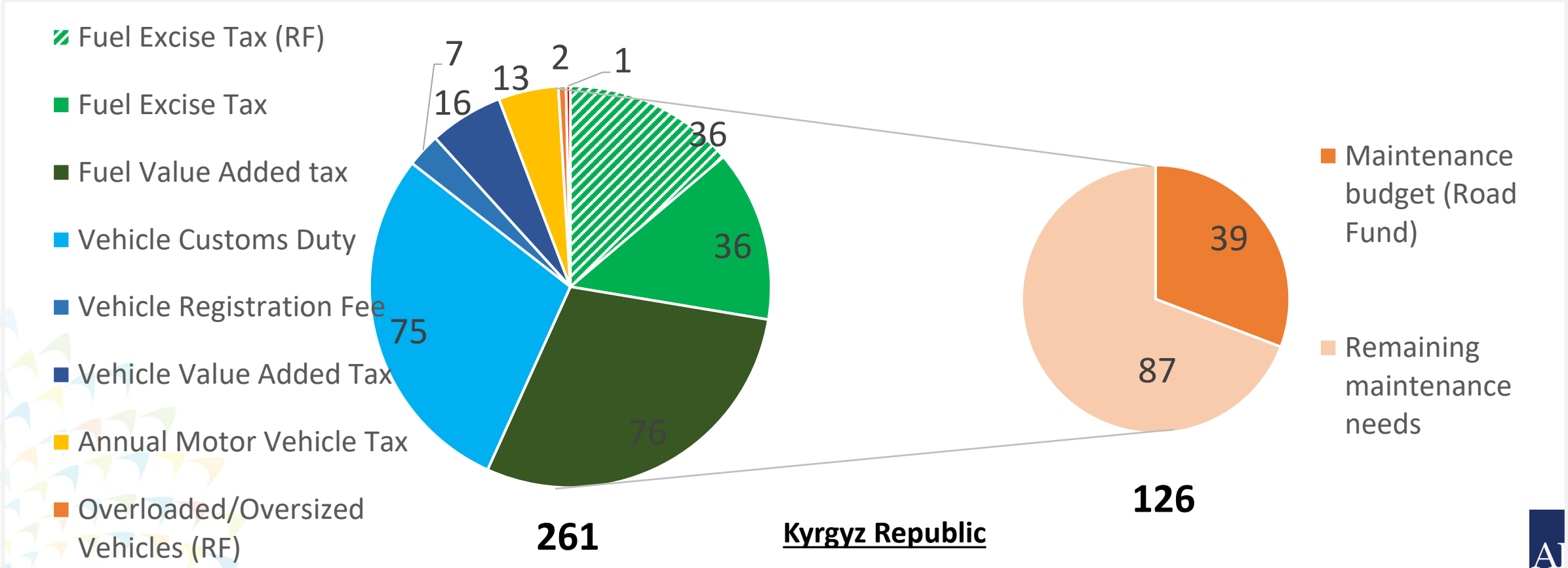
- **Decarbonization Initiatives:** Reuse existing materials, implement energy-efficient lighting, and develop international climate financing application for a re-forestation project along the national road corridors
- **Climate Resilience Measures:** bio-engineering and improved drainage systems to enhance the road's ability to withstand climate-related impacts
- **Water Management Improvements:** mudflow control and exploration of water harvesting/reuse options to optimize resource management
- **Pollution Control and Biodiversity Protection:** Safe decommissioning of petrol stations and introduction of underpasses to facilitate cattle and wildlife movements

APPLICATION OF GRT IN OTHER ADB PROJECTS

Projects	Green Roads Measures
1. IND: Maharashtra Climate Smart Connectivity for Inclusive Growth Program	• Road network decarbonization strategy • Road safety improvement and performance targets • Improved road asset management and climate resilience • Nature-based solutions and Inclusive growth
3. PHI: Laguna Lake Road Network Project	• Preparation of road network decarbonization pathway
4. ARM: Resilient and Inclusive Road Sector Investment Project II	• Multi-hazard climate and disaster risk analysis • Build back better design • Sustainable procurement – including exploring use of low-carbon cement

Other On-going and Planned Green Roads Initiatives

1. **Development of Transport Network Climate Adaptation Pathways for Pakistan, Tajikistan and Papua New Guinea**
2. **Development of Green Roads Pathways for Asia – Pacific.**
3. **Mapping the Future of Road User Revenues**



How to Participate

Download the Toolkit

Webinar Videos

GRT Webinar Slides

Join the Community of Practice