Annex 17

Selection of Upazila road rehabilitation subprojects

List of tables

Table A17-1 List of possible Phase 1 UZR rehabilitation subprojects that passed selection and appraisal procedure - by RANKING

Ranking	Ranking Score	EIRR	District	Upazila	Road Name	Total Length (km)	Cost (BDT '000) 2012 prices
1	0.8069	41.50%	KURIGRAM	KURIGRAM-S	Dharla bridge approach-Jatrapur GC	6.88	23,719
2	0.8048	49.30%	PANCHAGARH	PANCHAGARH-S	Panchagarh - Chaklahat Road.	13.80	46,189
3	0.7826	34.40%	NILPHAMARI	DOMAR	Domar GC-Chilahati GC via Muktirhat road	26.00	89,622
4	0.7521	32.00%	RANGPUR	PIRGANJ	Barodarga NHW-Madargonj GC	13.55	46,707
5	0.7463	53.40%	DINAJPUR	HAKIMPUR	Hakimpur-Ghoraghat Road Starting from Hilli CP BDR Camp	14.30	47,862
6	0.7123	33.80%	RANGPUR	MITHAPUKUR	Damdoma NHW to Nagarkotha GC via Begum Rokey Momu. Centre	29.50	101,687
7	0.7010	27.50%	KURIGRAM	CHILMARI	Thanahat GC-Ramna River Ghat Road	3.02	10,424
8	0.6567	35.10%	PANCHAGARH	DEBIGANJ	Debiganj R&H Road (Bat Tree More) - Jharbari GC	18.20	60,915
9	0.6511	30.30%	RANGPUR	RANGPUR-S	NHW at Lalbag-Ranipukur GC.	9.60	33,091
10	0.6499	22.90%	NILPHAMARI	NILPHAMARI-S	Nilphamari to Bhobanigonj G.C.	11.68	40,261
11	0.6219	30.30%	DINAJPUR	BIROL	Birol Upazila H/Q. to Dhukurjhari hat road.	5.10	17,070
12	0.6217	23.20%	MYMENSINGH	TRISHAL	RHD road at Raghamara-Chakrampur GC.	7.75	28,094
13	0.6039	39.60%	TANGAIL	DELDUAR	Delduar-Lowhati GCCR.	11.31	40,501
14	0.5705	19.90%	MYMENSINGH	GOURIPUR	Kaltapara RHD-Gouripur.	5.20	18,843
15	0.5522	29.90%	PANCHAGARH	ATWARI	Fakirgonj hat GC - Shathkhamar R&H Road	17.15	57,401
16	0.5448	22.30%	LALMONIRHAT	ADITMARI	Burirhat GC-Bhelabari GC	8.72	30,058
17	0.5414	25.20%	DINAJPUR	KAHAROL	Kaharol-Bochaganj (D-2) Road .	10.30	34,474
18	0.5320	14.50%	JAMALPUR	MELENDAH	Bhabki RHD - Raigonj GC Via Beltail Bazar.	15.20	54,431
				Total	**18 Roads**	**227.26**	**781,349**

Table A17-2 List of possible Phase 1 UZR rehabilitation subprojects that passed selection and appraisal procedure - by DISTRICT

Ranking	Ranking Score	EIRR	District	Upazila	Road Name	Total Length (km)	Cost (BDT '000) 2012 prices
18	0.5320	14.50%	JAMALPUR	MELENDAH	Bhabki RHD - Raigonj GC Via Beltail Bazar.	15.20	54,431
			Jamalpur District		**1**	**15.20**	**54,431**
14	0.5705	19.90%	MYMENSINGH	GOURIPUR	Kaltapara RHD-Gouripur.	5.20	18,843
12	0.6217	23.20%	MYMENSINGH	TRISHAL	RHD road at Raghamara-Chakrampur GC.	7.75	28,094
			Mymensingh District		**2**	**12.95**	**46,937**
13	0.6039	39.60%	TANGAIL	DELDUAR	Delduar-Lowhati GCCR.	11.31	40,501
			Tangail District		**1**	**11.31**	**40,501**
11	0.6219	30.30%	DINAJPUR	BIROL	Birol Upazila H/Q. to Dhukurjhari hat road.	5.10	17,070
5	0.7463	53.40%	DINAJPUR	HAKIMPUR	Hakimpur-Ghoraghat Road Starting from Hilli CP BDR Camp	14.30	47,862
17	0.5414	25.20%	DINAJPUR	KAHAROL	Kaharol-Bochaganj (D-2) Road .	10.30	34,474
			Dinajpur District		**3**	**29.70**	**99,406**
7	0.7010	27.50%	KURIGRAM	CHILMARI	Thanahat GC-Ramna River Ghat Road	3.02	10,424
1	0.8069	41.50%	KURIGRAM	KURIGRAM-S	Dharla bridge approach-Jatrapur GC	6.88	23,719
			Kurigram District		**2**	**9.91**	**34,143**
16	0.5448	22.30%	LALMONIRHAT	ADITMARI	Burirhat GC-Bhelabari GC	8.72	30,058
			Lalmonirhat District		**1**	**8.72**	**30,058**
3	0.7826	34.40%	NILPHAMARI	DOMAR	Domar GC-Chilahati GC via Muktirhat road	26.00	89,622
10	0.6499	22.90%	NILPHAMARI	NILPHAMARI-S	Nilphamari to Bhobanigonj G.C.	11.68	40,261
			Nilphamari District		**2**	**37.68**	**129,883**
15	0.5522	29.90%	PANCHAGARH	ATWARI	Fakirgonj hat GC - Shathkhamar R&H Road	17.15	57,401
8	0.6567	35.10%	PANCHAGARH	DEBIGANJ	Debiganj R&H Road (Bat Tree More) - Jharbari GC	18.20	60,915
2	0.8048	49.30%	PANCHAGARH	PANCHAGARH-S	Panchagarh - Chaklahat Road.	13.80	46,189
			Panchagarh District		**3**	**49.15**	**164,505**
4	0.7521	32.00%	RANGPUR	PIRGANJ	Barodarga NHW-Madargonj GC	13.55	46,707
6	0.7123	33.80%	RANGPUR	MITHAPUKUR	Damdoma NHW to Nagarkotha GC via Begum Rokey Momu. Centre	29.50	101,687
9	0.6511	30.30%	RANGPUR	RANGPUR-S	NHW at Lalbag-Ranipukur GC.	9.60	33,091
			Rangpur District		**3**	**52.65**	**181,485**
				Total	**18 Roads**	**227.26**	**781,349**

Table A17-3 Selected Phase 1 UZR rehabilitation subprojects - by RANKING

Ranking	Ranking Score	EIRR	District	Upazila	Road Name	Total Length (km)	Cost (BDT '000) 2012 prices
1	0.8069	41.50%	KURIGRAM	KURIGRAM-S	Dharla bridge approach-Jatrapur GC	6.88	23,719
2	0.8048	49.30%	PANCHAGARH	PANCHAGARH-S	Panchagarh - Chaklahat Road.	13.80	46,189
3	0.7826	34.40%	NILPHAMARI	DOMAR	Domar GC-Chilahati GC via Muktirhat road	26.00	89,622
4	0.7521	32.00%	RANGPUR	PIRGANJ	Barodarga NHW-Madargonj GC	13.55	46,707
5	0.7463	53.40%	DINAJPUR	HAKIMPUR	Hakimpur-Ghoraghat Road Starting from Hilli CP BDR Camp	14.30	47,862
6	0.7123	33.80%	RANGPUR	MITHAPUKUR	Damdoma NHW to Nagarkotha GC via Begum Rokey Momu. Centre	29.50	101,687
7	0.7010	27.50%	KURIGRAM	CHILMARI	Thanahat GC-Ramna River Ghat Road	3.02	10,424
8	0.6567	35.10%	PANCHAGARH	DEBIGANJ	Debiganj R&H Road (Bat Tree More) - Jharbari GC	18.20	60,915
9	0.6511	30.30%	RANGPUR	RANGPUR-S	NHW at Lalbag-Ranipukur GC.	9.60	33,091
10	0.6499	22.90%	NILPHAMARI	NILPHAMARI-S	Nilphamari to Bhobanigonj G.C.	11.68	40,261
11	0.6219	30.30%	DINAJPUR	BIROL	Birol Upazila H/Q. to Dhukurjhari hat road.	5.10	17,070
				Total	**11 Roads**	**151.64**	**517,547**

Table A17-4 Selected Phase 1 UZR rehabilitation subprojects - by DISTRICT

Ranking	Ranking Score	EIRR	District	Upazila	Road Name	Total Length (km)	Cost (BDT '000) 2012 prices
11	0.6219	30.30%	DINAJPUR	BIROL	Birol Upazila H/Q. to Dhukurjhari hat road.	5.10	17,070
5	0.7463	53.40%	DINAJPUR	HAKIMPUR	Hakimpur-Ghoraghat Road Starting from Hilli CP BDR Camp	14.30	47,862
		Dinajpur District			**2**	**19.40**	**64,932**
7	0.7010	27.50%	KURIGRAM	CHILMARI	Thanahat GC-Ramna River Ghat Road	3.02	10,424
1	0.8069	41.50%	KURIGRAM	KURIGRAM-S	Dharla bridge approach-Jatrapur GC	6.88	23,719
		Kurigram District			**2**	**9.91**	**34,143**
3	0.7826	34.40%	NILPHAMARI	DOMAR	Domar GC-Chilahati GC via Muktirhat road	26.00	89,622
10	0.6499	22.90%	NILPHAMARI	NILPHAMARI-S	Nilphamari to Bhobanigonj G.C.	11.68	40,261
		Nilphamari District			**2**	**37.68**	**129,883**
8	0.6567	35.10%	PANCHAGARH	DEBIGANJ	Debiganj R&H Road (Bat Tree More) - Jharbari GC	18.20	60,915
2	0.8048	49.30%	PANCHAGARH	PANCHAGARH-S	Panchagarh - Chaklahat Road.	13.80	46,189
		Panchagarh District			**2**	**32.00**	**107,104**
4	0.7521	32.00%	RANGPUR	PIRGANJ	Barodarga NHW-Madargonj GC	13.55	46,707
6	0.7123	33.80%	RANGPUR	MITHAPUKUR	Damdoma NHW to Nagarkotha GC via Begum Rokey Momu. Centre	29.50	101,687
9	0.6511	30.30%	RANGPUR	RANGPUR-S	NHW at Lalbag-Ranipukur GC.	9.60	33,091
		Rangpur District			**3**	**52.65**	**181,485**
				Total	**11 Roads**	**151.64**	**517,547**

