

Transport and Energy: An Integrated Approach



Asia Clean Energy Forum 2016

Session 20: Transport and Energy

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An energy or transport system solution?

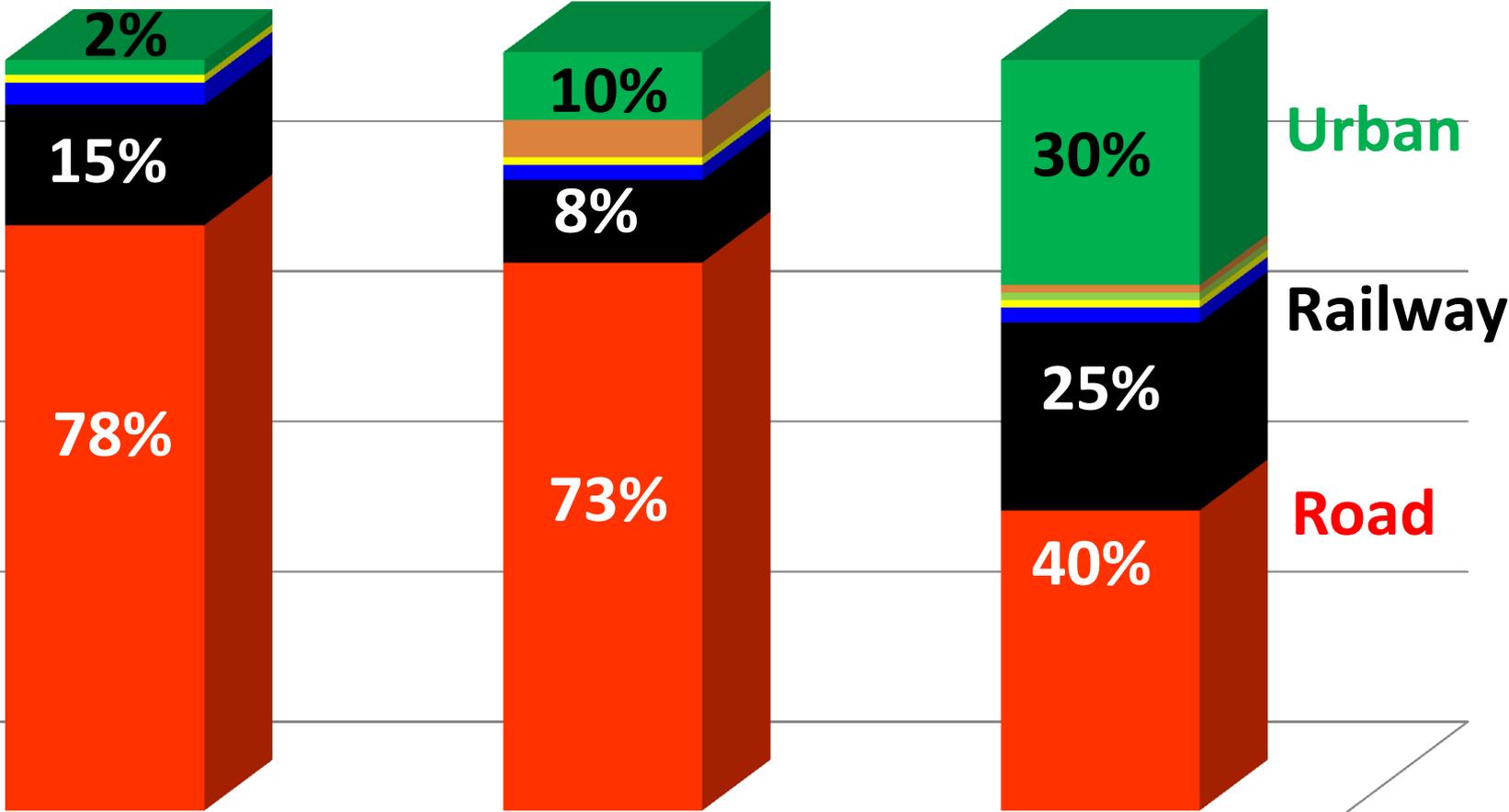


A limited perspective...



