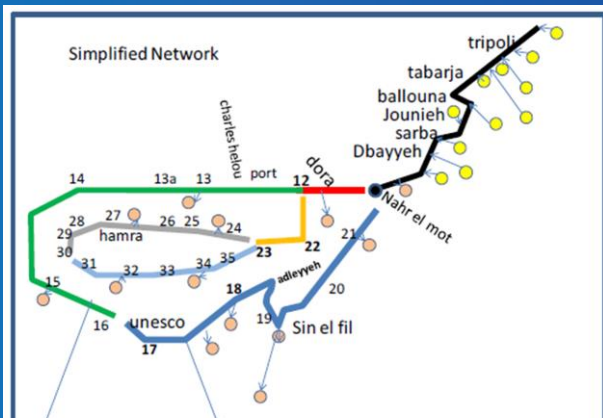




COUNCIL FOR DEVELOPMENT
AND RECONSTRUCTION (CDR)



ENVIRONMENTAL AND SOCIAL
IMPACT ASSESSMENT (ESIA) FOR
THE BUS RAPID TRANSIT (BRT)
SYSTEM BETWEEN TABARJA AND
BEIRUT AND FEEDERS BUSES
SERVICES

VOLUME I: MAIN REPORT

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LIST OF ACRONYMS

Acronym	Definition
AAQS	Ambient Air Quality Standard
AB	Administrative Beirut
ANSI	American National Standards Institute
AUB	American University of Beirut
BIEL	Beirut International Exhibition and Leisure Center
BRT	Bus Rapid Transit
CAS	Central Administration of Statistics
CBD	Convention on Biological Diversity
CCIA	Chamber of Commerce, Industry and Agriculture
CDR	Council for Development and Reconstruction
CGA	Directorate General of Antiquities
CNG	Compressed Natural Gas
COM	Council of Ministers
dBA	A-weighted decibels
DGLMT	Directorate General for Land and Maritime Transport
DGRB	Directorate General for Roads and Buildings
DGUP	Directorate General of Urban Planning
DPF	Diesel Particulate Filter
DSTF	Dead Sea Transform Fault
EA	Environmental Assessment
EBS	Environmental Baseline Summary
EEA	European Environment Agency
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
ELARD	Earth Link and Advanced Resources Development s.a.l.
ELV	Environmental Limit Value
EMEP	European Monitoring and Evaluation Programme
ESIA	Environmental Social Impact Assessment
ESMP	Environmental and Social Management Plan
GBUTP	Greater Beirut Urban Transport Project
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoL	Government of Lebanon
GPS	Global Positioning System
HDV	Heavy Duty Vehicle

Acronym	Definition
IEE	Initial Environmental Examination
IFC	International Finance Corporation
ILO	International Labor Organization
IPCC	Intergovernmental Panel on Climate Change
ISF	Internal Security Forces
LARI	Lebanese Agricultural Research Institute
LDV	Light Duty Vehicle
LMOs	Living Modified Organisms
LPG	Liquefied Petroleum Gas
LRP	Livelihood Restoration Plan
MAS	Metropolitan Art Society
MoC	Ministry of Culture
MoE	Ministry of Environment
MoEW	Ministry of Energy and Water
MoIM	Ministry of Interior and Municipalities
MoPWT	Ministry of Public Works and Transport
MoSA	Ministry of Social Affairs
MV	Mini-van
NGO	Non-governmental Organization
NMVOC	Non-methane volatile organic compounds
NPMP/LT	National Physical Master Plan for the Lebanese Territory
NSEQ	National Standards for Environmental Quality
NSSF	National Social Security Forces
OCFTC	Office des Chemins de Fer et des Transports en Commun
ODS	Ozone Depleting Substances
OP	Operational Policies
P&R	Park and Ride
PAH	Poly Aromatic Hydrocarbons
PAPs	Project Affected Persons
PC	Passenger Car
PCR	Physical Cultural Resources
PME	Powered Mechanical Equipment
POPs	Persistent Organic Pollutants
PwD	Persons with Disabilities
RAP	Resettlement Action Plan
RPTA	Railways and Public Transport Authority
SCR	Selective Catalytic Reduction