Annex 18

Selection of Growth Center and rural market improvement subprojects

List of tables

Table A18-1 Selected Growth Center Market Subprojects - by RANKING

Ranking	Ranking Score	EIRR	District	Upazila	Name of GCM	Cost of Market BDT '000 (2012 Prices)
1	0.9140	152.50%	Kurigram	Rowmari	Rowmari	7,400.0
2	0.8730	2076.10%	Mymensingh	Ishwarganj	Rayer Bazar	7,600.0
3	0.8648	462.60%	Nilphamari	Dimla	Shutibari Hat	7,400.0
4	0.8523	316.80%	Nilphamari	Dimla	Thakurgonj Hat	7,400.0
5	0.8500	250.70%	Thakurgaon	Haripur	Jadurani GC	7,370.0
6	0.8231	123.00%	Mymensingh	Phulpur	Bhaitkandi Bazar	7,600.0
7	0.8214	99.00%	Dinajpur	Birampur	Birampur Hat	7,370.0
8	0.8151	294.20%	Dinajpur	Kaharol	Kaharol	7,370.0
10	0.7995	542.00%	Jamalpur	Islampur	Guthail Bazar	7,630.0
11	0.7986	542.00%	Jamalpur	Islampur	Dharmakura Bazar	7,630.0
12	0.7985	101.70%	Rangpur	Badargonj	Shyampur	7,400.0
13	0.7923	134.00%	Sherpur	Jhenaigati	Jhenaigati	7,630.0
14	0.7898	82.30%	Mymensingh	Gouripur	Shyamgonj	7,600.0
15	0.7892	89.20%	Dinajpur	Bochagonj	Setabganj Hat G.C	7,370.0
16	0.7864	81.20%	Thakurgaon	Ranisankail	Katihar	7,370.0
17	0.7823	87.20%	Rangpur	Kaunia	Kaunia GC (Takipal hat)	7,400.0
18	0.7775	76.80%	Kurigram	Rajibpur	Baliamari	7,400.0
19	0.7687	350.80%	Thakurgaon	Baliadangi	Lahiri GC	7,370.0
20	0.7637	152.20%	Panchagarh	Debiganj	Kaliganjhat	7,370.0
21	0.7627	73.90%	Mymensingh	Gouripur	Gouripur	7,600.0
22	0.7620	115.20%	Dinajpur	Birgonj	Golapganj hat	7,370.0
24	0.7483	149.10%	Panchagarh	Tetulia	Shalbahan	7,370.0
25	0.7371	267.40%	Thakurgaon	Pirganj	Jabor Hat	7,370.0
26	0.7295	109.30%	Dinajpur	Nawabgonj	Vaduria Hat	7,370.0
27	0.7271	176.70%	Jamalpur	Sarishabari	Aramnagar Hat	7,630.0
28	0.7233	112.90%	Gaibandha	Sadullapur	Sadullapur Bazar	7,400.0
29	0.7217	122.30%	Panchagarh	Atwari	Fakirgonjr hat GC	7,370.0
30	0.7155	73.30%	Rangpur	Kaunia	Modhupur hat	7,400.0
31	0.7035	110.50%	Dinajpur	Nawabgonj	Daudpur Hat	7,370.0
32	0.7028	66.10%	Mymensingh	Haluaghat	Haluaghat GC	7,600.0
33	0.6963	149.60%	Sherpur	Jhenaigati	Gobindaganj Hat	7,630.0
34	0.6936	59.60%	Dinajpur	Ghoraghat	Ranigonj	7,370.0
35	0.6865	368.20%	Sherpur	Sherpur Sadar	Kamarerchar GC	7,630.0
36	0.6773	267.00%	Sherpur	Nakla	Narayankhola	7,630.0
37	0.6709	136.10%	Kishoreganj	Tarail	Jawer	7,600.0
38	0.6630	101.70%	Kishoreganj	Mithamoin	Mithamoin	7,600.0
39	0.6615	82.00%	Dinajpur	Parbatipur	Khyarpukur	7,370.0
40	0.6610	300.60%	Tangail	Gopalpur	Bhengula Bazar	7,630.0
41	0.6558	381.50%	Tangail	Gopalpur	Nalin	7,630.0
42	0.6533	216.10%	Tangail	Tangail Sadar	Torapgonj	7,630.0
43	0.6497	78.60%	Dinajpur	Chirirbandar	Binnakuri	7,370.0
44	0.6470	59.70%	Mymensingh	Bhaluka	Birunia	7,600.0
45	0.6410	109.60%	Tangail	Mirzapur	Hatubanga	7,630.0
46	0.6400	468.60%	Tangail	Mirzapur	Dewhata	7,630.0
47	0.6371	58.50%	Dinajpur	Khansama	Pakerhat	7,370.0
51	0.6144	2062.30%	Kishoreganj	Hossainpur	Hossainpur	7,600.0
52	0.6036	54.40%	Jamalpur	Melandah	Hazrabari GC	7,630.0
53	0.5981	233.30%	Kishoreganj	Pakundia	Adarshapara	7,600.0
54	0.5838	64.80%	Sherpur	Nakla	Nakla Bazar	7,630.0
55	0.5688	57.40%	Tangail	Madhupur	Madhupur	7,630.0
56	0.5664	45.20%	Mymensingh	Haluaghat	Shakuai GC Market	7,600.0
57	0.5607	147.20%	Kishoreganj	Pakundia	Motkhola	7,600.0
58	0.5582	48.90%	Dinajpur	Dinajpur Sadar	Fasiladanga	7,370.0
60	0.5405	448.50%	Kishoreganj	Kuliarchar	Agarpur Bazar	7,600.0
61	0.5305	56.10%	Sherpur	Sreebordi	Karnojhora	7,630.0
62	0.5300	48.70%	Thakurgaon	Thakurgaon Sadar	Shibganj	7,370.0

Ranking	Ranking Score	EIRR	District	Upazila	Name of GCM	Cost of Market BDT '000 (2012 Prices)
63	0.5204	70.60%	Kishoreganj	Mithamoin	Katkhal	7,600.0
65	0.4828	53.20%	Tangail	Gopalpur	Jhawail	7,630.0
66	0.4802	38.20%	Dinajpur	Chirirbandar	Chirirhat	7,370.0
67	0.4726	43.00%	Dinajpur	Dinajpur Sadar	Raniganj	7,370.0
68	0.4616	28.80%	Gaibandha	Sundarganj	Sovaganj	7,400.0
69	0.4306	23.10%	Tangail	Shakhipur	Shakirpur Hat	7,630.0
70	0.4283	22.00%	Tangail	Nagarpur	Shahjani	7,630.0
72	0.4163	57.40%	Kishoreganj	Bhairab	Shimulkandi	7,600.0
75	0.3805	35.40%	Netrakona	Purbadhala	Hogla Bazar	7,600.0
76	0.3790	35.50%	Kishoreganj	Tarail	Tarail-Shachail	7,600.0
77	0.3709	18.70%	Dinajpur	Parbatipur	Bhabanipur	7,370.0
79	0.3668	18.10%	Tangail	Shakhipur	Boheratail Hat	7,630.0
80	0.3665	16.10%	Tangail	Nagarpur	Tebaria	7,630.0
84	0.2905	19.00%	Netrakona	Kendua	Bekhair Hati	7,600.0
70 Markets						**525,770.0**

Selected GCM in Kishoreganj and Netrokona are subject to confirmation that HAILIP will not improve them

Table A18-2 Selected Growth Center Market Subprojects - by DISTRICT

Ranking	Ranking Score	EIRR	District	Upazila	Name of GCM	Cost of Market BDT '000 (2012 Prices)
10	0.7995	542.00%	Jamalpur	Islampur	Guthail Bazar	7,630.0
11	0.7986	542.00%	Jamalpur	Islampur	Dharmakura Bazar	7,630.0
52	0.6036	54.40%	Jamalpur	Melandah	Hazrabari GC	7,630.0
27	0.7271	176.70%	Jamalpur	Sarishabari	Aramnagar Hat	7,630.0
			Jamalpur District		**4**	**30,520.0**
72	0.4163	57.40%	Kishoreganj	Bhairab	Shimulkandi	7,600.0
51	0.6144	2062.30%	Kishoreganj	Hossainpur	Hossainpur	7,600.0
60	0.5405	448.50%	Kishoreganj	Kuliarchar	Agarpur Bazar	7,600.0
38	0.6630	101.70%	Kishoreganj	Mithamoin	Mithamoin	7,600.0
63	0.5204	70.60%	Kishoreganj	Mithamoin	Katkhal	7,600.0
53	0.5981	233.30%	Kishoreganj	Pakundia	Adarshapara	7,600.0
57	0.5607	147.20%	Kishoreganj	Pakundia	Motkhola	7,600.0
37	0.6709	136.10%	Kishoreganj	Tarail	Jawer	7,600.0
76	0.3790	35.50%	Kishoreganj	Tarail	Tarail-Shachail	7,600.0
			Kishoreganj District		**9**	**68,400.0**
44	0.6470	59.70%	Mymensingh	Bhaluka	Birunia	7,600.0
14	0.7898	82.30%	Mymensingh	Gouripur	Shyamgonj	7,600.0
21	0.7627	73.90%	Mymensingh	Gouripur	Gouripur	7,600.0
32	0.7028	66.10%	Mymensingh	Haluaghat	Haluaghat GC	7,600.0
56	0.5664	45.20%	Mymensingh	Haluaghat	Shakuai GC Market	7,600.0
2	0.8730	2076.10%	Mymensingh	Ishwarganj	Rayer Bazar	7,600.0
6	0.8231	123.00%	Mymensingh	Phulpur	Bhaitkandi Bazar	7,600.0
			Mymensingh District		**7**	**53,200.0**
84	0.2905	19.00%	Netrakona	Kendua	Bekhair Hati	7,600.0
75	0.3805	35.40%	Netrakona	Purbadhala	Hogla Bazar	7,600.0
			Netrakona District		**2**	**15,200.0**
13	0.7923	134.00%	Sherpur	Jhenaigati	Jhenaigati	7,630.0
33	0.6963	149.60%	Sherpur	Jhenaigati	Gobindaganj Hat	7,630.0
36	0.6773	267.00%	Sherpur	Nakla	Narayankhola	7,630.0
54	0.5838	64.80%	Sherpur	Nakla	Nakla Bazar	7,630.0
61	0.5305	56.10%	Sherpur	Sreebordi	Karnojhora	7,630.0
35	0.6865	368.20%	Sherpur	Sherpur Sadar	Kamarerchar GC	7,630.0
			Sherpur District		**6**	**45,780.0**
40	0.6610	300.60%	Tangail	Gopalpur	Bhengula Bazar	
41	0.6558	381.50%	Tangail	Gopalpur	Nalin	
65	0.4828	53.20%	Tangail	Gopalpur	Jhawail	7,630.0
55	0.5688	57.40%	Tangail	Madhupur	Madhupur	7,630.0
45	0.6410	109.60%	Tangail	Mirzapur	Hatubanga	7,630.0
46	0.6400	468.60%	Tangail	Mirzapur	Dewhata	7,630.0
70	0.4283	22.00%	Tangail	Nagarpur	Shahjani	7,630.0
80	0.3665	16.10%	Tangail	Nagarpur	Tebaria	7,630.0
69	0.4306	23.10%	Tangail	Shakhipur	Shakirpur Hat	7,630.0
79	0.3668	18.10%	Tangail	Shakhipur	Boheratail Hat	7,630.0
42	0.6533	216.10%	Tangail	Tangail Sadar	Torapgonj	7,630.0
			Tangail District		**11**	**83,930.0**
7	0.8214	99.00%	Dinajpur	Birampur	Birampur Hat	7,370.0
22	0.7620	115.20%	Dinajpur	Birgonj	Golapganj hat	7,370.0
15	0.7892	89.20%	Dinajpur	Bochagonj	Setabganj Hat G.C	7,370.0
43	0.6497	78.60%	Dinajpur	Chirirbandar	Binnakuri	7,370.0
66	0.4802	38.20%	Dinajpur	Chirirbandar	Chirirhat	7,370.0
58	0.5582	48.90%	Dinajpur	Dinajpur Sadar	Fasiladanga	7,370.0
67	0.4726	43.00%	Dinajpur	Dinajpur Sadar	Raniganj	7,370.0
34	0.6936	59.60%	Dinajpur	Ghoraghat	Ranigonj	7,370.0
8	0.8151	294.20%	Dinajpur	Kaharol	Kaharol	7,370.0
47	0.6371	58.50%	Dinajpur	Khansama	Pakerhat	7,370.0
26	0.7295	109.30%	Dinajpur	Nawabgonj	Vaduria Hat	7,370.0

Ranking	Ranking Score	EIRR	District	Upazila	Name of GCM	Cost of Market BDT '000 (2012 Prices)
31	0.7035	110.50%	Dinajpur	Nawabgonj	Daudpur Hat	7,370.0
39	0.6615	82.00%	Dinajpur	Parbatipur	Khyarpukur	7,370.0
77	0.3709	18.70%	Dinajpur	Parbatipur	Bhabanipur	7,370.0
			Dinajpur District		**14**	**103,180.0**
28	0.7233	112.90%	Gaibandha	Sadullapur	Sadullapur Bazar	7,400.0
68	0.4616	28.80%	Gaibandha	Sundarganj	Sovaganj	7,400.0
			Gaibandha District		**2**	**14,800.0**
18	0.7775	76.80%	Kurigram	Rajibpur	Baliamari	7,400.0
1	0.9140	152.50%	Kurigram	Rowmari	Rowmari	7,400.0
			Kurigram District		**2**	**14,800.0**
			Lalmonirhat District		**0**	**0.0**
3	0.8648	462.60%	Nilphamari	Dimla	Shutibari Hat	7,400.0
4	0.8523	316.80%	Nilphamari	Dimla	Thakurgonj Hat	7,400.0
			Nilphamari District		**2**	**14,800.0**
20	0.7637	152.20%	Panchagarh	Debiganj	Kaliganjhat	7,370.0
29	0.7217	122.30%	Panchagarh	Atwari	Fakirgonjr hat GC	7,370.0
24	0.7483	149.10%	Panchagarh	Tetulia	Shalbahan	7,370.0
			Panchagarh District		**3**	**22,110.0**
12	0.7985	101.70%	Rangpur	Badargonj	Shyampur	7,400.0
17	0.7823	87.20%	Rangpur	Kaunia	Kaunia GC (Takipal hat)	7,400.0
30	0.7155	73.30%	Rangpur	Kaunia	Modhupur hat	7,400.0
			Rangpur District		**3**	**22,200.0**
19	0.7687	350.80%	Thakurgaon	Baliadangi	Lahiri GC	7,370.0
5	0.8500	250.70%	Thakurgaon	Haripur	Jadurani GC	7,370.0
25	0.7371	267.40%	Thakurgaon	Pirganj	Jabor Hat	7,370.0
16	0.7864	81.20%	Thakurgaon	Ranisankail	Katihar	7,370.0
62	0.5300	48.70%	Thakurgaon	Thakurgaon Sadar	Shibganj	7,370.0
			Thakurgaon District		**5**	**36,850.0**
					70	**525,770.0**

Selected GCM in Kishoreganj and Netrokona are subject to confirmation that HAILIP will not improve them.

Table A18-3 Listing of Rural Markets that passed selection and appraisal procedure - by RANKING

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
1	0.9658	517.50%	Nilphamari	Dimla	Khagakharibari	4,440.0
2	0.9121	443.10%	Nilphamari	Dimla	Shelhati	4,440.0
3	0.8838	281.30%	Nilphamari	Jaldhaka	Rother Bazar	4,440.0
4	0.8832	342.10%	Mymensingh	Ishwarganj	Charpara Bazar	4,560.0
5	0.8755	86.70%	Kurigram	Rowmari	Char Shoulmari	4,440.0
6	0.8711	92.70%	Kurigram	Rajibpur	Nayachar Bazar	4,440.0
7	0.8624	165.10%	Panchagarh	Panchagarh Sadar	Jhalaihat	4,420.0
8	0.8384	320.30%	Jamalpur	Dewanganj	Katerbeel	4,580.0
9	0.8325	102.10%	Mymensingh	Nandail	Seed Store Market	4,560.0
10	0.8029	94.80%	Dinajpur	Nawabgonj	Dolar Dorga Hat	4,420.0
11	0.7973	112.10%	Panchagarh	Panchagarh Sadar	Futkibarihat	4,420.0
12	0.7915	299.00%	Kurigram	Fulbari	Pakhirhat	4,440.0
13	0.7880	67.50%	Jamalpur	Dewanganj	Jalurchar	4,580.0
14	0.7827	520.00%	Sherpur	Sherpur Sadar	Bimgonj Bazar	4,580.0
15	0.7776	117.90%	Mymensingh	Phulpur	Horiagai Bazar	4,560.0
16	0.7709	93.20%	Nilphamari	Kishoregonj	Bangla Bazar (Magura UP)	4,440.0
17	0.7707	182.30%	Mymensingh	Dhobaura	Chariakanda	4,560.0
18	0.7672	195.70%	Mymensingh	Phulpur	Charia Bazar	4,560.0
19	0.7650	118.50%	Mymensingh	Haluaghat	Dhurail	4,560.0
20	0.7591	111.20%	Mymensingh	Ishwarganj	Surjer Bazar	4,560.0
21	0.7516	65.50%	Panchagarh	Debiganj	Laxmirhat	4,420.0
22	0.7515	92.70%	Rangpur	Kaunia	Joy Bangla Bazar	4,440.0
23	0.7294	479.40%	Mymensingh	Muktagacha	Kheruajani Bazar	4,560.0
24	0.7277	157.50%	Mymensingh	Haluaghat	Mazrakura	4,560.0
25	0.7150	69.20%	Kurigram	Rowmari	Pakhiura	4,440.0
26	0.7110	282.80%	Dinajpur	Nawabgonj	Charar Hat	4,420.0
27	0.7110	84.60%	Dinajpur	Kaharol	Boleya hat	4,420.0
28	0.7053	85.60%	Mymensingh	Muktagacha	Shasa Bangla bazar	4,560.0
29	0.7036	115.20%	Kishoreganj	Hossainpur	Pitalganj	4,560.0
30	0.6975	66.80%	Nilphamari	Nilphamari Sadar	Dhelapir hat	4,440.0
31	.6962.	241.90%	Mymensingh	Bhaluka	Paruldia	4,560.0
32	0.6891	251.10%	Tangail	Delduar	Rupshi Hat	4,580.0
33	0.6851	377.20%	Mymensingh	Bhaluka	Angargara	4,560.0
34	0.6818	98.10%	Tangail	Bhuapur	Gabshara Hat	4,580.0
35	0.6810	431.90%	Sherpur	Sherpur Sadar	Rasulpur Bazar	4,580.0
36	0.6763	68.70%	Kurigram	Nageswari	Naykerhat	4,440.0
37	0.6675	199.10%	Dinajpur	Birol	Choker Hat	4,420.0
38	0.6646	236.60%	Dinajpur	Fulbari	Pukhuri Hat	4,420.0
39	0.6585	114.70%	Gaibandha	Palashbari	Talukjamira Hat	4,440.0
40	0.6581	69.10%	Mymensingh	Trishal	Dhala Bazar	4,560.0
41	0.6580	46.40%	Nilphamari	Jaldhaka	Baroghat hat	4,440.0
42	0.6571	95.30%	Dinajpur	Fulbari	Khayerbari Bazar	4,420.0
43	0.6466	186.00%	Sherpur	Nakla	Pathakata	4,580.0
44	0.6459	272.80%	Kishoreganj	Hossainpur	Thatarknda	4,560.0
45	0.6344	89.30%	Dinajpur	Ghoraghat	Chadpara	4,420.0
46	0.6226	76.20%	Dinajpur	Kaharol	Bogdoir	4,420.0
47	0.6177	149.70%	Tangail	Delduar	Naliapara	4,580.0
48	0.6120	41.10%	Kurigram	Rajarhat	Nakkatirhat	4,440.0
49	0.6067	316.50%	Tangail	Tangail Sadar	Gala Bazar	4,580.0
50	0.6053	96.10%	Kishoreganj	Austagram	Bangalpara Bazar	4,560.0
51	0.5990	142.40%	Tangail	Tangail Sadar	Binnafoir	4,580.0
52	0.5946	171.00%	Kishoreganj	Karimgonj	Gabtoli Bazar	4,560.0
53	0.5938	79.80%	Dinajpur	Bochagonj	Sadamahal Hat	4,420.0
54	0.5863	65.80%	Mymensingh	Gaffargaon	Mukhi school bazar	4,560.0
55	0.5858	79.90%	Sherpur	Jhenaigati	Bakakura Bazar	4,580.0

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
56	0.5851	51.40%	Rangpur	Kaunia	Jamtolir hat	4,440.0
57	0.5733	81.60%	Netrakona	Purbadhala	Jaria Bazar	4,560.0
58	0.5722	64.30%	Dinajpur	Birgonj	Sanka	4,420.0
59	0.5714	79.70%	Panchagarh	Atwari	Dungdungir hat	4,420.0
60	0.5590	137.40%	Kishoreganj	Tarail	Kawakhali	4,560.0
61	0.5503	24.20%	Panchagarh	Debiganj	Saldangaha	4,420.0
62	0.5434	71.40%	Sherpur	Jhenaigati	Mohangong Hat	4,580.0
63	0.5322	68.50%	Panchagarh	Atwari	Rakhal Debi hat GC	4,420.0
64	0.5304	1580.30%	Kishoreganj	Pakundia	Dorgha	4,560.0
65	0.5299	66.50%	Kishoreganj	Austagram	Abdullapur Bazar	4,560.0
66	0.5263	32.40%	Kurigram	Nageswari	Momingonj	4,440.0
67	0.5255	58.00%	Sherpur	Nalitabari	Noljora	4,580.0
68	0.5243	18.20%	Nilphamari	Nilphamari Sadar	Jadur hat	4,440.0
69	0.5237	33.30%	Mymensingh	Trishal	Kashigong Bazar	4,560.0
70	0.5203	678.30%	Kishoreganj	Pakundia	Dogdoga	4,560.0
71	0.5087	41.60%	Dinajpur	Ghoraghat	Bologari	4,420.0
72	0.5053	35.60%	Kurigram	Kurigram Sadar	Sulkurbazar	4,440.0
73	0.5030	42.50%	Jamalpur	Melandah	Beltail Bazar	4,580.0
74	0.4874	38.40%	Mymensingh	Nandail	Bashati Market	4,560.0
75	0.4837	36.80%	Jamalpur	Melandah	Kahetpara Bazar	4,580.0
76	0.4760	28.00%	Gaibandha	Saghata	Ullah Sonatola	4,440.0
77	0.4740	49.60%	Tangail	Ghatail	Pacharata	4,580.0
78	0.4739	31.20%	Dinajpur	Parbatipur	Banirhat	4,420.0
79	0.4684	36.50%	Thakurgaon	Thakurgaon Sadar	Rangianihat	4,420.0
80	0.4677	27.50%	Rangpur	Badargonj	Shakerhat	4,440.0
81	0.4644	15.00%	Rangpur	Badargonj	Madargonj	4,440.0
82	0.4560	38.10%	Gaibandha	Sundarganj	Saitantola	4,440.0
83	0.4513	51.40%	Dinajpur	Dinajpur Sadar	North Gopalpur	4,420.0
84	0.4426	38.70%	Panchagarh	Boda	Balaram Hat	4,420.0
85	0.4422	58.80%	Tangail	Gopalpur	Mohanpur	4,580.0
86	0.4350	25.30%	Dinajpur	Khansama	Dangarhat	4,420.0
87	0.4275	46.80%	Sherpur	Nakla	Baromaisha	4,580.0
88	0.4265	33.40%	Panchagarh	Tetulia	Ranachandi hat	4,420.0
89	0.4260	41.90%	Dinajpur	Bochagonj	Preetir Bazaar	4,420.0
90	0.4087	34.30%	Dinajpur	Birampur	Desham Hat	4,420.0
91	0.4062	31.70%	Dinajpur	Birol	Fulbari Hat	4,420.0
92	0.4044	25.30%	Gaibandha	Saghata	Kochuahat	4,440.0
93	0.4027	18.10%	Tangail	Nagarpur	Panan	4,580.0
94	0.4000	20.20%	Sherpur	Nalitabari	Ghakpara	4,580.0
95	0.3971	31.60%	Thakurgaon	Baliadangi	Khochabari hat	4,420.0
96	0.3868	21.90%	Thakurgaon	Thakurgaon Sadar	Danarhat	4,420.0
97	0.3865	47.70%	Kishoreganj	Mithamoin	Gopdighi	4,560.0
98	0.3852	22.10%	Gaibandha	Sundarganj	Baruarhat	4,440.0
99	0.3797	35.70%	Tangail	Ghatail	Delutia	4,580.0
100	0.3760	46.80%	Kishoreganj	Mithamoin	Dhaki	4,560.0
101	0.3755	21.90%	Panchagarh	Tetulia	Magurmari Chowrasta	4,420.0
102	0.3747	53.70%	Kishoreganj	Tarail	Damiha Bazar	4,560.0
103	0.3741	33.20%	Dinajpur	Hakimpur	Khattauchna	4,420.0
104	0.3729	44.70%	Tangail	Basail	Moytha Janjania Notun Bazar	4,580.0
105	0.3718	28.10%	Gaibandha	Gobindagonj	Gheedanga hat	4,440.0
106	0.3685	22.50%	Dinajpur	Birgonj	Khalsihat	4,420.0
107	0.3599	23.30%	Thakurgaon	Baliadangi	Dhogachi hat	4,420.0
108	0.3575	27.30%	Dinajpur	Hakimpur	Jangoi Hat	4,420.0
109	0.3570	17.10%	Tangail	Nagarpur	Bhadra	4,580.0
110	0.3542	16.80%	Panchagarh	Boda	Tepukuria Hat	4,420.0
111	0.3530	27.70%	Sherpur	Sreebordi	Gilagacha	4,580.0
112	0.3279	24.40%	Tangail	Madhupur	Lawfula	4,580.0

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
113	0.3182	13.40%	Gaibandha	Sadullapur	Edrakpur Bazar	4,440.0
114	0.3173	31.70%	Netrakona	Kalmakanda	Pagla Bazr	4,560.0
115	0.3168	14.90%	Dinajpur	Chirirbandar	Dangarhat	4,420.0
116	0.3160	29.10%	Kishoreganj	Karimgonj	Panahar Bazar	4,560.0
117	0.3139	25.00%	Tangail	Gopalpur	Banglabazar	4,580.0
118	0.3124	22.20%	Tangail	Dhanbari	Bhaighat	4,580.0
119	0.2938	12.70%	Sherpur	Sreebordi	Balijhuri	4,580.0
120	0.2927	12.60%	Tangail	Dhanbari	Zagirachala	4,580.0
121	0.2864	30.30%	Netrakona	Mohanganj	Charpar Bazar	4,560.0
122	0.2882	17.00%	Tangail	Kalihati	Powjan	4,580.0
123	0.2557	38.30%	Kishoreganj	Kuliarchar	Protabnath Bazar	4,560.0
124	0.2436	23.30%	Netrakona	Khaliajuri	Satgaon	4,560.0
125	0.2292	16.90%	Netrakona	Madan	Singher Bazar	4,560.0
126	0.2231	17.70%	Netrakona	Khaliajuri	Udaypur Bazar	4,560.0
126 Rural Markets						**567,140.0**

Subject to confirmation that HAILIP will not improve these markets

Table A18-4 Listing of Rural Markets that passed selection and appraisal procedure - by DISTRICT

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
8	0.8384	320.30%	Jamalpur	Dewanganj	Katerbeel	4,580.0
13	0.7880	67.50%	Jamalpur	Dewanganj	Jalurchar	4,580.0
73	0.5030	42.50%	Jamalpur	Melandah	Beltail Bazar	4,580.0
75	0.4837	36.80%	Jamalpur	Melandah	Kahetpara Bazar	4,580.0
			Jamalpur District		**4**	**18,320.0**
50	0.6053	96.10%	Kishoreganj	Austagram	Bangalpara Bazar	4,560.0
65	0.5299	66.50%	Kishoreganj	Austagram	Abdullapur Bazar	4,560.0
29	0.7036	115.20%	Kishoreganj	Hossainpur	Pitalganj	4,560.0
44	0.6459	272.80%	Kishoreganj	Hossainpur	Thatarknda	4,560.0
52	0.5946	171.00%	Kishoreganj	Karimgonj	Gabtoli Bazar	4,560.0
116	0.3160	29.10%	Kishoreganj	Karimgonj	Panahar Bazar	4,560.0
123	0.2557	38.30%	Kishoreganj	Kuliarchar	Protabnath Bazar	4,560.0
97	0.3865	47.70%	Kishoreganj	Mithamoin	Gopdighi	4,560.0
100	0.3760	46.80%	Kishoreganj	Mithamoin	Dhaki	4,560.0
64	0.5304	1580.30%	Kishoreganj	Pakundia	Dorgha	4,560.0
70	0.5203	678.30%	Kishoreganj	Pakundia	Dogdoga	4,560.0
60	0.5590	137.40%	Kishoreganj	Tarail	Kawakhali	4,560.0
102	0.3747	53.70%	Kishoreganj	Tarail	Damiha Bazar	4,560.0
			Kishoreganj District		**13**	**59,280.0**
31	.6962.	241.90%	Mymensingh	Bhaluka	Paruldia	4,560.0
33	0.6851	377.20%	Mymensingh	Bhaluka	Angargara	4,560.0
17	0.7707	182.30%	Mymensingh	Dhobaura	Chariakanda	4,560.0
54	0.5863	65.80%	Mymensingh	Gaffargaon	Mukhi school bazar	4,560.0
19	0.7650	118.50%	Mymensingh	Haluaghat	Dhurail	4,560.0
24	0.7277	157.50%	Mymensingh	Haluaghat	Mazrakura	4,560.0
4	0.8832	342.10%	Mymensingh	Ishwarganj	Charpara Bazar	4,560.0
20	0.7591	111.20%	Mymensingh	Ishwarganj	Surjer Bazar	4,560.0
23	0.7294	479.40%	Mymensingh	Muktagacha	Kheruajani Bazar	4,560.0
28	0.7053	85.60%	Mymensingh	Muktagacha	Shasa Bangla bazar	4,560.0
9	0.8325	102.10%	Mymensingh	Nandail	Seed Store Market	4,560.0
74	0.4874	38.40%	Mymensingh	Nandail	Bashati Market	4,560.0
15	0.7776	117.90%	Mymensingh	Phulpur	Horiagai Bazar	4,560.0
18	0.7672	195.70%	Mymensingh	Phulpur	Charia Bazar	4,560.0
40	0.6581	69.10%	Mymensingh	Trishal	Dhala Bazar	4,560.0
69	0.5237	33.30%	Mymensingh	Trishal	Kashigong Bazar	4,560.0
			Mymensingh District		**16**	**72,960.0**
114	0.3173	31.70%	Netrakona	Kalmakanda	Pagla Bazr	4,560.0
124	0.2436	23.30%	Netrakona	Khaliajuri	Satgaon	4,560.0
126	0.2231	17.70%	Netrakona	Khaliajuri	Udaypur Bazar	4,560.0
125	0.2292	16.90%	Netrakona	Madan	Singher Bazar	4,560.0
121	0.2864	30.30%	Netrakona	Mohanganj	Charpar Bazar	4,560.0
57	0.5733	81.60%	Netrakona	Purbadhala	Jaria Bazar	4,560.0
			Netrakona District		**6**	**27,360.0**
55	0.5858	79.90%	Sherpur	Jhenaigati	Bakakura Bazar	4,580.0
62	0.5434	71.40%	Sherpur	Jhenaigati	Mohangong Hat	4,580.0
43	0.6466	186.00%	Sherpur	Nakla	Pathakata	4,580.0
87	0.4275	46.80%	Sherpur	Nakla	Baromaisha	4,580.0
67	0.5255	58.00%	Sherpur	Nalitabari	Noljora	4,580.0
94	0.4000	20.20%	Sherpur	Nalitabari	Ghakpara	4,580.0
14	0.7827	520.00%	Sherpur	Sherpur Sadar	Bimgonj Bazar	4,580.0
35	0.6810	431.90%	Sherpur	Sherpur Sadar	Rasulpur Bazar	4,580.0
111	0.3530	27.70%	Sherpur	Sreebordi	Gilagacha	4,580.0
119	0.2938	12.70%	Sherpur	Sreebordi	Balijhuri	4,580.0
			Sherpur District		**10**	**45,800.0**

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
104	0.3729	44.70%	Tangail	Basail	Moytha Janjania Notun Bazar	4,580.0
34	0.6818	98.10%	Tangail	Bhuapur	Gabshara Hat	4,580.0
32	0.6891	251.10%	Tangail	Delduar	Rupshi Hat	4,580.0
47	0.6177	149.70%	Tangail	Delduar	Naliapara	4,580.0
118	0.3124	22.20%	Tangail	Dhanbari	Bhaighat	4,580.0
120	0.2927	12.60%	Tangail	Dhanbari	Zagirachala	4,580.0
77	0.4740	49.60%	Tangail	Ghatail	Pacharata	4,580.0
99	0.3797	35.70%	Tangail	Ghatail	Delutia	4,580.0
85	0.4422	58.80%	Tangail	Gopalpur	Mohanpur	4,580.0
117	0.3139	25.00%	Tangail	Gopalpur	Banglabazar	4,580.0
122	0.2882	17.00%	Tangail	Kalihati	Powjan	4,580.0
112	0.3279	24.40%	Tangail	Madhupur	Lawfula	4,580.0
93	0.4027	18.10%	Tangail	Nagarpur	Panan	4,580.0
109	0.3570	17.10%	Tangail	Nagarpur	Bhadra	4,580.0
49	0.6067	316.50%	Tangail	Tangail Sadar	Gala Bazar	4,580.0
51	0.5990	142.40%	Tangail	Tangail Sadar	Binnafoir	4,580.0
			Tangail District		**16**	**73,280.0**
90	0.4087	34.30%	Dinajpur	Birampur	Desham Hat	4,420.0
58	0.5722	64.30%	Dinajpur	Birgonj	Sanka	4,420.0
106	0.3685	22.50%	Dinajpur	Birgonj	Khalsihat	4,420.0
37	0.6675	199.10%	Dinajpur	Birol	Choker Hat	4,420.0
91	0.4062	31.70%	Dinajpur	Birol	Fulbari Hat	4,420.0
53	0.5938	79.80%	Dinajpur	Bochagonj	Sadamahal Hat	4,420.0
89	0.4260	41.90%	Dinajpur	Bochagonj	Preetir Bazaar	4,420.0
115	0.3168	14.90%	Dinajpur	Chirirbandar	Dangarhat	4,420.0
83	0.4513	51.40%	Dinajpur	Dinajpur Sadar	North Gopalpur	4,420.0
38	0.6646	236.60%	Dinajpur	Fulbari	Pukhuri Hat	4,420.0
42	0.6571	95.30%	Dinajpur	Fulbari	Khayerbari Bazar	4,420.0
45	0.6344	89.30%	Dinajpur	Ghoraghat	Chadpara	4,420.0
71	0.5087	41.60%	Dinajpur	Ghoraghat	Bologari	4,420.0
103	0.3741	33.20%	Dinajpur	Hakimpur	Khattauchna	4,420.0
108	0.3575	27.30%	Dinajpur	Hakimpur	Jangoi Hat	4,420.0
27	0.7110	84.60%	Dinajpur	Kaharol	Boleya hat	4,420.0
46	0.6226	76.20%	Dinajpur	Kaharol	Bogdoir	4,420.0
86	0.4350	25.30%	Dinajpur	Khansama	Dangarhat	4,420.0
10	0.8029	94.80%	Dinajpur	Nawabgonj	Dolar Dorga Hat	4,420.0
26	0.7110	282.80%	Dinajpur	Nawabgonj	Charar Hat	4,420.0
78	0.4739	31.20%	Dinajpur	Parbatipur	Banirhat	4,420.0
			Dinajpur District		**21**	**92,820.0**
105	0.3718	28.10%	Gaibandha	Gobindagonj	Gheedanga hat	4,440.0
39	0.6585	114.70%	Gaibandha	Palashbari	Talukjamira Hat	4,440.0
113	0.3182	13.40%	Gaibandha	Sadullapur	Edrakpur Bazar	4,440.0
76	0.4760	28.00%	Gaibandha	Saghata	Ullah Sonatola	4,440.0
92	0.4044	25.30%	Gaibandha	Saghata	Kochuahat	4,440.0
82	0.4560	38.10%	Gaibandha	Sundarganj	Saitantola	4,440.0
98	0.3852	22.10%	Gaibandha	Sundarganj	Baruarhat	4,440.0
			Gaibandha District		**7**	**31,080.0**
12	0.7915	299.00%	Kurigram	Fulbari	Pakhirhat	4,440.0
72	0.5053	35.60%	Kurigram	Kurigram Sadar	Sulkurbazar	4,440.0
36	0.6763	68.70%	Kurigram	Nageswari	Naykerhat	4,440.0
66	0.5263	32.40%	Kurigram	Nageswari	Momingonj	4,440.0
48	0.6120	41.10%	Kurigram	Rajarhat	Nakkatirhat	4,440.0
6	0.8711	92.70%	Kurigram	Rajibpur	Nayachar Bazar	4,440.0
5	0.8755	86.70%	Kurigram	Rowmari	Char Shoulmari	4,440.0
25	0.7150	69.20%	Kurigram	Rowmari	Pakhiura	4,440.0
			Kurigram District		**8**	**35,520.0**
			Lalmonirhat District		**0**	0.0

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
1	0.9658	517.50%	Nilphamari	Dimla	Khagakharibari	4,440.0
2	0.9121	443.10%	Nilphamari	Dimla	Shelhati	4,440.0
3	0.8838	281.30%	Nilphamari	Jaldhaka	Rother Bazar	4,440.0
41	0.6580	46.40%	Nilphamari	Jaldhaka	Baroghat hat	4,440.0
16	0.7709	93.20%	Nilphamari	Kishoregonj	Bangla Bazar (Magura UP)	4,440.0
30	0.6975	66.80%	Nilphamari	Nilphamari Sadar	Dhelapir hat	4,440.0
68	0.5243	18.20%	Nilphamari	Nilphamari Sadar	Jadur hat	4,440.0
			Nilphamari District		**7**	**31,080.0**
59	0.5714	79.70%	Panchagarh	Atwari	Dungdungir hat	4,420.0
63	0.5322	68.50%	Panchagarh	Atwari	Rakhal Debi hat GC	4,420.0
84	0.4426	38.70%	Panchagarh	Boda	Balaram Hat	4,420.0
110	0.3542	16.80%	Panchagarh	Boda	Tepukuria Hat	4,420.0
21	0.7516	65.50%	Panchagarh	Debiganj	Laxmirhat	4,420.0
61	0.5503	24.20%	Panchagarh	Debiganj	Saldangaha	4,420.0
7	0.8624	165.10%	Panchagarh	Panchagarh Sadar	Jhalaihat	4,420.0
11	0.7973	112.10%	Panchagarh	Panchagarh Sadar	Futkibarihat	4,420.0
88	0.4265	33.40%	Panchagarh	Tetulia	Ranachandi hat	4,420.0
101	0.3755	21.90%	Panchagarh	Tetulia	Magurmari Chowrasta	4,420.0
			Panchagarh District		**10**	**44,200.0**
80	0.4677	27.50%	Rangpur	Badargonj	Shakerhat	4,440.0
81	0.4644	15.00%	Rangpur	Badargonj	Madargonj	4,440.0
22	0.7515	92.70%	Rangpur	Kaunia	Joy Bangla Bazar	4,440.0
56	0.5851	51.40%	Rangpur	Kaunia	Jamtolir hat	4,440.0
			Rangpur District		**4**	**17,760.0**
95	0.3971	31.60%	Thakurgaon	Baliadangi	Khochabari hat	4,420.0
107	0.3599	23.30%	Thakurgaon	Baliadangi	Dhogachi hat	4,420.0
79	0.4684	36.50%	Thakurgaon	Thakurgaon Sadar	Rangianihat	4,420.0
96	0.3868	21.90%	Thakurgaon	Thakurgaon Sadar	Danarhat	4,420.0
			Thakurgaon District		**4**	**17,680.0**
					126	**567,140.0**

Subject to confirmation that HAILIP will not improve these markets

Table A18-5 Selected Rural Market Subprojects - by RANKING

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
1	0.9658	517.50%	Nilphamari	Dimla	Khagakharibari	4,440.0
2	0.9121	443.10%	Nilphamari	Dimla	Shelhati	4,440.0
3	0.8838	281.30%	Nilphamari	Jaldhaka	Rother Bazar	4,440.0
4	0.8832	342.10%	Mymensingh	Ishwarganj	Charpara Bazar	4,560.0
5	0.8755	86.70%	Kurigram	Rowmari	Char Shoulmari	4,440.0
6	0.8711	92.70%	Kurigram	Rajibpur	Nayachar Bazar	4,440.0
7	0.8624	165.10%	Panchagarh	Panchagarh Sadar	Jhalaihat	4,420.0
8	0.8384	320.30%	Jamalpur	Dewanganj	Katerbeel	4,580.0
9	0.8325	102.10%	Mymensingh	Nandail	Seed Store Market	4,560.0
10	0.8029	94.80%	Dinajpur	Nawabgonj	Dolar Dorga Hat	4,420.0
11	0.7973	112.10%	Panchagarh	Panchagarh Sadar	Futkibarihat	4,420.0
12	0.7915	299.00%	Kurigram	Fulbari	Pakhirhat	4,440.0
13	0.7880	67.50%	Jamalpur	Dewanganj	Jalurchar	4,580.0
14	0.7827	520.00%	Sherpur	Sherpur Sadar	Bimgonj Bazar	4,580.0
15	0.7776	117.90%	Mymensingh	Phulpur	Horiagai Bazar	4,560.0
16	0.7709	93.20%	Nilphamari	Kishoregonj	Bangla Bazar (Magura UP)	4,440.0
17	0.7707	182.30%	Mymensingh	Dhobaura	Chariakanda	4,560.0
18	0.7672	195.70%	Mymensingh	Phulpur	Charia Bazar	4,560.0
19	0.7650	118.50%	Mymensingh	Haluaghat	Dhurail	4,560.0
20	0.7591	111.20%	Mymensingh	Ishwarganj	Surjer Bazar	4,560.0
21	0.7516	65.50%	Panchagarh	Debiganj	Laxmirhat	4,420.0
22	0.7515	92.70%	Rangpur	Kaunia	Joy Bangla Bazar	4,440.0
23	0.7294	479.40%	Mymensingh	Muktagacha	Kheruajani Bazar	4,560.0
24	0.7277	157.50%	Mymensingh	Haluaghat	Mazrakura	4,560.0
25	0.7150	69.20%	Kurigram	Rowmari	Pakhiura	4,440.0
26	0.7110	282.80%	Dinajpur	Nawabgonj	Charar Hat	4,420.0
27	0.7110	84.60%	Dinajpur	Kaharol	Boleya hat	4,420.0
28	0.7053	85.60%	Mymensingh	Muktagacha	Shasa Bangla bazar	4,560.0
29	0.7036	115.20%	Kishoreganj	Hossainpur	Pitalganj	4,560.0
30	0.6975	66.80%	Nilphamari	Nilphamari Sadar	Dhelapir hat	4,440.0
31	.6962.	241.90%	Mymensingh	Bhaluka	Paruldia	4,560.0
32	0.6891	251.10%	Tangail	Delduar	Rupshi Hat	4,580.0
33	0.6851	377.20%	Mymensingh	Bhaluka	Angargara	4,560.0
34	0.6818	98.10%	Tangail	Bhuapur	Gabshara Hat	4,580.0
35	0.6810	431.90%	Sherpur	Sherpur Sadar	Rasulpur Bazar	4,580.0
36	0.6763	68.70%	Kurigram	Nageswari	Naykerhat	4,440.0
37	0.6675	199.10%	Dinajpur	Birol	Choker Hat	4,420.0
38	0.6646	236.60%	Dinajpur	Fulbari	Pukhuri Hat	4,420.0
39	0.6585	114.70%	Gaibandha	Palashbari	Talukjamira Hat	4,440.0
40	0.6581	69.10%	Mymensingh	Trishal	Dhala Bazar	4,560.0
41	0.6580	46.40%	Nilphamari	Jaldhaka	Baroghat hat	4,440.0
42	0.6571	95.30%	Dinajpur	Fulbari	Khayerbari Bazar	4,420.0
43	0.6466	186.00%	Sherpur	Nakla	Pathakata	4,580.0
44	0.6459	272.80%	Kishoreganj	Hossainpur	Thatarknda	4,560.0
45	0.6344	89.30%	Dinajpur	Ghoraghat	Chadpara	4,420.0
46	0.6226	76.20%	Dinajpur	Kaharol	Bogdoir	4,420.0
47	0.6177	149.70%	Tangail	Delduar	Naliapara	4,580.0
48	0.6120	41.10%	Kurigram	Rajarhat	Nakkatirhat	4,440.0
49	0.6067	316.50%	Tangail	Tangail Sadar	Gala Bazar	4,580.0
50	0.6053	96.10%	Kishoreganj	Austagram	Bangalpara Bazar	4,560.0
51	0.5990	142.40%	Tangail	Tangail Sadar	Binnafoir	4,580.0
52	0.5946	171.00%	Kishoreganj	Karimgonj	Gabtoli Bazar	4,560.0
53	0.5938	79.80%	Dinajpur	Bochagonj	Sadamahal Hat	4,420.0
54	0.5863	65.80%	Mymensingh	Gaffargaon	Mukhi school bazar	4,560.0
55	0.5858	79.90%	Sherpur	Jhenaigati	Bakakura Bazar	4,580.0
56	0.5851	51.40%	Rangpur	Kaunia	Jamtolir hat	4,440.0

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
57	0.5733	81.60%	Netrakona	Purbadhala	Jaria Bazar	4,560.0
58	0.5722	64.30%	Dinajpur	Birgonj	Sanka	4,420.0
59	0.5714	79.70%	Panchagarh	Atwari	Dungdungir hat	4,420.0
60	0.5590	137.40%	Kishoreganj	Tarail	Kawakhali	4,560.0
61	0.5503	24.20%	Panchagarh	Debiganj	Saldangaha	4,420.0
62	0.5434	71.40%	Sherpur	Jhenaigati	Mohangong Hat	4,580.0
63	0.5322	68.50%	Panchagarh	Atwari	Rakhal Debi hat GC	4,420.0
64	0.5304	1580.30%	Kishoreganj	Pakundia	Dorgha	4,560.0
65	0.5299	66.50%	Kishoreganj	Austagram	Abdullapur Bazar	4,560.0
66	0.5263	32.40%	Kurigram	Nageswari	Momingonj	4,440.0
67	0.5255	58.00%	Sherpur	Nalitabari	Noljora	4,580.0
68	0.5243	18.20%	Nilphamari	Nilphamari Sadar	Jadur hat	4,440.0
69	0.5237	33.30%	Mymensingh	Trishal	Kashigong Bazar	4,560.0
70	0.5203	678.30%	Kishoreganj	Pakundia	Dogdoga	4,560.0
71	0.5087	41.60%	Dinajpur	Ghoraghat	Bologari	4,420.0
72	0.5053	35.60%	Kurigram	Kurigram Sadar	Sulkurbazar	4,440.0
73	0.5030	42.50%	Jamalpur	Melandah	Beltail Bazar	4,580.0
74	0.4874	38.40%	Mymensingh	Nandail	Bashati Market	4,560.0
74 Rural Markets						**333,180.0**

Subject to confirmation that HAILIP will not improve these markets

Table A18-6 Selected Rural Market Subprojects - by DISTRICT

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
8	0.8384	320.30%	Jamalpur	Dewanganj	Katerbeel	4,580.0
13	0.7880	67.50%	Jamalpur	Dewanganj	Jalurchar	4,580.0
73	0.5030	42.50%	Jamalpur	Melandah	Beltail Bazar	4,580.0
			Jamalpur District		**3**	**13,740.0**
50	0.6053	96.10%	Kishoreganj	Austagram	Bangalpara Bazar	4,560.0
65	0.5299	66.50%	Kishoreganj	Austagram	Abdullapur Bazar	4,560.0
29	0.7036	115.20%	Kishoreganj	Hossainpur	Pitalganj	4,560.0
44	0.6459	272.80%	Kishoreganj	Hossainpur	Thatarknda	4,560.0
52	0.5946	171.00%	Kishoreganj	Karimgonj	Gabtoli Bazar	4,560.0
64	0.5304	1580.30%	Kishoreganj	Pakundia	Dorgha	4,560.0
70	0.5203	678.30%	Kishoreganj	Pakundia	Dogdoga	4,560.0
60	0.5590	137.40%	Kishoreganj	Tarail	Kawakhali	4,560.0
			Kishoreganj District		**8**	**36,480.0**
31	.6962.	241.90%	Mymensingh	Bhaluka	Paruldia	4,560.0
33	0.6851	377.20%	Mymensingh	Bhaluka	Angargara	4,560.0
17	0.7707	182.30%	Mymensingh	Dhobaura	Chariakanda	4,560.0
54	0.5863	65.80%	Mymensingh	Gaffargaon	Mukhi school bazar	4,560.0
19	0.7650	118.50%	Mymensingh	Haluaghat	Dhurail	4,560.0
24	0.7277	157.50%	Mymensingh	Haluaghat	Mazrakura	4,560.0
4	0.8832	342.10%	Mymensingh	Ishwarganj	Charpara Bazar	4,560.0
20	0.7591	111.20%	Mymensingh	Ishwarganj	Surjer Bazar	4,560.0
23	0.7294	479.40%	Mymensingh	Muktagacha	Kheruajani Bazar	4,560.0
28	0.7053	85.60%	Mymensingh	Muktagacha	Shasa Bangla bazar	4,560.0
9	0.8325	102.10%	Mymensingh	Nandail	Seed Store Market	4,560.0
74	0.4874	38.40%	Mymensingh	Nandail	Bashati Market	4,560.0
15	0.7776	117.90%	Mymensingh	Phulpur	Horiagai Bazar	4,560.0
18	0.7672	195.70%	Mymensingh	Phulpur	Charia Bazar	4,560.0
40	0.6581	69.10%	Mymensingh	Trishal	Dhala Bazar	4,560.0
69	0.5237	33.30%	Mymensingh	Trishal	Kashigong Bazar	4,560.0
			Mymensingh District		**16**	**72,960.0**
57	0.5733	81.60%	Netrakona	Purbadhala	Jaria Bazar	4,560.0
			Netrakona District		**1**	**4,560.0**
55	0.5858	79.90%	Sherpur	Jhenaigati	Bakakura Bazar	4,580.0
62	0.5434	71.40%	Sherpur	Jhenaigati	Mohangong Hat	4,580.0
43	0.6466	186.00%	Sherpur	Nakla	Pathakata	4,580.0
67	0.5255	58.00%	Sherpur	Nalitabari	Noljora	4,580.0
14	0.7827	520.00%	Sherpur	Sherpur Sadar	Bimgonj Bazar	4,580.0
35	0.6810	431.90%	Sherpur	Sherpur Sadar	Rasulpur Bazar	4,580.0
			Sherpur District		**6**	**27,480.0**
34	0.6818	98.10%	Tangail	Bhuapur	Gabshara Hat	4,580.0
32	0.6891	251.10%	Tangail	Delduar	Rupshi Hat	4,580.0
47	0.6177	149.70%	Tangail	Delduar	Naliapara	4,580.0
49	0.6067	316.50%	Tangail	Tangail Sadar	Gala Bazar	4,580.0
51	0.5990	142.40%	Tangail	Tangail Sadar	Binnafoir	4,580.0
			Tangail District		**5**	**22,900.0**
58	0.5722	64.30%	Dinajpur	Birgonj	Sanka	4,420.0
37	0.6675	199.10%	Dinajpur	Birol	Choker Hat	4,420.0
53	0.5938	79.80%	Dinajpur	Bochagonj	Sadamahal Hat	4,420.0
38	0.6646	236.60%	Dinajpur	Fulbari	Pukhuri Hat	4,420.0
42	0.6571	95.30%	Dinajpur	Fulbari	Khayerbari Bazar	4,420.0
45	0.6344	89.30%	Dinajpur	Ghoraghat	Chadpara	4,420.0
71	0.5087	41.60%	Dinajpur	Ghoraghat	Bologari	4,420.0
27	0.7110	84.60%	Dinajpur	Kaharol	Boleya hat	4,420.0
46	0.6226	76.20%	Dinajpur	Kaharol	Bogdoir	4,420.0
10	0.8029	94.80%	Dinajpur	Nawabgonj	Dolar Dorga Hat	4,420.0
26	0.7110	282.80%	Dinajpur	Nawabgonj	Charar Hat	4,420.0

Ranking	Ranking Score	EIRR	District	Upazila	Name of Rural Market	Cost of Market BDT '000 (2012 Prices)
			Dinajpur District		**11**	**48,620.0**
39	0.6585	114.70%	Gaibandha	Palashbari	Talukjamira Hat	4,440.0
			Gaibandha District		**1**	**4,440.0**
12	0.7915	299.00%	Kurigram	Fulbari	Pakhirhat	4,440.0
72	0.5053	35.60%	Kurigram	Kurigram Sadar	Sulkurbazar	4,440.0
36	0.6763	68.70%	Kurigram	Nageswari	Naykerhat	4,440.0
66	0.5263	32.40%	Kurigram	Nageswari	Momingonj	4,440.0
48	0.6120	41.10%	Kurigram	Rajarhat	Nakkatirhat	4,440.0
6	0.8711	92.70%	Kurigram	Rajibpur	Nayachar Bazar	4,440.0
5	0.8755	86.70%	Kurigram	Rowmari	Char Shoulmari	4,440.0
25	0.7150	69.20%	Kurigram	Rowmari	Pakhiura	4,440.0
			Kurigram District		**8**	**35,520.0**
			Lalmonirhat District		**0**	0.0
1	0.9658	517.50%	Nilphamari	Dimla	Khagakharibari	4,440.0
2	0.9121	443.10%	Nilphamari	Dimla	Shelhati	4,440.0
3	0.8838	281.30%	Nilphamari	Jaldhaka	Rother Bazar	4,440.0
41	0.6580	46.40%	Nilphamari	Jaldhaka	Baroghat hat	4,440.0
16	0.7709	93.20%	Nilphamari	Kishoregonj	Bangla Bazar (Magura UP)	4,440.0
30	0.6975	66.80%	Nilphamari	Nilphamari Sadar	Dhelapir hat	4,440.0
68	0.5243	18.20%	Nilphamari	Nilphamari Sadar	Jadur hat	4,440.0
			Nilphamari District		**7**	**31,080.0**
59	0.5714	79.70%	Panchagarh	Atwari	Dungdungir hat	4,420.0
63	0.5322	68.50%	Panchagarh	Atwari	Rakhal Debi hat GC	4,420.0
21	0.7516	65.50%	Panchagarh	Debiganj	Laxmirhat	4,420.0
61	0.5503	24.20%	Panchagarh	Debiganj	Saldangaha	4,420.0
7	0.8624	165.10%	Panchagarh	Panchagarh Sadar	Jhalaihat	4,420.0
11	0.7973	112.10%	Panchagarh	Panchagarh Sadar	Futkibarihat	4,420.0
			Panchagarh District		**6**	**26,520.0**
22	0.7515	92.70%	Rangpur	Kaunia	Joy Bangla Bazar	4,440.0
56	0.5851	51.40%	Rangpur	Kaunia	Jamtolir hat	4,440.0
			Rangpur District		**2**	**8,880.0**
			Thakurgaon District		**0**	**0.0**
					74	**333,180.0**

