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ADB Transport NAMAs

Jürg Grütter

www.transport-ghg.com

matching transport with climate finance

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- ▶ Ulaanbaatar Urban Transport in detail
- ▶ Dhaka urban transport in short
- ▶ Core elements for design

UB Urban Transport

- Starting point and policies
- Mitigation Actions and Enabling Activities
- Financial Structure

Starting Point and Policies

- 1.4 million persons, 440,000 vehicles, mode share public transit 28%, walking 34%
- 22 MtCO₂ emissions 2010, 12% transport sector, growing 5%
- INDC target: 14% lower emissions than under BAU by 2030 idem to 7.3 MtCO₂ mitigated
- Transport sector shall contribute 1.7 MtCO₂ mitigation by 2030



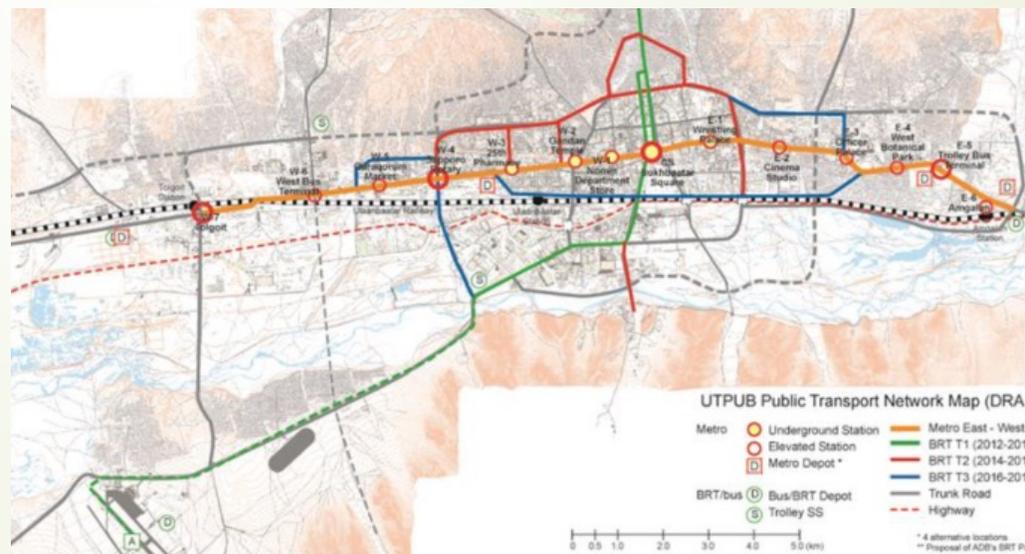
Mitigation Action BRT

- 5 corridors, 65km, articulated buses
- Mode share PT is slightly increased instead of dropping further
- GHG mitigation by 2030 0.8 MtCO₂



Mitigation Action Metro

- 1 line of 18km
- Mode share PT increases by 20 percentage points
- Higher average speed of vehicles due to less congestion
- GHG impact by 2030 0.4 MtCO₂



Mitigation Action LPG taxis and LCBs

- Convert taxis from gasoline to LPG
- Trolleybuses and hybrid-diesel buses
- Problem LPG: pollutants and carbon slip
- Problem electric trolleys: worse than diesel
- GHG reduction by 2030: 0.04 and 0.03 MtCO₂



Mitigation Actions Cumulative

Measure	GHG reduction 2030	GHG reduction 2017-2030	GHG reduction commercial lifespan
BRT	810,000	5,690,000	13,710,000
Metro	430,000	2,240,000	12,650,000
LPG taxis	40,000	500,000	600,000
Low Carbon Buses	30,000	190,000	250,000
Cumulative	1,310,000	8,610,000	27,220,000

- 59% lower emissions than under baseline by 2030
- Represents 20% of INDC target
- 770 MUSD economic savings by 2030 (time, accident, fuel, air pollution)