Acronym	Definition
SEA	Strategic Environmental Assessment
SISSAF	Support Programme for Infrastructure Sector Strategies and Alternative Financing
TMO	Traffic and Management Organization
TMS	Transportation and Mobility Consultancy
TRU	Transport Regulatory Unit
TSP	Total Suspended Particles
ULSD	Ultra-low Sulfur Diesel
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank
WC	Water closet
WHO	World Health Organization
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

The project is a Bus Rapid Transit (BRT) system between Tabarja and Beirut and feeder buses services. The project was developed in cooperation with Egis International, was appointed by the Council for Development and Economic Reform (CDEP) to conduct the Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) for the Bus Rapid Transit (BRT) system between Tabarja and Beirut and feeder buses services.

The objective of the Project is to improve transport connectivity and mobility on the coastal corridor located to the North of Beirut. This objective will be achieved through

- (i) the construction of a new Bus Rapid Transit (BRT) System between Tabarja and Beirut and within Beirut,
- (ii) the establishment of feeder bus services to the trunk BRT, and
- (iii) the establishment of appropriate institutional arrangements for the management, operation and maintenance of the new mass transit system.

The World Bank (WB) Feasibility Report for a Bus Rapid Transit System for Beirut and will be appraising the Project for funding based on the outcomes of the Feasibility Study the Environmental and Social Impact Assessment and the Resettlement Action Plan. When the Project is approved for implementation, the CDR will be responsible for its construction while the operation will be under the jurisdiction of the Railways and Public Transport Authority (RPTA).

Implementation of a Bus Rapid Transit (BRT) System has been identified as one of the potential investments to improve mobility and traffic circulation along the three (3) main entrances to Beirut: Northern, Southern and Eastern entrances. In the first phase, the proposed Project addresses the Northern Entrance. The remaining two (2) entrances will be studied at later stages.

Project Description

The Project is thus the implementation of a BRT System for the Northern Corridor of Greater Beirut linking Beirut to Tabarja. In addition, the BRT corridor will continue into the city of Beirut in an Outer Ring and an Inner Ring.

A BRT System is a bus-based mass transit system with large transport capacities and has the following elements:

- < Alignment in the center of the road with physical separation of the dedicated lane from mixed traffic
- < Stations with off-board fare collection;
- < Station platforms level with the bus floor and multiple bus doors for entry; and
- < Bus priority at intersections.

The section along the Northern Highway runs from Tabarja to Beirut (Charles Helou) with a length of 24 km and has 28 stations in the median with separating distance of 850 m connected to either side of the highway by pedestrian bridges, with stairs and elevators

The Beirut Outer Ring with a length of 18 km follows the Mirna Chalouhi Boulevard - Emile Edde - Jisr El Wati- Corniche Al Mazraa - Corniche Al Baher - Charles Helou - Nahr Al Mot. There will be 21 stations, 700 m apart, and road level pedestrian crossings.

The Beirut Inner Ring with a length of 16 km stays within the administrative boundaries of the city of Beirut. It passes through the following streets and avenues: Independence, Charles Malek, General Fouad Chehab, Spears, Omar Bin Abdel Aziz, Bani Maarouf, and Algeria . There will be 19 stops on the right hand side of the road, 570 m apart.

The overall BRT alignment is shown in the figure below.

Overall BRT Alignment

Along with the BRT service, feeder bus services with specific itineraries are going to be provided to serve as transit, from and to the BRT stations.

The feeder bus works and transport (MoPWT) The total service fleet will comprise around 850 buses operating on about 20 complementary bus routes outside the main BRT trunk lines.

Feeder Bus Network

The third component of the Project is institutional strengthening which includes:

