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添付-1 CDRに登録された建設会社リスト(2013年以降)

CDR General Prequalification of Lebanese Contractors

Updated Contractor List

	Classification			Application number		
	Roads	Building	Civil	Roads	Building	Civil
A & C Contracting S.A.L		**			B253	
A2 Engineering Company		**			B285	
Abboud Brothers Company	**	**		R063	B147	
Abniah S.A.R.L.		*****			B065	
Abou Dib Construction		****			B188	
Abou Ghanem Contracting	**	**		R071	B163	
Accropod S.A.R.L.	*			R240		
Adibco	*	**		R007	B027	
AHLCO-Abou Halloun Construction		**			B469	
Ahmad Salem Dhaibi Est.		*			B298	
Akram Malaeb Trading Est. (AMCOT)	*	*		R072	B164	
Al Arz Contracting & General Trading Co.	**	**		R042	B104	
Al Bassem		**			B210	
Al Binaa	**			R028		
Al Boustany Contracting & Trading S.A.R.L.	**			R163		
Al Cheikh Company Commerce Construction			*			C207
Al E'emar		**			B005	
Al Hamra Engineering Co. S.A.R.L.	*			R024		
Al Houda Trading & Contracting	*	*	*	R229	B439	C228
Al Israa for Trading & Contracting S.A.R.L.	**	**		R257	B470	
Al Itihad		**			B247	
Al Jihad for Commerce & Contracting S.A.L.	*****	*****	*****	R032	B416	C204
Al Mabani International S.A.L.	*****	*****	*****	R116	B074	C102
Al Moustapha for Trading & Contracting Co.	*	**	*	R262	B482	C269
Al Rabih		**			B206	
Al Raed for Engineering and Contracting	***			R129		
Al Reem for Engineering and Contracting Est.			****			C266
Al Sakr		**			B216	
Al Sharkiya Engineering & Contracting		**	*		B390	C177
Al Wissam for Engineering & Contracting S.A.R.L.		**			B472	
AlBonyanCoForEngineering&ContractingS.A.R.L.	*****	*****	*****	R119	B288	C106
Ali Barakat Est.-Trading & General Contracting		*			B237	
Allied Company for Road Constructions	**			R035		
Alma Trading & Contracting Co.	**		**	R182		C167
Amco International S.A.L.			*			C025
Amro Iemar S.A.R.L.	*		*	R227		C225
Antar Contracting and Trading	*		*	R266		C273
Antoine Makhlof for Trading & Contracting S.A.L	*****		**	R085		C121
Antoine Matar - Entreprise Générale	**			R050		
Arwar Ahmad Hamdan Construction	**	**		R041	B103	
Arabian Civil Works Company (ACW)	*****			R114		
Arabian Company for Trading & Contracting - ACTC	*****	*****	*****	R231	B440	C229
Arabian Construction Co. International sal	*			R198		
Arabian Construction Co. S.A.L.	*			R093		
Arcan S.A.R.L.			**			C144
ARCC	**			R153		
Archi Structure Engineering & Co. (ASE)		*			B021	
Arneco		**			B158	
ASD int'l for Transportation&General Contracting			*****			C251
Ashada S.A.L.	****		*****	R083		C065
Assad Khalil Farhat and Sons	*	**	**	R011	B038	C115
Aztech Ltd.		**	**		B198	C086
Badawi Azour Trading & Contracting(BATCO) SARL	*****	*****	*****	R098	B223	C067

Ranges of contract value in MUSD: * < 1 ** < 5 *** < 10 **** < 20 ***** > 20 ⊗ : Specialized Subcontractor

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CDR General Prequalification of Lebanese Contractors

Updated Contractor List

	Classification			Application number		
	Roads	Building	Civil	Roads	Building	Civil
Balitec sal		**			B399	
Belinea SARL		*			B370	
Berytus Construction & Development Co. S.A.R.L.		**			B238	
Betabat S.A.R.L.	**		*	R161		C141
Binaa & Iamar S.A.R.L.	**	****	***	R054	B126	C031
Block Engineering & Construction Establishment		**			B211	
Bou Ghanem Contracting Establishment		*			B088	
Bureau Al Arkoub for Engineering & Contracting		**			B391	
Bureau Aiwé - Etudes et Entreprises		**			B029	
Bureau de l'Ingénieur Ghassan Mughabghab		**			B121	
Bureau d'Etudes et Travaux Hyd-Elec (E.Selwan).	*****			R026		
Bureau Hamid Kairouz S.A.L.	*****	*	*****	R123	B292	C022
Bureau Ingénieur Assaad Bardawil			**			C152
Burotec			**			C085
Butec S.A.L.	***	*****	*****	R075	B169	C041
C & C Consulting & Contracting	**			R110		
C & E	**			R142		
Cambris Contracting Company	****		**	R019		C217
Capelec Liban		**			B248	
Carevie Ltd. Co.			**			C002
Cement for Trading, Engineering & Contracting	**	**		R027	B076	
Centre D'Entreprise Générale (Mohsen Assaad & Partners)	*	**		R238	B449	
Chaddad Group S.A.R.L.		*****			B060	
Chaibane - Société Foncière pour la Construction		**			B359	
Civi Arch S.A.R.L.		*****	*		B428	C216
CLE Layoun Entreprise SAL		**	**		B378	C176
Click Services		*			B117	
Code Lebanon Contracting and Designing S.A.R.L.		**	**		B035	C175
Consolidated Engineering & Trading Co. (CET) S.A.L	*****	****	*****	R061	B138	C118
Construction Group (CG) S.A.R.L.		*			B266	
Construction Materials Co. (CMC) S.A.L.	****			R092		
Construction Services Company S.A.R.L. (C.S.C.)		**	**		B199	C261
Construction & Real Estate Development Company SARL	**	*****		R218	B116	
CONTRA Contracting & Trading s.a.r.l.	***	****		R124	B338	
Contracting & Engineering Works CEW sarl	**			R152		
Contracting Trading Incorporation (CTI)		***			B220	
Contractors Lebanon S.A.L.			**			C198
Cote S.A.R.L.	**			R085		
CPM Project Management S.A.R.L.		*			B372	
Dalleh Brothers Company		**			B202	
Danash Contracting & Trading Co. S.A.R.L.	*****	*****	*****	R002	B004	C070
Dar EL Itihad			*			C040
Delmar Contracting and Trading Company S.A.R.L.		**			B048	
Delta Engineering & Construction	*	**	**	R067	B156	C037
Design System Management D.S.M. SARL		*			B352	
Development & Construction Co. for Roads & Bldg.	**	**	**	R022	B066	C013
Doumel Engineering & Contracting Co.			*			C075
Dynamics Company for Trade, Industry & Const.	**			R004		
El Deir Engineering & Contracting		**			B236	
El Hussein-Engineering Contracting & Gen. Trade		**			B024	
El Yemen Co. S.A.R.L.	**	**		R230	B437	
Elect S.A.R.L.		**			B159	
Electric Power S.A.R.L.			*			C153

Ranges of contract value in MUSD: * < 1 ** < 5 *** < 10 **** < 20 ***** > 20 ⊗ : Specialized Subcontractor

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CDR General Prequalification of Lebanese Contractors

Updated Contractor List

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	Classification			Application number		
	Roads	Building	Civil	Roads	Building	Civil
Elie Michel Slaiby & Brothers Co.	***	***		R211	B485	
EMTech - Electromechanical Technology Co.S.A.R.L		****			⊗B467	
Engineer Elie N. Maalouf Company S.A.L.(EMC)		*****	*		B377	C165
Engineer John Jabre Moufarrej	**	**	**	R086	B192	C045
Engineer Khaled Al Sarout		****			B444	
Engineer Massoud Naboulsi		**			B097	
Engineer Mohamad Wissam Ali Achour Office	*		*	R193		C183
Engineer Raja Wahab Est.		*			B251	
Engineering & Building Co.-EBCO (Bifar) S.A.R.L		*****	*****		B431	C222
Engineering & Contracting		**			B118	
Engineering & Contracting Co. S.A.L		*			B112	
Engineering & Contracting Establishment (ECE)		***			B219	
Engineering & Trading Services Est. SIM	*			R056		
Engineering Company for Trading & Contracting		**			B203	
Engineering Consultants & Contracting Co. EC3		**			B239	
Engineering Contracting & Trading Co. Ltd.		*			B258	
Engineering Entreprises		**	**		B128	C032
Enka Group S.A.R.L.		**			B183	
Enterprise Chawki Said S.A.R.L.		***			B281	
ESGE- Emile Sfeir General Enterprise S.A.R.L.	**			R209		
Establishment Mohamad Fadi Tabbah Chalab	**	**		R055	B127	
Establishment Mohammad Ali Kassas Sons		**			B173	
Establishment Nazih Braidi for Eng'g&Contracting	*****	*****	*****	R051	B123	C051
Establishment Samir Matta			**			C143
Estephan Company Contracting & Trading	****	***	****	R045	B108	C026
Etablissement Antoine Aoun	**		**	R013		C009
Etablissement Boutros Mouhsen Toulani		*			B067	
Etablissement Carlos Bchara	**	**		R109	B241	
Etablissement Labib Farhat Entr. et Constr.		**			B026	
Etablissement Yassin pour Commerce et Entreprise		**			B191	
Ets Georges Abi Habib for Trading & Contracting	**			R261		
Ets Rouchaid El-Khazen pour l'Entreprise	*****	**	****	R078	B295	C028
Ets. Joseph Ayrouth for Contracting & Trading	**	*	**	R235	B446	C233
Executor Company S.A.R.L.		*****			B413	
Expo For Engineering and Contracting		*****			B266	
Ezzeddine for Engineering & Contracting	**			R052		
Fakih Brothers Co. For Contracting & General Trading	**			R207		
Farhat Group S.A.L	**			R073		
Fouad Shafic Sinno Establishment		*			B052	
G.C. General Construction Ltd.	*	**		R046	B109	
Geneco-General Construction & Contracting Co. SARL	*****	*****	****	R122	B287	C271
General Company for Quarries & Contracting SARL	*****	**	**	R090	B195	C136
General Contracting Establishment		**			B087	
General Entreprises & Trading Co. - GET		**			B297	
General Trading Company		**			⊗B272	
Georges Yammine for General Contracting		**			B415	
Ghazwan Adra & Partners Co. Construction & Contr	**	**		R096	B217	
Ghazzawi & Taleb Contracting Co. Ltd.		**			B233	
Gitco S.A.R.L.		**			B006	
Globe Engineering and Contracting		**			B096	
Group 7 s.a.r.l.		**			B319	
Habib Petroleum & Contracting Co.		**			B323	
Haddad Engineering & Contracting Est.			**			C160

Ranges of contract value in MUSD: * < 1 ** < 5 *** < 10 **** < 20 ***** > 20 ⊗ : Specialized Subcontractor

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GDPR General Prequalification of Lebanese Contractors

Updated Contractor List

	Classification			Application number		
	Roads	Building	Civil	Roads	Building	Civil
Hagex International		**	**		B119	C029
Haji Engineering Establishment		**			B309	
Hamadani Est. for Contracting & Engineering			**			C123
Hammoud Establishment for Trading & Contracting	*****	*****	*****	R030	B089	C178
Hani Daher Establishment		**	**		B334	C130
Hanna El Khoury & Brothers Co. S.A.R.L.	*****	**	*****	R196	B401	C186
HAS s.a.r.l. (Nakhle Hachem & Co.)		**			B322	
Hassib Yassine Commercial Est.		**			B093	
Hattab Bros. Engineering Est.	**	**	***	R219	B479	C066
Hawi Brothers Contracting & Trading Co.		**			B100	
Heads-Haidar Engineering & Development Services			**			C088
Henri Bachour Engineering & Consulting Company	**		**	R081		C211
Hicon S.A.R.L.	*****	*****	*****	R221	B429	C218
Homan Engineering Co. Ltd. S.A.R.L.	*****		*****	R036		C092
Houchaimi Est. for General Trading & Contracting		**			B468	
I.C.T. International Contracting & Trading Co.		**			B031	
ICC-International Commercial & Contracting Co.	**	**		R137	B306	
Imar General Contracting		***			B028	
Impex S.A.R.L.		**			B488	
International Consulting & Services-ICS		**			B376	
International Consulting in Construction & Trade		*			B049	
Isopack S.A.R.L.		***	**		B187	C099
Issam Hoayeck Est. for Eng'g, Contr.& Trading	**	**	**	R167	B362	C149
Jafco Construction International SARL		**			B369	
Jammal Engineering International		**	*		B321	C113
Jerico S.A.R.L.			**			C164
Jesco Contracting Trading & Enterprising		*****			B186	
Jibal Real Estate Co. S.A.L.		*			B265	
K.B.K. Contracting S.A.R.L.	**			R076		
Kfoury Engineering & Contracting S.A.R.L.	**			R168		
Khalife For Engineering & Contracting	**			R106		
Khater Est. For Contracting Paints & General Trading	**		**	R181		C166
Khair Alam & Co. for Design & Contracting		**			B204	
Khoury Contracting Company S.A.R.L.	*		*****	R199		C020
LCC Engineering Limited S.A.R.L.		**			B474	
Lebanese Comp. for Const. (LICO) S.A.L.	*	**	**	R068	B157	C097
Lebanese Contracting for Buildings & Roads Co. Ltd	**		**	R202		C193
Lebanese Development Commercial & Industrial CO.			**			C056
Lebanese Engineering Masonry Co. - Lemaco	*****	*****	*****	R173	B168	C157
Lebanese Lanadar S.A.R.L.		*****			B484	
Lebanese Planning & Development Company S.A.R.L.		*			B274	
Letco-The Lebanese Est. for Trading & Contracting		**			B017	
Level & Scale S.A.R.L.		***			B463	
Light Incorporated & Trading S.A.L.		**	**		B263	C054
Louis El Hachem Engineering & Contracting	**		**	R165		C148
M.A. Contracting & Trading Est.	**	*****		R070	B162	
M.W.B.Y. Co. Trading	*	**	**	R095	B213	C049
Maalouf Trading & Contracting Co. S.A.L.		*****	***		B015	C112
Maintenance Infrastructure South For Constr. (MISC)	**			R208		
Malek Fahd Contracting	**			R162		
MAN Entreprise S.A.L.	*****	*****	*****	R141	B311	C100
Manar Contracting & Trading Co. Ltd.		**	**		B318	C116
Maroun Chakkour for General Contracting	**	**		R057	B134	

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CDR General Prequalification of Lebanese Contractors

Updated Contractor List

	Classification			Application number			Draft
	Roads	Building	Civil	Roads	Building	Civil	PD 2013
Matrix Trading & Contracting		⊗			B030		
Matta & Associés S.A.L.	⊗⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗	R099	B224	C107	
Maurice Yammine	⊗⊗	⊗	⊗⊗	R130	B249	C082	
Mearmar S.A.R.L.	⊗⊗⊗⊗⊗	⊗⊗⊗⊗	⊗⊗⊗⊗	R139	B307	C096	
Mercury Development S.A.L.		⊗⊗⊗⊗⊗			B486		
Mersico Trading and Contracting S.A.L.	⊗		⊗⊗	R128		C079	
Metal Contracting & Trading		⊗⊗⊗⊗	⊗⊗⊗⊗⊗⊗		B480	C263	
Metco International		⊗	⊗		B154	C063	
Middle East Company for Development & Tourism		⊗⊗			B091		
Mikati Brothers Co. s.a.r.l.		⊗⊗			B313		
Millemium Contracting & Trading S.A.R.L.		⊗⊗			B344		
Modern Endeco		⊗			B018		
Mchamad Al Hajj Contracting		⊗⊗			B178		
Mchamad Ali Mazloum Est.		⊗⊗⊗			B196		
Mohamed Khaled Eid		⊗			B105		
Monzar Contracting Trading Co.(Montraco) SARL	⊗		⊗⊗⊗	R184		C172	
Moustapha Salaheddine Adada Est.	⊗⊗	⊗⊗	⊗⊗	R259	B476	C265	
MradCompanyForCommerce,Industry&ContractingSARL		⊗⊗⊗⊗	⊗⊗		B448	C236	
Mustapha A. R. Sabbidine Est.		⊗⊗			B304		
Nabil Abdullah Establishment		⊗⊗			B410		
Nadim Faraj Est. for Engineering & Contracting		⊗⊗			B269		
Nasimco for General Trading & Contracting	⊗⊗	⊗⊗		R018	B050		
Nasra Engineering & Contracting		⊗⊗			B364		
NassimAbouHabibPourL'Industrie&L'EntrepriseSAL	⊗⊗⊗⊗⊗	⊗⊗⊗	⊗⊗	R111	B246	C219	
Natcon Engineering and Contracting S.A.L.		⊗⊗⊗⊗⊗⊗			B477		
National Contracting and Trading Co. S.A.R.L.		⊗⊗			B014		
National Contracting Est.		⊗⊗			B379		
National Trading and Contracting Co.	⊗⊗	⊗		R059	B136		
Nicolas Srouji EstablishmentForContracting(NSE)	⊗⊗⊗⊗⊗		⊗⊗⊗⊗⊗	R043		C133	
Nizar Georges Tamer		⊗⊗			B020		
North Gate Company		⊗			B053		
Obeid For Pumps Est.			⊗⊗			C267	
ODAG	⊗			R241			
Office Engineer Boutros Moussa		⊗			B130		
Omrnan Lebanese Co for Eng'g & Contr. S.A.R.L.		⊗⊗			B064		
Panther S.A.R.L		⊗⊗			B084		
Parallel Contracting S.A.L.		⊗⊗	⊗⊗		B481	C268	
Peak Engineering S.A.R.L.		⊗⊗			B141		
Poly Contraco		⊗⊗			B131		
Power Net S.A.L.			⊗⊗			⊗ C058	
Rahmeh Construction & Development Co. (RALCO)		⊗⊗			B207		
Ramco Trading and Contracting S.A.L	⊗⊗⊗⊗⊗	⊗⊗⊗⊗⊗	⊗⊗⊗⊗⊗	R017	B046	C069	
Raymond Soueidy Institution for Contr. & Trading	⊗⊗	⊗⊗		R012	B047		
Rayn Contracting Company	⊗⊗	⊗⊗		R117	B270		
Refrigeration & Conditioning Co. S.A.R.L.(RCC)		⊗⊗			⊗ B262		
Riyad Mahmoud Est. for Trading & Contracting	⊗⊗	⊗⊗		R005	B023		
Root Engineering Co. S.A.L.		⊗			B073		
Roubine Kibinian Est. For Trading & Contracting		⊗⊗			B400		
Run Company		⊗⊗			B349		
S.I.T.E. Planing & Contracting		⊗⊗			B115		
Saba Makhlof Est. for Trading&Contracting SARL		⊗⊗			B113		
Sabeco S.A.R.L.			⊗⊗				C003
Sabsabi & Partners Co.			⊗⊗				C071

Ranges of contract value in MUSD: ⊗ < 1 ⊗⊗ < 5 ⊗⊗⊗ < 10 ⊗⊗⊗⊗ < 20 ⊗⊗⊗⊗⊗ > 20 ⊗ : Specialized Subcontractor
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CDR General Prequalification of Lebanese Contractors

Updated Contractor List

	Classification			Application number			Draft PO 2013
	Roads	Building	Civil	Roads	Building	Civil	
Saccal Engineering Services for the Arab World			**				C008
Saffeddine Company for Trading&Contracting sarl	**	**	**	R150	B261		C124
SalamehEngineeringTrading&ContractingSAL-Setco			****				C190
Samarco	*	*	*	R144	B316		C109
Samco	***		****	R146			C111
Samih Iskandarani Est.		**			B267		
Sanabel S.A.R.L.		*	**		B417		C205
Saraf Engineering & Contracting		*			B398		
Serhal Est. for General Trading & Contracting	**	**		R113	B252		
SHG Engineering & Contracting S.A.L.	*****	*****		R088	B193		
Shibl Engineering & Contracting		*	*		B208		C035
Sierra Trading & Int. Construction Systems-STICS	**		**	R176			C024
Simonda S.A.L.		**			⊗B041		
Site S.A.R.L.		**			B010		
Siteco			*				C162
SITEG-Soc. d'Ing.,de Trav. d'Entr. et de Gestion	**	**	**	R189	B392		C179
Smart Co. Ltd.		**			B166		
Société d'Entreprise du Nord (SEN) - S.A.R.L.	**			R010			
Société d'Entreprises Abdul Rahman Hourie S.A.L.	*****	*****	*****	R079	B174		C081
Société d'Entreprises Samir Cordahi (SESCO)	*		*	R132			C083
Société d'Union de Service et Etudes sarl SUDEST		**			B242		
Société Mouawad - Eddé S.A.R.L.	*****	*****	*****	R084	B184		C170
Société Pietro Aoun Comm. et l'Entreprise (CEPA)		**			B140		
Société Soelco S.N.C.		**			B335		
Sodaco S.A.R.L.		**			B111		
Sofil for Building & Roads S.A.R.L.	*			R232	B441		
Sojem Consulting & Contracting		**			B085		
Solh Trading Est.		**			B155		
South Contracting Company S.A.R.L.	**			R034			
South for Construction S.A.L.	****			R048			
Southern Contractors		**			B235		
Statumen for Contracting	**	**	**	R217	B425		C212
Ste Nazir Abou Jaoude	**		**	R243			C240
Steel Construction Factory (M. KARl)			**				⊗C053
Stone for Roads & Constructions S.A.R.L.	**	**	**	R171	B366		C154
Structures Contracting & General Trading Co.		**			B025		
T.A. Group s.a.r.l.		**			B189		
Tabat Entreprises S.A.L.		*****			B348		
Tajj Est.	**	**	*****	R135	B254		C068
Tal Engineering and Contracting Company	**	*	**	R115	B259		
Tanous Saadé Saadé	**	**	**	R089	B194		C046
Tarfini for Engineering and Contracting Co.		**			B059		
Task Engineering Contractor S.A.R.L.		**			B473		
Ten Bros For Contracting	**	**		R224	B432		
Terro Establishment for Trading & Contracting		**			B044		
Tetris S.A.R.L.		*			B149		
The Modern Co. for Development & Reconstruction	*			R156			
TheLebaneseGeneralCompanyForContracting&Trading	**	**		R183	B383		
Tohme Contracting S.A.R.L.	**	**	**	R236	B447		C234
Top Development Company s.a.l		**	**		B214		C048
Tower Engineering & Contracting Company L.L.L.		**			B144		
Traction One	**			R191			
Trust Contracting & Trading S.A.R.L.		***			B092		

Ranges of contract value in MUSD: * < 1 ** < 5 *** < 10 **** < 20 ***** > 20 ⊗ : Specialized Subcontractor

CDR General Prequalification of Lebanese Contractors

Updated Contractor List

	Classification			Application Number			Draft
	Roads	Building	Civil	Roads	Building	Civil	PG 2013
Tyros for Engineering and General Contracting			**				C226
Unit Construction Company	*			R157			
United Construction Group S.A.R.L.	*	**		R014	B043		
United Contractors & Engineers s.a.l.(UCE)	*		*	R149			C120
United Contractors S.A.L.	**			R158			
United Development & Contracting Co.-Beaini/UDC		****			B068		
United Trading & Contracting Co. (Nawfal & Amer)	*	**	*	R025	B079		C017
UTS - Montmontaza		*	**		B197		C047
Vega S.A.R.L.	*			R201			
Viva for Trading and Contracting Co. L.L.C.	**	**		R133	B301		
Walid Khalil Est.		*			B160		
Walter Bau Liban s.a.r.l.		*			B181		
Water & Power Engineering (WPE) S.A L.			**				C248
Water Master			**				C016
Water Resources & Development (WARD) s.a.r.l.			*****				C173
Wehbé & Zaarour s.a.r.l.	**	**		R140	B308		
World Wide S.A.R.L.			*****				C235
Yamen General Trading & Contracting Est.	*****	*****	*****	R186	B388		C007
Youness Company for Contracting and Trading	**	**		R016	B045		
Zoning Enterprise S.A.R.L.	*	*		R205	B411		
Total number of contractors listed:							338

Ranges of contract value in MUSD: * < 1 ** < 5 *** < 10 **** < 20 ***** > 20 ⊗ : Specialized Subcontractor

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Working Data Base

Page 7 of 7

添付-2 一日 4 米ドル以下で生活する人口

Caza	Population living less than 4 USD/day
Akkar	169,823
Aley	37,471
Baabda	127,721
Baalbek	74,309
Batroun	11,399
Bcharre	5,686
Beirut	23,572
Bint Jubail	17,389
Chouf	34,884
El Metn	47,873
Hasbaiya	7,923
Hermel	12,256
Jezzine	9,240
Jubail	12,436
Kasrouane	24,564
Koura	11,915
Marjaayoun	13,560
Minieh-Danieh	76,332
Nabatiye	14,532
Rachiaya	9,915
Saida	114,190
Sour	73,155
Tripoli	157,018
West Bekaa	20,201
Zahle	39,279
Zgharta	13,988

出典： JICA Study Team based on Syria Regional Refugee Response
Inter-agency Information Sharing Portal

添付-3 シリア移民の人口



SYRIA REFUGEE RESPONSE

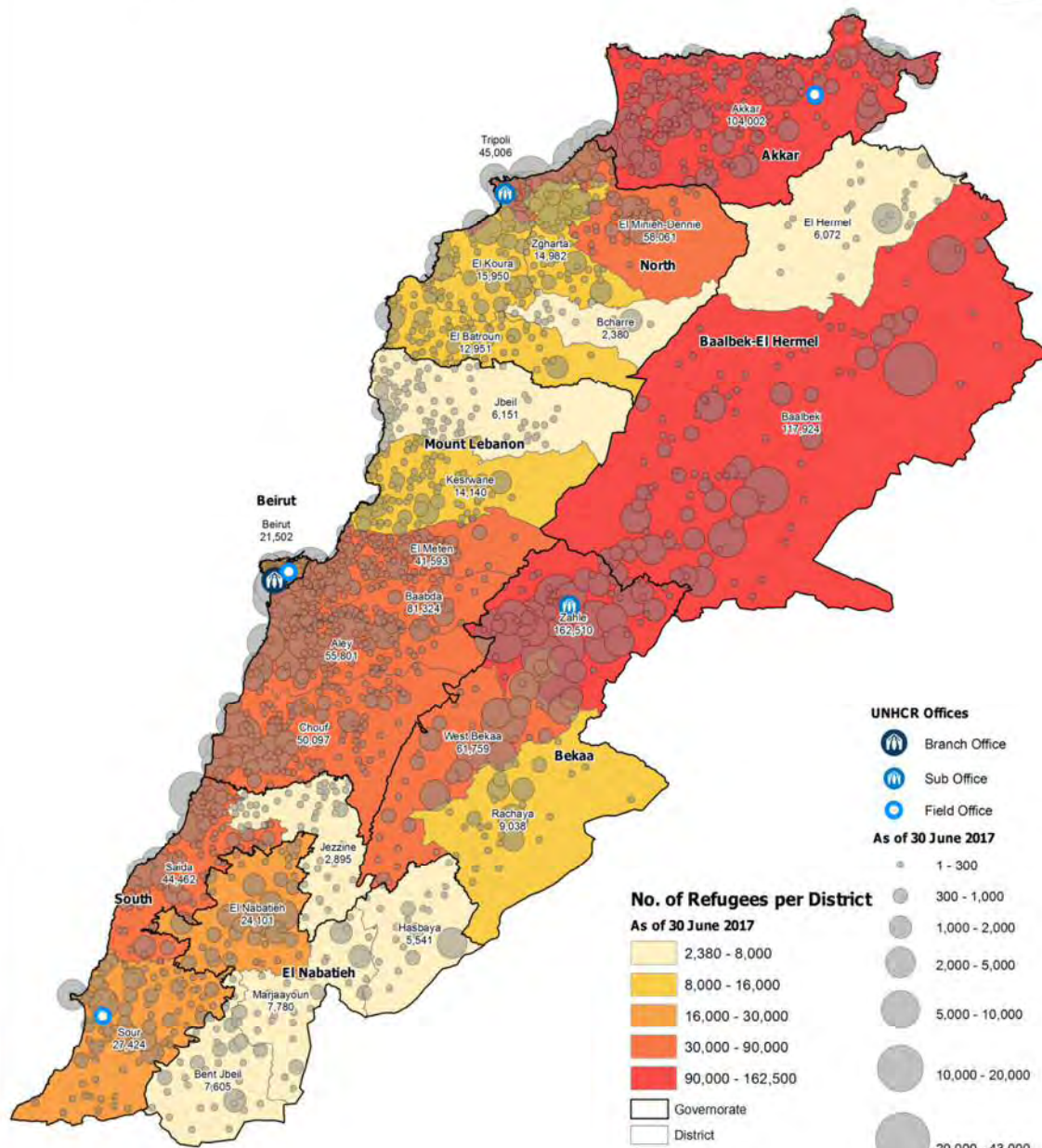
LEBANON Syrian Refugees Registered

30 June 2017

UNHCR Lebanon - Beirut
Country Office



Total No. of Refugees **1,001,051**



This map has been produced by the Inter-Agency Information Management Unit of UNHCR based on maps and material provided by the Government of Lebanon for operational purposes. It does not constitute an official United Nations map. The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Data Sources:
- Refugee population and location data by UNHCR as of 30 June 2017. For more information on refugee data, contact Diana El Habr at elhabr@unhcr.org

GIS and Mapping by UNHCR Lebanon. For further information on map, contact Jad Ghosn at ghosn@unhcr.org or Maroun Sader at sader@unhcr.org

出典：UNHCR

添付-4 レバノン人口

Planning figures for LCRP 2017-2020

Governorate/District	TOTAL LEBANESE	Lebanese in Lebanon	Lebanese Returnees	All Lebanese Female	All Lebanese Male	TOTAL PALESTINIANS	Palestinian Refugees in Lebanon (PRL)	Palestinian Refugees from Syrian (PRS)	All Palestinian Female	All Palestinian Male	TOTAL SYRIANS	% Syrians Female	% Syrians Male	TOTAL POPULATION
AKKAR	266,020	252,623	13,397	49.0%	51.0%	18,732	16,700	2,032	50.5%	49.5%	143,634	52.6%	47.4%	428,386
Akkar	266,020	252,623	13,397	49.0%	51.0%	18,732	16,700	2,032	50.5%	49.5%	143,634	52.6%	47.4%	428,386
NORTH	554,863	553,637	1,226	49.0%	51.0%	57,917	55,080	2,837	50.5%	49.5%	222,762	51.5%	48.5%	835,542
El Batroun	46,080	46,074	6	49.0%	51.0%	0	0	0	50.5%	49.5%	20,260	51.0%	49.0%	66,340
Bcharre	21,224	21,218	6	49.0%	51.0%	0	0	0	50.5%	49.5%	3,945	51.3%	48.7%	25,169
El Koura	48,226	48,159	67	49.0%	51.0%	0	0	0	50.5%	49.5%	23,097	50.9%	49.1%	71,323
El Minieh-Dennie	118,640	118,540	100	49.0%	51.0%	49,272	46,805	2,467	50.5%	49.5%	81,668	52.4%	47.6%	249,580
Tripoli	265,553	264,580	973	49.0%	51.0%	8,645	8,275	973	50.5%	49.5%	76,018	50.9%	49.1%	350,215
Zgharta	55,139	55,066	73	49.0%	51.0%	0	0	0	50.5%	49.5%	17,775	51.2%	48.8%	72,914
BEKAA	279,578	275,373	4,205	49.0%	51.0%	9,736	6,050	3,686	50.5%	49.5%	346,682	53.5%	46.5%	635,996
Rachaya	33,350	33,105	245	49.0%	51.0%	0	0	0	50.5%	49.5%	14,393	51.6%	48.4%	47,743
West Bekaa	66,735	65,443	1,292	49.0%	51.0%	1,186	100	1,086	50.5%	49.5%	91,054	53.4%	46.6%	158,975
Zahle	179,493	176,825	2,668	49.0%	51.0%	8,550	5,950	2,600	50.5%	49.5%	241,235	53.7%	46.3%	429,278
BAALBEK-EL HERMEL	275,571	263,450	12,121	49.0%	51.0%	6,620	4,725	1,895	50.5%	49.5%	180,767	55.4%	44.6%	462,958
Baalbek	237,351	227,490	9,861	49.0%	51.0%	6,620	4,725	1,895	50.5%	49.5%	172,115	55.4%	44.5%	416,087
El Hermel	38,220	35,960	2,260	49.0%	51.0%	0	0	0	50.5%	49.5%	8,652	54.0%	45.9%	46,872
BEIRUT	403,579	402,861	718	51.0%	49.0%	9,072	8,390	682	50.5%	49.5%	37,271	47.7%	52.3%	449,922
Beirut	403,579	402,861	718	51.0%	49.0%	9,072	8,390	682	50.5%	49.5%	37,271	47.7%	52.3%	449,922
MOUNT LEBANON	1,507,221	1,505,508	1,713	50.0%	50.0%	44,030	37,025	7,005	50.5%	49.5%	396,519	49.6%	50.4%	1,947,770
Aley	164,133	163,680	453	50.0%	50.0%	824	0	824	50.5%	49.5%	86,069	50.6%	49.4%	251,025
Baabda	520,012	519,551	461	50.0%	50.0%	26,165	22,400	3,765	50.5%	49.5%	128,878	50.4%	49.6%	675,054
Chouf	153,773	153,138	635	50.0%	50.0%	15,000	12,725	2,275	50.5%	49.5%	73,270	50.0%	50.0%	242,043
El Meten	427,534	427,375	159	50.0%	50.0%	1,990	1,900	90	50.5%	49.5%	75,314	47.5%	52.5%	504,838
Ibeil	80,661	80,661	0	50.0%	50.0%	0	0	0	50.5%	49.5%	9,347	49.3%	50.7%	90,008
Kesrwane	161,109	161,103	6	50.0%	50.0%	51	0	51	50.5%	49.5%	23,641	47.6%	52.5%	184,801
SOUTH	471,925	471,548	377	50.0%	50.0%	162,831	150,015	12,816	50.5%	49.5%	106,508	52.0%	48.0%	741,264
Jezzine	20,264	20,232	32	50.0%	50.0%	0	0	0	50.5%	49.5%	4,379	52.0%	48.0%	24,643
Saida	250,704	250,602	102	50.0%	50.0%	89,282	82,100	7,182	50.5%	49.5%	62,557	51.9%	48.1%	402,542
Sour	200,958	200,714	244	50.0%	50.0%	73,549	67,915	5,634	50.5%	49.5%	39,573	52.1%	47.9%	314,079
EL NABATIEH	276,285	275,042	1,243	50.8%	49.1%	549	0	549	50.5%	49.5%	65,857	52.0%	48.0%	342,691
Bent Ibeil	66,451	66,043	408	51.0%	49.0%	91	0	91	50.5%	49.5%	11,329	51.7%	48.3%	77,871
Hasbaya	31,346	30,965	381	51.0%	49.0%	0	0	0	50.5%	49.5%	8,020	55.2%	44.8%	39,366
Marjaayoun	53,040	52,862	178	51.0%	49.0%	48	0	48	50.5%	49.5%	10,371	51.9%	48.1%	63,460
El Nabatieh	125,448	125,172	276	51.0%	49.0%	410	0	410	50.5%	49.5%	36,136	51.4%	48.6%	161,994
Grand Total	4,035,042	4,000,042	35,000	49.7%	50.3%	309,487	277,985	31,502	50.5%	49.5%	1,500,000	52.0%	48.0%	5,844,529
Percentage (%)	69.0%	68.4%	0.6%			5.3%	4.8%	0.5%			25.6%			

Source for Lebanese:

Lebanese in Lebanon: Population: CDR shapefile 2002

Lebanese Returnees: IOM - September 2015 (29,000 registered)

Age breakdown: MICS3 2009 (applied also on Lebanese Returnees)

Source for Syrians:

Government estimation: includes registered displaced Syrians by UNHCR and non-registered Syrians estimation

Age/Sex breakdown: proportional breakdown of data of June 2016

Source for Palestinians:

UNRWA - Department of Relief and Social Services - October 2014

Age/Sex breakdown: MICS for Palestinian 2011 / UNRWA - Department of Relief and Social Services - October 2014

This data is used for mapping the 251 vulnerable localities

The data mentions Nabatieh camp includes 90 ref and Dekwaneh camp 21 ref. These 2 camps are not official. So the 111 refugees were set as population outside the camps

The number of PRL in Gatherings used to calculate the 251 vulnerability map is 109,590 instead of 109,785.

出典 : UNHCR

添付-5 図面（別冊）

平面図・縦断面図・横断面図は電子成果参照

添付-6 インベントリーシート

INVENTORY SHEET

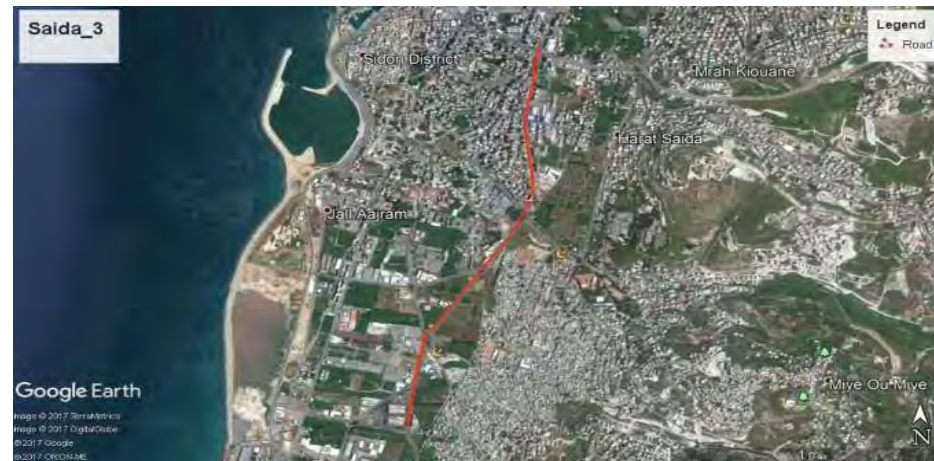
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
El Metn_1d	El Metn	Mountainous	Secondary Road	2.026



Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 7.6m/Asphalt pavement
Traffic volume	4,098
Damage level on the road surface	95%
Number of town passing through	1
Drainage facility	There are drainage facilities. Maintenance management is poor, and there are many sections that are not functioning.
Degree of damage to the surface	There are slopes that are not protected.
	Soil enter the side ditch in unprotected slopes.
Safety facility and road marking	No road marking has been provided at all.
	Since it is a road without sidewalks, road marking will be provided.
Road Structure	Masonry retaining walls are in some sections.
	There seems to be no damage, so no repair is necessary.
Alignment	The longitudinal slope is not so steep, but the hairpin curve continues in the latter half of the route.
Road Width	Pedestrian space is not enough in town.
Intersection	No large intersection.
	No intersection to be improved.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	41,593
Religion	Maronites(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

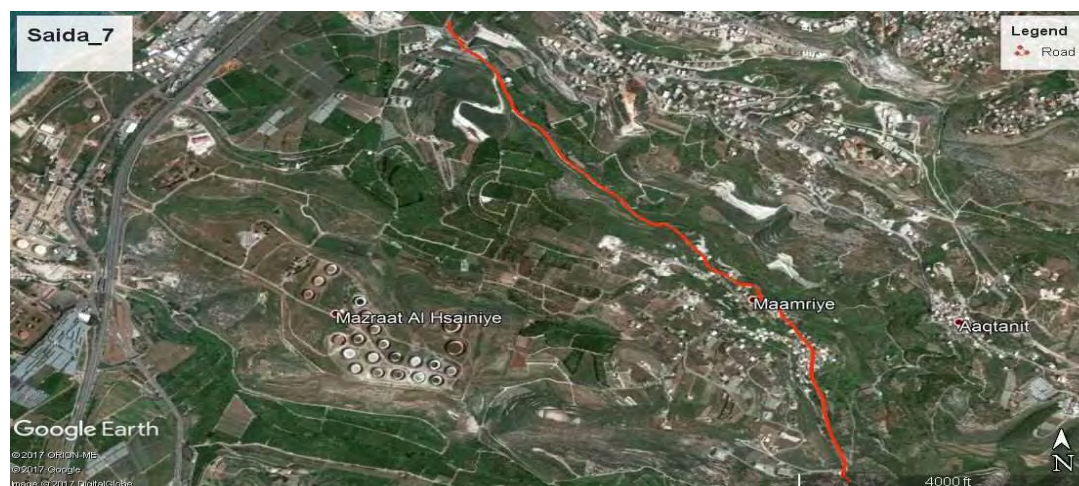
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Saida_3	Saida	Level	Local Road	2.817



Item	Description
Number of lanes / Width / Pavement type	4 Lanes/Width 17.4m/Asphalt pavement
Traffic volume	20,832
Damage level on the road surface	93%
Number of town passing through	1
Drainage facility	L type side ditch has been installed, but it seems that the capacity is not enough. Therefore, the pavement has been damaged.
Degree of damage to the surface	There is no slope in the city area. Protection is unnecessary, because no slope.
Safety facility and road marking	There is a section without a median strip and road marking. In the section without the median strip, road marking is necessary.
Road Structure	A pedestrian bridge crosses at one place. It seems to be no damage to the pedestrian bridge, so repair is unnecessary.
Alignment	Both alignment and longitudinal satisfy design criteria.
Road Width	Width is enough in all sections.
Intersection	One signal intersection and three roundabouts are on the road. Every intersection is functioning. Improvement is unnecessary.
Security situation	Level 2 :Avoid Non Esseintial Travel
Number of Syrian refugees	44,462
Religion	Mixed Areas(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Saida_7	Saida	Rolling	Secondary Road	3.117



Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 7.4m/Asphalt pavement
Traffic volume	7,815
Damage level on the road surface	94%
Number of town passing through	2
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 1.3 km.
	Slope protection work and side ditch are necessary.
Safety facility and road marking	No road marking has been provided at all.
	Since it is a road without sidewalks, road marking will be provided.
Road Structure	Many masonry retaining walls.
	Since it is a road without sidewalks, road marking has been provided.
Alignment	There is a section where the longitudinal slope is steep.
Road Width	Soil are falling on the road so that the width of the roadway has narrowed in the section without slope protection.
Intersection	No large intersection.
	No intersection to be improved.
Security situation	Level 2 :Avoid Non Esseintial Travel
Number of Syrian refugees	44,462
Religion	Shi'a(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

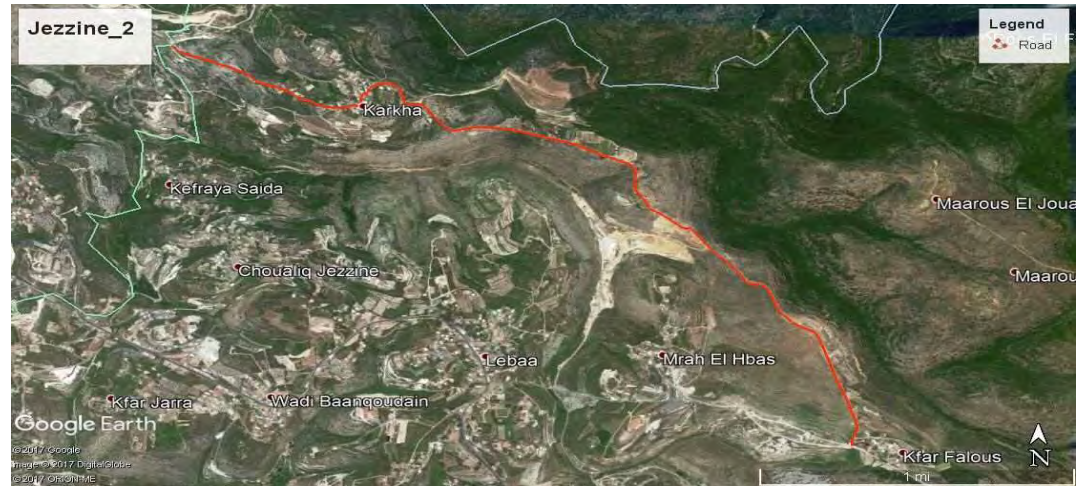
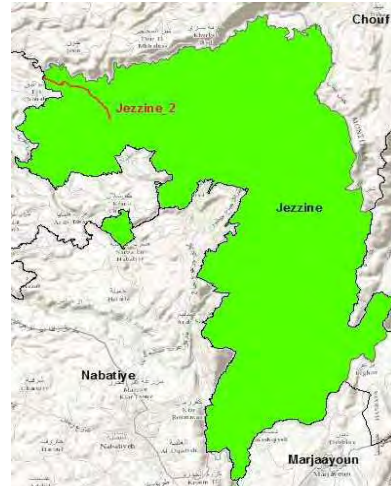
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Koura_3	Koura	Level	Secondary Road	3.493



Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 13.5m/Asphalt pavement
Traffic volume	30,406
Damage level on the road surface	94%
Number of town passing through	1
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 0.4 km.
	Slope protection work and side ditch are necessary.
Safety facility and road marking	No road marking is provided at all.
	Painting of the center line is necessary.
Road Structure	There is one overbridge and no guard rail to the pier.
	Guard rails to prevent collision of vehicles to the over bridge piers are required.
Alignment	Both alignment and longitudinal satisfy design criteria.
Road Width	Both alignment and longitudinal satisfy design criteria.
Intersection	There is one intersection of Y type and T type each.
	Informatory signs are desirable to be added.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	15,950
Religion	Orthodox(33.3%)-Mixed Areas(66.7%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Jezzine_2	Jezzine	Mountainous	Secondary Road	5.167



Item	Description
Number of lanes / Width / Pavement type	1 Lanes/Width 6.3m/Asphalt pavement
Traffic volume	1,669
Damage level on the road surface	81%
Number of town passing through	4
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Few sections with slopes.
	Necessity of slope protection is low, because few steep slopes.
Safety facility and road marking	There is a section where the concrete barrier has been provided, but no road marking is provided at all.
	Concrete barriers in some sections and road marking in all sections are necessary.
Road Structure	Concrete retaining walls are in some sections.
	Repair work is unnecessary.
Alignment	There is a section where the longitudinal slope is steep.
Road Width	In almost all sections, the width is not enough for two-way traffic.
Intersection	Few intersection in this mountains.
	Few intersections to be improved.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	2,895
Religion	Mixed Areas(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

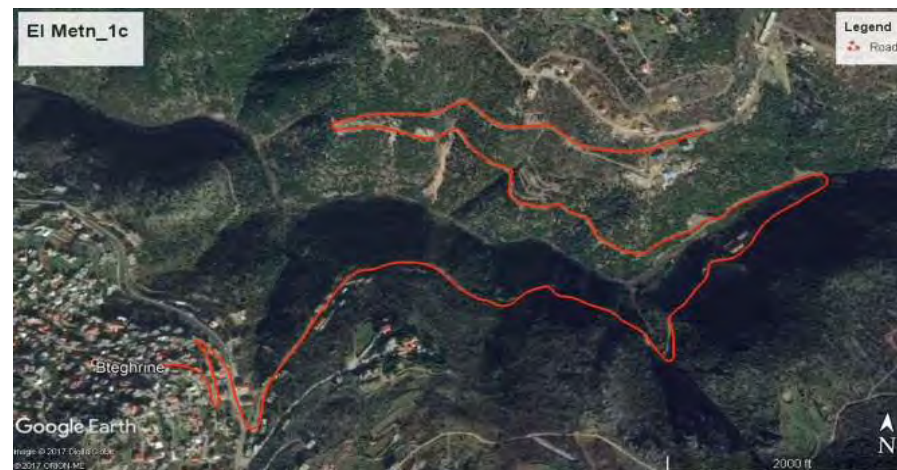
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Koura_2b	Koura	Level	Secondary Road	5.591



Item	Description
Number of lanes / Width / Pavement type	1 Lanes/Width 6.7m/Asphalt pavement
Traffic volume	8,047
Damage level on the road surface	64%
Number of town passing through	2
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 0.4 km. Slope protection work and side ditch are necessary.
Safety facility and road marking	No road marking is provided at all. Since it is a road without sidewalks, road marking will be provided.
Road Structure	No road structure in particular. —
Alignment	There are 13% curved sections that do not satisfy design criteria.
Road Width	Pavement damage reduces the effective width.
Intersection	There is an X type intersection. The main road should be clarified.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	15,950
Religion	Orthodox(20%)-Mixed Area(20%)-Maronites(60%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

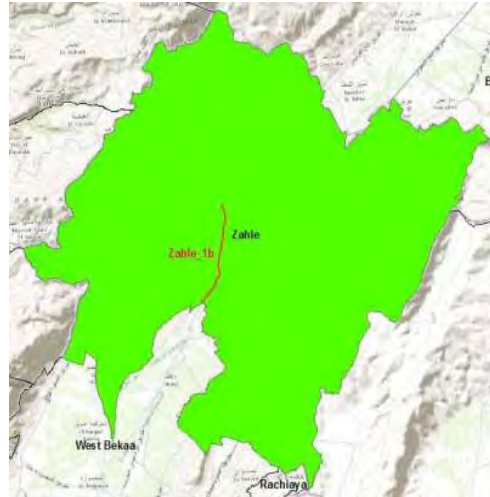
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
El Metn_1c	El Metn	Mountainous	Primary Road	6.047



Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 8.1m/Asphalt pavement
Traffic volume	8,618
Damage level on the road surface	50%
Number of town passing through	3
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	There are many slope sections. Most slopes has been on rocks.
	Slope protection is necessary in case slopes are on soil.
Safety facility and road marking	No road marking is provided at all.
	Half of the length of the route is a curve section. Road marking for sight line induction is necessary.
Road Structure	There is one bridge.
	Degree of damage is unknown, inspection is necessary.
Alignment	Half of the routes do not satisfy the criteria for both alignment and longitudinal.
Road Width	The width of Passover is enough.
Intersection	No large intersection.
	No intersection to be improved.
Security situation	Level 2 :Avoid Non Esseintial Travel
Number of Syrian refugees	41,593
Religion	Maronites(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites


INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Zahle_1b	Zahle	Level	Local Road	6.328



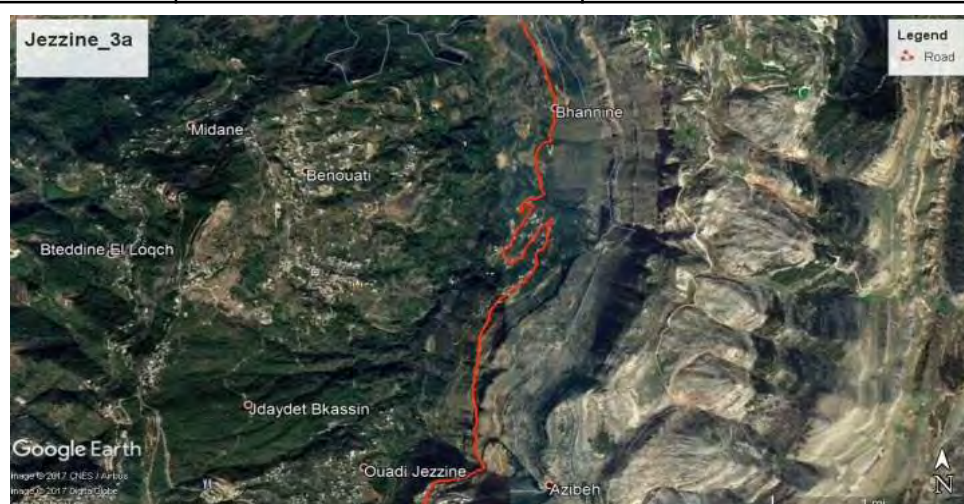
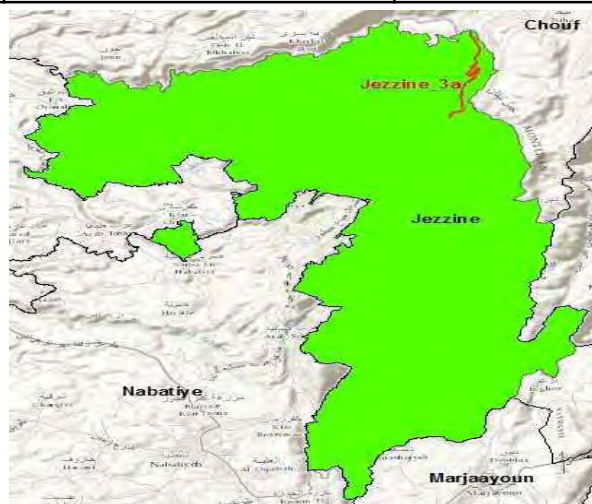
Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 9.1m/Asphalt pavement
Traffic volume	13,050
Damage level on the road surface	83%
Number of town passing through	3
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	No slope —
Safety facility and road marking	There is a center line, but it is going to disappear. Re-painting of the center line is necessary.
Road Structure	No road structure in particular. —
Alignment	Both alignment and longitudinal satisfy design criteria.
Road Width	Pavement damage reduces the effective width.
Intersection	There is a 5 branch crossing. There is a power transmission tower within the intersection. Guard rail to prevent collision of vehicles to the power transmission tower is required.
Security situation	Level 3 : Avoid all Travel
Number of Syrian refugees	162,510
Religion	Mixed Areas(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
El Metn_1b	El Metn	Rolling	Secondary Road	6.699
				
Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 7.0m/Asphalt pavement			
Traffic volume	14,015			
Damage level on the road surface	58%			
Number of town passing through	4			
Drainage facility	Damage to the pavement is occored by no drainage facility.			
Degree of damage to the surface	There are few slopes in the city area, but there is no slope protection.			
	Slope protection work and side ditch are necessary.			
Safety facility and road marking	Road sign has been disappeared.			
	There are few sidewalks so that road marking is required in the city.			
Road Structure	No road structure in particular. —			
Alignment	Not satisfy design criteria with 20% of alignment. Not satisfy design criteria with 90% of longitudinal.			
Road Width	Although it is a width of two lanes, there are many parked vehicles.			
Intersection	There is a roundabout.			
	Intersection seems to be fancementionable, so that no improvement is necessary.			
Security situation	Level 2 :Avoid Non Esseintial Travel			
Number of Syrian refugees	41,593			
Religion	Mixed Areas(71.4%)-Maronites(28.6%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			




INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Jezzine_3a	Jezzine	Mountainous	Local Road	7.095



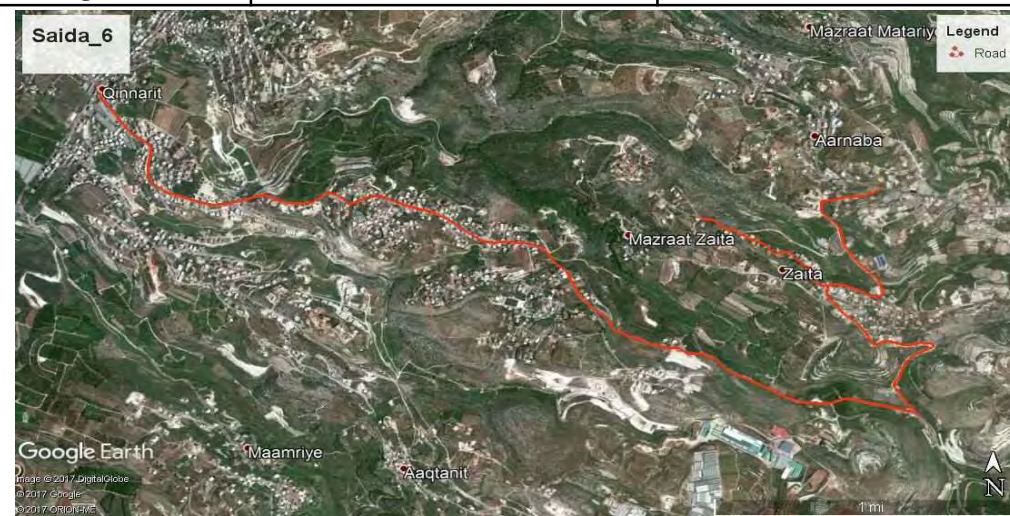
Item	Description
Number of lanes / Width / Pavement type	1 Lanes/Width 6.6m/Asphalt pavement
Traffic volume	219
Damage level on the road surface	79%
Number of town passing through	3
Drainage facility	There are drainage facilities in most sections. There is also a section under construction of drainage facilities.
Degree of damage to the surface	Many slopes are not protected. Slope protection work and side ditch are necessary.
Safety facility and road marking	There is a section where the concrete barrier has been provided, but no road marking has been provided at all. Road marking for sight line induction is necessary.
Road Structure	There are two bridges. Railing repair is necessary.
Alignment	Not satisfy design criteria with 20% of alignment. Not satisfy design criteria with 50% of longitudinal.
Road Width	In almost all sections, the width is not enough for two-way traffic.
Intersection	There are two T-type intersections. It is necessary to display channelization by road markings.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	2,895
Religion	Mixed Areas(14.3%)-Duruze(85.7%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Baabda_3	Baabda	Mountainous	Primary Road	7.404
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Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 8.6m/Asphalt pavement			
Traffic volume	13,351			
Damage level on the road surface	58%			
Number of town passing through	2			
Drainage facility	Almost no drainage facility is in the route. Due to the longitudinal slope, the impact on pavement damage is considered to be small.			
Degree of damage to the surface	Unprotected slope is a section of about 1.6 km.			
	Slope protection work and side ditch are necessary.			
Safety facility and road marking	Although there are many sections where the concrete barrier has been provided, no road marking has been provided at all.			
	Painting of the center line is necessary.			
Road Structure	There is four bridge.			
	Degree of damage is unknown, inspection is necessary.			
Alignment	Not satisfy design criteria with 20% of alignment. Not satisfy design criteria with 50% of longitudinal.			
Road Width	The width is enough.			
Intersection	There are two roundabouts.			
	It is necessary to display channelization by road markings.			
Security situation	Security_L Level 2 :Avoid Non Esseintial Travel			
Number of Syrian refugees	81,324			
Religion	Mixed Areas(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			


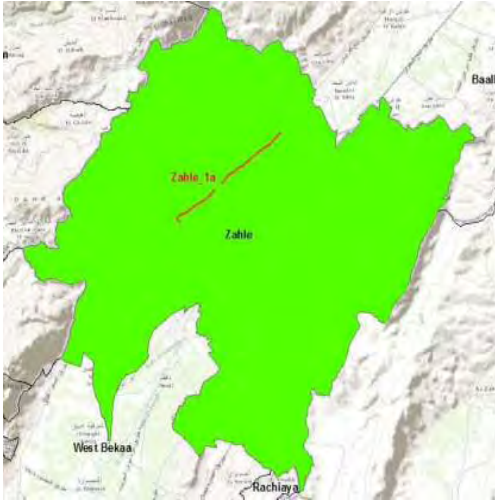

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Saida_6	Saida	Rolling	Local Road	8.537


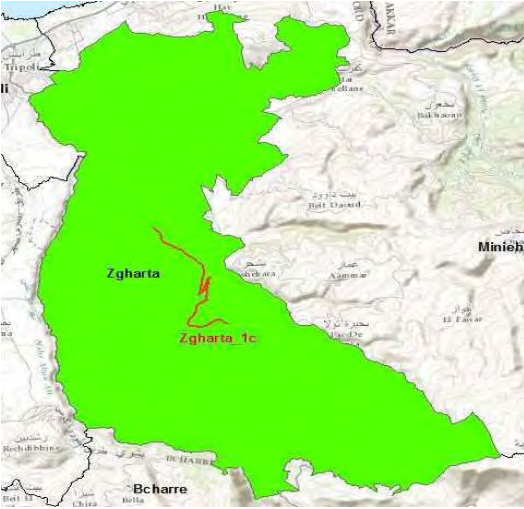



Item	Description
Number of lanes / Width / Pavement type	1 Lanes/Width 6.2m/Asphalt pavement
Traffic volume	8,229
Damage level on the road surface	86%
Number of town passing through	6
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 1.3 km.
	Slope protection work and side ditch are necessary.
Safety facility and road marking	No road marking has been provided at all.
	Road marking is necessary as a sidewalk space in the city area and as sight line induction in the suburban,
Road Structure	No road structure in particular. —
Alignment	Not satisfy design criteria with 10% of alignment. Not satisfy design criteria with 60% of longitudinal.
Road Width	The width is not enough in the suburban,
Intersection	There is a large roundabout.
	It is necessary to display channelization by road markings.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	44,462
Religion	Shi'a(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites


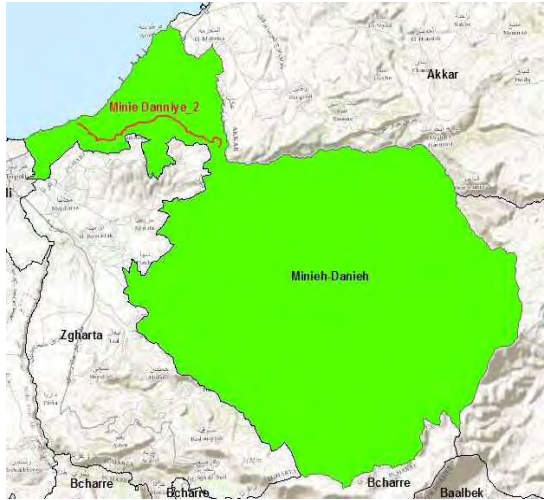
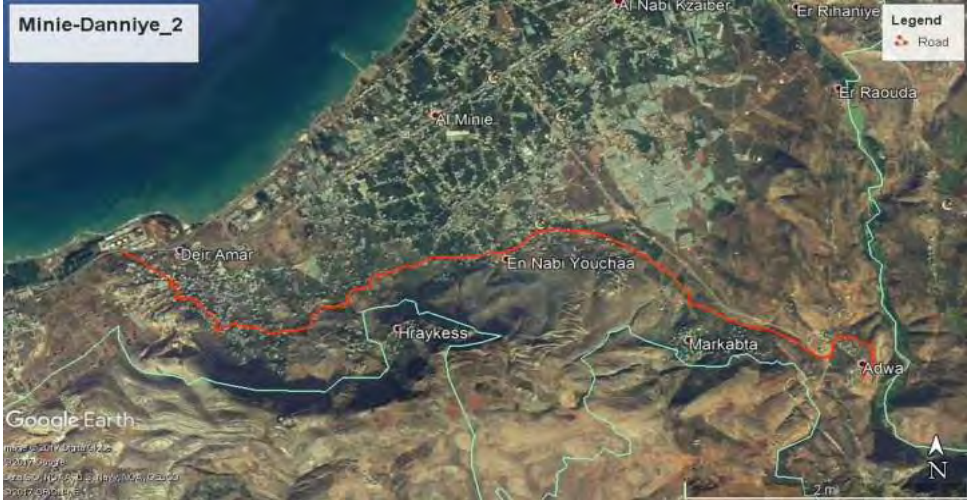
INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Zahle_1a	Zahle	Level	Local Road	8.587
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Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 12.5m/Asphalt pavement			
Traffic volume	34,975			
Damage level on the road surface	76%			
Number of town passing through	9			
Drainage facility	Damage to the pavement is occurred by no drainage facility.			
Degree of damage to the surface	There is few slopes in the city area.			
Safety facility and road marking	There are sections separated by the center line and the concrete barrier. Center line or concrete barrier is required in the central strip in the 2 lane section, .			
Road Structure	No road structure in particular.			
Alignment	Both alignment and longitudinal almost satisfy design criteria.			
Road Width	The width as two lanes is enough.			
Intersection	Traffic islands are installed at intersections. Since the traffic island is made of curb stone, improvement is unnecessary.			
Security situation	Level 3 : Avoid all Travel			
Number of Syrian refugees	162,510			
Religion	Mixed Areas(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			


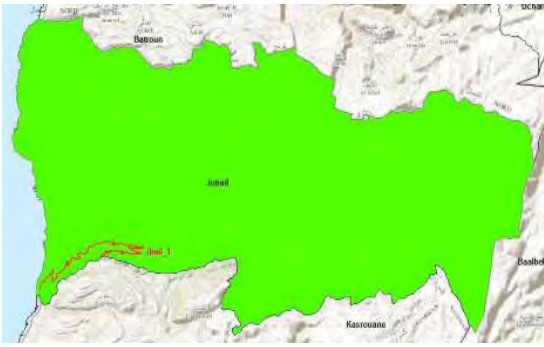
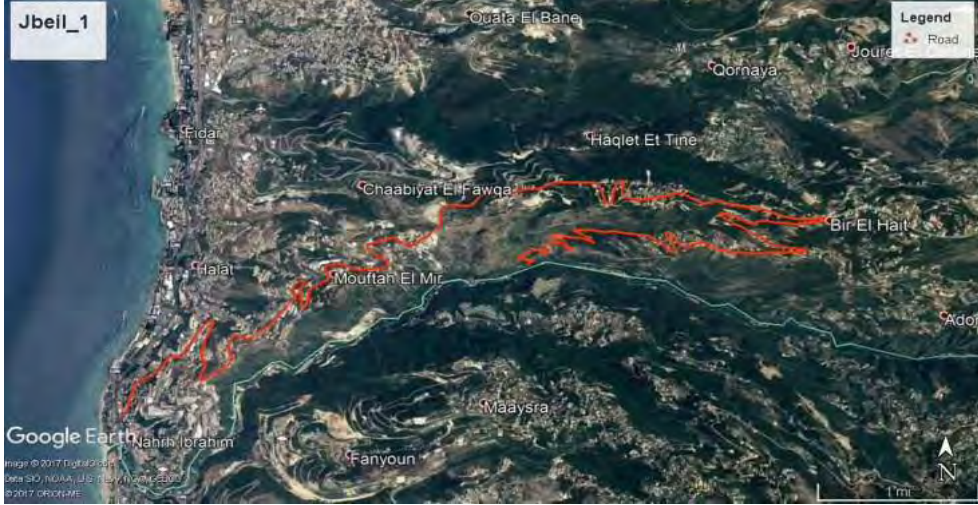
INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Zgharta_1c	Zgharta	Mountainous	Secondary Road	8.942
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Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 8.1m/Asphalt pavement			
Traffic volume	12,200			
Damage level on the road surface	62%			
Number of town passing through	4			
Drainage facility	Damage to the pavement is occurred by no drainage facility.			
Degree of damage to the surface	Unprotected slope is a section of about 1 km.			
	Slope protection work and side ditch are necessary.			
Safety facility and road marking	Concrete barriers has been installed on the valley side.			
	Since the center line has been disappeared, re-marking is necessary.			
Road Structure	There are concrete retaining walls that holds the slope.			
	There seems to be no damage, so no repair is necessary.			
Alignment	Not satisfy design criteria with 50% of longitudinal.			
Road Width	The width is enough.			
Intersection	There is a Y type intersection.			
	It is necessary to display channelization by road markings.			
Security situation	Level 2 :Avoid Non Esseintial Travel			
Number of Syrian refugees	14,982			
Religion	Maronites(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			


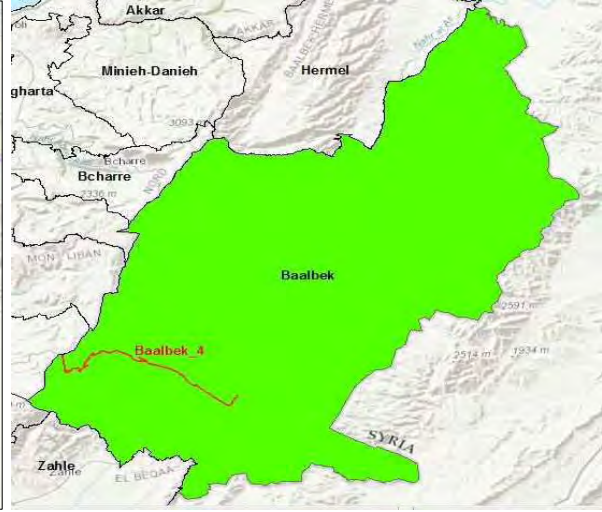

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Minie-Danniye_2	Minie-Danniye	Mountainous	Secondary Road	11.374
<div style="display: flex; justify-content: space-around;">    </div>				
Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 7.5m/Asphalt pavement			
Traffic volume	5,751			
Damage level on the road surface	60%			
Number of town passing through	6			
Drainage facility	Damage to the pavement is occurred by no drainage facility.			
Degree of damage to the surface	Unprotected slope is a section of about 2.8 km.			
	Slope protection work and side ditch are necessary.			
Safety facility and road marking	No road marking has been provided at all.			
	Road marking is necessary as a sidewalk space in the city area and as sight line induction in the suburban,			
Road Structure	There is a box culvert under the road.			
	Roadway obstacle marking are necessary on Box Culbert.			
Alignment	Not satisfy design criteria with 20% of alignment. Not satisfy design criteria with 30% of longitudinal.			
Road Width	There are also many sections of width that are inadequate for passing each other.			
Intersection	There is a large roundabout.			
	Improvement is necessary because the visible is bad.			
Security situation	Level 2 :Avoid Non Esseintial Travel			
Number of Syrian refugees	58,061			
Religion	Sunna(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			




INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Jbail_1	Jbail	Mountainous	Primary Road	18.513
<div style="display: flex; justify-content: space-around;">    </div>				
Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 7.7m/Asphalt pavement			
Traffic volume	22,014			
Damage level on the road surface	91%			
Number of town passing through	6			
Drainage facility	There are drainage facilities. Maintenance management is poor, and there are many sections that are not functioning.			
Degree of damage to the surface	Unprotected slope is a section of about 3 km.			
	Slope protection work and side ditch are necessary.			
Safety facility and road marking	The section of the concrete barrier has been short. No road marking has been provided at all.			
	Concrete barriers are desired to be installed on the valley side.			
Road Structure	There is one bridge.			
	Degree of damage is unknown, inspection is necessary.			
Alignment	Not satisfy design criteria with 20% of alignment. Not satisfy design criteria with 65% of longitudinal.			
Road Width	The mountains section is one lane width.			
Intersection	No large intersection.			
Security situation	Level 2 :Avoid Non Esseintial Travel			
Number of Syrian refugees	6,151			
Religion	Maronites(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			

INVENTORY SHEET

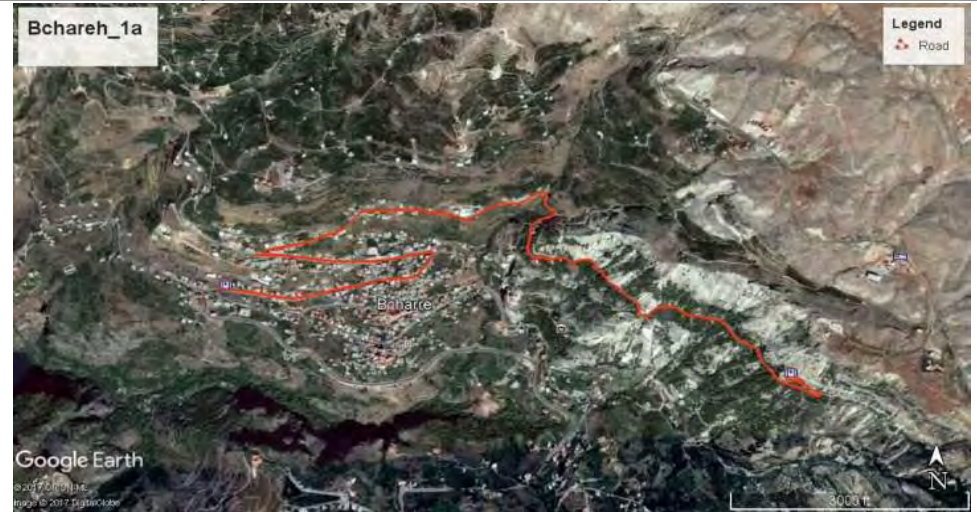
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Baalbek_4	Baalbek	Rolling	Primary Road	33.531
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Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 8.3m/Asphalt pavement			
Traffic volume	10,760			
Damage level on the road surface	63%			
Number of town passing through	6			
Drainage facility	Damage to the pavement is occurred by no drainage facility.			
Degree of damage to the surface	Unprotected slope is a section of about 9.4 km.			
	Slope protection work and side ditch are necessary.			
Safety facility and road marking	Center line has been disappeared.			
	Re-installation of the center line is necessary.			
Road Structure	No road structure in particular.			
Alignment	Not satisfy design criteria with 30% of longitudinal.			
Road Width	Offshoot section is one lane width.			
Intersection	There are three roundabouts.			
	It is necessary to display channelization by road markings.			
Security situation	Level 3 : Avoid all Travel			
Number of Syrian refugees	117,924			
Religion	Maronites(14.7%)-Shi'a(85.3%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Koura_2c	Koura	Mountainous	Primary Road	4.098
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Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 8.0m/Asphalt pavement			
Traffic volume	17,257			
Damage level on the road surface	95%			
Number of town passing through	2			
Drainage facility	Damage to the pavement is occurred by no drainage facility.			
Degree of damage to the surface	There is few slopes in the city area.			
Safety facility and road marking	There are many sections where the concrete barrier has been provided and no road markings has been provided at all. Painting of the center line is necessary.			
Road Structure	No road structure in particular.			
Alignment	Not satisfy design criteria with 10% of alignment. Not satisfy design criteria with 20% of longitudinal.			
Road Width	There are many parked vehicles in the two lane road.			
Intersection	There is a large intersection. It is necessary to display channelization by arrow road markings.			
Security situation	Level 2 :Avoid Non Esseintial Travel			
Number of Syrian refugees	15,950			
Religion	Maronites(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			

INVENTORY SHEET

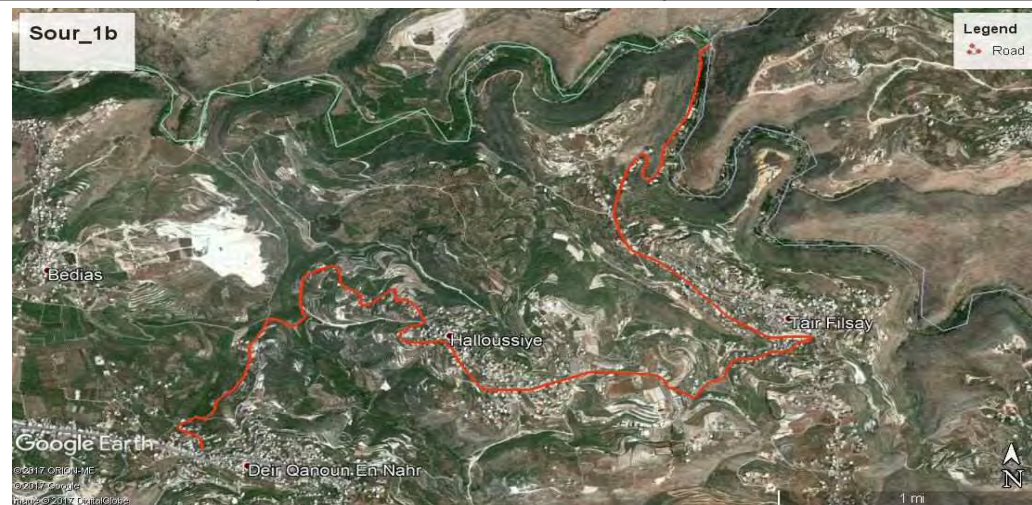
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Bcharre_1a	Bcharre	Mountainous	Primary Road	5.213



Item	Description
Number of lanes / Width / Pavement type	1Lanes/Width 6.7m/Asphalt pavement
Traffic volume	8,132
Damage level on the road surface	88%
Number of town passing through	1
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 0.8 km.
	Slope protection work and side ditch are necessary.
Safety facility and road marking	There are concrete barriers degraded in some sections. Road signs are disappeared.
	Concrete barrier replacement and road marking are necessary.
Road Structure	No road structure in particular. —
Alignment	Not satisfy design criteria with 30% of alignment. Not satisfy design criteria with 50% of longitudinal.
Road Width	There are also many sections of width that are inadequate for passing each other.
Intersection	No large intersection.
	No intersection to be improved.
Security situation	Level 2 :Avoid Non Esseintial Travel
Number of Syrian refugees	2,830
Religion	Maronites(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

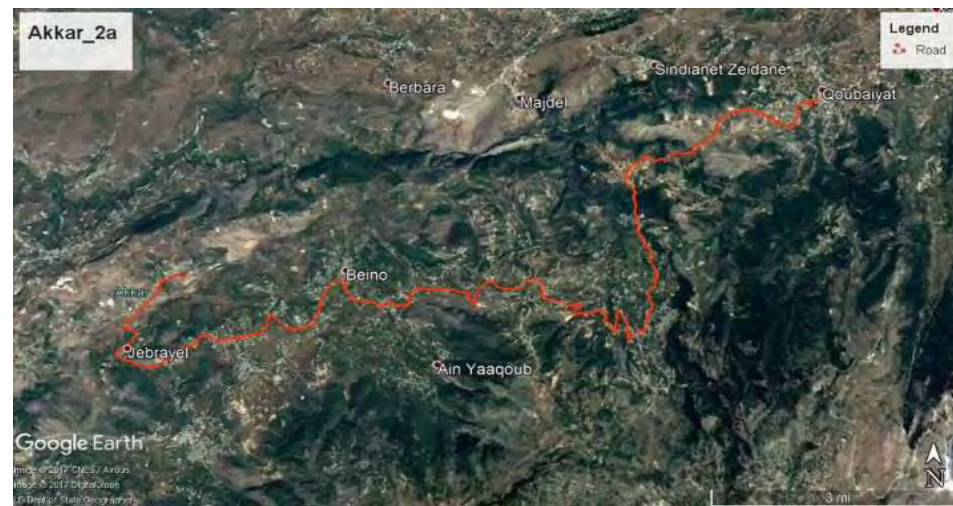
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Sour_1b	Sour	Rolling	Secondary Road	9.402



Item	Description
Number of lanes / Width / Pavement type	1 Lanes/Width 6.6m/Asphalt pavement
Traffic volume	8,871
Damage level on the road surface	85%
Number of town passing through	4
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 2.6km.
	Slope protection work and side ditch are necessary.
Safety facility and road marking	No road marking has been provided at all.
	Since it is a road without sidewalks, road marking will be provided.
Road Structure	There is one bridge.
	There seems to be no damage, so no repair is necessary.
Alignment	Not satisfy design criteria with 15% of alignment. Not satisfy design criteria with 40% of longitudinal.
Road Width	There is also a section of width that is not enough for passing.
Intersection	No large intersection.
	No intersection to be improved.
Security situation	Level 3 : Avoid all Travel
Number of Syrian refugees	27,424
Religion	Shi'a(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

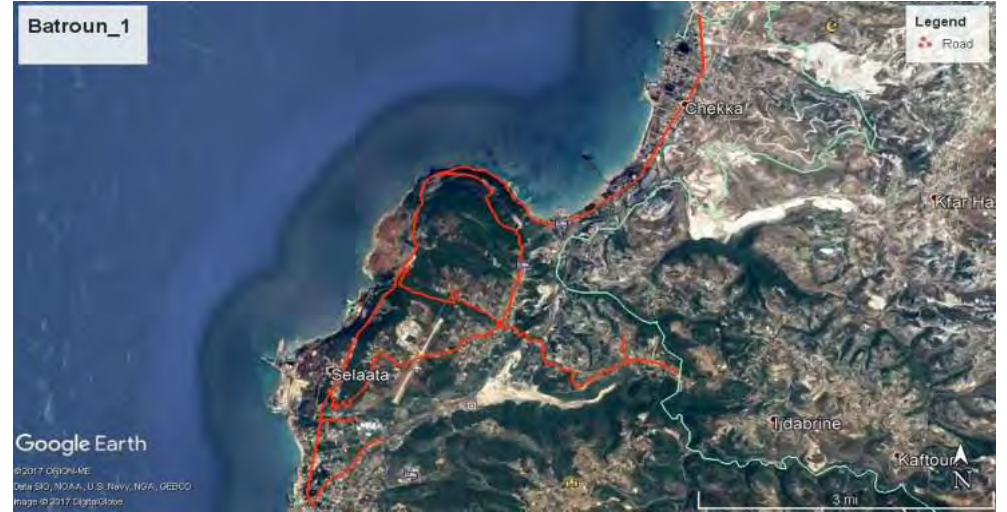
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Akkar_2a	Akkar	Rolling	Local Road	27.675



Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 7.5m/Asphalt pavement
Traffic volume	9,468
Damage level on the road surface	87%
Number of town passing through	14
Drainage facility	There are drainage facilities. Maintenance management is poor, and there are many sections that are not functioning.
Degree of damage to the surface	There is few slopes in the city area.
Safety facility and road marking	Many sections have road markings disappeared. Repaintings of road marking are necessary.
Road Structure	There is one bridge. Degree of damage is unknown, inspection is necessary.
Alignment	Not satisfy design criteria with 4% of alignment. Not satisfy design criteria with 18% of longitudinal.
Road Width	Width is almost enough, but there are many parked vehicles.
Intersection	There is a roundabout. It is necessary to display channelization by road markings.
Security situation	Level 3 : Avoid all Travel
Number of Syrian refugees	104,002
Religion	Mixed Areas(42.9%)-Maronites(10.7%)-Sunna(46.7%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

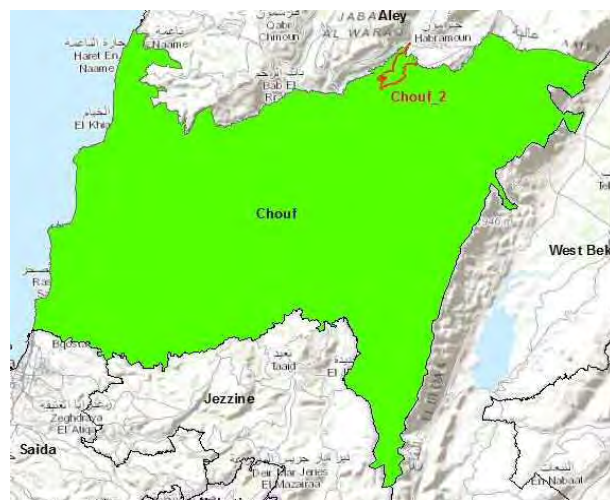
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Batroun_1	Batroun	Level	Secondary Road	32.770



Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 9.8m/Asphalt pavement
Traffic volume	13,021
Damage level on the road surface	61%
Number of town passing through	8
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	There is few slopes in the city area.
Safety facility and road marking	No road marking has been provided at all. Painting of the center line is necessary.
Road Structure	There are bridges, tunnel and old runway. Lighting is necessary in the tunnel section.
Alignment	There is a section with steep longitudinal slope along the coast section.
Road Width	There is one lane section in the offshoot section.
Intersection	There is a large right-angle intersection. A traffic signal are desired to be installed at a large crossroad.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	12,951
Religion	Orthodox(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites




INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Chouf_2	Chouf	Mountains	Primary Road	8.575



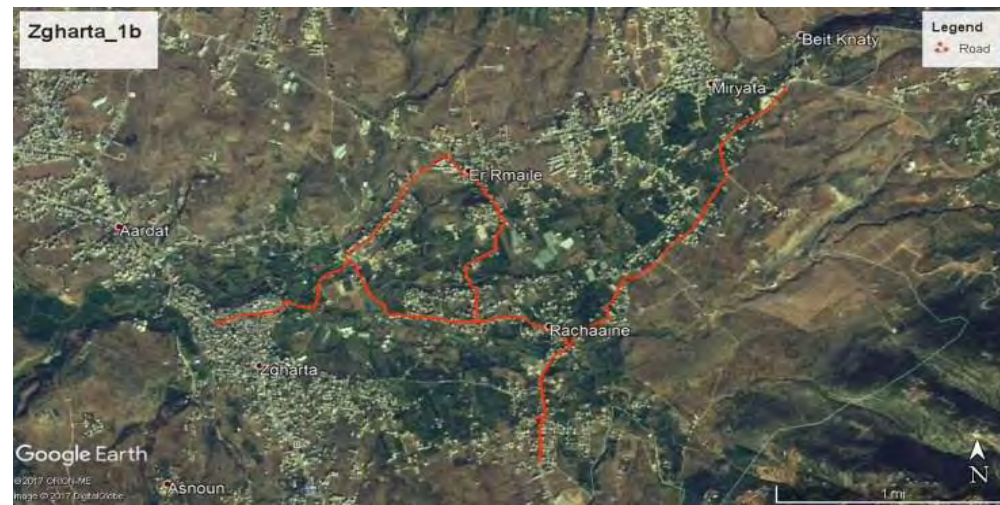
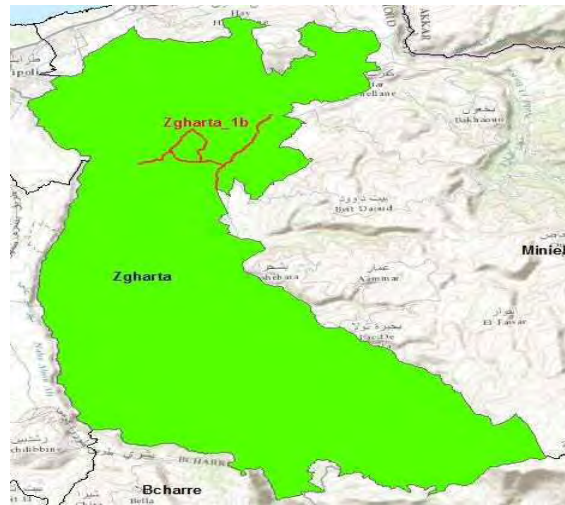
Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 7.3m/Asphalt pavement
Traffic volume	7,350
Damage level on the road surface	60%
Number of town passing through	5
Drainage facility	Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 2.5km. Slope protection work and side ditch are necessary.
Safety facility and road marking	Although there are many sections where the concrete barrier has been provided, no road marking has been provided at all. Road marking for sight line induction is necessary.
Road Structure	There is one bridge. Degree of damage is unknown, inspection is necessary.
Alignment	Not satisfy design criteria with 20% of alignment. Not satisfy design criteria with 40% of longitudinal.
Road Width	The width is enough.
Intersection	No large intersection. No intersection to be improved.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	50,097
Religion	Duruze(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Kesrouane_6	Kesrouane	Mountains	Local Road	9.802
<div style="display: flex; justify-content: space-around;">    </div>				
Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 11.2m/Asphalt pavement			
Traffic volume	2,604			
Damage level on the road surface	94%			
Number of town passing through	2			
Drainage facility	There are also many sections without drainage facilities.			
Degree of damage to the surface	Unprotected slope is a section of about 2.7km.			
	Slope protection work and side ditch are necessary.			
Safety facility and road marking	Concrete barriers have been provided, no road marking has been provided at all.			
	Road marking for sight line induction is necessary.			
Road Structure	There is a concrete retaining wall that holds the slope.			
	There seems to be no damage, so no repair is necessary.			
Alignment	Not satisfy design criteria with 80% of longitudinal.			
Road Width	The width is enough.			
Intersection	No large intersection.			
	No intersection to be improved.			
Security situation	Level 2 :Avoid Non Esseintial Travel			
Number of Syrian refugees	14,140			
Religion	Maronites(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			

INVENTORY SHEET

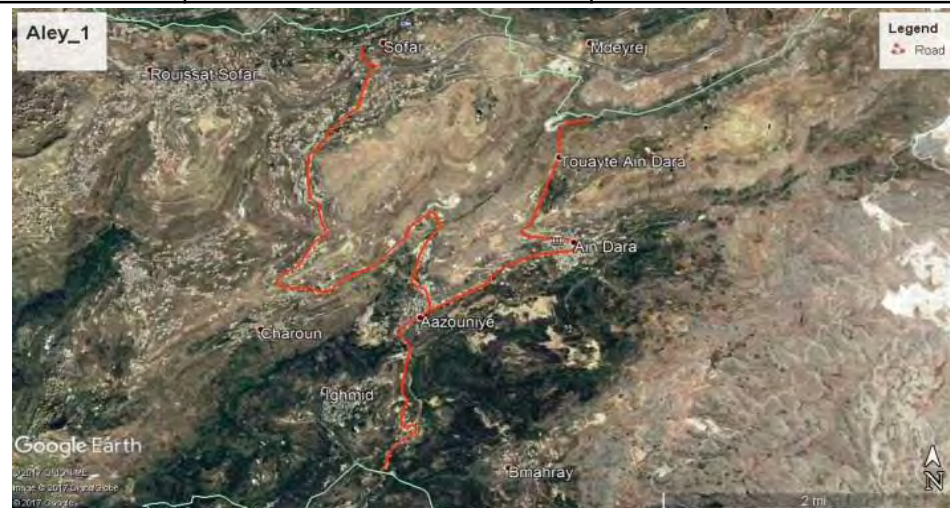
Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Zgharta_1b	Zgharta	Level	Secondary Road	10.840



Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 8.4m/Asphalt pavement
Traffic volume	13,749
Damage level on the road surface	63%
Number of town passing through	6
Drainage facility	There are also many sections without drainage facilities. Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	There is no slope in the city area. Protection is unnecessary, because no slope.
Safety facility and road marking	No road marking is provided at all. Installation of the center line is necessary.
Road Structure	No road structure in particular. —
Alignment	10% of the routes do not satisfy the criteria for both alignment and longitudinal.
Road Width	There is also a section of width that is not enough for passing.
Intersection	There is a roundabout. It is necessary to display channelization by road markings.
Security situation	Level 2 :Avoid Non Esseintial Travel
Number of Syrian refugees	14,982
Religion	Sunna(72.7%)-Maronites(27.3%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites




INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Aley_1	Aley	Rolling	Primary Road	14.254



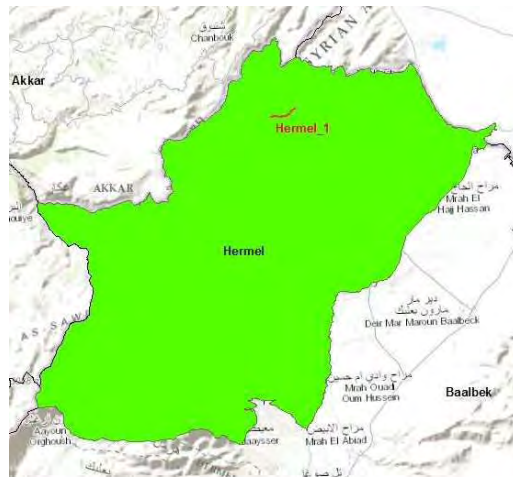
Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 7.7m/Asphalt pavement
Traffic volume	18,393
Damage level on the road surface	58%
Number of town passing through	7
Drainage facility	There are also many sections without drainage facilities. Damage to the pavement is occurred by no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 3.8km. Slope protection work and side ditch are necessary.
Safety facility and road marking	Road marking is disappeared. Re-paintings of road marking are necessary.
Road Structure	There are retaining walls that holds the slope. Degree of damage is unknown, inspection is necessary.
Alignment	Not satisfy design criteria with 20% of alignment. Not satisfy design criteria with 30% of longitudinal.
Road Width	There is also a section of width that is not enough for passing.
Intersection	There is one intersection of T type and roundabout each. It is necessary to display channelization by road markings.
Security situation	Level 2 :Avoid Non Essential Travel
Number of Syrian refugees	55,801
Religion	Mixed Areas(50%)-Duruze(50%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Kesrouane_1b	Kesrouane	Mountains	Primary Road	19.791
<div style="display: flex; justify-content: space-around;">    </div>				
Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 8.9m/Asphalt pavement			
Traffic volume	11,960			
Damage level on the road surface	63%			
Number of town passing through	5			
Drainage facility	There are also many sections without drainage facilities. Damage to the pavement is occored by no drainage facility.			
Degree of damage to the surface	Unprotected slope is a section of about 4.9km.			
	Slope protection work and side ditch are necessary.			
Safety facility and road marking	Guardrails and chevron signs have been installed. Road marking is disappeared.			
	Road marking is necessary as a sidewalk space in the city area and as sight line induction in the suburban,			
Road Structure	There are bridges.			
	Degree of damage is unknown, inspection is necessary.			
Alignment	30% of the routes do not satisfy the criteria for both alignment and longitudinal.			
Road Width	There is also a section of width that is not enough for passing.			
Intersection	There are large intersections.			
	It is necessary to display channelization by arrow road markings.			
Security situation	Level 2 :Avoid Non Esseintial Travel			
Number of Syrian refugees	14,140			
Religion	Maronites(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			


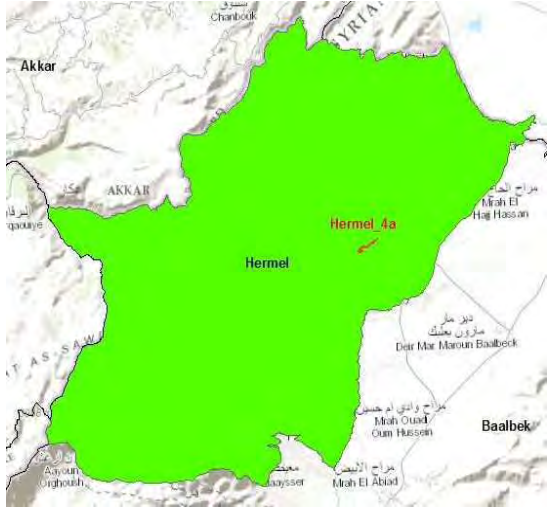

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Hermel_1	Hermel	Mountains	Local Road	2.432

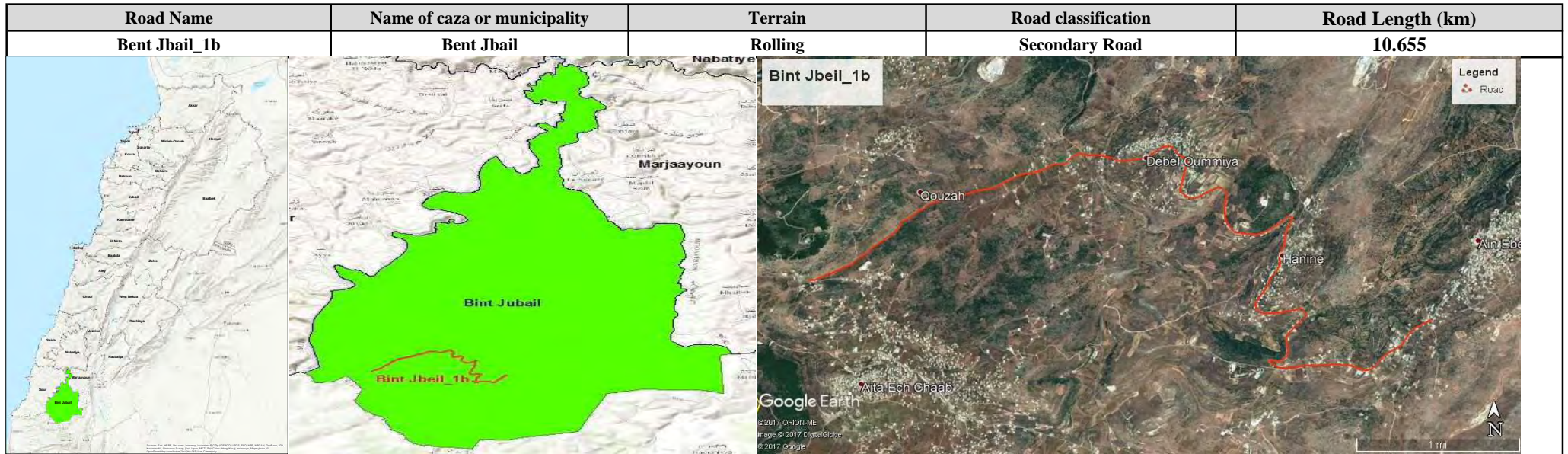


Item	Description
Number of lanes / Width / Pavement type	1 Lanes/Width 4.7m/Asphalt pavement
Traffic volume	1,045
Damage level on the road surface	100%
Number of town passing through	1
Drainage facility	No drainage facility. Damage to the pavement is presumed to be because no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 1.0km. Slope protection work and side ditch are necessary.
Safety facility and road marking	No road marking is provided at all. Road marking for sight line induction is necessary.
Road Structure	There are no road structures in particular. —
Alignment	Not satisfy design criteria with 90% of longitudinal.
Road Width	In almost all sections, the width is not enough for two-way traffic.
Intersection	No large intersection. —
Security situation	Level 3 : Avoid all Travel
Number of Syrian refugees	6,072
Religion	Shi'a(100%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

INVENTORY SHEET

Road Name	Name of caza or municipality	Terrain	Road classification	Road Length (km)
Hermel_4a	Hermel	Rolling	Local Road	1.944
<div style="display: flex; justify-content: space-around;">    </div>				
Item	Description			
Number of lanes / Width / Pavement type	2 Lanes/Width 6.6m/Asphalt pavement			
Traffic volume	3,004			
Damage level on the road surface	67%			
Number of town passing through	1			
Drainage facility	There are drainage facilities. Maintenance management is poor, and there are many sections that are not functioning.			
Degree of damage to the surface	Unprotected slope is a section of about 1.0km. There are slopes that are not protected.			
Safety facility and road marking	Road marking is disappearing. Reinstallation of road marking.			
Road Structure	No road structure in particular. —			
Alignment	Both alignment and longitudinal almost satisfy design criteria.			
Road Width	The width is enough.			
Intersection	No large intersection. —			
Security situation	Level 3 :Avoid all Travel			
Number of Syrian refugees	6,072			
Religion	Shi'a(100%)			
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites			

INVENTORY SHEET



Item	Description
Number of lanes / Width / Pavement type	2 Lanes/Width 7.7m/Asphalt pavement
Traffic volume	112
Damage level on the road surface	59%
Number of town passing through	-
Drainage facility	Damage to the pavement is presumed to be because no drainage facility.
Degree of damage to the surface	Unprotected slope is a section of about 0.7km. Slope protection work and side ditch are necessary.
Safety facility and road marking	No road marking is provided at all. As a sidewalk space in the city area, as sight line induction in the suburban, road marking is necessary.
Road Structure	No road structure in particular. —
Alignment	Not satisfy design criteria with 20% of alignment. Not satisfy design criteria with 30% of longitudinal.
Road Width	There is also a section of width that is not enough for passing.
Intersection	No large intersection. —
Security situation	Level 3 : Avoid all Travel
Number of Syrian refugees	7,605
Religion	Maronites(90.9%)-Shi'a(9.1%)
Important Area	Natural Reserves/ Important Bird Area/ Protected Area/ Historical Sites

添付-7 推計した工種毎の雇用者数 (Task Rate)

工種	Unit	Qty	EBT		LBT		Ratio LBT÷EBT
			Total Task	Total Task	Total Task	Total Task	
オーバーレイ工 (W=11.0m)	m	1,000	239	950	3.97		
タックコート	m2	11,000					
アスファルト表層	m2	11,000	239	950			
オーバーレイ工 (W=7.0m)	m	1,000	152	605	3.98		
タックコート工	m2	7,000					
アスファルト表層工	m2	7,000	152	605			
道路打換え工 (W=11.0)	m	1,000	1,341	13,212	9.85		
舗装破碎工	m2	11,000	121	2,871			
掘削工	m3	4,400	372	3,432			
路床不陸正整工	m2	11,000	61	1,380			
下層路盤工	m3	2,750	207	1,041			
上層路盤工	m3	1,650	102	2,588			
プライムコート工	m2	11,000					
タックコート工	m2	11,000					
アスファルト表層工	m2	11,000	239	950			
アスファルト基層工	m2	11,000	239	950			
道路打換え工 (W=7.0)	m	1,000	884	8,682	9.82		
舗装破碎工	m2	7,000	77	1,827			
掘削工	m3	3,150	267	2,457			
路床不陸正整工	m2	7,000	39	878			
下層路盤工	m3	1,750	132	663			
上層路盤工	m3	1,050	65	1,647			
プライムコート工	m2	7,000					
タックコート工	m2	7,000					
アスファルト表層工	m2	7,000	152	605			
アスファルト基層工	m2	7,000	152	605			
U字側溝工 (H500×W500×T150)	m	1,000	450	1,133	2.52		
掘削工	m3	1,000	120	780			
基礎砕石工	m3	90	7	8			
コンクリート工 Class C (110/25)	m3	270	323	345			
石積排水工 (H500×W500×L500)	m	1,000	506	1,544	3.05		
掘削工	m3	1,200	144	936			
基礎砕石工	m3	90	7	8			
コンクリート工 Class C (110/25)	m3	70	84	90			
練石積工	m3	300	271	510			
コンクリート擁壁工 (H=1.0m,W=0.3m)	m	1,000	2,074	2,161	1.04		
型枠工	m2	2,000	1,237	1,237			
コンクリート工 Class B (250/20)	m3	500	597	639			
鉄筋工	ton	50	240	285			
石積擁壁工 (H=2.0m,W=0.5m)	m	1,000	903	1,700	1.88		
練石積工 (H=2.0m)	m3	1,000	903	1,700			
かご工	m	1,000	625	825	1.32		
掘削工	m3	1,000	120	460			
かご工	m3	500	505	365			
石積法面工 H=2m t=30cm	m	1,000	638	1,388	2.18		
掘削工	m3	800	96	368			
練石積工	m3	600	542	1,020			
路面反射スタッド設置工 (キャッツアイ)	m	1,000	6	6	1.00		
	Nor	200		6			
ガードレール設置工	m	1,000	288	603	2.09		
支柱設置工	no	500	130	445			
レール設置工	m	1,000	158	158			
標識設置工 (1m2)	Nor	1,000	804	3,288	4.09		
掘削工	m3	2,000	240	1,560			
運搬工	m3	2,000	36	1,200			
標識設置工	Nor	1,000	528	528			
路面標示工 (t=3mm)	m	1,000	6	40	6.67		
路面清掃工	m2	1,500	57	57			
路面標示工	m	3,000	6	40			
高欄設置工	m	1,000	2,488	2,599	1.04		
	m	1,000					
型枠工	m2	2,433	1,505	1,505			
コンクリート工 Class B (250/20) Class B (250/20)	m3	513	613	655			
鉄筋工	ton	77	370	439			
V字表示設置工	Nor	100	40	40	1.00		
V字表示設置工	Nor	100		40			
LEDライト設置工	Nor	100	53	53	1.00		
標識設置工	Nor	100		53			
特殊ブロック設置工	m	1,000	570	570	1.00		
歩道境界ブロック設置工 h=30cm	m	1,000		242			
コンクリート工 Class B (250/20)	m3	60		77			
特殊ブロック設置工	m2	1,200		251			
管・函渠設置工 φ150-1200	m	1,000	768	1,251	1.63		
管・函渠設置工	m	1,000	558	350			
掘削工	m3	1,000	120	780			
埋戻し工	m3	804	90	121			
※φ150-200(LTB), φ200-φ1200(ETB)							

添付-8 推計した工種毎の施工日数

工種	Unit	Qty	EBT		LBT		Ratio LBT÷EBT
			Total day	Total day	Total day	Total day	
オーバーレイ工 (W=11.0m)	m	1,000	9	44	4.89		
タックコート	m2	11,000					
アスファルト表層	m2	11,000	9	44			
オーバーレイ工 (W=7.0m)	m	1,000	6	28	4.67		
タックコート工	m2	7,000					
アスファルト表層工	m2	7,000	6	28			
道路打換え工 (W=11.0)	m	1,000	144	1,222	8.49		
舗装破砕工	m2	11,000	14	288			
掘削工	m3	4,400	20	344			
路床不陸正整工	m2	11,000	7	138			
下層路盤工	m3	2,750	62	105			
上層路盤工	m3	1,650	23	259			
ブライムコート工	m2	11,000					
タックコート工	m2	11,000					
アスファルト表層工	m2	11,000	9	44			
アスファルト基層工	m2	11,000	9	44			
道路打換え工 (W=7.0)	m	1,000	96	805	8.39		
舗装破砕工	m2	7,000	9	183			
掘削工	m3	3,150	15	246			
路床不陸正整工	m2	7,000	5	88			
下層路盤工	m3	1,750	40	67			
上層路盤工	m3	1,050	15	165			
ブライムコート工	m2	7,000					
タックコート工	m2	7,000					
アスファルト表層工	m2	7,000	6	28			
アスファルト基層工	m2	7,000	6	28			
U字側溝工 (H500×W500×T150)	m	1,000	76	135	1.78		
掘削工	m3	1,000	29	78			
基礎砕石工	m3	90	2	3			
コンクリート工 Class C (110/25)	m3	270	45	54			
石積排水工 (H500×W500×L500)	m	1,000	77	158	2.05		
掘削工	m3	1,200	35	94			
基礎砕石工	m3	90	2	4			
コンクリート工 Class C (110/25)	m3	70	12	9			
練石積工	m3	300	28	51			
コンクリート擁壁工 (H=1.0m,W=0.3m)	m	1,000	232	253	1.09		
型枠工	m2	2,000	124	124			
コンクリート工 Class B (250/20)	m3	500	84	100			
鉄筋工	ton	50	24	29			
石積擁壁工 (H=2.0m,W=0.5m)	m	1,000	91	170	1.87		
練石積工 (H=2.0m)	m3	1,000	91	170			
かご工	m	1,000	58	83	1.43		
掘削工	m3	1,000	29	46			
かご工	m3	500	29	37			
石積法面工 H=2m t=30cm	m	1,000	78	139	1.78		
掘削工	m3	800	23	37			
練石積工	m3	600	55	102			
路面反射スタッド設置工 (キッツアイ)	m	1,000		20	1.00		
	Nor	200		20			
ガードレール設置工	m	1,000	37	83	2.24		
支柱設置工	no	500	10	56			
レール設置工	m	1,000	27	27			
標識設置工 (1m2)	Nor	1,000	194	376	1.94		
掘削工	m3	2,000	58	156			
運搬工	m3	2,000	36	120			
標識設置工	Nor	1,000	100	100			
路面標示工 (t=3mm)	m	1,000	3	4	1.33		
路面清掃工	m2	1,500	6	6			
路面標示工	m	3,000	3	4			
高欄設置工	m	1,000	274	298	1.09		
型枠工	m2	2,433	151	151			
コンクリート工 Class B (250/20) Class B (250/20)	m3	513	86	103			
鉄筋工	ton	77	37	44			
V字表示設置工	Nor	100		4	1.00		
V字表示設置工	Nor	100		4			
LED ライト設置工	Nor	100		6	1.00		
標識設置工	Nor	100		6			
特殊ブロック設置工	m	1,000		55	1.00		
歩車道境界ブロック設置工 h=30cm	m	1,000		17			
コンクリート工 Class B (250/20)	m3	60		12			
特殊ブロック設置工	m2	1,200		26			
管・函渠設置工 φ150-1200	m	1,000	285	148	0.52		
管・函渠設置工	m	1,000	100	35			
掘削工	m3	1,000	29	78			
埋戻し工	m3	804	156	35			
※φ150-200 (LTB), φ200-φ1200(ETB)							

添付-9 本事業実施計画

REPUBLIC OF LEBANON
Council for Development and Reconstruction
Ministry of Public Works and Transportation

Implementation Plan (IP)
for Candidate Sub-project
under
JICA ODA Loan “Road Rehabilitation
Sector Loan for Employment Creation”

February 2018

JAPAN INTERNATIONAL COOPERATION AGENCY

Oriental Consultants Global Co., Ltd.

Eight-Japan Engineering Consultants Inc.

NTC International Co., Ltd.

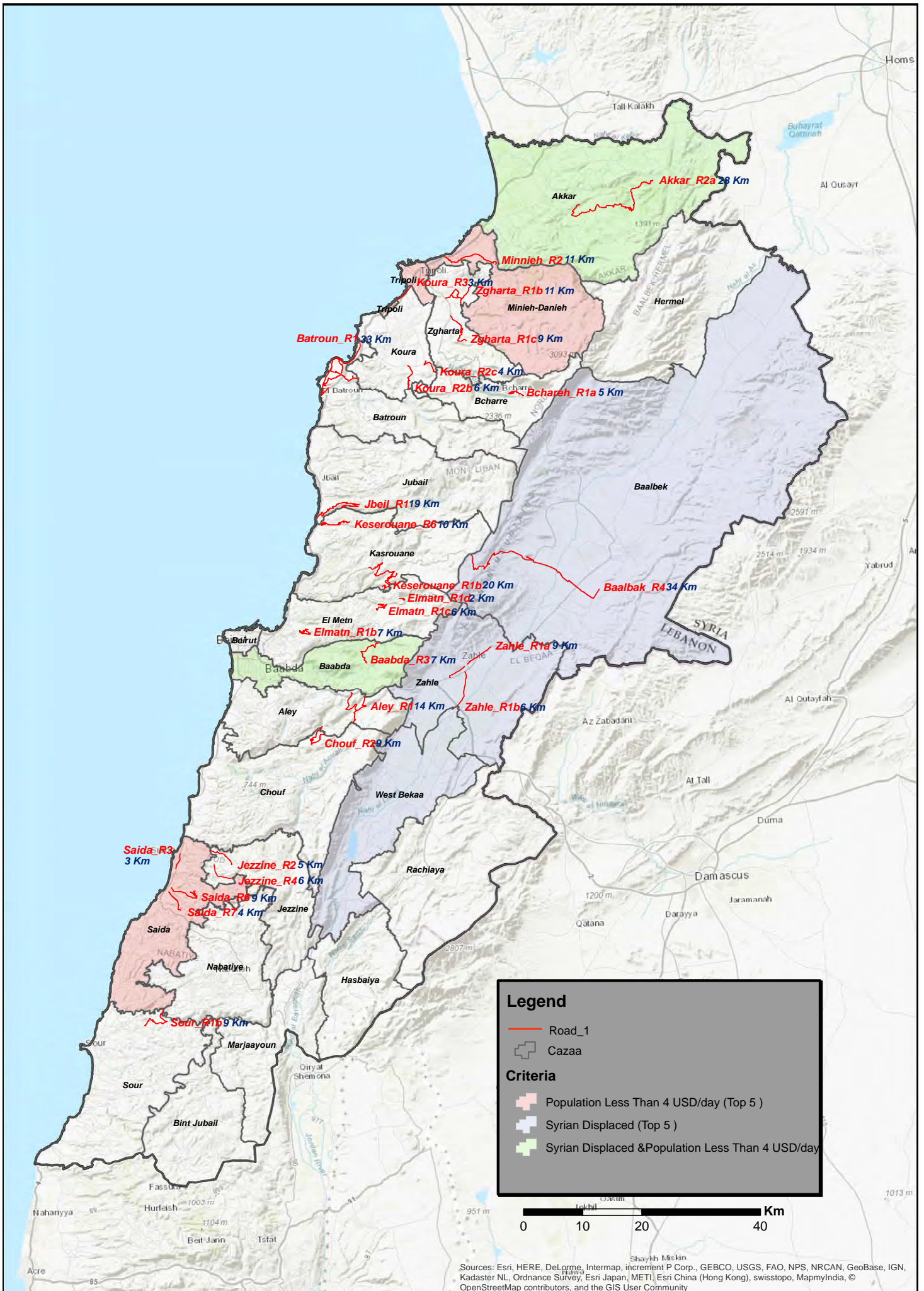


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CHAPTER 1 BASIC CONCEPT OF THE SUB-PROJECT

1.1 Objectives and Outline of the Project

The outline and objectives of the Project is as shown in Table 1.1.1.

Table 1.1.1 The outline and objectives of the Project

Name of Project	Project for Road Rehabilitation Sector Loan for Employment Creation
Objectives of Project	<ul style="list-style-type: none"> • Contribute to both the improvement of the access to public services and markets as well as the road network for local residents, which leads to the improvement of their livelihood, by rehabilitating/repairing the deteriorated or damaged roads, and for the improvement of the road surface conditions and traffic safety • Contribute to the improvement of the livelihood of both the displaced Syrians and the vulnerable population of Lebanon by creating job opportunities for them in the Project with application of the work items that can create more employment of labor in road rehabilitation works
Outlines of the Project	<ul style="list-style-type: none"> • The sub-projects of the multiple sections (20km in length on average per sub-project) with the approximately 500km of the total length are selected for rehabilitation from approximately 6,000 km of the road network under the jurisdiction of MPWT but excluding the international roads. • The Lebanese government requested both JICA and the WB to provide loans for the implementation of the Project and the WB has already approved a loan of US \$ 200 million in February 2017. • The sub-project shall be selected based on the criteria of (1) Traffic volume and the necessity of rehabilitation, 2) Effect on employment creation mainly for displaced Syrians, (3) Security situation in the sub-project area, and 4) Area balance of the selected sub-projects • The road rehabilitation works for the sub-projects are expected to include asphalt pavement work, drainage including culvert, base course/sub-base, slope stabilization, installation of retaining walls, and frontage road etc. • The consulting services for the Project shall comprise the design review, tender document preparation and support, construction supervision oversight, strengthening of the financial management capacity of the implementation agency, evaluation / monitoring of the Project, environmental social consideration, etc.
Project Area	All over Lebanon. However, Japan shall be excluded from the level 4 areas according to the security information by the Ministry of Foreign Affairs.
Executing Agency/ Relevant Organization	Executing Agency : Council for Development and Reconstruction (CDR) Relevant Ministry : Ministry of Public Works and Transportation (MPWT)

CHAPTER 2 OUTLINE OF THE SUB-PROJECT

2.1 Necessity and Background of Sub-project

In the Republic of Lebanon (hereinafter referred to as "Lebanon"), the inflow of the displaced Syrians has continued since March 2011 due to the Syrian crisis, and as of the end of December 2016, the number of the refugees reached nearly 1.01 million in the territory of Lebanon. Since the Lebanese government prohibits the establishment of refugee camps for the displaced Syrians, the Lebanese communities have been accepting such displaced Syrians as the host community. The influx of the displaced from Syria, which occupies about one-sixth of the Lebanese population of 5.9 million, has been suffering exhaustion of public services and deterioration of socio-economic infrastructures and causes a heavy economic burden on the Lebanese government. This resulted in the deterioration of the GDP growth from 2.5% in 2013 to 1.3 % in 2015.

87% of the labor productive population of the displaced Syrians, which range between the ages of 15 years old to less than 65 years old, have not completed secondary education. In addition, the Labor Law and regulations of Lebanon limit the employment of foreigners to only construction, agriculture and the cleaning industry. However, since displaced Syrians can mainly get jobs in informal sectors including housekeeping works, construction, wholesale/retail, manufacturing and agriculture sectors, etc., such labor forces result in the excessive situation in the unskilled labor market. As a result, the unemployment rate for the young generation has been rising, which this is one of the factors causing a conflict between the displaced Syrians and the Lebanese host communities.

To respond to the said situation, the Lebanese government formulated "the Lebanon Crisis Response Plan" in December, 2014, and has provided humanitarian assistance to the Syrian displaced. Furthermore, the Lebanese government set up the "Support Meeting on the Syrian Crisis" (London in February 2016) in order to respond to the ever-increasing support demand due to the prolonged Syrian crisis, and the deteriorating socio-economic conditions in Lebanon. The Support Meeting newly formulated a "Five-Year Plan for Employment Creation", which aims at investing in the infrastructure sector in order to secure economic growth not only by developing infrastructure but also creating employment opportunities for the displaced Syrians and the vulnerable population of the Lebanese host communities. As a specific action of the said Plan, the Lebanese government announced the implementation of a road rehabilitation project for the creation of employment opportunity at the First Steering Committee of the World Bank's MENA (Middle East and North Africa) Initiative Concessional Financing Facility "in July, 2016. The project comprises of the phase-1 stage to be financed by both the World Bank and JICA, which the former, with the utilization of CFF provides USD 200 million, and the latter finances USD 100 million as the "Road Rehabilitation Sector Loan for Employment Creation " to be financed by Japan International Cooperation Agency (hereinafter "JICA") (hereinafter" the Project "), and the

phase-2 stage to be financed by the European Investment Bank (hereinafter “EIB”)

Under such circumstances, JICA dispatched the Preparatory Study Team to Lebanon to conduct the necessary study and data collection to formulate the Project from August 2017 to February 2018.

2.2 Screening Results according to Selection Criteria

2.2.1 Selection Policy, Method, Procedures and Criteria to be Applied

The Project focuses on the rehabilitation of mainly rural roads with the application of the work items that can create more employment for laborers, but not rehabilitation of high standard roads including bridges and tunnels requiring high technology and the quality standard in order to promote employment of both the vulnerable Lebanese and displaced Syrians.

A list of the sub-project roads for the Project shall be formulated with its priority from the candidate sub-project list prepared by CDR by comprehensively assessing the candidates with the application of the following criteria agreed between JICA and CDR, (i) Security level, (ii) Necessity of road rehabilitation, and (iii) Benefits to both Lebanese and Syrian people. The sub-project road list formulated above shall be finalized by picking the sub-projects from the top up to one until the accumulated road rehabilitation costs for sub-projects reaches approximately USD 107 million. After that, the final list shall be checked from the viewpoint of the area balance and if necessary, the sub-project list shall be adjusted on the basis of discussion with CDR.

(1) Security Level

- The sub-projects to be funded by JICA are not located in the areas of Lebanon which are classified at level 4, which indicates “Evacuate and Avoid all Travels” by the Ministry of Foreign Affairs in Japan.

(2) Necessity of Road Rehabilitation

- Importance on the road network measured by traffic volume
- Importance on the local road network measured by the access to important place(e.g. caza center)
- Road pavement damage level as the result of iRAP Pavement Damage Rating
- Road safety level in accordance to iRAP Star Rating

(3) Benefits to Lebanese and the displaced Syrians

- Existence of the work items enabling high employment creation
- Population of the vulnerable Lebanese people living near the sub-project and the population of displaced Syrians displaced living near the sub-project
- Population in the cazas where the sub-projects are located

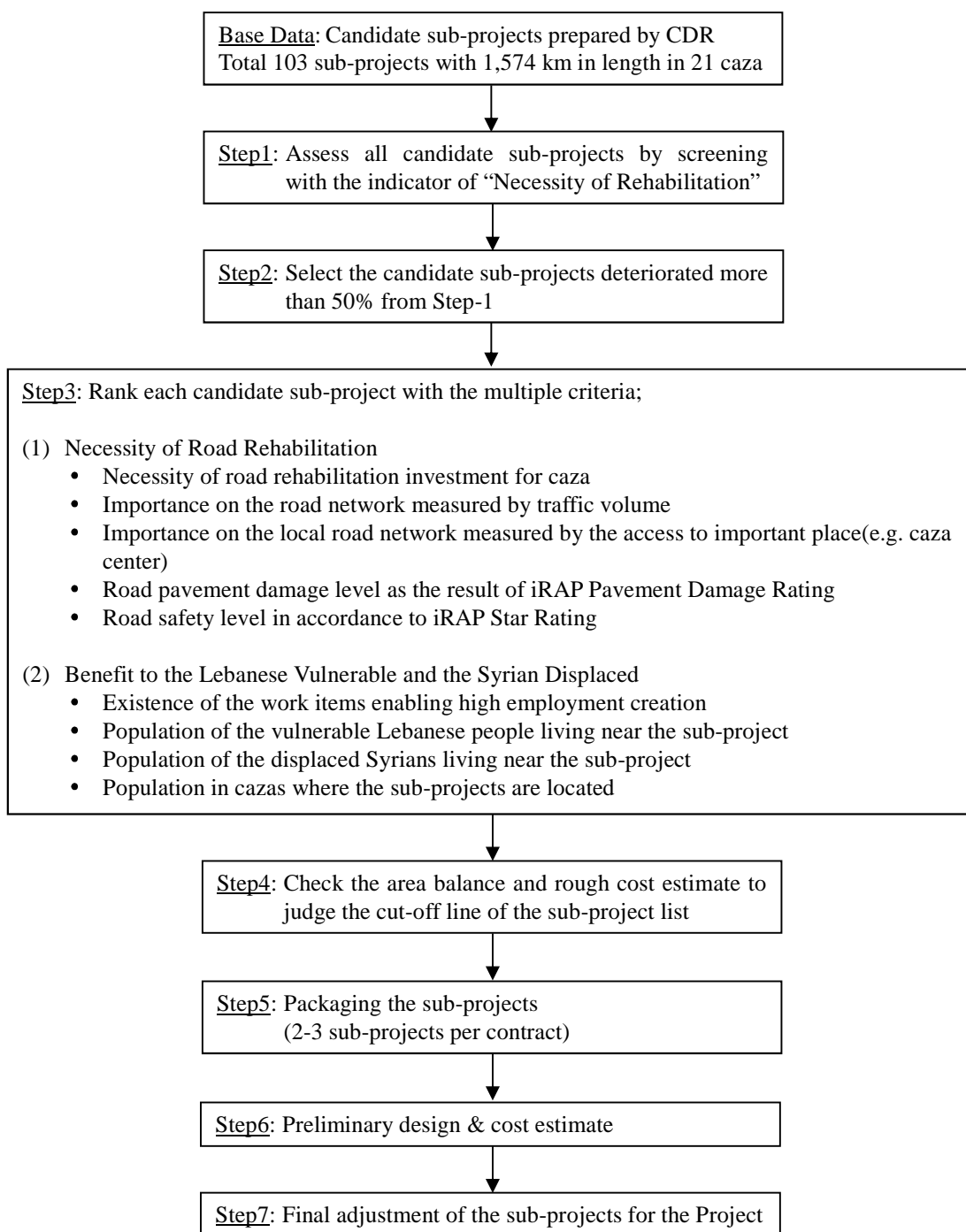


Figure 2.2.1 Sub-project Selection Method and Procedure

Table 2.2.1 and Figure 2.2.2 shows the sub-project list for the Project.



Figure 2.2.2 Location Map for Sub-projects Selected

Table 2.2.1 Sub-project List selected

NO.	Name	caza_na	Total length
1	Saida_7	Saida	3.1
1-2	Saida_7add	Saida	1.2
2	Saida_3	Saida	2.8
3	Akkar_2a	Akkar	28.0
4	Zahle_1b	Zahle	6.3
5	Zahle_1a	Zahle	8.7
6	Baalbek_4	Baalbek	33.7
7	Baabda_3	Baabda	7.4
8	Saida_6	Saida	8.6
9	Koura_3	Koura	3.5
10	Sour_1b	Sour	9.5
11	Koura_2b	Koura	5.6
12	El Metn_1c	El Metn	6.0
13	Koura_2c	Koura	4.1
14	El Metn_1d	El Metn	2.0
15	Jbail_1	Jbail	18.6
16	Bcharre_1a	Bcharre	5.2
17	Batroun_1	Batroun	32.8
18	Minie-Danniye_2	Minie-Danniye	11.5
19	Jezzine_2	Jezzine	5.1
20	Jezzine_4	Jezzine	6.0
21	Zgharta_1c	Zgharta	8.9
22	El Metn_1b	El Metn	6.7
23	Kesrouane_6	Kesrouane	9.9
24	Zgharta_1b	Zgharta	10.9
25	Kesrouane_1b	Kesrouane	20.1
26	Chouf_2	Chouf	8.6
27	Aley_1	Aley	14.3
Total			289.1

Source: JICA Study Team

2.3 Operation Indicators, Effect Indicator and Expected Targets

Considering the features of the Project, the following evaluation indicators shall be adopted for the Project Evaluation.

Table 2.3.1 Project Evaluation Indicators

Indicators	Contents	Unit	Timing of Measurement	Expected Target
(1) Number of the Syrian employed	- the number of people employed in each sub-project by the contractor	person·day	Accumulated number of the Syrians employed in the Project during the construction	See Table 2.4.3

(2) Number of the Lebanese employed	- the number of person employed in each sub-project by the contractor	person · day	Accumulated number of the Syrians employed in the Project during the construction	
(3) Travel time	- the travel time by vehicle from the starting point to the end point of the road section for each sub-project	Minutes	A difference in travel time between before construction and after construction	It varies depending on the sub-project road

2.4 Expected Quantitative and Qualitative Impact

2.4.1 Quantitative Impact

(1) Increase in Employment Opportunity to both the Syrian Displaced and the Lebanese Vulnerable

Assumptions for Estimating the Number of Workers

The following assumptions are applied to estimate the number of workers to be employed in the Project;

- The Project is to conduct the rehabilitation works for 27 sub-projects selected, comprising the works for pavement, drainage facility installation, retaining wall installation, traffic safety facility installation and the said works shall be conducted within the existing ROW. F
- Whereas the Project basically apply the conventional Equipment Based Technique, it partially apply Labor Based Technique to masonry wall and rip-rap drainage to promote the employment of the labors.
- The number of workers to be employed in each sub-project shall be estimated by using the said norms of "Civil engineering estimation standard of the Ministry of Land, Infrastructure, Transport and Tourism of Japan" and " Supplement Manual for Design and Cost Estimate for JICA Preparatory Study (Civil works) " for EBT works. However, the norm associated with the task ratio by manpower and machinery in any work item should be calibrated by reflecting the difference in the work ratio between Japan and the developing countries.
- For LBT work items, the daily task rate for each work item, which are offered from ILO and collected by JICA Study team, are applied to estimate the number of workers to be employed.

Estimation of the Number of Laborers to be Employed in Each Sub-project

The number of the workers estimated for each sub-project are shown in Table 2.4.3. As mentioned in the table, it is possible to demonstrate an increase in approximately 123% employment creation when applying a partial inclusion of LBT, compared to ones by pure EBT.

Table 2.4.1 Estimation of the Number of Labors

Package	No.	Road Name	Number of Employees		
			EBT	EBT and Partial LBT	
1	1	Akkar_2a	55,796	66,155	119%
2	2	Minie-Danniye_2	25,474	35,346	139%
	3	Zgharta_1b	17,025	17,733	104%
	4	Zgharta_1c	16,985	19,757	116%
3	5	Koura_2b	10,077	12,045	120%
	6	Koura_2c	9,259	9,929	107%
	7	Koura_3	9,281	10,318	111%
	8	Bcharre_1a	12,975	17,054	131%
4	9	Batroun_1	64,175	79,671	124%
5	10	Jbail_1	51,071	67,630	132%
	11	Kesrouane_6	22,169	28,631	129%
6	12	El Metn_1c	10,247	10,922	107%
	13	El Metn_1b	11,106	13,576	122%
	14	El Metn_1d	3,661	3,969	108%
	15	Kesrouane_1b	44,444	56,611	127%
7	16	Baalbek_4	71,748	94,849	132%
8	17	Baabda_3	14,984	18,962	127%
	18	Chouf_2	17,151	22,395	131%
	19	Aley_1	28,198	37,010	131%
9	20	Zahle_1a	15,529	16,043	103%
	21	Zahle_1b	10,987	11,366	103%
10	22	Saida_3	7,249	7,417	102%
	23	Saida_6	15,757	19,255	122%
	24-1	Saida_7	7,370	10,487	142%
	24-2	Saida_7add	3,232	5,317	165%
	25	Jezzine_2	10,358	11,595	112%
	26	Jezzine_4	11,319	12,874	114%
11	27	Sour_1b	18,085	23,231	128%
Total			595,712	740,148	124%

(2) Reduction of Travel Time

Travel time by vehicle shall be shortened in passing through the road sections rehabilitated in the Project due to improvement of smoothness of its surface. Its effect shall be measured by comparing the travel time between “before rehabilitation” and “ after rehabilitation”.

2.4.2 Qualitative Impact

The following impacts can be expected as qualitative items;

- To increase income of both the Syrian refugees and the Lebanese vulnerable people, which would lead to improvement of livelihood of them ;
- To improve stability of the local house community by lightening tension between the Syrian

displaced and the Lebanese host community due to increase of employment opportunities;

- To improve the quality of social service delivery by improving the accessibility to care centers;
- To contribute to the capacity building of both the Syrian displaced and the Lebanese vulnerable people by acquiring the skill of construction works such as building masonry walls as well as to promoting the dissemination of LBT to construction works.

2.5 Design Policy

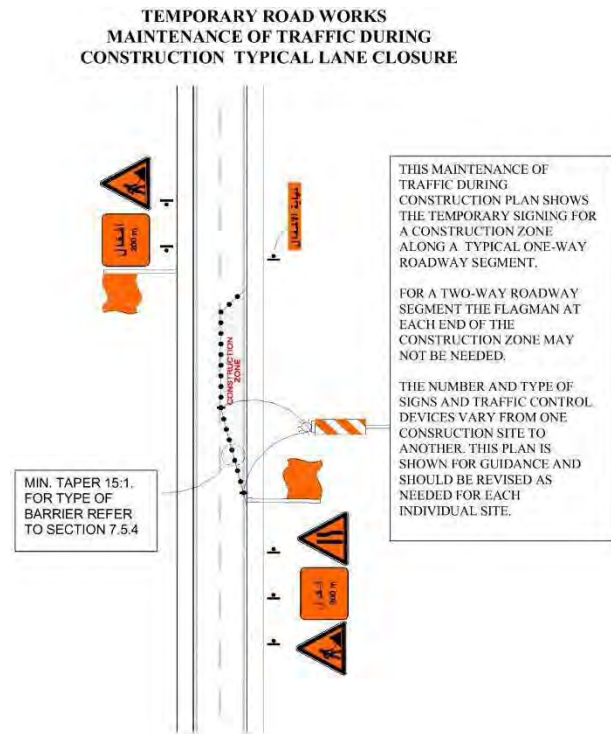
The design policies for the road rehabilitation works for the sub-project are indicated in Table 2.5.1 as a result of consultation with CDR

Table 2.5.1 Design Policies for Road Rehabilitation

Design Item	Basic policy
Alignment	Application of horizontal alignment according to the design speed as defined by AASHTO will require a lot of land acquisition outside of the ROW and compensation. Therefore, there is no change of the current road center for the sub-project. However, road safety measures shall be taken at the places where the horizontal and vertical alignment does not satisfy the AASHTOs requirements. Accordingly, no land acquisition and compensation shall occur.
Pavement	Pavement work shall be required for the road sections with a rate of 3-5 of iRAP pavement rating. However, since the CBR test and future traffic volume calculation are not planned in the Study, the typical pavement thickness and structure shall be proposed considering traffic volume level and general the road bed condition in the sub-project areas.
Drainage Facilities	There is no change of the practice of the current drainage system in the urban areas. In the hilly and mountainous sections of the rural areas, if space is available, drainage facilities, concrete drainage channels, shall be installed at the road's mountain side. The transverse drain pipe culvert (φ 600) will be installed every 1 km .
Retaining Wall	-The type of the retaining wall shall be with stone masonry, which is applicable LBT to the installation works. -The retaining walls at the mountain side shall be installed considering the topographical condition. -The retaining wall at the valley side shall be considered 5% of the total road section length due to the difficulty in judgement by video observation.
Road Safety Measures	-Installation of regulatory/warning signs. -Installation of a curved mirror at sharp corners -Lane guidance by road marking -Installation of humps at the entrance of the towns and villages. (in secondary roads and local roads only) -Installation of a concrete barrier or guard rail along the cliff side in the mountain area.
Concrete Barrier	The Concrete Barrier will be installed 35% total length of the route due to the difficulty in judgement of height difference by video observation

2.6 Basic Plan (Construction Plan)

Due to the mountainous terrain of Lebanon, the construction should consider the narrow construction area of the work. Because of obeying the alignment of the existing road is the basic policy of the rehabilitation, and steep slope or cliff at both sides of the road can be observed, it is difficult to prepare diversion to separate the existing traffic completely out from the existing road. Therefore, the construction work should be done within the right of way in principal which is typically approx. 6 to 7m in width. Secure diversion out of the existing road shall require many temporary works and will raise the total construction cost.



The dominant construction item of the work is the pavement that consists of base course and bituminous surface. These works shall be operated together with management of the existing traffic control as well as work within the right of way. Hence, the existing road needs to be separated into two parts so that the traffic shall drive one lane while constructing another half-part of the road. The following illustration gives explanation of the construction method.

2.7 Outline Design Drawing: See Appendix5

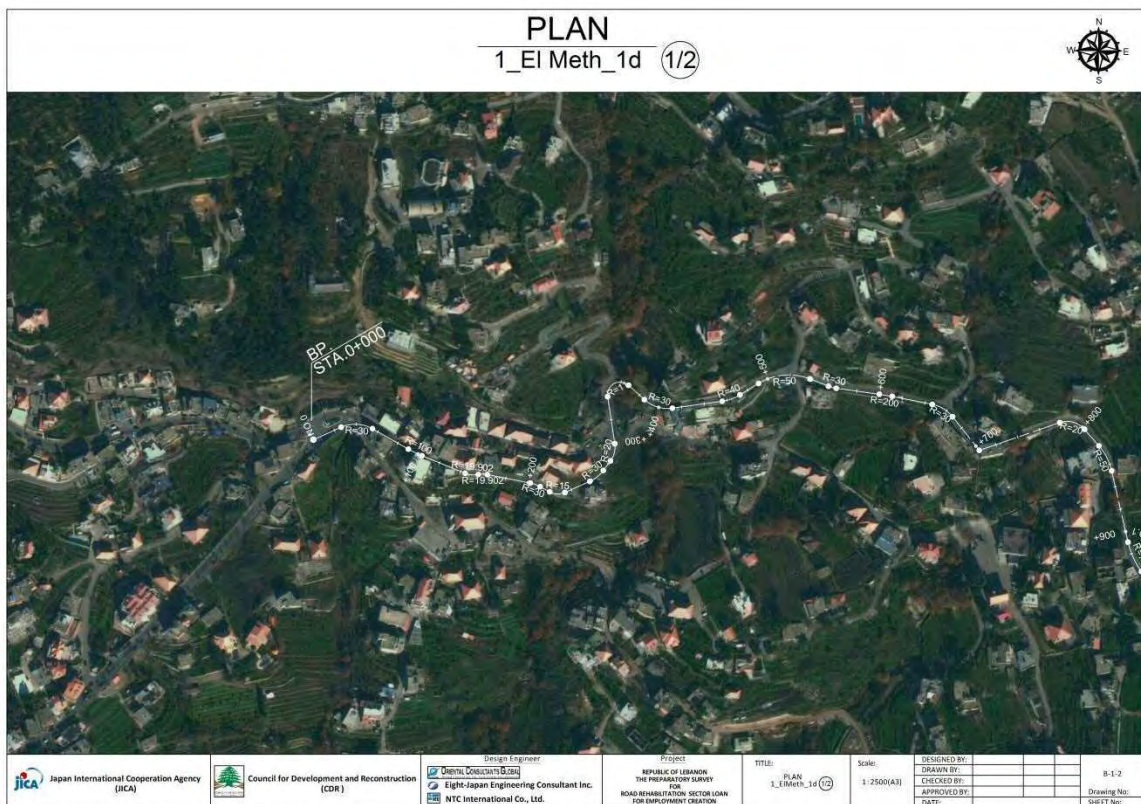
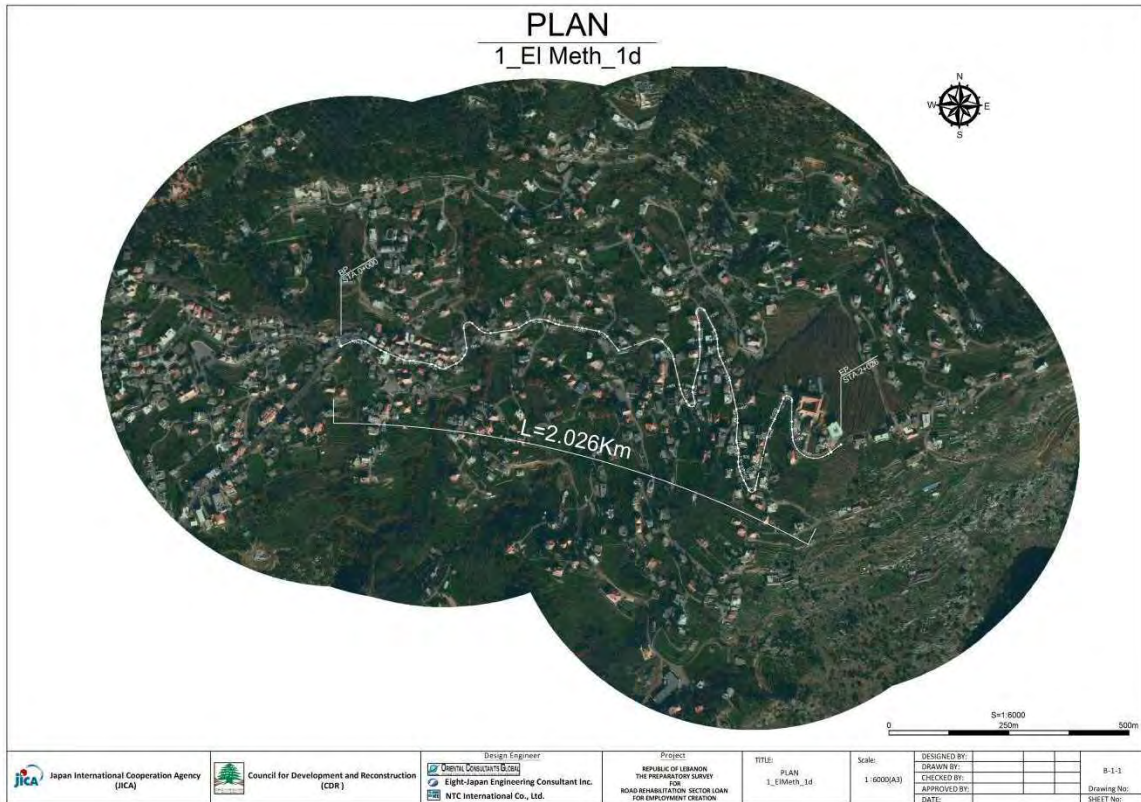


Figure 2.7.1 Samples of Design Drawing

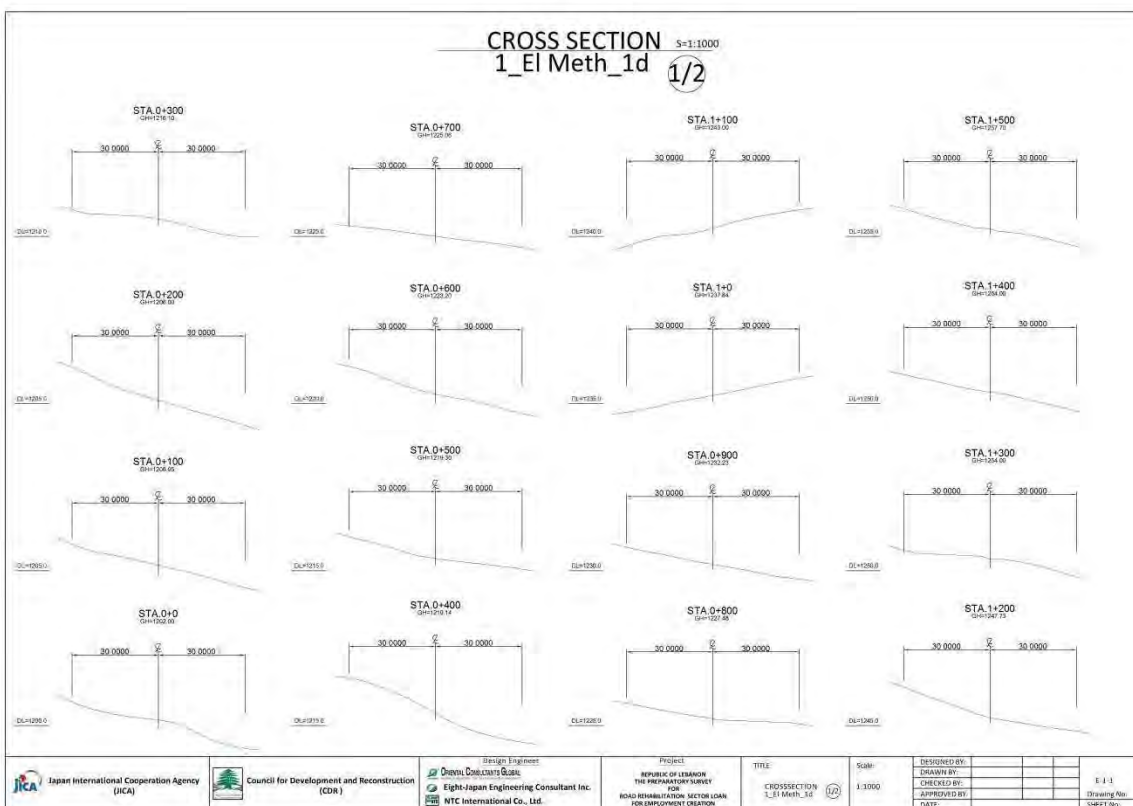
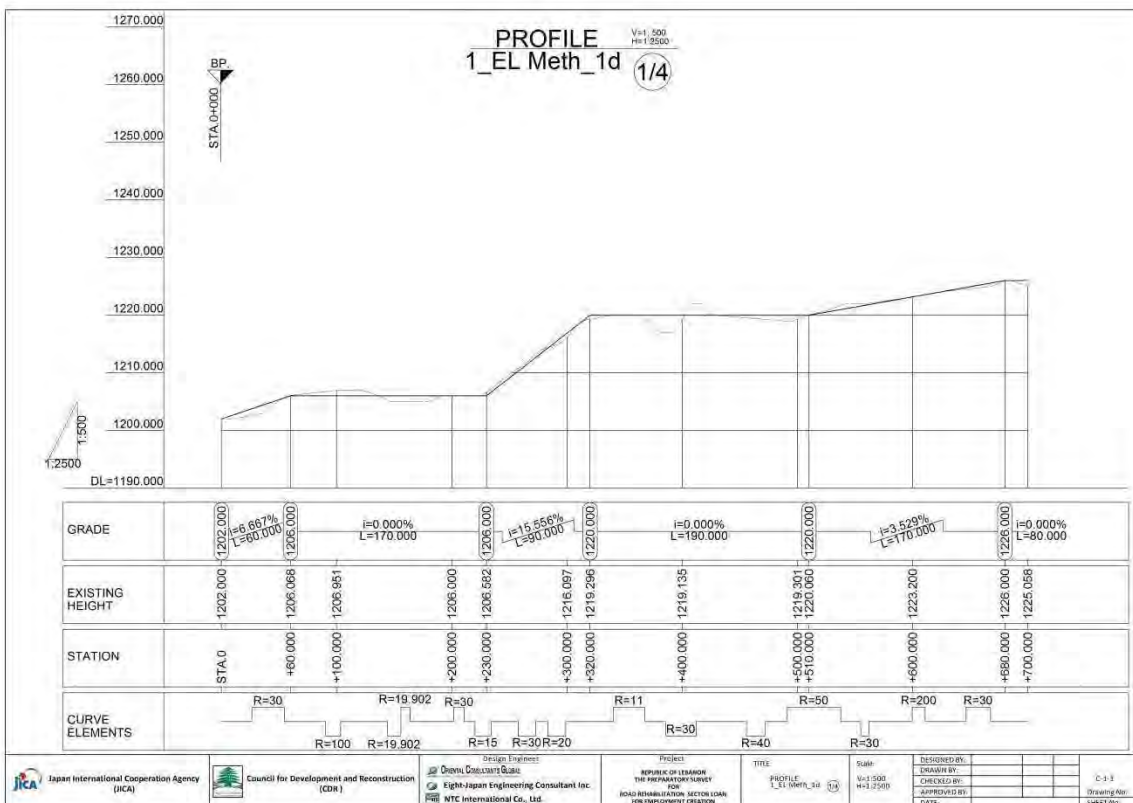


Figure 2.7.2 Samples of Design Drawing

2.8 Implementation Plan

2.8.1 Implementation Policy

(1) Implementation Management Structure

Since the total 70-80 sub-projects are assumed to be selected for both JICA and WB portions of the Project, a multiple number of neighboring sub-projects shall be gathered into one-package for bidding, considering the capability of local contractors, which would result in 25-30 packages for the Project.

PMU, which will be established for the Project, has authority for all necessary decisions for the project implementation in terms of both technical and financial matters on behalf of the CDR, supported by individual experts recruited and dispatched by WB. The major functions of the PMU are as follows;

- Overall project management,
- Procurement management,
- financial management including check of all accounting documents and preparation of disbursement requests according to LA,
- Monitoring and evaluation of the Project,
- Preparation of reports, such as Monthly Progress Report (MPR) and Quarterly Progress Report (QPR).

PMU will recruit a plural number of Lebanese local consultants to execute the detailed design as well as conduct the construction supervision of a certain package of the Project, and the local consultant(s) employed shall be designated as “The Engineer” for each package during the construction stage in order to inspect the quality of the works done by the Contractors, check and examine the implementation schedule and check and certify the payment invoices from the Contractor. The Contractor for each package shall be procured through the International Competitive Bidding (ICB) and execute the construction works under the Conditions of the Contract in conformity with “Standard Bidding Documents under JICA ODA Loan for Procurement of Works, 2012”, which is equivalent to FIDIC Harmonization Version (pink book).

An International Consultant to be employed for the JICA portion shall be recruited by the CDR and supports the PMU to execute the detailed designs conducted by local consultants, partially prepare the tender documents except technical specifications and design drawings, provide the technical and contractual advice to the problems occurred in each package, and monitor the requirements set for the Project by JICA such as employment conditions/status of the targeted laborers and the progress of each sub-project, as a project management consultant. Figure shows the implementation structure for the Project as well as a relation among stakeholders of the Project.

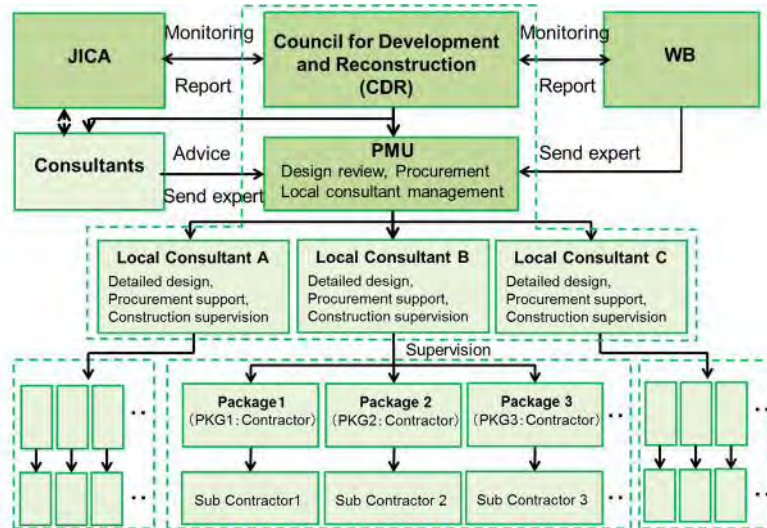


Figure 2.8.1 Project Implementation Structure

(2) Packaging the target roads to a Contract

The total 27 road sections are to be rehabilitated in the Project as shown in Table 2.8.1. To simplify the tendering process, some of sub-projects shall be grouped as one package, avoiding a heavy work burden caused by one contract for one sub-project policy. The packaging arrangement is done by considering the administrative area, terrain and evenness of the contract price for each package. As a result of consultation with CDR, the total number of the packages (contracts) shall be proposed as eleven as shown in Table 2.8.1 and Figure 2.8.2.

Table 2.8.1 Target Roads and Packaging in a Contract Group

Package	Road Number	Name of the Road	Distance (km)	Amount (MUSD)
1	1	Akkar_2a	28.0	9.88
	Sub-Total		28.0	9.88
2	2	Minie-Danniye_2	11.5	3.98
	3	Zgharta_1b	10.9	3.05
	4	Zgharta_1c	8.9	3.06
	Sub Total		31.3	10.09
3	5	Koura_2b	5.6	1.64
	6	Koura_2c	4.1	2.14
	7	Koura_3	3.5	2.17
	8	Bcharre	5.2	2.45
	Sub Total		18.4	8.40
4	9	Batroun_1	32.8	11.28
	Sub Total		32.8	11.28
5	10	Jbail_1	18.6	10.47
	11	Kesrouane_6	9.9	4.19
	Sub Total		28.5	14.66
6	12	El Metn_1c	6.0	1.81
	13	El Metn_1b	6.7	1.64
	14	El Metn_1d	2.0	0.72
	15	Kesouane_1b	20.1	8.27
	Sub Total		34.8	12.45
7	16	Baalbek_4	33.7	12.53
	Sub Total		33.7	12.53
8	17	Baabda_3	7.4	2.76
	18	Chouf_2	8.6	2.98
	19	Aley_1	14.3	4.94
	Sub Total		Zehle_1a	30.3
9	20	Zehle_1a	8.7	3.17
	21	Zehle_1b	6.3	2.21
	Sub Total		15.0	5.39
10	22	Saida_3	2.8	1.85
	23	Saida_6	8.6	2.64
	24-1	Saida_7	3.1	1.22
	24-2	Saida_7Add	1.2	0.45
	25	Jezzine_2	5.1	1.71
	26	Jezzine_4	6.0	1.67
	Sub Total		26.8	9.54
11	27	Sour_1b	9.5	2.86
	Sub Total		9.5	2.86
Grand Total			289.1	107.76

Source: JICA Study Team

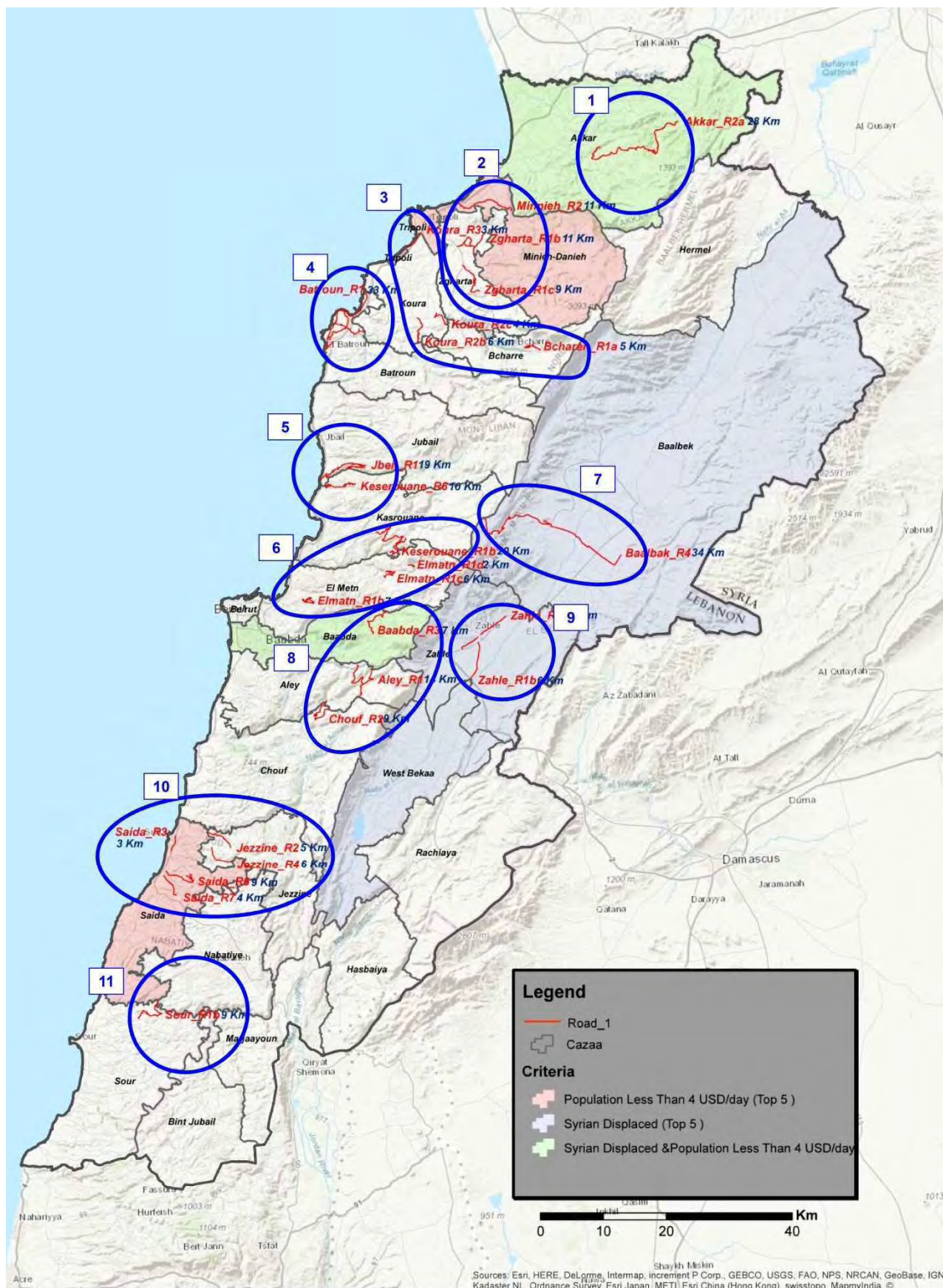


Figure 2.8.1 Location of Sub-project Road Sections and their Packaging

2.8.2 Implementation Conditions

(1) Operation Ratio

To set an appropriate construction period, it is necessary to determine both the task rate and the operation ratio. Sundays, national holidays, and rainy and snowy days shall be considered as periods of suspension of the work at the sites. As a result, the operation ratio is given as 69.6%.

Table 2.8.2 Determination of Operation Rate

Item	Number of days	Source
Sunday	52	Annual number
Holiday	19	Refer to Table 6.4.3
Rain	30	Hearing to CDR
Snow	10	Hearing to CDR
Total	111	
Operation Rate	$(365-111) / 365=69.6\%$	

Source: JICA study team

(2) Construction Period to Implement the Project

The construction period for each sub-project shall be estimated from both the task rate of each work item and the operation ratio. Further, the required contract period for each package shall be estimated. The basic concepts to determine the said construction periods are given as follows:

- A number of construction parties shall be one in principle. However, additional parties shall be allocated when necessary then making a balance to other work items. Even in that case, the number of parties shall be minimized.
- The efficient use of an asphalt finisher (paver), which is exclusively applied only for paving, shall be considered.
- One month for the preparation period before commencement of actual work and one month for the cleaning up period of the site after completion of the permanent work.
- The critical pass of the construction procedure shall be as follows.

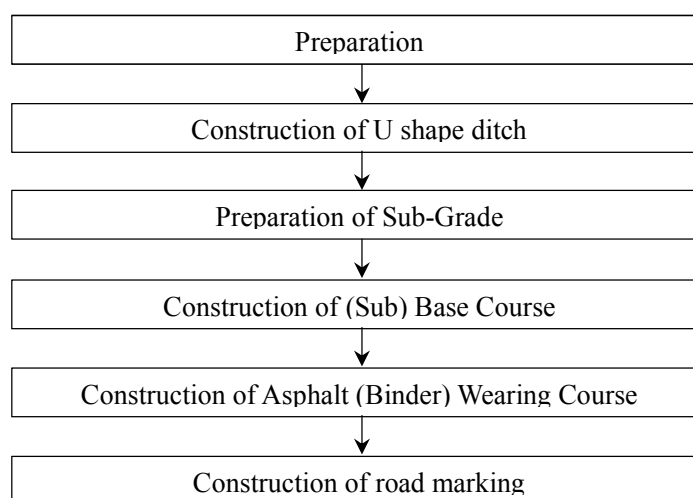


Figure 2.8.2 Assumed Critical Pass of the Construction Procedure

As a result, it was confirmed that at least 24 months are necessary as a construction period of any package. The summary is given in Table 2.8.4.

Table 2.8.3 Estimation of necessary construction period

Package	Route No.	Name	Length	Months	Working Duration																											
					1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12				
1	1	Akkar 2a	28.0	22.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22						
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22						
2	2	Minie-Denniye 2	11.5	17.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17											
		Zgharta 1b	10.9	20.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20								
		Zgharta 1c	8.9	19.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19									
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
3	5	Koura 2b	5.6	17.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17											
		Koura 2c	4.1	21.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21							
		Koura 3	3.5	17.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17											
		Bcharre 1a	5.2	16.0									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
4	9	Batroun 1	32.8	24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
5	10	Jbail 1	18.6	24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
6	12	El Metn 1c	6.0	17.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17											
		El Metn 1b	6.7	18.0							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18				
		El Metn 1d	2.0	13.0	1	2	3	4	5	6	7	8	9	10	11	12	13															
		Kesrouane 1b	20.1	20.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20								
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
7	16	Baalbek 4	33.7	24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
8	17	Baabda 3	7.4	19.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19									
		Chouf 2	8.6	18.0							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18				
		Aley 1	14.3	24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
9	20	Zahle 1a	8.7	24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
		Zahle 1b	6.3	20.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20								
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
10	22	Saida 3	2.8	17.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17											
		Saida 6	8.6	20.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20								
		Saida 7	3.1	21.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21							
		Saida 7Add	1.2	17.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17											
		Jezzine 2	5.1	22.0							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		Jezzine 4	6.0	21.0							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
11	27	Sour	9.5	24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
		Contract Period		24.0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				

2.8.3 Scope of Works

No.	Item	Remarks
1	Overlay (Width more than 7m)	It is applied for relatively good condition surface.
2	Reconstruction (Width more than 7m)	It is applied for deteriorated surface and includes replacement of existing base, subbase material.
3	U-Shape Ditch (H500× W500×T150)	It is applied for town area.
4	Ripraped Ditch (H500 ×W 500×L500)	It is applied at the road's mountain side to collect water from slope.
5	Pipe culvert φ 600	It is applied to lead water flow to cross the road.
6	Masonry Wall (H=2.0m,W=0.5m)	It is applied at mountain side to protect a soil from slope.
7	Replacement Masonry Wall (H=3.0m,W=0.5m)	
8	Hump	It is applied to reduce travel speed.
9	Thermoplastic reflectorized Road paint	It is applied to lead a vehicle to keep within carriageway.

	(t=3mm) yellow and white	
10	Small signs (less than 1m ²)	It is applied at curve section.
11	New Jersey block	
12	Chevron Sign	

2.8.4 Quality Control Plan

Local consultants, who conduct construction supervision and the Contractors shall submit to the PMU the quality control plan containing the following contents.

The international consultant will review the quality control plan, comment and make recommendations.

Elements of Quality Control Plan :

1. Project Personnel
 - 1.1 Project QC(Quality Control) Personnel and Organizational Structure
 - 1.2 Duties, Responsibilities, and Authority of QC(Quality Control) Personnel
 - 1.3 Personnel Qualifications
 - 1.4 Project Quality Coordination and Communications
 - 1.5 Quality Training
2. Inspections and Tests
 - 2.1 Work Task Quality Inspections
 - 2.2 Inspection and Test Plan
 - 2.3 Qualification of Third Party Inspection / Testing Companies and Companies and Subcontractors And Suppliers
 - 2.4 Project Quality Specifications
 - 2.5 Material and Equipment Inspection, Traceability and Quality Controls
3. Audits, Records, and Reports
 - 3.1 Project Quality Records and Documents
 - 3.2 Quality Assurance Surveillance

2.8.5 Procurement Plan/Method

(1) Contract Documents for the Project

1) General

The Contract documents consist of the following four documents. Among these four documents, the technical aspect is based on AASHTO which is the American Highway Standards. The Contract Agreement is based on FIDIC which is as same as indicated in the JICA's guideline.

- Volume-1 : Contract Agreement

- Volume-2: Technical Specification
- Volume-3: Bill of Quantities
- Volume-4: Drawings

2) Additional Condition of the Contract

The condition of the contract of CDR is as follows.

- Advance Payment : 15% of the contract price
- Performance security : 10% of the contract price
- Liquidated damage : 0.1% per day and maximum 10%
- Retention : Maximum 10%
(5% refund at end of the construction and rest refund at end of defect liability period)
- Defect liability period : One year after completion of the construction

These conditions are typical and might be amended according to the tendering situation.

(2) Procurement Plan

1) Procurement of the Consultant

The expected roll of the consultant is as follows.

- a) Conduct the Detail Design (DD) and Construction Supervision (CS) as well.
- b) Conduct the Project Monitoring on behalf of CDR

The consultant for a) shall be procured from the domestic consulting firms, whereas b) would be procured from the international consulting firms including Japanese companies. The procurement procedure shall follow the “Standard request for proposals under Japanese ODA Loans (Selection of Consultants) (Oct. 2012)”. The outline of the procedure is given in the following table.

Table 2.8.4 Procedure of Consultant Procurement and its activity organization

	Items	Action	
		GOL	JICA
	<Procurement of the Consultants>		
1	Short list of Consultant	X	
2	Review and Concurrence of JICA		X
3	Request for Proposal (RFP)	X	
4	Review and Concurrence of JICA		X
5	Preparation of Technical and Financial Proposal	X	
6	Evaluation of Technical Proposal	X	
7	Review and Concurrence of JICA		X
8	Contract Negotiation	X	

9	Review and Concurrence of the Contract		X
10	Contract Signing	X	
11	JICA's approval of Contract		X
12	Letter of Credit (L/C), L/Com	X	
	<Consulting Services>		
13	Review of the Detailed Design	X	
	<Tender Assistance>		
14	Preparation of Tender Documents and JICA's Approval	X	X
15	Tender Period	X	
16	Evaluation of Bids	X	
17	JICA's Approval of Evaluation of Bids		X
18	Contract Negotiation	X	
19	JICA's Approval of Contract		X
20	L/C, L/Com	X	
	<Construction Overview>		

2) The task of the Consultant and Necessary Input

Both local and international Consultants shall be procured for the implementation of the Project. The local Consultant is procured under the Lebanese government's procedure and employed with the local government budget, and international tendering shall be held for the procurement of the International Consultants which requires JICA's approval. Assumed major tasks and necessary input by the consultants are given in Table 2.8.6.

Table 2.8.5 The Task and necessary man-dates of each Consultants

Type of Consultant	Task	Period
Local Consultant	Duration of procurement for the Client	3MM
	Topographic/Soil Investigation + Detailed design	9MM
	Construction Supervision+DL	29MM+12MM
International Consultant	Review of the DD	3MM
	Tendering Assistance (TA)	9MM
	Project Management+DL	29MM+12MM

3) Procurement Policy for the Contractor

Since the procurement of the contractor for the Project is made under ICB, PQ should be applied to avoid bidders with poor performance. However, in order to shorten the tender period, either option should be applied: (i) PQ shall be conducted during the detailed design stage or (ii) PQ documents shall be submitted with the bid documents, Post PQ method. The details of the methodology shall be determined at the detailed design stage.

To provide the working opportunity in the Project for many contractors as much as possible, it is considered by CDR to set a limited number of the packages that a single contractor can take, which

maybe limited to allow a single contractor to take the maximum two to three packages

Since CDR proposes to implement the tender for the sub-projects one package a week to apply the limitation policy for single contractor's participation for the Project mentioned above, it is necessary to take the total eleven weeks to complete all tenders for the sub-projects..

4) Procurement Procedure of the Contractor and its Period

The necessary procedure and procurement duration of the Contractor under the JICA Guideline is given in Table 6.3.3 in case of the fastest process.

Table 2.8.6 Necessary Procedure and Period for Contractor's Procurement

Procedure	Duration
Preparation of Tender Documents and JICA Approval	9 Months
Tender Period	
Evaluation of Bids	
JICA Approval of Bid Evaluation	
Contract Negotiation	
JICA Approval of Contract	
L/C and L/Com Issuance	

2.8.6 Implementation Schedule

The necessary period for implementation of the Project is assumed 60 months and its breakdown is given in Figure 2.8.3. Although the necessary duration of the construction for each package is estimated at 24 months, the entire period of the construction for each package become 29 months as a whole.

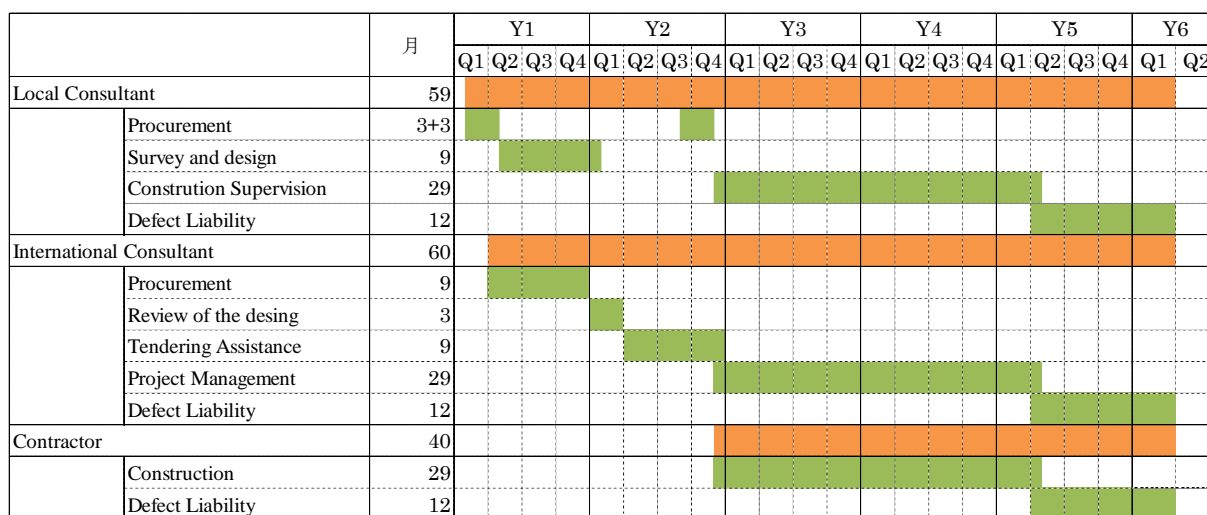


Figure 2.8.3 Project Implementation Schedule

CHAPTER 3 PROJECT COST ESTIMATION

3.1 Initial Cost Estimation (with reckoning method and evidences)

3.1.1 Prerequisites for Project Cost Estimate

This chapter describes the methodology, the procedure and the result of estimating the Project cost on the basis of relevant documents of similar projects implemented by CDR and/or MPWT. The assumptions of the Project cost estimate are as follows:

- The composition of the Project cost shall be the same as ones in the project cost estimate kit with JICA ODA loan
- The exchange rates are 1 USD = 1,510 LLB, and 1 USD = 112 JPY
- LBT shall be applied for only masonry works and rip-rap drainage works
- Cost estimation by Sub-project and Package

3.1.2 Composition of Project Cost

It is assumed that the structure of estimation includes the following items finally.

- Civil Works
- Price Escalation
- Physical Contingency
- Consulting Services
- Utility Relocation / Land Lease
- Administration Cost for Executing Agency
- Taxes including VAT / Income Tax / Corporate Tax
- Import Tax
- Interest during Construction
- Front End Fee

3.1.3 Settings Unit Prices for Estimation of Construction Cost

(1) Settings of Unit cost

The unit prices for estimating the construction cost for each package shall be set on the basis of the Japanese norm of "Civil Engineering Estimation Standard of the Ministry of Land, Infrastructure, Transport and Tourism of Japan" and "Supplement Manual for Design and Cost Estimate for JICA Preparatory Study (Civil works)" as well as the market unit prices of labor, material and machinery in Lebanon. However, the said unit prices shall be justified on its appropriateness by comparing

them to ones adopted in past similar projects in Lebanon, which are obtained from CDR. In addition, two types of the unit prices for each work item, one with EBT and one with LBT, shall be estimated in order to justify the appropriateness of the LBT application in some work items for the Project.

With regard to the overhead costs such as common temporary expenses, on-site administrative expenses, general administrative expenses, etc., we assume it as 5% of the direct construction cost on the basis of the analysis results.

(2) Unit Prices to be adopted for the Project

Although we will basically set the unit prices for the construction cost estimate for a sub-project based on the norm of "Civil Engineering Estimation Standard of the Ministry of Land, Infrastructure, Transport and Tourism of Japan" and " Supplement Manual for Design and Cost Estimate for JICA Preparatory Study (Civil works) ", we will apply the unit prices of labor, materials and machinery based on the information obtained from both CDR and MPWT and the market prices of such items.

**THE PREPARATORY SURVEY FOR ROAD REHABILITATION SECTOR LOAN
FOR EMPLOYMENT CREATION**

Implementation Plan (IP) for Candidate Sub-project

Table 3.1.1 Unit Prices to be Applied for Estimating Construction Cost in the Study (USD)

Work Items	Unit	Qty	CDR		Civil engineering estimation standard		Adoption Unit Price	
			Min	Max	EBT Price	LBT Price	EBT Price	LBT Price
Overlay (W=11.0m)	m	1,000	69,850.00	~ 111,870.00	104,146.80	139,875.53	105,000.00	140,000.00
Bituminous Tack Coat	m ²	11,000	3,850.00	~ 9,020.00	included	included		
Bituminous Wearing Course	m ²	11,000	66,000.00	~ 102,850.00	104,146.80	139,875.53		
Overlay (W=7.0m)	m	1,000	44,450.00	~ 71,190.00	66,275.24	89,011.70	67,000.00	90,000.00
Bituminous Tack Coat	m ²	7,000	2,450.00	~ 5,740.00				
Bituminous Wearing Course	m ²	7,000	42,000.00	~ 65,450.00	66,275.24	89,011.70		
Reconstruction (W=11.0)	m	1,000	198,110.00	~ 340,032.00	333,706.46	746,549.63	334,000.00	747,000.00
Milling of defected existing asphalt pavement	m ²	11,000	16,500.00	~ 22,000.00	6,570.67	175,946.65		
Unclassified Common Excavation of any type	m ³	4,400	13,200.00	~ 26,400.00	11,366.38	85,800.00		
Subgrade preparation	m ²	11,000	2,750.00	~ 7,700.00	2,810.31	47,142.45		
Sub base course construction and material	m ³	2,750	13,750.00	~ 36,520.00	70,825.44	108,926.89		
Base course construction and material	m ³	1,650	13,860.00	~ 21,912.00	42,447.69	57,517.28		
Bituminous Prime Coat	m ²	11,000	2,200.00	~ 10,780.00	included	included		
Bituminous Tack Coat	m ²	11,000	3,850.00	~ 9,020.00	included	included		
Bituminous Wearing Course (Barsat) t=5cm	m ²	11,000	66,000.00	~ 102,850.00	104,146.80	139,875.53		
Bituminous Binder Course t=5cm	m ²	11,000	66,000.00	~ 102,850.00	95,539.17	131,340.84		
Reconstruction (W=7.0)	m	1,000	127,120.00	~ 218,484.00	213,262.80	481,902.04	214,000.00	482,000.00
Milling of defected existing asphalt pavement	m ²	7,000	10,500.00	~ 14,000.00	4,181.34	111,966.05		
Unclassified Common Excavation of any type	m ³	3,150	9,450.00	~ 18,900.00	8,137.29	61,425.00		
Subgrade preparation	m ²	7,000	1,750.00	~ 4,900.00	1,788.38	29,999.74		
Sub base course construction and material	m ³	1,750	8,750.00	~ 23,240.00	45,070.73	69,317.11		
Base course construction and material	m ³	1,050	8,820.00	~ 13,944.00	27,012.16	36,601.90		
Bituminous Prime Coat	m ²	7,000	1,400.00	~ 6,860.00	included	included		
Bituminous Tack Coat	m ²	7,000	2,450.00	~ 5,740.00	included	included		
Bituminous Wearing Course (Barsat) t=5cm	m ²	7,000	42,000.00	~ 65,450.00	66,275.24	89,011.70		
Bituminous Binder Course t=5cm	m ²	7,000	42,000.00	~ 65,450.00	60,797.65	83,580.53		
U-Shape Ditch (H1500×W500×T150)	m	1,000	21,808.20	~ 31,495.20	37,084.53	50,453.03	38,000.00	51,000.00
Unclassified Common Excavation of any type	m ³	1,000	3,000.00	~ 6,000.00	4,304.58	19,500.00		
Base course construction and material	m ³	90	756.00	~ 1,195.20	2,317.92	558.18		
Blding Concrete Class C (11025)	m ³	270	18,052.20	~ 24,300.00	30,462.02	30,394.85		
Ripraped Ditch (H500×W500×L500)	m	1,000	19,536.20	~ 29,695.20	31,179.52	53,876.67	32,000.00	54,000.00
Unclassified Common Excavation of any type	m ³	1,200	3,600.00	~ 7,200.00	5,165.50	23,400.00		
Base course construction and material	m ³	90	756.00	~ 1,195.20	2,317.92	558.18		
Blding Concrete Class C (11025)	m ³	70	4,680.20	~ 6,300.00	7,897.56	7,880.15		
Grouted Riprap	m ³	300	10,500.00	~ 15,000.00	15,798.54	22,038.35		
Retaining Wall (H=1.0m,W=0.3m)	m	1,000	77,000.00	~ 101,000.00	141,997.97	148,765.08	142,000.00	149,000.00
Form work	m ²	2,000	included		50,456.25	50,456.25		
Cast in Reinforced Concrete Class B (250/20) for ditch.channels	m ³	500	50,000.00	~ 71,000.00	64,596.47	64,472.08		
High tensile Steel bar	ton	50	27,000.00	~ 30,000.00	26,945.25	33,836.75		
Masonry Wall (H=2.0m,W=0.5m)	m	1,000	~ 50,000.00	~ 50,000.00	52,661.81	73,461.16	53,000.00	74,000.00
Masonry Wall (H=2.0m)	m ³	1,000		~ 50,000.00	52,661.81	73,461.16		
Gabion Wall	m	1,000	20,500.00	~ 29,250.00	29,386.62	42,562.50	30,000.00	43,000.00
Unclassified Common Excavation of any type	m ³	1,000	3,000.00	~ 6,000.00	4,304.58	11,500.00		
Gabion wall	m ³	500	17,500.00	~ 23,250.00	25,082.04	31,062.50		
Ripraped slope H=2m t=30cm	m	1,000	23,400.00	~ 67,800.00	35,040.75	53,276.70	36,000.00	54,000.00
Unclassified Common Excavation of any type	m ³	800	2,400.00	~ 4,800.00	3,443.67	9,200.00		
Grouted riprap	m ³	600	21,000.00	~ 63,000.00	31,597.08	44,076.70		
Reflective Road Studs (Catsye)	m	1,000	1,570.00	~ 2,200.00	~ 2,150.00	2,150.00	3,000.00	3,000.00
	Nor	200	1,570.00	~ 2,200.00		2,150.00		
Steel Guardrail single	m	1,000	57,500.00	~ 75,000.00	50,225.52	57,618.42	51,000.00	58,000.00
Post	no	500	32,500.00	~ 50,000.00	5,607.10	13,000.00		
Guardrail	m	1,000	25,000.00	~ 25,000.00	44,618.42	44,618.42		
Small signs (less than 1m²)	Nor	100	7,600.00	~ 15,150.00	10,653.45	16,455.37	11,000.00	17,000.00
Unclassified Common Excavation of any type	m ³	200	600.00	~ 1,200.00	860.92	3,900.00		
Transportation	m ³	200	included		237.17	3,000.00		
Sign	Nor	100	7,000.00	~ 13,950.00	9,555.37	9,555.37		
Thermoplastic reflectorized Road paint (t=3mm) yellow and white	m	1,000	5,625.00	~ 8,550.00	3,648.61	5,557.26	4,000.00	6,000.00
Cleaning of surface by manpower	m ²	1,500		~	1,439.25	1,439.25		
Thermoplastic reflectorized Road paint	m	3,000	5,625.00	~ 8,550.00	2,209.36	4,118.01		
New Jersey block	m	1,000	100,000.00	~ 142,000.00	169,124.75	179,603.14	170,000.00	180,000.00
Concrete work	m	1,000	100,000.00	~ 142,000.00				
Form work	m ²	2,433	included		61,380.03	61,380.03		
Cast in Reinforced Concrete Class B (250/20) for ditch.channels	m ³	513	included		66,275.98	66,148.36		
High tensile Steel bar	ton	77	included		41,468.74	52,074.76		
Chevron Sign	Nor	100	625.00	~ 1,106.00	~ 2,400.00	2,400.00	3,000.00	3,000.00
Sign	Nor	100	625.00	~ 1,106.00		2,400.00		
LED Light	Nor	100	~	~	48,555.37	48,555.37	49,000.00	49,000.00
Installing	Nor	100		~		48,555.37		
Inter locking block for walkway	m	1,000	26,600.00	~ 45,590.00	32,820.06	32,820.06	33,000.00	33,000.00
Curb stone h=30cm	m	1,000	11,000.00	~ 20,390.00		11,036.25		
Concrete for curb	m ³	60	included			6,754.41		
Concrete tile	m ²	1,200	15,600.00	~ 25,200.00		15,029.40		
Pipe culvert φ 150-1200	m	1,000	16,000.00	~ 166,000.00	210,744.78	107,872.51	211,000.00	108,000.00
Install pipe	m	1,000	13,000.00	~ 160,000.00	203,282.26	82,466.50		
Unclassified Common Excavation of any type	m ³	1,000	3,000.00	~ 6,000.00	4,304.58	19,500.00		
Backfilling	m ³	804	included		3,157.94	5,906.01		
※φ 150-200 (L.TB), φ 200-φ 1200(ETB)								

Source: JICA Study Team

(3) Other Assumptions for Estimating Construction Cost

There are many miscellaneous work projects in the road rehabilitation work particularly in the urban and town areas, such as the temporary or permanent relocation of public utilities under the ground, including water supply and electricity pipes. Furthermore, sidewalk construction and repair of the street lighting are often requested from municipalities. Considering such miscellaneous works in the road rehabilitation work, we will include 20% of the direct construction cost as the Contingency and Provisional Sum because the bill of quantities for such work cannot be identified at the preliminary design stage.

3.1.4 Other Project Cost Details

The Project cost details shall be set as follows:

- Price Escalation (FC:1.7%, LC:1.0%)
- Physical Contingency (5%)
- VAT / Income Tax / Corporate Tax (11%)
- Import Tax (5%)
- Loan Interest during Construction (1.00%)
- Loan Interest during Construction of Consulting Service (0.01%)
- Front End Fee (0.20%)

3.1.5 Total Project Costs

The construction cost for each package and the Project costs are shown in Table 3.1.2.

Table 3.1.2 The Construction cost each package (USD)

Package-1				Package-7			
Item	Unit	Q'ty	Total	Item	Unit	Q'ty	Total
			Comb. USD				Comb. USD
Akkar_2a	l.s	1	9,876,553	Baalbek_4	l.s	1	12,530,643
Total			9,876,553	Total			12,530,643
Package-2				Package-8			
Item	Unit	Q'ty	Total	Item	Unit	Q'ty	Total
			Comb. USD				Comb. USD
Minie-Danniye_2	l.s	1	3,978,080	Baabda_3	l.s	1	2,763,118
Zgharta_1b	l.s	1	3,050,184	Chouf_2	l.s	1	2,978,904
Zgharta_1c	l.s	1	3,058,686	Akey_1	l.s	1	4,935,296
Total			10,086,950	Total			10,677,318
Package-3				Package-9			
Item	Unit	Q'ty	Total	Item	Unit	Q'ty	Total
			Comb. USD				Comb. USD
Koura_2b	l.s	1	1,642,982	Zahle_1a	l.s	1	3,174,495
Koura_2c	l.s	1	2,142,010	Zahle_1b	l.s	1	2,214,670
Koura_3	l.s	1	2,168,916	Total			5,389,165
Bcharreh_1a	l.s	1	2,450,625				
Total			8,404,533				
Package-4				Package-10			
Item	Unit	Q'ty	Total	Item	Unit	Q'ty	Total
			Comb. USD				Comb. USD
Batroun_1	l.s	1	11,282,543	Saida_3	l.s	1	1,852,405
Total			11,282,543	Saida_6	l.s	1	2,640,721
				Saida_7	l.s	1	1,215,638
				Saida_7 add	l.s	1	453,322
				Jezzine_2	l.s	1	1,712,487
				Jezzine_4	l.s	1	1,667,956
				Total			9,542,529
Package-5				Package-11			
Item	Unit	Q'ty	Total	Item	Unit	Q'ty	Total
			Comb. USD				Comb. USD
Jbeil_1	l.s	1	10,469,541	Sour_1b	l.s	1	2,864,641
Keserouane_6	l.s	1	4,187,654	Total			2,864,641
Total			14,657,195				
Package-6							
Item	Unit	Q'ty	Total				
			Comb. USD				
El Metn_1c	l.s	1	1,811,901				
El Metn_1b	l.s	1	1,639,678				
El Metn_1d	l.s	1	724,847				
Keserouane_1b	l.s	1	8,274,631				
Total			12,451,058				

Source: JICA Study Team

Table 3.1.3 The Project cost in the Study (USD)

Breakdown of Cost	Foreign Currency Portion (million USD)			Local Currency Portion (million USD)			Total (million USD)		
	Total Cost	JICA Portion	Others	Total Cost	JICA Portion	Others	Total Cost	JICA Portion	Others
Package-1	0.99	0.99	0.00	8.89	7.41	1.48	9.88	8.40	1.48
Package-2	1.01	1.01	0.00	9.08	7.57	1.51	10.09	8.57	1.51
Package-3	0.84	0.84	0.00	7.56	6.30	1.26	8.40	7.14	1.26
Package-4	1.13	1.13	0.00	10.15	8.46	1.69	11.28	9.59	1.69
Package-5	1.47	1.47	0.00	13.19	10.99	2.20	14.66	12.46	2.20
Package-6	1.25	1.25	0.00	11.21	9.34	1.87	12.45	10.58	1.87
Package-7	1.25	1.25	0.00	11.28	9.40	1.88	12.53	10.65	1.88
Package-8	1.07	1.07	0.00	9.61	8.01	1.60	10.68	9.08	1.60
Package-9	0.54	0.54	0.00	4.85	4.04	0.81	5.39	4.58	0.81
Package-10	0.95	0.95	0.00	8.59	7.16	1.43	9.54	8.11	1.43
Package-11	0.29	0.29	0.00	2.58	2.15	0.43	2.86	2.43	0.43
Civil Works Sub Total	10.78	10.78	0.00	96.99	80.82	16.16	107.76	91.60	16.16
Price Escalation	0.65	0.65	0.00	3.41	2.84	0.57	4.06	3.49	0.57
Physical Contingency	0.57	0.57	0.00	5.02	4.18	0.84	5.59	4.75	0.84
Consulting Services	3.60	3.60	0.00	10.58	5.16	5.41	14.17	8.76	5.41
Utility Relocation / Land Lease	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administration Cost	0.00	0.00	0.00	6.58	0.00	6.58	6.58	0.00	6.58
VAT / Income Tax / Corporate Tax	0.00	0.00	0.00	14.47	0.00	14.47	14.47	0.00	14.47
Import Tax	0.00	0.00	0.00	0.60	0.00	0.60	0.60	0.00	0.60
Interest during Construction	2.65	0.00	2.65	0.00	0.00	0.00	2.65	0.00	2.65
Front End Fee	0.22	0.22	0.00	0.00	0.00	0.00	0.22	0.22	0.00
Total	18.47	15.82	2.65	137.64	93.01	44.64	156.11	108.82	47.29

Source: JICA Study Team

3.2 Operation and Maintenance Cost

Operation and routine maintenance, and maintenance/item/interval /unit cost for periodic maintenance are shown in Table 3.2.1.

Table 3.2.1 Operation and Maintenance Cost (USD)

Routine maintenance	Unit	USD	Unit		USD
Patrol (total length)	km	200	Every year (total length)	289 km	57,800
Repair of Pavement(3% of total area) (LBT)	m ²	12.72	Every year (3% of total area)	80,631 m ²	1,025,626
Period maintenance	Unit	USD	Unit		USD
Overlay(5cm) (EBT) (total area)	m ²	9.47	Every 10 years (total area = 289km (total length) × 9.3 m (average width))	2,687,700 m ²	25,452,519

CHAPTER 4 LEBANESE GOVERNMENT BUDGET ALLOCATION FOR RELATED FACILITIES/FARM LAND

4.1 Lebanese Government Budget Allocation for related facilities/farm land

No land acquisition is required for the Project because the road rehabilitation works are to carry out within the right of way (ROW).

Many miscellaneous works are anticipated in the sub-projects, particularly in both urban and town areas, such as the temporary or permanent relocation of public utilities under the ground, including water supply and electricity pipes. Furthermore, sidewalk installation and a repair of the street lights are often requested from municipalities. Considering such situation, the civil work cost has already included 20% of the direct construction cost as the Contingency and Provisional Sum.

Since Lebanon is recognized as the middle income country, the Project cost shall be shared between JICA and the Lebanese side. Whereas costs for civil works including price escalation and provisional sum are shared at 85% to 15% between JICA and the Lebanese side, other costs are properly allocated depending on its responsibility (see Table 3.1.7).

CHAPTER 5 SUB-PROJECT OPERATION AND MAINTENANCE PLAN

5.1 Sub-project Operation and Maintenance Plan

5.1.1 Responsible Agency for Operation and Maintenance

MPWT shall have the responsibility to deal with the operation and maintenance of the road sections rehabilitated by the Project, considering its past experience.

5.1.2 Operation and Maintenance Activities

Road maintenance works are categorized into the following two types.

- (i) Routine maintenance
- (ii) Periodic maintenance

(1) Routine maintenance

Routine maintenance includes road cleaning: removal of trash, debris, soil, stone etc. including mowing and cleaning of drainage facilities. The frequency may vary from once a day to once 3 months, according to necessity. Localized repairs of pavement and shoulder damages, such as resealing, pothole patching, reshaping of side drains are included.

(2) Periodic maintenance

Periodic maintenance includes overlay of the existing pavement or roadway to maintain surface features and structural integrity for continued serviceability. Specific activities to be performed after 10 years of operation include the removal/replacement of damaged parts.

Table 5.1.1 Maintenance Works and Frequency

Maintenance Type		Purpose	Maintenance Work
Routine	Every week	Patrol	Visual inspection
	Every 3 months	Seasonal Inspection	Visual inspection by inspection vehicle
	Every 3 months	Road cleaning	Mowing grass, Removal of trash and sediments in side ditches, culverts etc.
	After defects found	Repair of minor defects on pavement	Repair cracks and pothole
Periodic	Based on pavement condition	Replacement/Repair of parts	Overlay of pavement
	Every 5 years	Periodic Inspection	Detail inspection
	Every 10 years	Replacement/Repair of parts	Overlay of pavement (5 cm): initially, 20 years after construction, every 10 years thereafter

Source: JICA Study Team

CHAPTER 6 ENVIRONMENTAL IMPACT AND COUNTERMEASURES

6.1 Environmental Impact and Countermeasures

The environmental management plan (EMP) including mitigation measures to be implemented by the Contractor in the construction phase and MPWT in operation phase is shown in the Table 6.1.1 and Table 6.1.2 respectively. Necessary cost for EMP during the construction phase is included in the BoQ of cost estimate while the one for the operation phase will be managed by MPWT.

Since the current environmental status differs from sub-project to sub-project, the environmental management plan presented in this article shows the typical mitigation measures against expected impacts.

Table 6.1.1 Typical Environmental Management Plan in Construction Phase

Evaluation Items	Expected Project Activities	Mitigation Measures
Air Pollution	Generation of dust and exhaust gases from pavement reconstruction and others activities	Exhaust Emissions: <ul style="list-style-type: none"> • Regular maintenance of the backup generator and construction vehicles • When not necessary, machines should be turned off and never kept idling • When feasible, choose vehicles with low emissions and that have passed the regular maintenance emission test • Install catalytic silencers or Diesel Particulate Filter on vehicles to reduce exhaust emissions • Proper planning of diversion routes during road blockages Dust: <ul style="list-style-type: none"> • Covering of all stockpiles for wind protection whenever not in use. • Spray water on exposed surfaces during dry periods especially near the public schools on the roadside. • Covering of trucks transporting construction material whenever hauling • Regular cleaning of trucks tires before leaving the site • Trucks should never exceed maximum allowable speeds
Climate Change		
Water Pollution	Construction waste water generation	<ul style="list-style-type: none"> • Waste water shall not be discharged onto the open ground or into any water body. • A collection system shall be provided under any machinery or equipment that may leak hydrocarbons (e.g. mobile generator). • Vehicle and equipment wash-down is only done in designated areas away from the road under rehabilitation to protect water and soil quality of the Litani river basin. • The contractor must ensure that all operations involving the use of concrete are carefully controlled to avoid reaching water sources. • Contaminated storm water runoff (due to milling and side ditches excavations) should be diverted and directed to a settling basin to remove suspended solids (debris) before discharge into the downstream environment • Any stockpiled construction material should be covered with an impermeable layer.

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Implementation Plan (IP) for Candidate Sub-project

Evaluation Items	Expected Project Activities	Mitigation Measures
	Accidental spills of construction materials, waste water generation, and storm water runoff	<ul style="list-style-type: none"> • Store diesel away from drainage ditches off-site. Diesel should be put on an elevated concrete base to prevent soil or water pollution in case of accidental spill at the specified storage location. • All refueling operations shall take place off-site, vehicles should be fueled up before arriving to the road section • Each receptacle should be marked with the correct technical name of the substance it contains. • A spill response plan shall be in place and all workers should be trained on its implementation. • Used or waste fuel or other waste chemicals shall be stored in an isolated area until collected for off-site disposal by an approved waste contractor. • Waste material or water containing waste chemicals such as thinners, oil, and mineral spirits shall not be disposed of into storm water drains, sanitary sewers or into the ground.
Solid Waste	Generation of construction waste and domestic waste from construction workers	<ul style="list-style-type: none"> • Approved personnel, such as a site manager, should be appointed to be responsible for good site practices including the effective disposal of all wastes generated on-site (road) and off-site (workers resting site) • Personnel shall be trained to properly manage waste and handle chemicals. • Sufficient waste disposal points must be provided and regular collection for disposal must take place near the road under rehabilitation • Appropriate measures should be employed to minimize windblown dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • Removal of hazardous waste, including bitumen remains to designated landfills
Soil Contamination	Soil erosion and sedimentation from drainage or sidewalks excavations	<ul style="list-style-type: none"> • Keep vegetation clearing to a minimum • Place geotextile silt traps as appropriate • At sites where vegetation is removed, encourage re-vegetation immediately after construction activity finishes
Noise	Construction equipment noise and vibrations, earth manipulating activities from pavement milling and drainage excavations	<ul style="list-style-type: none"> • Restrict working hours to be between 8 am to 4 pm. If nighttime work is necessary, it is suggested to use low noise or mufflers on equipment • Reduce work as much as possible near public schools, and use mufflers to avoid noise pollution to sensitive receptors • Advise schools, hospitals, churches, etc. when there will be unusual or unavoidable noise. • Publishing and registering working time of construction machines with local authorities and strictly compliance therewith.
Ecosystem	Changes in natural habitat and biodiversity	<ul style="list-style-type: none"> • A waste management plan must be taken to avoid contaminating water and soil • Solid waste, construction debris should not be dumped into the natural habitat
Public infrastructures	Interference of pavement drilling and milling with infrastructure	Prepare procedures for rapid notification to the concerned Municipality or party and assistance with re-instatement, in the event of any disruption of public utilities.
Public infrastructures Children's Rights	Rehab works increase traffic	<ul style="list-style-type: none"> • Routing strategies should be developed for construction traffic that seeks to avoid sensitive receptors. • Non-peak traffic times should be used or alternate routes should be provided when a road is blocked • Adequate warning, signing, delineation and channeling at appropriate places down and up-gradient from the construction site must be provided by the project proponents. • Traffic management plans should be followed by installing proper distributed road signage and monitoring devices.
	Increase in water and energy demand: (Construction and domestic water consumption)	<ul style="list-style-type: none"> • Turning off non-used equipment should be done. • Machinery and generators shall be regularly maintained and operated in an efficient manner. • Temporary site offices shall be well insulated to retain heat or cool, utilize energy efficient bulbs and energy efficient cooling systems. • Electrical power should be disconnected from the site offices after the working hours to reduce the energy consumption.

Evaluation Items	Expected Project Activities	Mitigation Measures
Children's Rights Working Conditions, Occupational Safety	Construction works close to the schools which may disturb access to the school	<ul style="list-style-type: none"> Confirmation of schooling time and schedule of vacation Advance notice of construction schedule to the neighboring community Setting road signs to navigate drivers to the school via deviation and other alternative routes To assign flagman/woman for traffic management in order to minimize traffic congestion.
	Construction Activities such as welding, cutting chemical handling, loading, etc. + Off-site accidents	<ul style="list-style-type: none"> Comply with the local Health and Safety Requirements; especially the Decree No. 7964/2012 related to the general conditions of public safety in residential projects Ensure that all employees utilize appropriate personal protective equipment PPE (e.g. hard hats, steel toe boots, respirators) and are trained on these as required. Provide training to a dedicated staff. Develop an emergency response plan. Periodical Health checkup of all workers and to keep the record of health check for appropriate period.
Sanitation	Influx of workers	<ul style="list-style-type: none"> Provide sufficient potable water for drinking, cooking and personal hygiene purposes. To allocate enough number of portable toilet on sites
Accident	All activities	<ul style="list-style-type: none"> Ensure all digging and installing work items that are not accomplished are isolated and warned of by signposts and flash lamps in nighttime. Adhere to all applicable speed limits and implement speed limits for trucks entering and exiting the site. Restrict access to the construction site by proper fencing and provide guards on entrances and exits to the site. Provide training to a dedicated staff.

Table 6.1.2 Typical Environmental Management Plan in Operation Phase

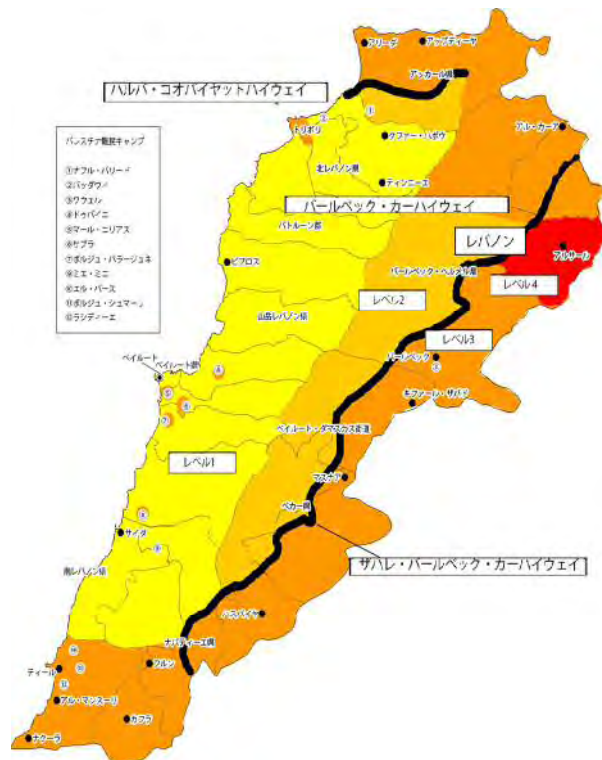
Source of Impact	Project Activities	Mitigation Measures	Responsibility
Noise	<ul style="list-style-type: none"> vehicles noise driver behavior maintenance activity 	<ul style="list-style-type: none"> Vehicle speed limits should be indicated and strictly enforced, particularly in the sections where there are sensitive receptors. Roads should be periodically and regularly maintained for good working conditions. 	MPWT / Traffic police
Water pollution	<ul style="list-style-type: none"> Accidental spills or leakages; and contaminated storm water runoff 	<ul style="list-style-type: none"> Ensuring to implement mitigation measures mentioned in the EMP of construction phase in order to avoid adverse impact toward this stage. 	Contractor
		<ul style="list-style-type: none"> Water drainage system should be frequently maintained and cleaned especially before starting of the rainy season. Provide the project adequate bins for collection and storage of waste material including litterbins and waste skips Prevent the overfilling of the waste containers placed on the road 	MPWT / Municipalities
Ecosystem	<ul style="list-style-type: none"> Potential water and soil contamination—negative effect on biodiversity (fauna and flora) 	<ul style="list-style-type: none"> Ensuring to implement mitigation measures mentioned in the EMP of construction phase in order to avoid adverse impact toward this stage. 	Contractor
	<ul style="list-style-type: none"> Accidental ingestion of waste by wildlife 	<ul style="list-style-type: none"> Routine cleaning of road Provision of environmental training to the community in order to reduce littering from vehicle. 	MPWT / Municipalities MoE
Accident	<ul style="list-style-type: none"> Maintenance related accidents 	<ul style="list-style-type: none"> Provide the road with appropriate artificial lighting to illuminate when main electricity supply fails. Ensure public safety by informing local citizens of the maintenance activities to be performed and road detours provided through the use of media, public announcements, and signage. 	MPWT

CHAPTER 7 SECURITY SITUATION OF PROJECT AREA

7.1 Security situation of project area

According to the safety information to Japanese travelers offered from Ministry of Foreign Affairs, Japan, Lebanon is covered with a range from level 1 with yellow color area, which means “Recommendation to travel with due care, level 2 with light orange color area, which means “Recommendation to whether or not to travel”, level 3 with dark orange color area, which means “Recommendation to defer all travel, and level 4 with red color area, which indicates “Evacuate and Avoid all Travels”, shown in Figure 7.1.1. The level 4 areas are mainly spread around Aرسال near the Syria border at the northeast area.