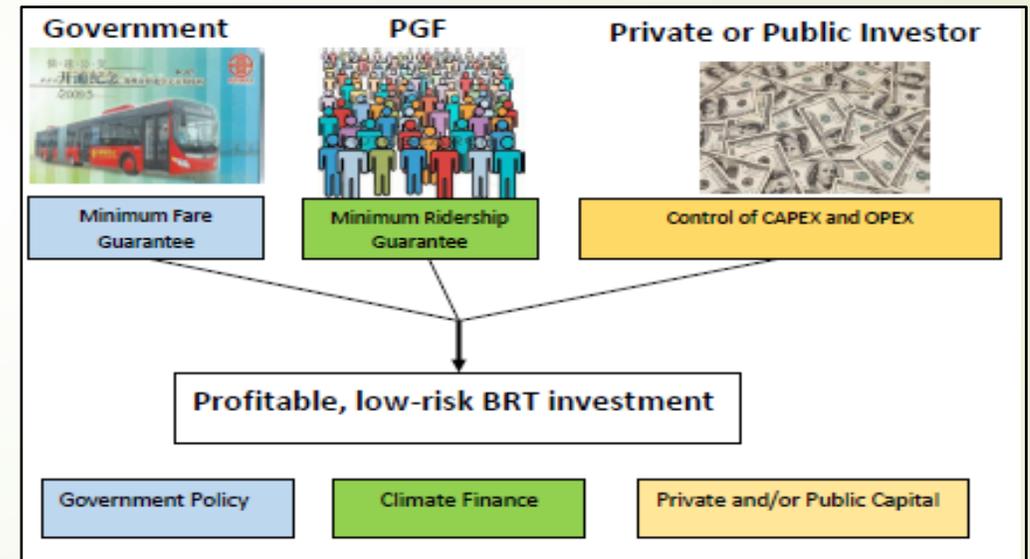
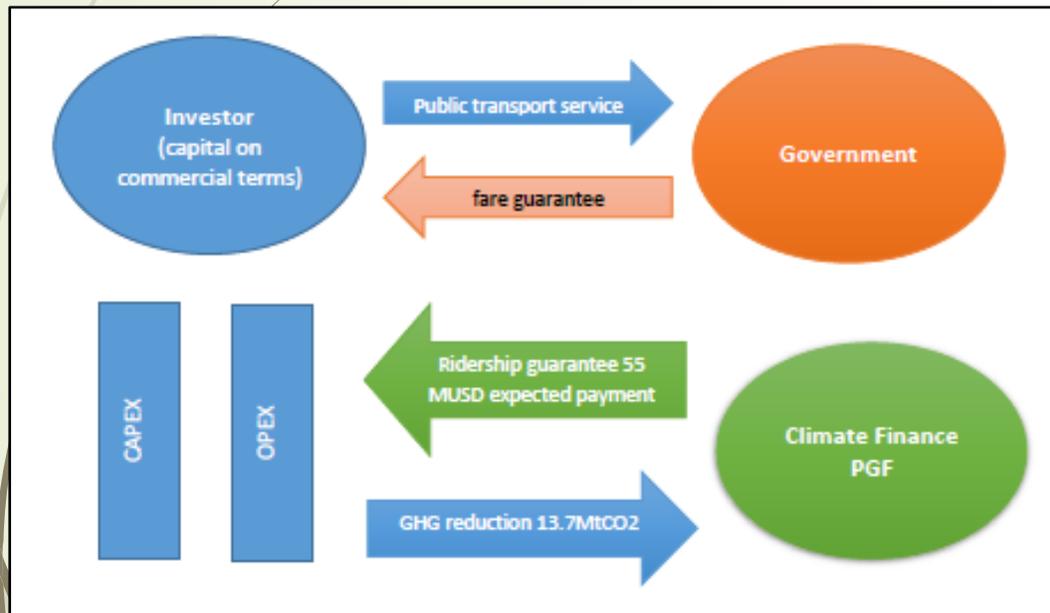
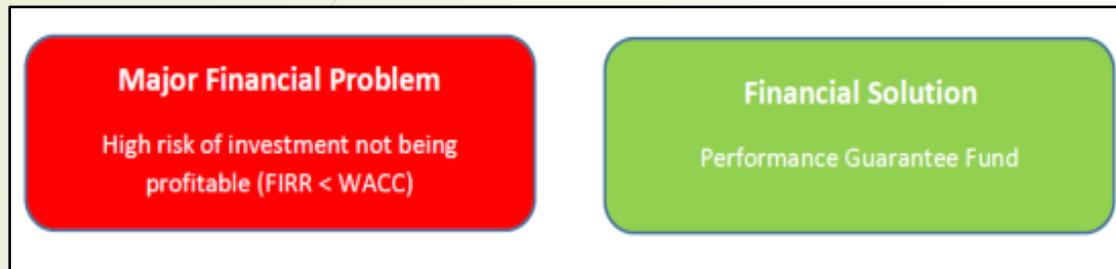
Enabling Activities

- NAMA organization
- MRV system for transport
- Policy support e.g. TDM, mobility management
- Capacity building and training

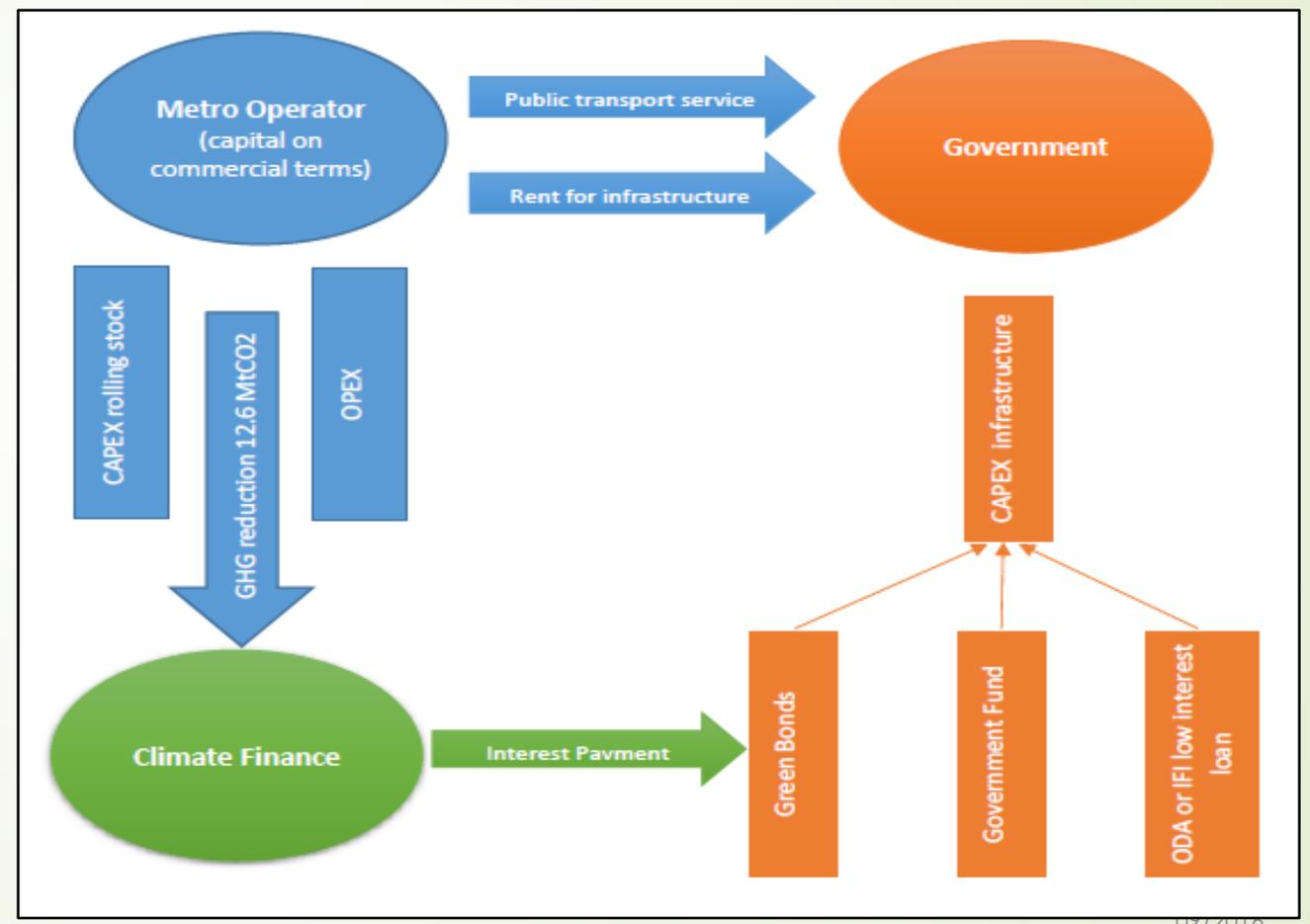
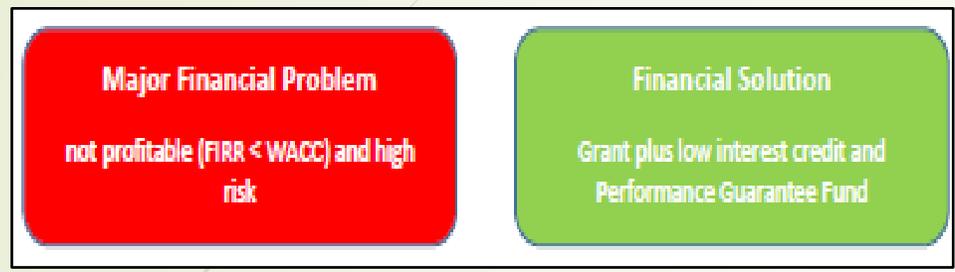
Finance

Parameter	BRT	Metro	LPG Taxis	Low Carbon Buses	Total
CAPEX	274 MUSD	1,500 MUSD	21 MUSD	178 MSUD	1,973 MUSD
FIRR	8%	-1%	300%	4%	
EIRR	25%	21%	300%	4%	
GHG mitigation	13.8 MtCO ₂	12.6 MtCO ₂	0.6 MtCO ₂	0.3 MtCO ₂	27.2 MtCO ₂

Climate Finance and BRT

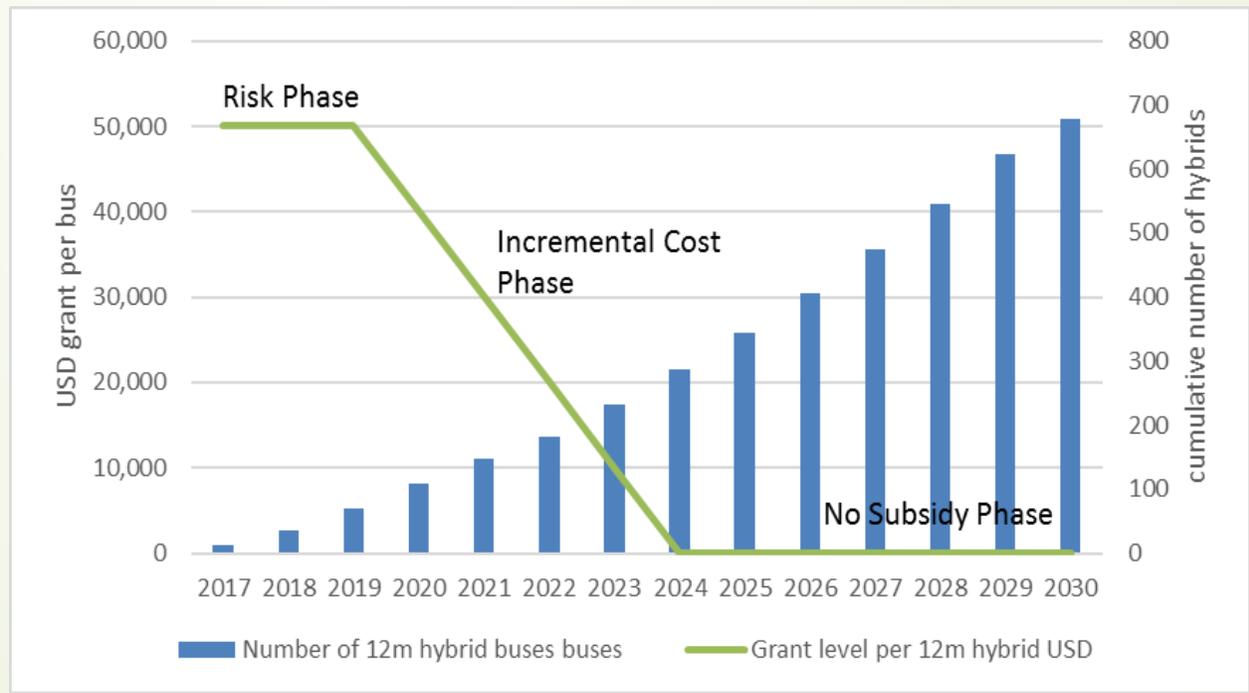


Climate Finance and Metro



Climate Finance and Alternate Vehicles

- LPG Taxis: is profitable; TA instruments including quality control conversion kits, monitoring and information
- LCBs: Low Carbon Bus Fund

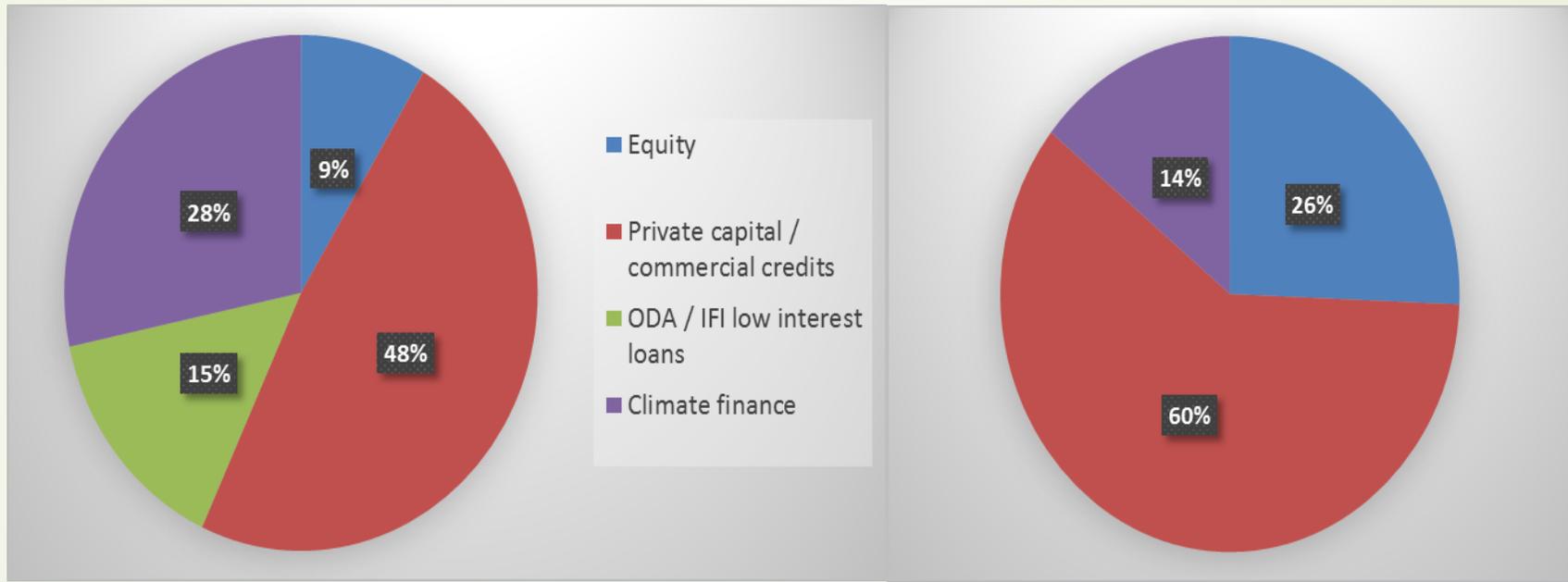


Finance Summary

Parameter	BRT	Metro	LPG Taxis	LCB Buses	Total
Main barrier	High risk of not being profitable	Not profitable	low awareness / technology risk	Not profitable	
CF intervention instrument	Performance Guarantee Fund	Low -Cost Capital injection	Technical assistance	Low-Carbon Bus Fund	
CF capital required	55 MUSD	500 MUSD	1 MUSD	19 MUSD	575 MUSD
MAC per tCO₂ mitigated of CF	4 USD/tCO ₂	40 USD/tCO ₂	2 USD/tCO ₂	58 USD/tCO ₂	21 USD/tCO ₂

+ enabling activities cumulative 7 MUSD 2017-2030

Finance Sources with/without metro



Mobilization factor 3.5 to 7

Dhaka Urban Transport



Reduce significantly urban passenger transport GHG emissions and improve sustainable development indicators of Dhaka.

Main Results NAMA Dhaka

- ▶ Time frame: 2017-2035
- ▶ Mitigation actions:
 - ▶ Public transport expansion with 7 BRT and MRT lines totalling 262km
 - ▶ TDM measures
 - ▶ Hybrid-CNG articulated BRT buses
- ▶ GHG mitigation cumulative 14.5 MtCO₂ TTW and 19.1 MtCO₂ WTW
- ▶ 20% lower GHG passenger transport emissions of Dhaka compared to BAU
- ▶ 3% lower GHG emissions transport sector Bangladesh than BAU for 2030
- ▶ The NAMA mitigation impact corresponds to more than 50% of the targeted INDC impact for the energy, transport and industrial sector.
- ▶ Cumulative 100,000t NO_x reduced and 2.7 billion USD savings (time, fuel, accidents)

Core Elements Design

- Embedded in transport policies and NDC
- Planned implementation actions
- Transformational nature
- Quantification of GHG and SD impact
- Financial problem and role of CF
- Multiple finance sources
- Ambitious but concrete