ADB's Sustainable Transport Initiative

Percentage of transport sector investment



2000-2009

Baseline

2010-2015

Recent Progress

2020

Target

Urban

Railway

Road

The framework: “Avoid-Shift-Improve”



Avoid
unnecessary
vehicle
kilometers



Shift to the
lowest-emitting
modes



Improve vehicle
technology to
cleaner options

“Avoid”: Transit-Oriented Development (TOD) Concentrating development around public transport stations



“Shift”: Public Transport Systems



Lanzhou BRT project



“Shift”: Walking and cycling upgrades



Signage

Landscaping

Fully universally accessible

Physical buffer from motorized traffic

Color differentiation between pedestrian and bicycle areas

Quality surface materials

Road markings

Seoul

“Shift:” Greenways



Seoul Cheonggyecheon

“Shift”: Bicycle sharing



“Improve”: Clean Fuels

- Clean diesel
- Bio-diesel
- CNG
- Bio-methane
- LPG
- Ethanol
- Hybrid-electric
- Electric
- Fuel cells



Cumulative oil reduction savings from baseline

	2030		2050	
	Moderate	Progressive	Moderate	Progressive
1. Avoid-Shift-Improve Package	12.93%	23.69%	22.08%	41.48%
2. Improve Package	6.38%	13.85%	11.79%	22.02%
3. Shift Package	2.24%	6.80%	4.39%	12.23%
4. Avoid Package	1.42%	5.43%	3.06%	11.86%

Conclusion from ADB Oil Demand Analysis

By 2050, sustainable transport interventions can reduce annual transport oil consumption in Asia and the Pacific by up to **41%** and reduce global oil consumption by **11%** through technologies that are commercially viable today



Co-benefits of “Improve” interventions

Benefit	Efficient Freight	Bio-methane	Biofuels	Electric vehicles	Hybrid vehicles	Fuel economy
Economic						
Employment generation	●	●	●	●	●	●
Consumer savings	●	○	○	○	○	○
Congestion alleviation	●	○	○	○	○	○
Road safety	●	○	○	●	○	○
Time savings	●	○	○	○	○	○
Technology transfer	●	●	●	●	●	●
Environmental						
Local air pollutants	●	◐	◐	●	●	●
Greenhouse gas emissions	●	○	◐	◐	●	●
Noise reduction	●	○	○	●	◐	○
Solid waste reduction	●	○	○	○	○	○
Social						
Gender equality	○	○	○	○	○	○
Universal access	○	○	○	○	○	○
Crime reduction	○	○	○	○	○	○
Community severance	○	○	○	○	○	○

Vientiane Sustainable Urban Transport Project



Bus rapid transit system



• Avenue Lane Xang

Pedestrian and street upgrades



Modern pedicabs



Parking management



Clean vehicle technology

친환경 
전기버스
Electric Bus
북부운수

국립자연사박물관
2013-2014
국립자연사

2013

NATURAL HISTORY MUSEUM
RESEARCH CENTER
SANGJU



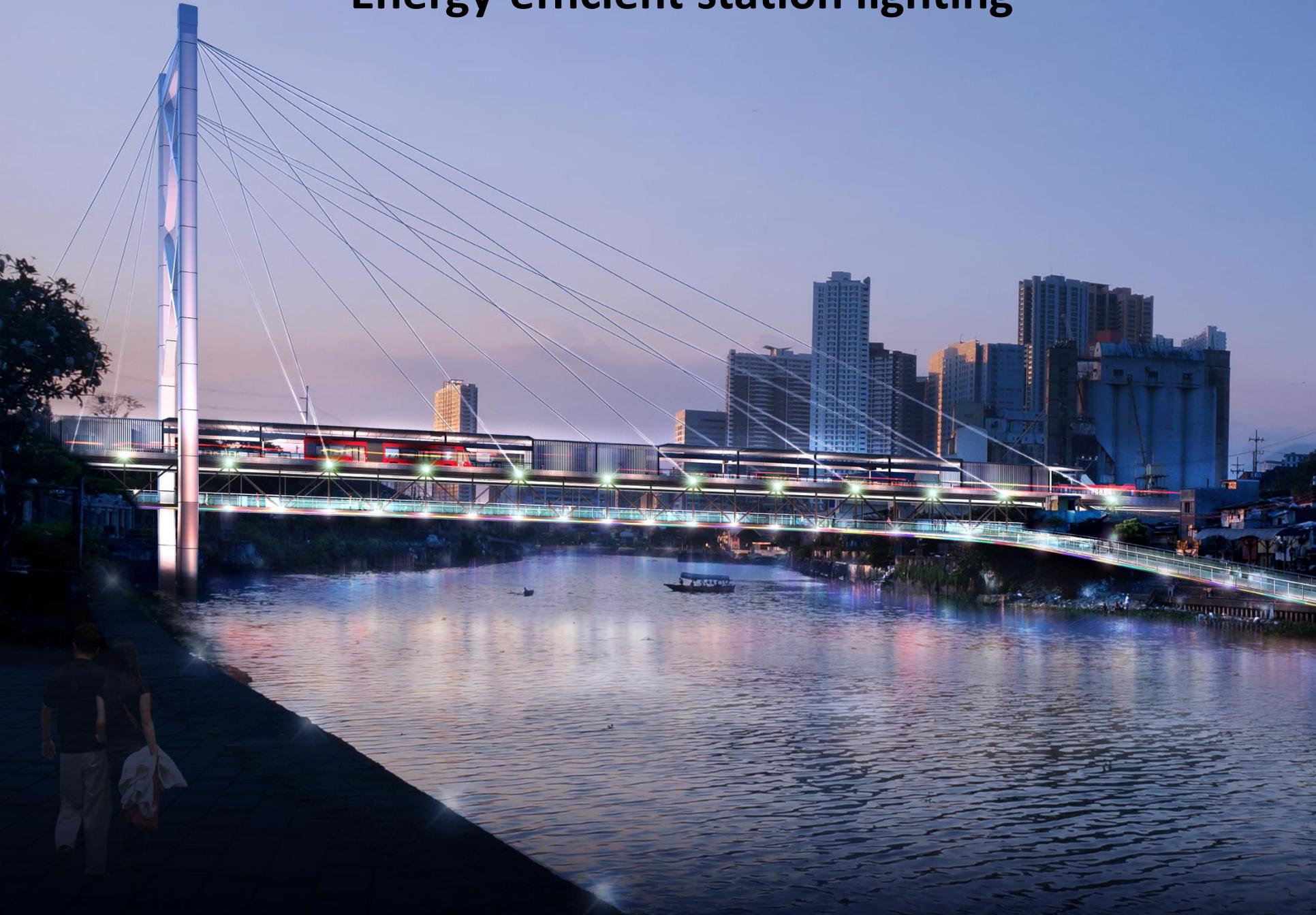
Looking for the energy-transport nexus



Renewable energy and bicycle sharing



Energy-efficient station lighting



Energy-efficient street lighting





Universal power supply for critical components

Delhi...a cautionary tale





शिव गेट
Indira Gate

← प्रगति मैदान
Pragati Maidan

राजीव चौक
Rajiv Chowk ↑

623 आहदवाटमिनत

624A ANAND VIHAR TERMINAL

ASHOK LEYLAND

CNG

CNG

CNG

DL 4C L 6674

629

ACAM3

DL 4C L 6674

M-FairTaxi

During this session...

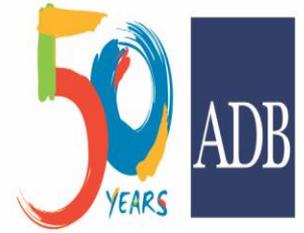
3,800 new cars and motorcycles in Asia and the Pacific

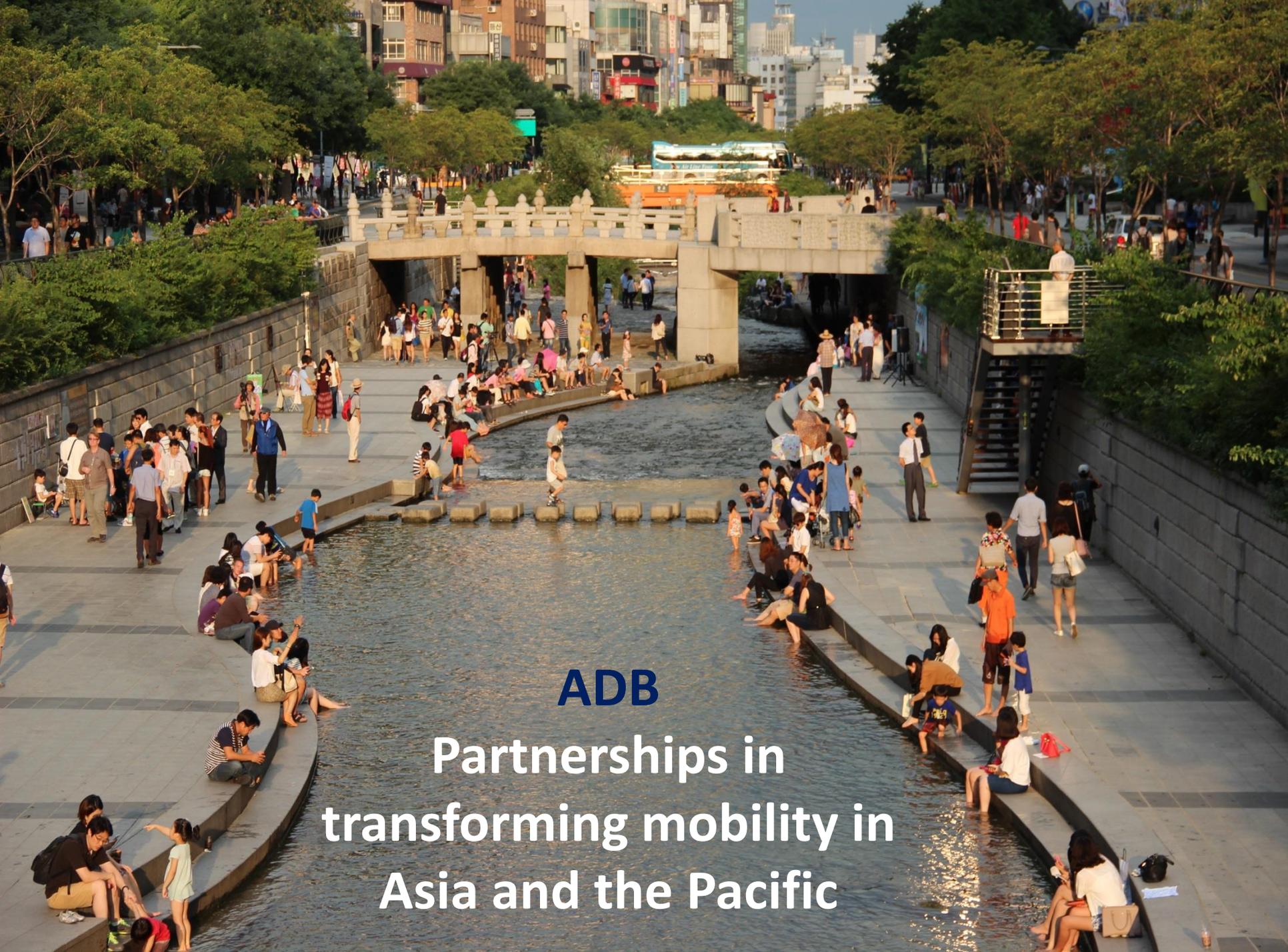


TRANSPORT FORUM 2016

SUSTAINABLE TRANSPORT FOR ALL

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ADB
**Partnerships in
transforming mobility in
Asia and the Pacific**