The project area is all over Lebanon. However, the level 4 area based on the security information of the Ministry of Foreign Affairs is excluded from the project area.



Source: Ministry of Foreign Affairs, Japan (December 28, 2017)

Figure 7.1.1 Safety Level of Lebanon by MOF, Japan

7.2 Security Measures during Construction

There has not been a serious threat of terrorism reported in Lebanon recently except for the north-east border with Syria since January 2017. Furthermore, the sub-projects for the JICA portion are located in the area with up to Level-3 based on the safety information of the MOFA, Japan.

However, some newspapers in the region recently reported that tension between Israel and Hezbollah has been rising on the basis of the recent movement of Israel, attacking the military facility in Syria and a 10-day military drill in August. Furthermore, since the Prime Minister, Mr Saad Hariri, announced his resignation from its position in November 2017 due to possibility of his assassination, later withdrew its declaration, it is anticipated that uncertainty in the security situation would increase further. Considering the said situation, the following security measures shall be taken during the construction stage.

- The International Consultant updates and informs the location and activity of the Consultant experts at the site to the JICA Syrian office on a weekly basis.
- The Consultant's experts always bring a mobile phone when leave the regional office or main office and report the whereabouts of the experts to PM at the designated time once a day.
- The regional office where the Regional Engineer is based should be settled on the coastal town to easily access to Beirut or the sea.
- The regional office shall be surrounded by the wall or fence and allocate a guard person for 24 hours.
- The regional office should be equipped with other communication tools such as a satellite telephone in case of the emergency.
- The consultant's expert can only travel within a day and no movement at night. And,
- The International experts can perform his/her activity within the area with Level-2 only and the sub-projects located in the area with Level-3 shall be overseen by local experts.

添付-10 リスク管理シート

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リスク項目	視点・チェック事項、確認ポイント	リスク対応策
1. Stakeholder risk		
<ul style="list-style-type: none"> - 政府の開発事業へのコミットの低さ（政策的優先度、財政面を含む支援の確約） - 政権交代後の政策的優先度の維持可能性 <p>【開発政策と本事業の位置付け】</p>	<p><u>視点・チェック事項</u>：</p> <ul style="list-style-type: none"> ★当該事業が政府内で優先事業として特定されているか。相手国のハイレベルで開発戦略、改革策へのコミットがあるか。 ★政権交代等で政策優先度が変化、事業へのコミットが失われる恐れはないか。 ★事業により政府の国内的、国際的イメージが影響を受け（プラス、マイナス双方）、事業実施意欲の喪失、逆に強化につながる要因はあるか。 <p><u>確認ポイント</u>：</p> <ul style="list-style-type: none"> ★開発計画等への掲載、案件準備段階での予算措置、事業計画作成段階でのステークホルダーとの対話状況等（CDR、地方自治体等）を確認。 	<ul style="list-style-type: none"> ★「シリア危機に関する支援会合」等で支援策や各国の支援状況（特に世銀、欧州復興銀行）を確認する。 ★セミナー開催、マスコミへの情報提供等を通じた事業便益の情報公開等、PR 戦略の策定・実施による住民の期待・世論への働きかけ。 ★プロジェクト初期に事業実施機関に中央政府や関係省庁の承認が必要な事項を特定させ、発注者から提出される月例報告等でモニタリングを行い、必要に応じて相手国政府、州政府等に働きかけを行う。
<ul style="list-style-type: none"> - 政府外の国民一般のニーズとの整合性 - 既得権益層との対立の可能性 <p>【開発政策と本事業の位置付け】</p>	<p><u>視点・チェック事項</u>：</p> <ul style="list-style-type: none"> ★住民運動、メディア、近隣国政府を含むステークホルダーから激しい反対が引き起こされる可能性はないか。 ★仮にリスクが高い場合、適切な広報戦略を含むリスク対策が整備されているか。 ★事業実施が特に政治的圧力を持つ特定グループの既得権益を阻害することで、政治的な妨害につながる可能性はないか。 <p><u>確認ポイント</u>：</p> <ul style="list-style-type: none"> ★案件準備段階でのステークホルダー会議の実績、記録等を確認。彼らのニーズは事業に反映されているか。 	<ul style="list-style-type: none"> ★事業便益、インパクト等の分析と現地コミュニティ、ステークホルダーとの積極的協議と要望事項採択の可否に関する説明責任。現地語によるメディア対策の実施。情報開示と第三者によるモニタリングの導入。 ★事業に影響力を持ちうる人物・団体等の特定と、関連ステークホルダーへの情報提供。（JICAは必要に応じオブザーバー参加。）
2. Executing agency risk		
2.1 Capacity risk		
<ul style="list-style-type: none"> - 実施機関への適切なリソース、権限の付与 <p>【事業実施機関－財務面の実施能力】</p>	<p><u>視点・チェック事項</u>：</p> <ul style="list-style-type: none"> ★事業実施機関は十分な人的、財務的資源を有しているか。事業実施に必要な各種意思決定を迅速に行う権限を有しているか。 ★審査過程で推奨された事業実施部署である PMU が設立され、十分な人材や予算が割り当てられているか？また、また PMU は各種意思決定を迅速に行う権限を有しているか？ <p><u>確認ポイント</u>：</p> <ul style="list-style-type: none"> ★ドナー、コンサルタント/コントラクターからの聴取、報告書レビュー。先行円借款（特に第1フェーズ、輪切り第1期等）、同種その他ドナー事業は順調に進捗してきたか確認。 	<ul style="list-style-type: none"> ★実施機関の各部門の責任体制の確認、関連法令・規則のチェック。必要な場合は、適切なガバナンス体制の構築を L/A 発効条件に規定。 ★予算配分については、次年度予算要求時期に合わせたレビュー会合の開催により確保。

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リスク項目	視点・チェック事項、確認ポイント	リスク対応策
- 財務管理・調達プロセスへの信頼性、管理部門の技術的能力 - 政治的圧力からの自由を含む規則の実態的適用 【事業実施機関－技術面の実施能力】	視点・チェック事項： ★政府調達等に関する各種規則、法令は適切に整備されているか。JICA の同意プロセス等が適切に組み込まれているか。 ★逆に JICA 調達ガイドライン以上の（必要以上に）厳しい条件が課されていて、再入札等を余儀なくされる恐れはないか。 確認ポイント： ★公共調達・財務管理能力調査等の既存資料のレビュー。担当部門スタッフの転職率、新規スタッフの研修体制。内部監査部門の有無とその機能。 ★現地会計検査院、ドナー、コンサルタント／コントラクターからの聴取。同程度の過去の政府調達（援助事業含む）において、大きな遅延、不正は生じていないか確認。	★財務・調達に関する内部管理マニュアルの確認。 人事異動を回避するための研修等によるインセンティブ付与。（人事への介入とみなされないよう留意。） ★事業準備期間から開始直後にかけての調達・財務管理セミナー、PIU スタッフへのトレーニング実施、専門家や監理コンサルタントの派遣。 ★ハイレベルでのモニタリング会合等における、内部決裁手続きの確認と処理日数等の具体的データに基づく協議、手続き簡素化や PIU への権限移譲への働きかけ。
- 自己資金負担能力への信頼性 - 財務管理能力への信頼性 【事業実施機関－財務面の実施能力】	視点・チェック事項： ★実施中の自己資金負担、維持管理費用は適切に徴収可能か、あるいは政府から配賦されるか。仮に借入が必要な場合、迅速に借入できるか。 ★逆に（議会承認の条件等として）輪切り後続部分までのフルファイナンスが求められ、先方政府内での事業承認が遅延するリスクはないか。 確認ポイント： ★過去の当初予算と執行率の確認。年度途中での予算執行状況のレビュー制度、実績に応じた柔軟な予算配分見直し制度の有無。 ★政府全体の予算状況の見直し確認（IMF のマクロ経済レビュー等）。	★同上。 ★適正な財務報告作成への支援。 ★外部監査人（現地会計検査院含む）の事業プロセスへの参加。 ★仮に自己資金分が不足した場合、銀行から一定額の借入ができるクレジットラインの設定、限度額までの政府保証付与のアレンジ。
- コントラクターへの支払い遅延等の可能性 【事業実施機関－財務面の実施能力、事業実施体制】	視点・チェック事項： ★工事内容、請求書の適切性チェック等の支払い手続き、承認権限が適切な範囲で現場に移譲されているか。 確認ポイント： ★ドナー、コンサルタント／コントラクターからの聴取。	★プロジェクトマネジメントコンサルタントからの月例報告を基に定期的ポートフォリオ会合等において、遅延による具体的コスト（コミット・チャージ増加、経済性低下等）を示したモニタリング・対話。事業実施状況の情報公開による外的圧力。 ★内部決裁手続きの確認と処理日数、支払算定基準等のデータに基づく協議を通じた手続き簡素化。
- TSL 等の場合の仲介機関、地方分散型事業の場合の地方政府／コミュニティの	視点・チェック事項： ★仲介機関の低パフォーマンスにより、事業実施、資金活用が停滞する可能性はないか。政治的圧力等を含め、仲介機関が適切に選定されないリスクはあるか。	★明確な仲介機関選定基準の策定（できる限り客観的条件による政治的圧力の排除）、プロジェクト運営マニュアルの策定、基準・規定に則った透明な選定プロセスの確認。 ★地方分散型事業の場合、経済性、担当地方政

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リスク項目	視点・チェック事項、確認ポイント	リスク対応策
<p>財務・技術能力不足の可能性 【事業実施機関－事業実施体制、操業・運営／維持・管理体制】</p>	<p><u>確認ポイント</u>： ★上記の中央政府・機関の確認ポイントを地方政府等のレベルでも実施。 ★予算制度における地方政府等のパフォーマンス・レビュー制度の有無。 ★過去の予算配分額等に比しての借款資金規模が過大でないか。</p>	<p>府・実施機関、コミュニティの参加体制等、明確なサブプロジェクト選定基準の策定。 ★参加機関（仲介金融機関、地方政府、コミュニティ等）は固定的とせず、パフォーマンスにより柔軟に変更可能な設計とすることで、パフォーマンス改善・維持のプレッシャーとする。複数の機関が参加する形でリスク分散を図る。</p>
2.2 Governance risk		
<p>- 中央・地方政府間、関係各部門間の連携体制、複雑な実施体制 【事業実施機関－事業実施体制、操業・運営／維持・管理体制】</p>	<p><u>視点・チェック事項</u>： ★中央・地方政府間、上位官庁を含めた関係機関の間で、事業実施に必要な各種意思決定に関する責任分担、協議体制ができていないか。 <u>確認ポイント</u>： ★CDR と地方政府の連絡体制及び協議実績の確認</p>	<p>★事業実施担当官庁以外の関係者にとっても、同政策の実施がインセンティブを持つように配慮（財務省を巻き込んだ予算プロセス等）。</p>
<p>- 借入に必要な議会承認等の遅延 【事業実施スケジュール】</p>	<p><u>視点・チェック事項</u>： ★政府－議会間の意思疎通の欠如、相手国政府内の規程上の要求（ex. 輪切り後続分を含む資金手当て）等により、E/N・L/A 等の議会承認が遅れる可能性はないか。 <u>確認ポイント</u>： ★他ドナー（WB、EIB）を含めた過去の事例の確認。現議会の与野党対立の度合い。</p>	<p>★特に政権交代等が想定される場合、主要野党指導者への事業裨益効果の広報の慫慂（JICA は大使館を通じて政権に働きかけるという関係。前面には出ない。）</p>
2.3 Fraud & corruption risk		
<p>- 財務・調達管理規則等の適切性、実効性 【調達・施工方法】</p>	<p><u>視点・チェック事項</u>： ★調達、財務管理、汚職対策を含め、事業の順調な実施に必要な制度構築はなされているか。会計検査制度、情報公開等が適切に行われる制度は確保されているか。リスクが高い場合、事後監査を含めた補完措置がとられているか。 ★過去の同種事業で（他ドナー事業（WB、EIB）を含め）、実施段階で大幅な遅延、問題が発生したことはないか。 <u>確認ポイント</u>： ★公共財務システム評価等のレビュー、ドナー、コントラクター／コンサルタントからの聴取。</p>	<p>★財務・調達に関する内部管理マニュアルの確認と指導。適切なチェック&バランス機能の構築（管理能力と迅速性とのトレードオフに注意）。 ★先事業等において良好なパフォーマンスのスタッフのPIUへの配属申し入れ。人事異動を回避するための研修等によるインセンティブ付与。（人事への介入とみなされないよう留意。） ★事業準備期間から開始直後にかけての調達・財務管理セミナー、PIUスタッフへのトレーニング実施、専門家や監理コンサルタントの派遣。 ★ハイレベルでのモニタリング会合等における、内部決裁手続きの確認と処理日数等のデータに基づく協議、手続き簡素化やPIUへの権限移譲への働きかけ。 ★主管官庁、実施機関本部、PMU 等の間で、承認権限等の所掌の明確化。日常的な進捗に関わるものを中心に、できる限りPMUへの意思決定の権限移譲。</p>
3. Project risk		
3.1 Design risk		

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- 事業の技術的設計 - 高度すぎる技術の採用 【事業概要】 【事業実施機関－技術面での実施能力】	視点・チェック事項： ★事業は技術的に複雑すぎる設計となっていないか。開発効果を達成する上で必要なコンポーネントは、適切に対処されているか（他ドナーとの連携を含め）。 ★必要以上に高度な技術を採用するため、利用料金、維持管理費用が高騰しないか。 確認ポイント： ★既存の公共事業で同種の技術を使っているか。提案技術は、何らかの制度改革に依存していないか。	★案件形成の初期段階からの経験豊富な技術者による技術審査。必要に応じ、協力準備調査における技術レビュー・コンサルタント雇用。第3者機関、experts panel 等による技術レビュー。 ★事後評価（他ドナーの経験を含む）における教訓を適切に踏まえた、実施機関との対話。 ★借款額設定時の適切な予備費の確保。
- 事業スコープの適切性 【事業概要】	視点・チェック事項： ★事業目的の達成に必要なコンポーネント（ソフト含む）は全て含まれているか。支援対象外のコンポーネントが実施されないことにより、開発効果が発現されない可能性はないか。 確認ポイント： ★開発計画等における関連事業、補完的政策への政府取組みの記載確認。 ★他ドナーの支援戦略文書における主要課題の記載内容、支援予定の確認。	★事業実施担当官庁以外の関係者にとっても、同政策の実施がインセンティブを持つように配慮（財務省を巻き込んだ予算プロセス等）。
- 事業モニタリング体制の信頼性 【事業実施機関－事業実施体制】	視点・チェック事項： ★事業実施状況（予算、工事）が適時に正確に確認できず、問題の発生が発見できず、問題が放置される可能性はないか。 ★モニタリングの不十分さにより、資金の不正使用等が起きる可能性はないか。 確認ポイント： ★事業実施監理責任は明確にされているか（PMU の設置等）。当該 PMU スタッフ自身に、同規模事業を実施監理した経験があるか。 ★公共事業予算における予算執行状況のモニタリング・メカニズム等の現況確認。	★データベース管理システム、Management Information System 構築の事業コンポーネントへの取り込み、専門家派遣。事業の Project Management Consultant として国際コンサルタントを派遣。
- 地方分散型事業の場合の事業実施体制 【事業実施機関－事業実施体制】	視点・チェック事項： ★地方政府、現地コミュニティを含め、事業実施段階から維持管理までの責任体制、管理能力が適切に把握されているか。 ★不足する能力には、適切な補完措置（コンサルタント TOR、現地ファシリテーターの配備等）がなされているか。 確認ポイント： ★上記の中央政府・機関の確認事項を地方政府等においても確認。	★基本的事業実施枠組みを、事前に参加者（農民等）に説明し、合意形成を促進。NGO や現地コンサルタントのファシリテーターとしての雇用。 ★事業の Project management Consultant として国際コンサルタントを派遣

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- 調達パッケージの不適切性 - コントラクターの能力不足 【調達・施工方法】	視点・チェック事項： ★調達パッケージ数が過度に多すぎないか。 ★コントラクター間での調整コストが高すぎる、あるいは少額すぎて能力のある応札者が忌避する調達パッケージとなっていないか。 ★LCB 部分につき、現地コントラクター、資材等は十分に調達可能か。 確認ポイント： ★協力準備調査等における政府登録事業者等のリスト、クラス分け基準、工事实績確認。 ★他ドナーの支援事業を含む過去の事例におけるロット分けの実績確認、ヒアリング。	★案件形成の初期段階からの経験豊富な技術者による確認。 ★案件形成の段階で、既往公共事業等の応札企業のリスト、工物品質の確認等を通じて、現地コントラクターの能力を確認する。 ★十分な数の質の高い企業が応札するよう、入札情報の先行広報を行わせる。
- 外部要因による事業費高騰への脆弱性 【事業費と資金計画】	視点・チェック事項： ★国際市況や為替要因により、事業費が高騰する可能性は高くないか。 確認ポイント： ★同種事業を実施しているコントラクターからの事業環境見通しのヒアリング。	★予備費の適切な配分と事業デザイン（コンポーネント）の柔軟性確保。必要に応じて相手国の追加的予算措置を可能とする能力の確認。
- 外部要因による需要減への脆弱性 【事業の必要性】	視点・チェック事項： ★事業サービスの提供先が狭い対象に限られていて、外部経済環境等により需要が急減する可能性は高くないか。 確認ポイント： ★当該実施機関以外に、共通の需要要因により事業が影響される事業体があれば、その事業見通しの確認。 ★シリア危機の状況に伴う、シリア難民の帰還状況の確認（UNHCR 等）	★可能であれば事業計画の見直し余地を残す柔軟な案件計画の設定（雇用対象者の見直し）。
- 工事中の事故による人的・物的被害（労働者と一般庶民） 【工事の安全性】	視点・チェック事項： ★工事中の事故により、大きな被害がでる可能性はないか？ 確認ポイント： ★工事中の切り回し方法と通行コントロール体制の確認が必要。	★危険が伴う工種に対する安全管理システム（ガイドライン等）が整備されているか？を確認しない場合は、要求事項の追加等を発注者に義務付ける。 ★工事保険の付保は法律等義務付けられているか？なければ、工事契約での義務付け。
3.2 Program/donor risk		
- 開発効果発現に必要な政策、制度改革 【開発政策と本事業の位置付け】	視点・チェック事項： ★料金政策等、開発効果の発現に必要な政策・制度改革の必要性は十分に認識されているか。その実施に向けた支援は、他ドナーを含めて十分に得られているか。	★ILO が推進しているシリア人就業許可書取得の進捗状況を確認し、同事業への適用の推進を ILO と協議して進める。

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	<p><u>確認ポイント</u>：</p> <p>★セクター・ポリシー等における改革策への言及、国際機関等の他ドナーとの対話実績の確認。</p> <p>★シリア人就業許可書取得の簡素化の進捗状況</p>	
<p>- 関連ドナー等との連携体制 【他の援助機関の対応】 【他ドナー等との連携】</p>	<p><u>視点・チェック事項</u>：</p> <p>★対象セクターの政策、事業実施上の課題を適時に情報提供し、協議する制度ができているか。</p> <p><u>確認ポイント</u>：</p> <p>★ドナー（WB、EIB）の中期戦略に掲載されているか、予算措置は確保されているか。他国を含め同種事業に反対した事例の有無。</p> <p>★LBT 手法のレ国における普及度合い</p>	<p>★ドナー間（WB、EIB）の調整協議の積極的開催と情報共有メカニズムの強化。JICA 側プロセスについては、実施機関の参加の下でドナー（WB、EIB）に対しても説明。</p> <p>★LBT 工法に関するシリア人技能取得に関してILO との連携協議を図る。</p>
3.3 Delivery quality risk		
<p>- 開発効果の測定可能性 【事業効果】</p>	<p><u>視点・チェック事項</u>：</p> <p>★運用効果指数の測定（シリア人雇用者数、レバノン人雇用者数、旅行時間）に必要なデータは容易に入手可能か、入手経路は適切に特定できているか。</p> <p><u>確認ポイント</u>：</p> <p>★既往公共事業における効果測定体制、統計局等のデータ収集内容とソースの確認。</p>	<p>★データベース構築を事業コンポーネント内に取り込み。</p> <p>★効果指標のベースラインデータ取得に関して、MD で CDR 側に義務付けと実施に関してモニタリングの実施。</p>
<p>- サブプロジェクトの地域的分散による完成後モニタリング不足 【操業・運営／維持・管理体制】</p>	<p><u>視点・チェック事項</u>：</p> <p>★多数のサブプロジェクトが地域的に分散して存在する場合、実施機関が継続的に使用状況をモニタリングすることは可能か。</p> <p><u>確認ポイント</u>：</p> <p>★地方政府の監査、会計検査体制の確認（特にパフォーマンス監査の有無）。</p> <p>★当初予算配布と年度途中での執行状況の確認体制、必要に応じた柔軟な再配分が可能な制度か。</p>	<p>★適切な報告継続を条件に、維持・保守費用の一部を分担するなど、システム、受益者側の施設継続活用、モニタリング及び報告を行うインセンティブの組み込み。</p>
<p>- 開発効果の持続可能性 【操業・運営／維持・管理体制】</p>	<p><u>視点・チェック事項</u>：</p> <p>★維持管理の責任体制は明確に規定されているか。従来、施設の維持管理計画は（特に技術的観点から）適切に策定され、十分な予算配分がなされてきたか。資金不足がある場合、その背景は何か。</p> <p>★改修後の交通事故増加に対する対策</p> <p><u>確認ポイント</u>：</p> <p>★現在の維持管理計画の策定、予算配布、点検・保守工事実施主体の能力について、コントラクター、専門家等からの聴取。</p>	<p>★資金不足の場合の対応策の検討を協力準備調査あるいは事業コンサルタント TOR に含め、実行可能な対応策を事業完成前に検討。</p> <p>★完成後の維持管理主体（MPWT または Municipality）に対する技術移転あるいはキャパシティビルディング支援の検討と必要に応じての実施。</p> <p>★交通安全対策の事業への取り込み確認。交通安全教育等の可能性の検討。</p>

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	<p>★維持管理責任主体の確認と必要に応じた技術移転支援内容の確認</p> <p>★交通安全対策内容の確認（ハード及びソフト）</p>	
<p>- 自然災害等による事業実施への影響可能性</p> <p>- 現地治安情勢等による事業実施への影響</p> <p>【事業の必要性】【その他特記事項】</p>	<p><u>視点・チェック事項</u>：</p> <p>★事業対象地域が自然災害の影響を受け、事業実施が中断、阻害される恐れはないか。</p> <p>★現地デモ、反政府勢力等により事業の順調な進捗が阻害される恐れはないか。</p> <p><u>確認ポイント</u>：</p> <p>★F/S 段階における過去の自然災害の実績を反映した事業設計の確認。</p> <p>★事業対象地域の主要ステークホルダーへの事業内容の十分な事前周知の有無。</p>	<p>★自然災害要因を考慮に入れた作業計画の策定、災害多発地域での長期工事を実施する場合は、contingency plan の策定と発動タイミングの実施機関との協議。</p>
<p>- 施設の不適正使用等による維持管理費の高騰</p> <p>【操業・運営／維持・管理体制】</p>	<p><u>視点・チェック事項</u>：</p> <p>★道路の過積載取り締まり不十分など、施設利用状況が不適切であるため、維持管理費用が想定以上の高騰、プロジェクト・ライフの短縮等の可能性はないか。</p> <p><u>確認ポイント</u>：</p> <p>★対象セクターの開発計画、他ドナーの支援戦略等における政策改善項目の確認。</p> <p>★道路の過積載取り締まりはどうなっているか？</p>	<p>★道路の過積載取り締まり機器の導入。</p> <p>★関係機関、関連業界団体、住民コミュニティ等とも連携した法令・規則遵守のための広報・啓蒙キャンペーン、防止措置、モニタリング方法の検討・実施。</p>
<p>- 特定層へのアンバランスな裨益の可能性</p> <p>- 開発効果の裨益範囲の狭さ</p> <p>【事業効果】</p>	<p><u>視点・チェック事項</u>：</p> <p>★開発効果が特定層に偏って裨益する可能性はないか。</p> <p>★特定の社会集団（女性、少数民族、原住民等）が事業から裨益しない、あるいは負の影響を被るリスクはないか。</p> <p><u>確認ポイント</u>：</p> <p>★事業内容に関するステークホルダー会合等での内容の十分な周知の実績確認。</p> <p>★雇用者数に関するモニタリング手法の確認</p>	<p>★事業便益、インパクト等の分析と、事業初期段階からの現地コミュニティ、ステークホルダーとの積極的協議。</p> <p>★最終受益者を含む事業実施サイトへの訪問等による事業便益の認識等、厳密な事業便益分析の実施。</p> <p>★個別グループのアクセス、裨益経路を特定した上で、ボトルネックとなりうるコンポーネントの事業内への取り込み。政府事業として実施させるため、政策協議等における申し入れ。</p> <p>★工事中における地元住民雇用数（ジェンダー別、シリア人、レバノン人）の報告義務付け状況の確認（工事契約書、コンサルタント契約書）</p>

添付-11 CDRにより現在行われている事業

(1) 調達中の事業

Procurement

Project Title	Type	Funding Source	Language of Tender Document	Cost of Tender	Currency	Publication	Deadline	New Deadline
Hrajel Wastewater Treatment Plant and Networks and related Operation and Maintenance	OPEN+Italian Contractors	Republic of Italy	English	6,000.00	USD	23 Oct 2017	22-Jan-18	22 Jan 2018
Michmich wastewater treatment plant and networks and related operation and maintenance	OPEN+Italian Contractors	Republic of Italy		3,000.00	USD	23 Oct 2017	23-Jan-18	23 Jan 2018
Complementary Water Supply Works in South Lebanon	OPEN	Arab Fund for Economic and Social Development	English	1,000.00	USD	20 Oct 2017	22-Dec-17	22 Dec 2017
Execution of Barouk Spring Catchment Works	OPEN	Arab Fund for Economic and Social Development	English	500	USD	16 Oct 2017	5-Dec-17	5 Dec 2017
Supply and Installation of Medical Equipment at Bcharre Governmental Hospital	OPEN	Council for Development & Reconstruction	English	500	USD	14 Oct 2017	28-Nov-17	28 Nov 2017
Drilling & quipping of Water Wells in El Bireh and Kherbet Daoud in Akkar	OPEN+C4-5 Kuwaiti Contractors	Kuwait Fund for Arab Economic Development	English	500	USD	12 Oct 2017	27-Nov-17	27 Nov 2017
Expression of Interest for the Supervision Services for the Construction of an Educational facility building; Higher Institute of Applied and Economic Sciences - Conservatoire National des Arts et Metiers du Liban (ISSAE/ CNAM-LIBAN) and Teacher's Academy at Bir Hassan - Beyrouth Project	OPEN	Agence Francaise de Developpement	English	Free		2 Oct 2017	30-Oct-17	30 Oct 2017
Construction of Aabde Sea Outfall	OPEN	Arab Fund for Economic and Social Development	English	500	USD	2 Oct 2017	4-Dec-17	4 Dec 2017
Municipal Services Emergency Project - Package 5: Supply of Utility Panel Vehicles	OPEN	Kuwait Fund for Arab Economic Development	English	500	USD	2 Oct 2017	24-Oct-17	24 Oct 2017
Sarafand Wastewater project - Wastewater Collection and Conveyance Systems	OPEN+C5 in JV with Kuwaiti Contractors	Kuwait Fund for Arab Economic Development	English	5,000.00	USD	18 Sep 2017	3 Nov 17 - 24 Nov 2017	24 Nov 2017
Hydro Agricultural Development project for south Lebanon (C800) - Second Phase Preparation of Detailed Design and Tender document for the Distribution Networks and Assistance During Tendering	Short List	Council for Development & Reconstruction	English	500	USD	6 Sep 2017	10-Nov-17	10 Nov 2017
Prequalification of Contractors for the Construction of 12 MW Hydro Power Plant (Lot 1) & Transmission Lines (Penstock) (Lot 2) for the Water Supply Augmentation Project (Bisri Dam)	OPEN	Islamic Development Bank	English	2,000.00	USD	28 Aug 2017	25/10/2017	25 Oct 2017
Anjar, Majdel Anjar and Qabb Elias Wastewater Treatment Project	OPEN	Republic of Italy	English	3,000.00	USD	2 Aug 2017	2-Nov-17	2 Nov 2017
Wastewater Works in Koura	OPEN	European Union	English	150	USD	25 Jul 2017	23 Oct 2017 - 10 Jan 2018	10 Jan 2018
Design and Construction of Aabde (Akkar) Wastewater Treatment Plant with Operation, Maintenance and Staff Training	OPEN	Arab Fund for Economic and Social Development	English	2,000.00	USD	24 Jul 2017	27 Sep 2017 - 26 Oct 2017 - 9 Nov 2017	9 Nov 2017

(2) 計画中の事業

Planning

Project name	Mohafaza Caza	Estimated amount (USD)	Fund	Local Fund (USD)	Source of Local Fund	Foreign Fund (USD)	Source of Foreign Fund	Dates: Signature Starting Ending	Remarks
MATEN EXPRESSWAY									
Ain Akk- Bteghrine road									
Works	Mount Lebanon - Al Maten	55,000,000	Funding Not secured	55,000,000	-	-	-	01/06/2017 01/07/2017 01/07/2020	-
Supervision	Mount Lebanon - Al Maten	1,650,000	Funding Not secured	1,650,000.00	-	-	-	01/06/2017 01/07/2017 01/07/2020	-
MATEN EXPRESSWAY									
Protection works and treatment of landslides - Btaqout									
Supervision	Mount Lebanon - Al Maten	140,000	Transfer from related ministry	140,000	BUDGET RESERVES	-	-	01/05/2017 01/06/2017 01/06/2018	-
Works	Mount Lebanon - Al Maten	3,500,000	Transfer from related ministry	3,500,000	BUDGET RESERVES	-	-	01/05/2017 01/06/2017 01/06/2018	-
MATEN EXPRESSWAY									
Sanine road- Zable Mrouj intersection- Komam road									
Supervision	Mount Lebanon - Al Maten	760,000	Funding Not secured	-	-	760,000	-	01/02/2017 01/03/2017 01/03/2020	-
Works	Mount Lebanon - Al Maten	19,000,000	Funding Not secured	-	-	19,000,000	-	01/02/2017 01/03/2017 01/03/2020	-
MATEN EXPRESSWAY									
Fakra- Samine - Masateh road (ALKomam road)									
Supervision	Mount Lebanon - Al Maten	600,000	Funding Not secured	600,000	-	-	-	01/10/2017 01/11/2017 01/11/2019	-
Works	Mount Lebanon - Al Maten	15,000,000	Funding Not secured	15,000,000	-	-	-	01/10/2017 01/11/2017 01/11/2019	-
SIR EL DENNIEH ROAD									
Sir el Dennieh road									
Works	North & Akkar - Minieh/Dennieh	30,000,000	Proposed	-	-	30,000,000	IDB	01/03/2017 01/04/2017 01/10/2019	-
Supervision	North & Akkar - Minieh/Dennieh	600,000	Proposed	-	-	600,000	IDB	01/03/2017 01/04/2017 01/10/2019	-
CHEHABIEH- GHANDOURIEH - MARJE'YOUN ROAD									
Study of Chehabieh - Ghandourieh- Marja'youn Road									
Study of Chehabieh - Ghandourieh- Marja'youn Road	South - Sour (Tyre) Al Nabatiyeh - Bint Jbeil Al Nabatiyeh - Marje'oune	180,000	Funding Not secured	180,000	-	-	-	15/08/2017 15/09/2017 15/03/2018	-
CHEHABIEH- GHANDOURIEH - MARJE'YOUN ROAD									
Shehabieh- Ghandourieh- Marja'youn road									
Works	South - Sour (Tyre) Al Nabatiyeh - Bint Jbeil Al Nabatiyeh - Marje'oune	7,000,000	Funding Not secured	7,000,000	01/02/2017 01/03/2017 01/03/2020	-	-		Project Identification
Supervision	South - Sour (Tyre) Al Nabatiyeh - Bint Jbeil Al Nabatiyeh - Marje'oune	280,000	Funding Not secured	280,000	01/02/2017 01/03/2017 01/03/2020	-	-		Project Identification
NABATIEH - MARJE'YOUN ROAD									
Nabatieh-Marj'ouyoun Road									
Supervision	Al Nabatiyeh - Marje'oune Al Nabatiyeh - Al Nabatiyeh	750,000	Signed	-	01/09/2017 -	750,000	IRAN	01/10/2017 01/10/2020	Project Identification
NABATIEH - MARJE'YOUN ROAD									
Nabatieh-Marj'ouyoun Road									
Nabatieh-Marj'ouyoun Road	Al Nabatiyeh - Marje'oune Al Nabatiyeh - Al Nabatiyeh	25,000,000	Proposed	-	01/09/2017 -	25,000,000	IRAN	01/10/2017 01/10/2020	-
BET MONZER ROAD									
Beit Munzer roundabout									
Beit Munzer roundabout	North & Akkar - Becharri	20,000,000	Transfer from related ministry	20,000,000	LOI PROGRAMME: MINISTRY OF PUBLIC WORKS NO 2001/326	-	-	01/02/2017 01/03/2017 01/03/2019	-
BET MONZER ROAD									
Beit Munzer roundabout									
Supervision	North & Akkar - Becharri	700,000	Transfer from related ministry	700,000	LOI PROGRAMME: MINISTRY OF PUBLIC WORKS NO 2001/326	-	-	01/02/2017 01/03/2017 01/03/2019	-

(3) 入札準備中の事業（地方道路）

Under Preparation

(Private Land Trans. for Persons sector with Rehabilitation of Road Networks in the REGIONS as a program)

Project name	Mohafaza Caza	Estimated amount (USD)	Fund	Local Fund (USD)	Source of Local Fund	Foreign Fund (USD)	Source of Foreign Fund	Dates: Signature Starting Ending	Remarks
COASTAL ROAD									
Qalamoun- Deir Ammar section (Arab highway)									
Works	North & Akkar - Trablus	70,000,000	Funding Not secured	70,000,000	-	-	-	01/03/2018 01/04/2018 01/04/2022	-
Supervision	North & Akkar - Trablus	2,800,000	Funding Not secured	2,800,000.00	-	-	-	01/03/2018 01/04/2018 01/04/2019	-
COASTAL ROAD									
The East ring road for Tripoli city									
Supervision & Works	North & Akkar - Trablus	100,000,000	Funded	50,000,000	LEBANESE GOVERNMENT	50,000,000	IDB	01/09/2017 01/10/2017 01/10/2019	-
BEIRUT-DAMASCUS (AL MASNA'A) ROAD									
Mdeyrj (Hammana) - Namljé bridge(Bwarij) section									
Supervision	National - National	1,350,000	Funded	-	-	1,350,000	SFD	01/07/2018 01/08/2018 01/08/2021	-
Works	National - National	45,000,000	Proposed	-	-	45,000,000	SFD	01/07/2018 01/08/2018 01/08/2021	-
BEIRUT-DAMASCUS (AL MASNA'A) ROAD									
El-Jumhour (Bsouss)-Baalechmay Section : 8.5 km									
Supervision	National - National	4,500,000	Proposed	-	-	4,500,000	EIB	01/08/2017 01/09/2017 01/09/2021	-
Works	National - National	150,000,000	Funding Not secured	-	-	150,000,000	EIB	01/08/2017 01/09/2017 01/09/2021	-

(4) 入札準備中の事業 (国際道路)

Under Preparation

(Private Land Trans. for Persons sector with Rehabilitation and Development of INTERNATIONAL ROADS as a program)

Project name	Mohafaza Caza	Estimated amount (USD)	Fund	Local Fund (USD)	Source of Local Fund	Foreign Fund (USD)	Source of Foreign Fund	Dates: Signature Starting Ending	Remarks
REHABILITATION AND WIDENING OF ZOUK MOSBEH-MAYROUBA-KFAR DEBIAN-EL TAYBEH (BAALBACK) ROAD									
Execution of Main intersections (jeita- a-shaile- balouneh- daraya- ajilton) of Jeita- Faraya road									
Supervision	Mount Lebanon - Kesserwane	480,000	Proposed	-	-	480,000	-	01/02/2017 01/03/2017 01/03/2019	-
Works	Mount Lebanon - Kesserwane	12,000,000	Proposed	-	-	12,000,000	-	01/02/2017 01/03/2017 01/03/2019	-
REHABILITATION AND WIDENING OF ZOUK MOSBEH-MAYROUBA-KFAR DEBIAN-EL TAYBEH (BAALBACK) ROAD									
Rehabilitation & widening of Zouk Mosbeh -Shaileh- Oyoum el Siman- El Taybeh (Baalbeck) Road									
Works	AL Bekaa' - Baalbek	100,000,000	Funding Not secured	100,000,000	-	-	-	01/02/2017 01/03/2017 01/03/2022	-
Supervision	AL Bekaa' - Baalbek	4,000,000	Funding Not secured	4,000,000	-	-	-	01/02/2017 01/03/2017 01/03/2022	-
JOUNIEH - BKERKE - HARISA ROAD									
Haret Sakhr - Daroun road									
Works	Mount Lebanon - Kesserwane	6,000,000	Proposed	-	-	6,000,000	-	01/02/2017 01/03/2017 01/03/2019	-
Supervision	Mount Lebanon - Kesserwane	240,000	Proposed	-	-	240,000	-	01/02/2017 01/03/2017 01/03/2019	-
ARDAT - MEJDLAYA ROAD									
Additional works for Ardat -Mejdlaya road									
Supervision	North & Akkar - Zgharta North & Akkar - Minieh/Dennieh	60,000	Funded Locally	60,000	-	-	-	01/09/2017 01/10/2017 01/10/2018	-
Works	North & Akkar - Zgharta North & Akkar - Minieh/Dennieh	1,500,000	Funded Locally	1,500,000	-	-	-	01/09/2017 01/10/2017 01/10/2018	-
REHABILITATION AND WIDENING OF EL QUOBBEH- AL AYROUNIEH- EL FOUAR- ALMA- BEIT AWKAR- TURBOL- BOUSSIT- ARDEH ROAD									
Rehabilitation and widening of AlQobbeh-Al Ayrounieh- El Fouar- Alma- Beit Awkar -Terbel- Boussit-Ardeh Road									
	North & Akkar - Trablus North & Akkar - Minieh/Dennieh	10,000,000	Funding Not secured	10,000,000	-	-	-	01/02/2018 01/03/2018 01/03/2020	-
REHABILITATION AND WIDENING OF EL QUOBBEH- AL AYROUNIEH- EL FOUAR- ALMA- BEIT AWKAR- TURBOL- BOUSSIT- ARDEH ROAD									
Rehabilitation and widening of AlQobbeh-Al Ayrounieh- El Fouar- Alma- Beit Awkar -Terbel- Boussit-Ardeh Road									
	North & Akkar - Trablus North & Akkar - Minieh/Dennieh	500,000	Funding Not secured	500,000	-	-	-	01/02/2017 01/03/2017 01/03/2019	-
REHABILITATION & WIDENING OF DEIR BELLA-KFAR HALDA/ BSATINE EL OSSI- BZIZA-DEIR BELLA-KFAR HALDA DIVERGENT- BCHTOURDA-AWRA ROAD									
Rehabilitation and widening of Deir Bella- Kfar Halka/ Bsatine El Ossi- Bziza- Deir Bella- Kfar Halka divergent- Bchtourda- Awra Road									
	North & Akkar - Al Batroun	600,000	Funding Not secured	600,000	-	-	-	01/09/2017 01/10/2017 01/10/2019	-
REHABILITATION & WIDENING OF DEIR BELLA-KFAR HALDA/ BSATINE EL OSSI- BZIZA-DEIR BELLA-KFAR HALDA DIVERGENT- BCHTOURDA-AWRA ROAD									
Rehabilitation and widening of Deir Bella- Kfar Halka/ Bsatine El Ossi- Bziza- Deir Bella- Kfar Halka divergent- Bchtourda- Awra Road									
	North & Akkar - Al Koura North & Akkar - Al Batroun	20,000,000	Funded Locally	20,000,000	-	-	-	01/09/2017 01/10/2017 01/10/2019	-
REHABILITATION & WIDENING OF MAYROUBA - WATA AL JAWZ - NAHR AL DAHAB - JOURET EL TORMOS- HADCHAIT- YAHCHOUC H ROAD									
Rehabilitation and widening of Mayrouba - Wata el Jawz- Nahr Al Dahab- Jouret El Tormos- Hadchait- Yahchouch Road									
Supervision	Mount Lebanon - Kesserwane	600,000	Funded	-	-	600,000	SFD	01/08/2017 01/09/2017 01/09/2019	-
REHABILITATION & WIDENING OF MAYROUBA - WATA AL JAWZ - NAHR AL DAHAB - JOURET EL TORMOS- HADCHAIT- YAHCHOUC H ROAD									
Rehabilitation and widening of Mayrouba - Wata el Jawz- Nahr Al Dahab- Jouret El Tormos- Hadchait- Yahchouch Road									
works	Mount Lebanon - Jbeil	6,000,000	Proposed	-	-	6,000,000	SFD	01/08/2017 01/09/2017 01/09/2019	-
Supervision	Mount Lebanon - Jbeil	240,000	Proposed	-	-	240,000	SFD	01/08/2017 01/09/2017 01/09/2019	-
REHABILITATION OF JBEIL-ANAYA ROAD									
Rehabilitation of Jbeil -Anaya road									
Supervision	Mount Lebanon - Jbeil	480,000	Funded	-	-	480,000	SFD	01/04/2018 01/05/2018 01/05/2020	-
Works	Mount Lebanon - Jbeil	12,000,000	Funded	-	-	12,000,000	SFD	01/04/2018 01/05/2018 01/05/2020	-
Detailed Design	Mount Lebanon - Jbeil	360,000	Funded Locally	360,000	-	-	-	01/07/2017 01/08/2017 01/10/2017	-

(5) 実施中の事業

Ongoing Project (Transportation Sector)

No.	Project name	Dates: Starting Ending	Contractor / Consultant Name	Remarks
1	BATROUN-TANNOURINE HIGHWAY Construction of Batroun - Tannourine road : Bijdarfil - Dael Section + Add no.1&2	8/7/2009 8/27/2018	مؤسسة نسيم ابو حبيب للمصاغة والتعهدات	-
2	BATROUN-TANNOURINE HIGHWAY Construction Supervision and Assistance during Tendering for Batroun - Bijdarfil Section and Bijdarfil - Dael Section	8/1/2009 8/27/2018	Dar Al-Handasah Nazh Taleb & Partners	-
3	BEIRUT-DAMASCUS (AL MASNA'A) ROAD Construction supervision services for Pan Arab Highway : Taanayel - Masnaa section	3/16/2007 4/25/2018	Khatib & Alami	-
4	BEIRUT-DAMASCUS (AL MASNA'A) ROAD Construction Supervision Services for the Pan Arab Highway Lot A : Mdairej - Chitaura - Taanayel + Add no.1	5/1/2009 12/31/2018	Team Int'l and Saudi Consulting Services (Saudiconsult) (p)	-
5	BEIRUT-DAMASCUS (AL MASNA'A) ROAD Pan Arab Highway : Taanayel - Masnaa section + Add no.1&2&3	3/1/2007 4/25/2018	Sezar Tyrkes Fezy Akkaya STFA CONSTRUCTION COMPANY	-
6	BEIRUT-DAMASCUS (AL MASNA'A) ROAD Pan Arab Highway Lot A : Mdairej - Chitaura - Taanayel section - Phase 1 from (PK 4+547) Namieh Bridge till Taanayel + Add no.1&2&3	5/1/2009 12/31/2018	Cons eng & trading company / Hourieh	-
7	BEIRUT-DAMASCUS (AL MASNA'A) ROAD Preparation of detailed engineering design and construction supervision for the upgrading of Hazmieh Saoufar International road (packages I&II) + Add no.1&2&3&4	1/8/2012 7/31/2019	Khatib & Alami	-
8	BEIRUT-DAMASCUS (AL MASNA'A) ROAD The Remaining Works of the Upgrading of Hazmieh - Saoufar International Road (Section 3) - Baalehchmey Saoufar and The Remaining Works of Beautification Bhandoun Internal Road	8/1/2017 7/31/2019	Nicolas Srouji Ets. For contracting	-
9	BEIT AYOUB-FNEIDEQ ROAD Construction of Beit Ayoub - Fneideq Road	11/1/2015 5/15/2018	Homan Engineering Company Limited	-
10	BEIT AYOUB-FNEIDEQ ROAD Construction Supervision and Assistance during Tendering for Abboudieh - Mounjez road (Section 1) and Beit Ayoub - Fneideq road (Section 2) + Add no.1	9/13/2007 5/15/2018	Dar Al-Handasah Nazh Taleb & Partners	-
11	CHTOURA -BAALBEK-SYRIAN BORDER (AL KAA) ROAD Reconstruction / Rehabilitation of Karak - Ablih - Rayak Road (Package 1B) part of Choura - Rayak - Baalbek - El Kaa Syrian Boarder Road + Add no.1	10/1/2015 9/30/2018	HETC / Green Line	-
12	CHTOURA -BAALBEK-SYRIAN BORDER (AL KAA) ROAD Supervision Services for the Reconstruction of Karak - Ablih - Rayak Road (Package 1B) part of Choura - Rayak - Baalbek - El Kaa Syrian Boarder Road + Add no.1	12/8/2015 9/30/2018	Dar Al-Handasah Nazh Taleb & Partners	-
13	CHWAYA - CHEBAA - ZAGHLA ROAD Detailed Engineering Design and Supervision Services for Chebaa - Habarieh road and Zegla - Chewaya - Chebaa Road + Add no.1&2	2/1/2010 12/27/2017	Khatib & Alami	-
14	CHWAYA - CHEBAA - ZAGHLA ROAD Rehabilitation of Two Roads: Zegla - Chouaiya - Chebaa Road and Habariye - Chebaa Road + Add no.1&2&3	12/1/2012 12/27/2017	Nicolas Srouji Ets. For contracting	-
15	COASTAL ROAD Construction of Northern Highway - Eastern Tripoli Ring Road Project - Highway Engineer + Add no.1	1/1/2016 4/30/2018	Roland Attieh	-
16	COASTAL ROAD Construction of Northern Highway Project (Eastern Tripoli Ring Road) and South Highway Zahrani - Sour Project (Phase 5 - Part 2) from Bourj Rahal to Abassiyeh Entrance - Road Safety / Traffic Engineer	6/1/2017 4/30/2018	Roland Attieh	-
17	COASTAL ROAD Construction of Tripoli West Ring Road + Add no.1&2	5/21/2009 4/2/2018	Geneco	-
18	COASTAL ROAD Construction Supervision Services for Tripoli West Ring Road + Add no.1	5/29/2009 4/2/2018	Dar Al Handasah Taleb / Mott McDonald	-
19	COASTAL ROAD Environmental and Social Impact Assessment (ESIA) for the Northern Highway Project Beddawi - Abboudieh Section	5/12/2017 11/12/2017	LACECO	-
20	COASTAL ROAD Rehabilitation of Roads and Sidewalks in Tyre Caza - Sour - Nakoura Road (Part 1)	9/1/2016 8/31/2018	Danash for Contracting and Trading Co.	-
21	COASTAL ROAD Southern Highway - Zahrani - Sour Section (Qana) - Phase 5 - Bourj Rahal - Shabriha - Phase 2	4/1/2017 9/30/2019	Consolidated Engineering & Trading Company (CET)	-
22	COASTAL ROAD Supervision Services for Southern Highway - Zahrani - Sour Section (Qana) - Phase 5 - Bourj Rahal - Shabriha - Phase 2	4/1/2017 9/30/2019	Conser Consulting Engineers	-
23	COASTAL ROAD Supervision Services for the Rehabilitation of Roads and Sidewalks in Tyre Caza - Sour - Nakoura Road (Part 1)	9/1/2016 8/31/2018	Rafik EL Khoury & Partners	-
24	COMMON WORKS AND CONSULTANCY SERVICES BETWEEN TWO OR MORE REGIONS Greater Beirut Urban Transport Project - Preparation of the Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) for the Bus Rapid Transit (BRT) System Between Beirut and Tabaria and Feeders Buses Services Within Beirut	10/26/2016 12/13/2017	ELARD S.A.L.	-
25	IMPLEMENTATION OF TRAFFIC LIGHTS & TRAFFIC MANAGEMENT CENTER Supervision Services for Implementation and Operation of Traffic Management Program and On-Street Parking Management Program - Supervision on additional 36 Intersections and on UPS + Add no.1&2	7/1/2011 12/31/2017	IBI Group/Team International (JV)	-
26	INSTITUTIONAL STRENGTHENING Greater Beirut Water Supply Project (GBWSP) - Project Management Unit (PMU) - Financial Officer	4/1/2017 3/31/2018	Raghida Shour	-
27	JAL EL DIB INTERSECTION UTDP - Corridor Improvement Program - Jal El Dib Overpasses	8/1/2011 2/21/2019	Bureau d'Etudes et Travaux Hydrauliques (Elie Selwan)	-
28	JBAB EL HOMR - HERMEL ROAD Construction Supervision for Sir El Damiey - Bqarsouna - Qorsaita Road + Add no.1	11/1/2011 12/29/2017	Dar Al-Handasah Nazh Taleb & Partners consulting engineers SAL	-
29	JBAB EL HOMR - HERMEL ROAD Sir El Damiey - Bqarsouna - Qorsaita Road + Add no.1&2&3&4	11/1/2011 12/29/2017	Danash Cont & Co. / Gulemark Agir Sanayi Taahut	-
30	JOUNIEH - BKERKE - HARISA ROAD Joumieh Harissa Road Project - Package 1 - Section B : Rehabilitation of Daroun Harissa Road	9/1/2016 8/31/2018	Hanna EL Khoury & PARTNERS.	-
31	JOUNIEH - BKERKE - HARISA ROAD Supervision Services for the Rehabilitation and Widening of Daroun - Harissa Road	9/1/2016 8/31/2018	Dar Al-Handasah Nazh Taleb & Partners	-
32	MAIN ROADS IN IKLEEM EL-KHAROUB Construction Supervision and Assistance during tendering for the rehabilitation and widening of Joun - Zaouniye road (Section 1) and Saadiyat - Ain El Hour road (Section 2) in Iklim Al Kharoub Region + Add no.1&2	1/1/2008 11/30/2017	Kredo	-
33	MATEN EXPRESSWAY Construction of Mar Chaaya - Atchaneh - Ain Alak Road - Phase 1 from St 2+100 to St 4+000	9/10/2015 3/9/2018	Nassim Abou Habib Company for Industry and Contracting	-
34	MATEN EXPRESSWAY Detailed Engineering Design and Preparation of Tender Documents for Baabdat - Bchillama link Road (Metn Expressway Project)	3/30/2015 1/8/2018	GICOME - Antoine Sakme et Associes s.a.r.l.	-
35	MATEN EXPRESSWAY Supervision Services for Metn Expressway Project (Mar Chaaya - Atchaneh - Ain Alak Road) Phase 1 (From St 2+100 to St 4+000)	11/2/2015 3/9/2018	Associated Consulting Engineers S.A.L. (ACE)	-
36	QUADICHA ROAD Construction of the Link to Nabeh Mar Sarkis Ehdn	8/1/2017 7/31/2019	General Company for Quarries and Contracting (L.L.C)	-
37	QUADICHA ROAD Construction Supervision of Behsas - EL Arz road + Add no.1	6/15/2003 12/31/2018	Dar Al-Handasah Nazh Taleb & Partners	-
38	QUADICHA ROAD Reconstruction and Expansion of Hadath El Jubba - Bqarqasha Road Project - Project Management Unit - Highway Engineer + Add no.1&2&3	1/1/2015 8/31/2018	Mehdi Ramadan	-
39	QUADICHA ROAD Rehabilitation of Behsas - Kusba - Cedars Road Phase 2 - Section 1 Ed Dimane Road - Section 2 Hasroun Diversion Part 1 - Section 3 Baqasha Bcharri Road	1/1/2016 12/31/2018	Bureau Hamid Keyrouz S.A.L.	-
40	QUADICHA ROAD Supervision for the Construction of the Link to Nabeh Mar Sarkis Ehdn	8/9/2017 7/31/2019	Dar Al Handasah Consultants (Shair & Partners)	-
41	REHABILITATION & WIDENING OF AMCHITE-TANNOURINE ROAD Construction and Rehabilitation of Meyfouq - Hadtoun - Tarij Road and Makra - Lehfed Road and Jaj - Saki Rechmaya - Lehfed Bypass within Amchit - Meyfouk Road Project	5/1/2014 2/27/2018	Badawi Az'our Trading & Contracting (BATCO) s.a.l.	-
42	REHABILITATION & WIDENING OF AMCHITE-TANNOURINE ROAD Review and Update of Tender Documents for Mayfouq - Hadtoun and Detailed Engineering Design, Tender Documents Preparation and Construction Supervision Services for Mayfouq - Hadtoun - Tarij Road Makra - Lehfed Road Jaj - Saki Rechmaya - Lehfed Road	4/3/2013 2/27/2018	Dar Al-Handasah Nazh Taleb & Partners	-
43	REHABILITATION AND WIDENING OF EL JOUN-ZAAROURIEH ROAD Remaining Works Related to the Rehabilitation and Widening of Joun - Zaarourieh Road	1/31/2017 11/30/2017	Arabian Civil Works(ACW)	-
44	UNDERGROUND PARKING UNDER JAMAL ABDEL NASSER SQUARE IN TALL REGION IN TRIPOLI Supervision Services for the Construction of Tall Underground Parking in Tripoli	5/19/2016 8/31/2018	BANAKO - NAIM KHORIATY S.A.R.L.	-
45	UNDERGROUND PARKING UNDER JAMAL ABDEL NASSER SQUARE IN TALL REGION IN TRIPOLI Technical Control for the Construction of an Underground Parking in Al Tall - Tripoli	5/23/2016 8/31/2018	Socotec Liban	-

添付-12 環境チェックリスト

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N/A (b) N/A (c) N/A (d) N	(a) Neither EIA nor IEE is required according to the environmental laws in the country. Meanwhile, IEE study report is prepared in compliance with JICA's ESCs guidelines. (b) Neither EIA nor IEE is required according to the environmental laws in the country. (c) Neither EIA nor IEE is required according to the environmental laws in the country. Meanwhile, mitigation measures, EMP, and EMoP are prepared for each road and harmonized with specification and cost estimation of the project accordingly. (d) No particular other environmental permits required to execute the project were confirmed.
	(2) Explanation to local stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Project information disclosure and consensus building were done through the stakeholder meeting, and one to one meeting, etc with local stakeholders. Understanding from the local stakeholders has been obtained. (b) The comment from the local residents obtained during above meetings has been reflected to the project design.
	(3) Examination of alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) Plural alternative plans (including the zero option) are examined comprehensively with social and environmental considerations. In this project, fare distribution of benefit is one of the most considered points in the alternative analysis.

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2 Pollution Control	(1) Air Quality	<p>(a) Is there a possibility that air pollutants emitted from the project related sources, such as vehicles traffic will affect ambient air quality? Does ambient air quality comply with the country's air quality standards? Are any mitigating measures taken?</p> <p>(b) Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?</p>	<p>(a) Y (b) N</p>	<p>(a) Although emission of the air pollutants from the vehicles traffic is expected, predicted amounts in the locations are within the country's regulation.</p> <p>(b) The proposed project is rehabilitation of the existing roads, so as significant change on air pollution is not expected.</p>
	(2) Water Quality	<p>(a) Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas?</p> <p>(b) Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater?</p> <p>(c) Do effluents from various facilities, such as parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas not to comply with the country's ambient water quality standards?</p>	<p>(a) N (b) N (c) N</p>	<p>(a) The roads will be paved by asphalt, and soil runoff from the bare lands is not expected. Cutting and filling is not included in the project component.</p> <p>(b) Surface runoff from the roads will be drained to the existing outlet, and significant contamination on water source such as groundwater is not expected.</p> <p>(c) Parking areas/services areas are not included in the Project component.</p>
	(3) Wastes	<p>(a) Are wastes generated from the project facilities, such as parking areas/service areas, properly treated and disposed of in accordance with the country's regulations?</p>	<p>(a) N</p>	<p>(a) Parking areas/service areas are not included in the Project. Hence, potential source to generate wastes is not expected.</p>
	(4) Noise and Vibrations	<p>(a) Do noise and vibrations from the vehicle traffic comply with the country's standards?</p> <p>(b) Does low frequency sound from the vehicle traffic comply with the country's standards?</p>	<p>(a) N (b) N/A</p>	<p>(a) Current noise level from the vehicle traffic in the most of targeted roads extremely exceeds the country's standards which established a-quarter-century back and doesn't fit to reality, and this won't be changed unless the standards are properly updated.</p> <p>(b) A structure which likely generates low frequency sound</p>

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				is not included in the project component.
3 Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) Y/N	(a) Two IBAs are located in the project area. Meanwhile the project is rehabilitation of the existing roads and significant impact to the mentioned areas are not expected.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? (e) Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? (f) In cases the project site is located at undeveloped areas, is there a possibility that the new development will result in	(a) N (b) Y (c) N/A (d) Y (e) N (f) N	(a) The project area encompasses none of primeval forests, tropical rain forests, ecologically valuable habitats like coral reefs, mangroves, or tidal flats. (b) According to the study, some roadside trees and animals listed in the Red list in the IUCN are confirmed. However, significant impact such as habitat fragmentation is not expected. (c) Significant ecological impact is not anticipated because the project is rehabilitation of the existing road and traffic driving speed which tends to cause roadkill will be reduced by installation of the traffic safety facilities on and along the roads. (d) Same as above and also several mitigation measures are recommended in the environmental management plan. (e) Project is rehabilitation of the existing roads without widening, and destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests are not

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		extensive loss of natural environments?		expected. (f) Same as above.
	(3) Hydrology	(a) Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?	(a) N	(a) Activities which may adversely affect surface water and groundwater flows such as piling work and tunnel work are not expected.
	(4) Topography and Geology	(a) Is there any soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? (b) Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? (c) Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	(a) N (b) N (c) N	(a) Boring test was not conducted. Soft ground on the route that may cause slope failures or landslides was not confirmed. History of landslide in the past was also not confirmed. (b) Project component does not include cutting and filling roads. (c) For the prevention of the soil runoff, vegetation in the borrow pit will be recovered by returning topsoil. Likewise, soil runoff shall be prevented in the disposal area by slope protection such as stone pitching or vegetation.
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Are the compensations going to be paid prior to the	(a) N (b) N/A (c) N/A (d) N/A (e) N/A (f) N/A (g) N/A (h) N/A (i) N/A (j) N/A	(a) Involuntary resettlement will not be caused by the project because the project is rehabilitation without road widening. (b)~ (j) See above

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		resettlement? (e) Are the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?		
	(2) Living and Livelihood	(a) Where roads are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts? (b) Is there any possibility that the project will adversely affect the living conditions of the inhabitants other than the target population? Are adequate measures considered to reduce the impacts, if necessary? (c) Is there any possibility that diseases, including infectious	(a) N (b) N (c) N (d) N/A (e) N (f) N (g) N	(a) New installation of the roads is not included in the project component. (b) Significant change on living conditions of the inhabitants other than the target population is not expected because project component is rehabilitation of the existing road. (c) Project purpose is employment creation for host community and displaced Syrians which means majority of the workers are to be recruited from local. Therefore influence of such disease will be minimal. (d) Significant change on surrounding areas is not expected because project component is rehabilitation of the existing road.

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		<p>diseases, such as HIV will be brought due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary?</p> <p>(d) Is there any possibility that the project will adversely affect road traffic in the surrounding areas (e.g., increase of traffic congestion and traffic accidents)?</p> <p>(e) Is there any possibility that roads will impede the movement of inhabitants?</p> <p>(f) Is there any possibility that bridges will cause a sun shading?</p>		<p>(e) Pedestrian crossings and other traffic safety facilities will be installed on and along the roads which improve movement of inhabitants.</p> <p>(f) No bridge is to be constructed by the project.</p>
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) No such facilities are identified in the project area.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) Impact on landscape is not anticipated since the project area does not include any picturesque places.
	(5) Ethnic Minorities and Indigenous Peoples	<p>(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples?</p> <p>(b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?</p>	<p>(a) N</p> <p>(b) N</p>	<p>(a) Not confirmed in the Project area.</p> <p>(b) Same as above.</p>
	(6) Working Conditions	<p>(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project?</p> <p>(b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials?</p>	<p>(a) Y</p> <p>(b) Y</p> <p>(c) Y</p> <p>(d) Y</p>	<p>(a) Securing of working condition is implemented according to the relevant Lebanese laws and CDR's guidelines and international rules such as OHSAS.</p> <p>(b) Measures to prevent industrial accidents are secured by mitigation measures such as obligation of wearing safety boots and a helmet during the construction work, setting signboards, barricades and the monitoring, which</p>

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		<p>(c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.?</p> <p>(d) Are appropriate measures being taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?</p>		<p>include countermeasures for the accidents.</p> <p>(c) Safety education through measures such as a morning gathering and a toolbox meeting will be given to construction workers. Contractor will prepare a safety and sanitation plan.</p> <p>(d) Setting of the reputation to promote an invasion prevention fence and danger around the construction area is set up. Construction plan and schedule will be informed to the community through signboard or direct or indirect announcement with cooperation of municipalities as needed in advance. It is assumed that a guard worker for the purpose of prevention of ensuring safety and theft is to be placed.</p>
5 Others	(1) Impacts during Construction	<p>(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?</p> <p>(b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?</p> <p>(c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?</p>	<p>(a) Y (b) Y (c) Y</p>	<p>(a) Generation of the certain noise, vibrations, dust, turbid water, exhaust gasses and waste are assumed. Mitigation measures and monitoring plan are established through IEE Study.</p> <p>(b) Development of waste management plan, basic instruction to the workers, adequate maintenance and cleaning of machines to mitigate adverse impact etc are recommended and presented in the IEE Study report.</p> <p>(c) Disturbance of movement and business, and traffic congestion are assumed. Mitigation measures such as adequate scheduling and communication with local communities in timely manner, traffic operation as a one-way alternating traffic, and monitoring plan are</p>

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				established and presented in the IEE Study report.
	(2) Monitoring	<p>(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?</p> <p>(b) What are the items, methods and frequencies of the monitoring program?</p> <p>(c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?</p> <p>(d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?</p>	<p>(a) Y</p> <p>(b) -</p> <p>(c) Y</p> <p>(d) Y</p>	<p>(a) Monitoring plan has been made and shared with proponent.</p> <p>(b) The monitoring items were decided considering the present condition survey results and impact evaluation. Monitoring methods were decided considering implementation practicability of Lebanese government and securing accuracy. Frequency was decided considering types of work, local situation, and health damage.</p> <p>(c) Monitoring framework has been suggested in the monitoring plan. This framework has to be adapted reflecting the present condition of Lebanon as possible. Proponent will designate or procure one staff or consultant as Social Safeguard Officer of this project who will specifically work for the liaison with other organizations and a core actor of supervising the monitoring.</p> <p>(d) Monitoring report shall be submitted by the contractor</p>

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				during the construction stage while the reports after the construction stage shall be prepared by the MPWT.
6 Notes	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation). (b) Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).	(a) N (b) N	(a) Forest is out of the project scope. (b) Power Transmission and Distribution Lines is out of the project scope.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a) No pollution impacts to be reached toward surrounding countries due to the project location. The project will minimally increase global warming as its short and merely a conveyance of traffic that already exists in Lebanon that cumulatively increases global warming.

添付-13 IEE 報告書 (別冊)