Subject to confirmation that HAILIP will not improve these markets

Annex 19

Need for large bridges on project roads

List of tables

Table A19-1 Need for large bridges on UZR

Ranking	Ranking Score	District	Upazila	Road Code	Road Name	Total Length (km)	Large bridges required		Comments
							No.	Span (m)	
Large bridges definitely required on 69 selected UZR roads									
74	0.4479	MYMENSINGH	HALUAGHAT	361242003	R&H (Nagla)-Goatola GC via Shakuai GC (Haluaghat part).	17.50	1	150	Actual span measured on site
83	0.4114	SHERPUR	SHERPUR-S	389882010	Lasmanpur RHD - Nandina GC Road via. Gugurakandi UP	10.45	1	120	Actual span measured on site
41	0.5218	DINAJPUR	BIRAMPUR	127102005	Tatakpur RHD-Madhala GC (Janipur) via Munnapara River ghat & Jotjoyram	3.60	1	100	Actual span measured on site
Large bridges definitely required on remaining 30 UZR which meet the selection criteria and are economically viable, but have not been selected (this information is included only in case there are any changes in the selection of UZR during subsequent project processing)									
86	0.4016	TANGAIL	BASAIL	393092003	Kanchanpur GC (Dhongpara)-Gorai-Shakhipur R&H (Patharghata) Road.	6.10	1	200	Actual span measured on site
91	0.3894	TANGAIL	DELDUAR	393232007	Parthrail Up office to Lowhati GCC Road	14.70	1	105	Actual span measured on site
65	0.4763	DINAJPUR	KAHAROL	127562008	Purba Sadipur ten mail RHD-Mutunihat GC Rd.	4.54	1	140	Actual span measured on site

Table A19-2 Need for large bridges on UNR

Ranking	Ranking Score	EIRR	District	Upazila	Road Code	Road Name	Total Length (km)	Large bridges required		Comments
								No.	Span (m)	
Large bridges definitely required on 47 selected UNR roads										
47	0.5268	20.08%	LALMONIRHAT	PATGRAM	152703005	Patgram UP-Varverirhat Via Kawamarihat & Kalirhat.	11.85	1	198	Span is from LGED Inventory data
Large bridge that may be required on remaining 58 UNR which meet the selection criteria and are economically viable, but have not been selected (this information is included only in case there are any changes in the selection of UNR during subsequent project processing)										
72	0.4827	18.96%	KISHOREGANJ	AUSTAGRAM	348023002	Kastul UPoffice-Nikli GC Rd.	5.42	1	100	Source of information is LGED district - needs checking

Annex 20

Project costs

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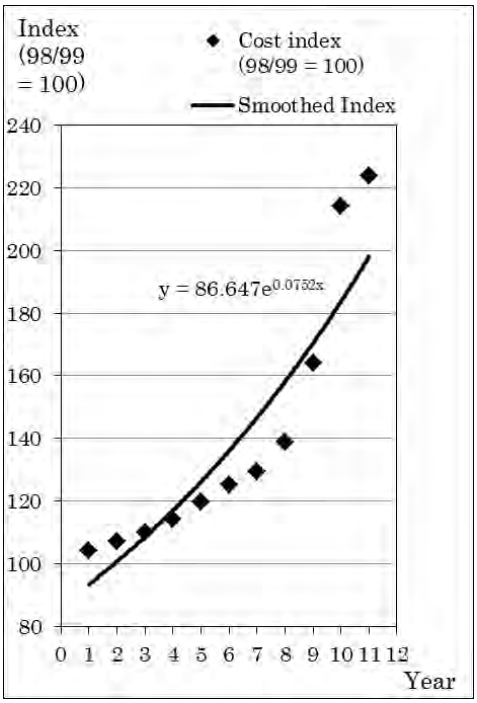
1 Price escalation

1.1 Cost index

The Construction Materials Price Index published by the BBS in 2010 (as of 1 July 2012) was applied to calculate relevant inflators as the basis for evaluation of past costs and future budgets. The prices of construction materials in Bangladesh have increased markedly since 2007-08. To establish a better estimate of their upward trend, a smoothed curve was adopted to the index data for 1999-2000 to 2009-10. The result of the calculation is shown in Table A20-1.

Table A20-1 Calculation of the past construction cost inflation and forecast for the Project period

Sl. No.	Years	Cost index (98/99 = 100)	Smoothed index	Cost inflator (2012 base)
0		100.00	87	
1	1999-2000	104.10	93	
2	2000-01	107.01	101	2.4655
3	2001-02	109.84	109	2.2869
4	2002-03	114.27	117	2.1212
5	2003-04	119.61	126	1.9676
6	2004-05	125.18	136	1.8250
7	2005-06	129.41	147	1.6928
8	2006-07	138.74	158	1.5702
9	2007-08	163.89	170	1.4564
10	2008-09	214.06	184	1.3509
11	2009-10	223.88	198	1.2531
12	2010-11*		214	1.1623
13	2011-12*		230	1.0781
14	2012-13*	Base year	248	1.0000
15	2013-14*		268	*1.0781*
16	2014-15*		289	*1.1623*
17	2015-16*	Project period	311	*1.2531*
18	2016-17*		335	*1.3509*
19	2017-18*		362	*1.4564*
20	2018-19*		390	*1.5702*
		Yearly inflation rate		***7.8%***



[1]Statistical Yearbook of Bangladesh 2009: Table 10.14 Construction Cost Index (Building) Bangladesh (Base 1998-99=100)

1.2 Foreign exchange rate

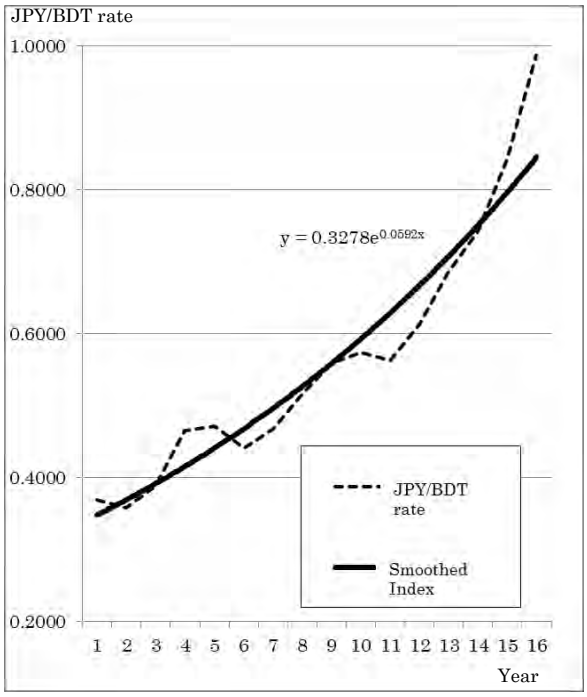
A large part of the Project budget will be disbursed from a JICA loan in Japanese Yen (JPY). The exchange rate of Japanese Yen against Bangladesh Taka (BDT) has appreciated annually, especially after 2007-08. This trend has coincided with that of the construction cost inflation mentioned above.

The annual average exchange rates of JPY against BDT from 1996-97 to 2011-12 were evaluated to study the trend of the exchange rates in the last 15 years. In this study, a smoothed curve was also adopted to the exchange rate data to establish a better estimate of their upward trend. The result of the evaluation is shown in Table A20-2.

Table A20-2 Trend of JPN/BDT exchange rate from 1996-97 to 2011-12

Sl. No.	Year	JPY/BDT[2]	Smoothed index
1	1996-97	0.3691	0.3478
2	1997-98	0.3577	0.3690
3	1998-99	0.3884	0.3915
4	1999-00	0.4655	0.4154
5	2000-01	0.4705	0.4407
6	2001-02	0.4403	0.4676
7	2002-03	0.4679	0.4961
8	2003-04	0.5157	0.5264
9	2004-05	0.5594	0.5585
10	2005-06	0.5732	0.5925
11	2006-07	0.5623	0.6287
12	2007-08	0.6123	0.6670
13	2008-09	0.6853	0.7077
14	2009-10	0.7420	0.7508
15	2010-11	0.8420	0.7966
16	2011-12	0.9875	0.8452
Yearly inflation rate			**6.1%**

[2]Source: http://www.oanda.com/currency/historical-rates/, Historical Exchange Rates, OANDA Corporation



1.3 Indicative price escalation

The Survey team compared the following information to analyze the indicative price escalation for the Project: 1) price escalation or contingency of similar projects; 2) inflation of construction cost index and JPY/BDT exchange rate; 3) price hike of the LGED Schedule of Rate from 2011 to 2012; and 4) the actual gap between the market rate in March 2012 and the LGED Schedule of Rate 2012. Although the inflation of the construction cost index will continue its trend, the appreciation of JPY/BDT exchange rate will probably affect the construction costs with a positive impact since the most of the Project budget will be disbursed by Japanese Yen. However, the LGED Schedule of Rate has still been escalating and the market rate is higher that the Schedule of Rate in the same year. Taking the positive and negative impacts to the construction costs, in addition the latest information of cost escalation rate in Bangladesh from JICA, into account, 4.9% of compound price escalation rate is applied to the cost estimates for the Project. The summary of the analysis of price escalation is shown in Table A20-3.

Table A20-3 Indicative price escalation for the Project cost estimate

Similar Project			Construction Cost Index	Exchange Rate JPY/BDT	Comparison of Schedule of Rate 2011 and 2012	Comparison of Market Rate in March 2012 and Schedule of Rate 2012	NRRD LGIP
SWBRDP (2008)	SRIIP (2010)	RTIP-II (2011)	1998-2010	2009-2012	2011-2012	2012	Indicative price escalation
3%/year (Proposal in 2008) **20%** increase (Actual contract cost in 2011)	6% (Price contingency)	4% (Price contingency)	**7.8%** increase per year (Smoothed index on Table 20-1)	**6.1%** increase per year (Smoothed index on Table 20-2)	**31.6%** increase in average (Table A3-3 in Annex 3)	**7.9%** increase in average (Table A3-3 in Annex 3)	**4.9%** /year

Source: Survey team

2 Unit costs of subprojects

2.1 Selection of Upazila and Union roads, and Growth Center and rural markets

The detailed information and costs for selected Upazila and Union roads for upgrading, Upazila roads for rehabilitation, and Growth Center and rural markets for upgrading by District are shown in Table A6-1-4, Table A6-1-5, Table A6-1-6, Table A20-7 and Table A20-8, respectively.

Table A20-4 Selected Upazila road upgrading subprojects by District

Packages			District	Upazila	Road Code	Total Length (km)	Surface Type (km) as of December 2011				Cross-drainage needs (m)		Total cost (BDT '000) 2012 Prices			
Roads	Bridges > 30m	Bridges > 100m					Earthen	Flexible Pavement (BC)	Brick Pavement	Rigid Pavement (CC/RCC)	Existing Gaps	Replacement Structures	Road	Bridges & Culverts	Road Safety	Total
1	0	0	JAMALPUR	BAKSHIGANJ	339072008	6.00	4.45	0.60	0.95	0.00	0	0	48,690	0	2,027	50,717
1	2	0	JAMALPUR	ISLAMPUR	339292007	8.50	8.50	0.00	0.00	0.00	109	0	71,528	46,140	2,872	120,539
2	0	0	JAMALPUR	JAMALPUR-S	339362005	13.10	4.00	9.10	0.00	0.00	7	0	110,237	2,699	4,426	117,361
1	3	0	JAMALPUR	MADARGANJ	339582009	4.95	4.47	0.48	0.00	0.00	105	0	41,654	44,447	1,672	87,773
1	0	0	JAMALPUR	MELENDAH	339612010	2.50	0.40	0.00	2.10	0.00	0	0	20,288	0	845	21,132
1	0	0	JAMALPUR	SARISHABARI	339852009	5.00	4.00	0.50	0.50	0.00	0	0	42,075	0	1,689	43,764
7	**5**	**0**	**JAMALPUR DISTRICT**		**6**	**40.05**	**25.81**	**10.68**	**3.55**	**0.00**	**221**	**0**	**334,471**	**93,285**	**13,531**	**441,286**
2	1	0	KISHOREGANJ	AUSTAGRAM	348022002	10.20	10.20	0.00	0.00	0.00	68	0	83,834	26,119	3,478	113,430
1	0	0	KISHOREGANJ	MITHAMOIN	348592003	7.05	7.05	0.00	0.00	0.00	4	0	57,944	1,536	2,404	61,884
1	0	0	KISHOREGANJ	NIKLI	348762006	9.50	9.50	0.00	0.00	0.00	1	0	78,081	230	3,239	81,550
4	**1**	**0**	**KISHOREGANJ DISTRICT**		**3**	**26.75**	**26.75**	**0.00**	**0.00**	**0.00**	**73**	**0**	**219,858**	**27,886**	**9,121**	**256,865**
1	0	0	MYMENSINGH	BHALUKA	361132004	9.75	9.75	0.00	0.00	0.00	0	0	83,060	0	3,324	86,385
1	0	0	MYMENSINGH	FULBARIA	361202011	3.10	3.10	0.00	0.00	0.00	4	0	25,479	1,575	1,057	28,111
1	0	0	MYMENSINGH	GAFFARGAON	361222010	4.50	4.50	0.00	0.00	0.00	6	0	38,336	2,113	1,534	41,982
1	0	0	MYMENSINGH	GOURIPUR	361232005	7.50	4.57	2.93	0.00	0.00	0	0	67,343	0	2,557	69,900
2	0	1	MYMENSINGH	HALUAGHAT	361242003	19.00	4.97	10.20	3.84	0.00	112	0	161,861	47,186	6,478	215,525
1	0	0	MYMENSINGH	MUKTAGACHA	361652010	10.10	8.10	2.00	0.00	0.00	4	12	86,042	6,146	3,444	95,631
2	0	0	MYMENSINGH	PHULPUR	361812007	17.30	14.58	2.72	0.00	0.00	0	0	147,379	0	5,899	153,277
1	0	0	MYMENSINGH	TRISHAL	361942010	11.78	8.59	3.19	0.00	0.00	25	25	100,354	19,013	4,017	123,383
10	**0**	**1**	**MYMENSINGH DISTRICT**		**8**	**83.03**	**58.15**	**21.04**	**3.84**	**0.00**	**150**	**37**	**709,853**	**76,032**	**28,311**	**814,195**
1	2	0	NETROKONA	ATPARA	372042008	11.43	11.43	0.00	0.00	0.00	92	0	97,372	37,048	3,897	138,318
1	0	0	NETROKONA	BARHATTA	372092007	10.94	6.24	4.70	0.00	0.00	0	0	89,916	0	3,730	93,646
1	0	0	NETROKONA	MADAN	372562008	8.40	7.20	0.45	0.00	0.75	0	0	71,560	0	2,864	74,424
1	3	0	NETROKONA	NETRAKONA-S	372742006	13.14	7.00	5.87	0.00	0.28	250	0	187,718	100,474	4,480	292,672
4	**5**	**0**	**NETROKONA DISTRICT**		**4**	**43.91**	**31.87**	**11.01**	**0.00**	**1.03**	**342**	**0**	**446,566**	**137,522**	**14,972**	**599,060**
1	0	0	SHERPUR	NAKLA	389672003	12.00	2.00	10.00	0.00	0.00	0	0	106,500	0	4,054	110,554
1	2	0	SHERPUR	NALITABARI	389702011	13.00	8.95	2.00	2.05	0.00	65	0	105,495	27,515	4,392	137,402
1	2	1	SHERPUR	SHERPUR-S	389882010	10.45	6.85	3.60	0.00	0.00	241	0	87,937	102,015	3,531	193,483
1	0	0	SHERPUR	SREEBORDI	389902004	13.70	11.88	1.83	0.00	0.00	0	0	111,176	0	4,629	115,804
4	**4**	**1**	**SHERPUR DISTRICT**		**4**	**49.15**	**26.68**	**17.43**	**2.05**	**0.00**	**306**	**0**	**411,107**	**129,530**	**16,605**	**557,242**
1	2	0	TANGAIL	BASAIL	393092004	8.66	6.36	2.30	0.00	0.00	130	0	72,874	55,029	2,926	130,829
1	0	0	TANGAIL	BHUAPUR	393192002	8.26	3.51	4.75	0.00	0.00	0	9	73,308	3,470	2,791	79,568
1	1	0	TANGAIL	DELDUAR	393232003	6.13	3.97	2.16	0.00	0.00	70	0	51,584	29,631	2,071	83,286
1	0	0	TANGAIL	GHATAIL	393282005	7.76	5.46	0.10	2.20	0.00	0	0	68,843	0	2,621	71,464
1	0	0	TANGAIL	MADHUPUR	393572003	6.22	0.00	1.40	4.82	0.00	0	0	50,475	0	2,101	52,577

Packages			District	Upazila	Road Code	Total Length (km)	Surface Type (km) as of December 2011				Cross-drainage needs (m)		Total cost (BDT '000) 2012 Prices			
Roads	Bridges > 30m	Bridges > 100m					Earthen	Flexible Pavement (BC)	Brick Pavement	Rigid Pavement (CC/RCC)	Existing Gaps	Replacement Structures	Road	Bridges & Culverts	Road Safety	Total
2	5	0	TANGAIL	NAGARPUR	393762003	15.78	7.96	7.82	0.00	0.00	222	0	132,789	93,973	5,331	232,093
1	0	0	TANGAIL	SHAKHIPUR	393852004	11.60	4.76	6.84	0.00	0.00	0	0	97,614	0	3,919	101,533
2	8	0	TANGAIL	TANGAIL-S	393952006	25.00	21.70	3.30	0.00	0.00	370	0	210,375	156,621	8,446	375,442
10	**16**	**0**	**TANGAIL DISTRICT**		**8**	**89.41**	**53.72**	**28.67**	**7.02**	**0.00**	**792**	**9**	**757,862**	**338,723**	**30,206**	**1,126,791**
1	0	1	DINAJPUR	BIRAMPUR	127102005	3.60	3.60	0.00	0.00	0.00	98	0	28,318	40,033	1,154	69,505
1	0	0	DINAJPUR	BIRGANJ	127122004	6.09	4.27	1.82	0.00	0.00	0	0	47,904	0	1,952	49,856
1	0	0	DINAJPUR	BIROL	127172009	9.40	6.80	2.60	0.00	0.00	0	0	73,940	0	3,013	76,954
1	0	0	DINAJPUR	CHIRIRBANDAR	127302008	8.40	7.70	0.70	0.00	0.00	0	7	66,074	2,597	2,693	71,364
1	0	0	DINAJPUR	FULBARI	127382008	8.00	6.50	1.50	0.00	0.00	0	8	60,528	2,968	2,564	66,060
1	0	0	DINAJPUR	GHORAGHAT	127432009	7.50	2.81	2.31	2.38	0.00	0	0	58,995	0	2,404	61,399
1	0	0	DINAJPUR	HAKIMPUR	127472003	5.00	3.07	0.93	1.00	0.00	1	0	39,330	519	1,603	41,452
1	0	0	DINAJPUR	KAHAROL	127562006	5.05	5.05	0.00	0.00	0.00	0	0	39,723	0	1,619	41,342
2	0	0	DINAJPUR	KHANSHAMA	127602006	15.50	15.50	0.00	0.00	0.00	1	0	121,923	371	4,969	127,263
10	**0**	**1**	**DINAJPUR DISTRICT**		**9**	**68.54**	**55.30**	**9.86**	**3.38**	**0.00**	**100**	**15**	**536,736**	**46,488**	**21,971**	**605,195**
1	0	0	GAIBANDHA	GAIBANDHA-S	132242009	7.90	5.40	2.50	0.00	0.00	0	0	63,990	0	2,589	66,579
1	0	0	GAIBANDHA	PALASHBARI	132672004	10.40	6.10	4.30	0.00	0.00	0	0	84,240	0	3,408	87,648
1	0	0	GAIBANDHA	SADULLAPUR	132822009	11.40	11.11	0.29	0.00	0.00	0	0	88,931	0	3,736	92,668
2	0	0	GAIBANDHA	SUNDARGANJ	132912005	19.02	9.91	9.11	0.00	0.00	0	0	154,078	0	6,234	160,312
5	**0**	**0**	**GAIBANDHA DISTRICT**		**4**	**48.72**	**32.53**	**16.20**	**0.00**	**0.00**	**0**	**0**	**391,240**	**0**	**15,968**	**407,208**
1	0	0	KURIGRAM	FULBARI	149182006	8.85	1.76	5.35	1.74	0.00	0	0	71,685	0	2,900	74,585
1	0	0	KURIGRAM	RAJARHAT	149772005	7.10	5.96	1.14	0.00	0.00	0	0	57,510	0	2,327	59,837
1	0	0	KURIGRAM	RAJIBPUR	149082003	6.95	5.39	1.56	0.00	0.00	0	20	59,492	8,204	2,278	69,974
3	**0**	**0**	**KURIGRAM DISTRICT**		**3**	**22.90**	**13.11**	**8.05**	**1.74**	**0.00**	**0**	**20**	**188,687**	**8,204**	**7,505**	**204,396**
1	0	0	LALMONIRHAT	ADITMARI	152022007	6.12	4.71	1.42	0.00	0.00	0	0	47,758	0	2,006	49,764
2	0	0	LALMONIRHAT	KALIGANJ	152392008	10.80	5.02	5.78	0.00	0.00	0	0	87,480	0	3,540	91,020
2	0	0	LALMONIRHAT	LALMONIRHAT-S	152552010	10.85	3.45	7.10	0.30	0.00	0	0	87,885	0	3,556	91,441
5	**0**	**0**	**LALMONIRHAT DISTRICT**		**3**	**27.77**	**13.18**	**14.30**	**0.30**	**0.00**	**0**	**0**	**223,123**	**0**	**9,102**	**232,225**
1	0	0	NILPHAMARI	DIMLA	173122011	4.82	4.82	0.00	0.00	0.00	0	0	39,042	0	1,580	40,622
1	0	0	NILPHAMARI	DOMAR	173152013	6.20	6.20	0.00	0.00	0.00	0	0	50,220	0	2,032	52,252
1	0	0	NILPHAMARI	JALDHAKA	173362007	6.00	5.70	0.30	0.00	0.00	0	0	46,806	0	1,966	48,772
2	0	0	NILPHAMARI	NILPHAMARI-S	173642018	15.15	11.75	3.40	0.00	0.00	0	0	122,715	0	4,965	127,680
5	**0**	**0**	**NILPHAMARI DISTRICT**		**4**	**32.17**	**28.47**	**3.70**	**0.00**	**0.00**	**0**	**0**	**258,783**	**0**	**10,543**	**269,326**
1	0	0	PANCHAGARH	BODA	177252006	13.00	10.75	2.25	0.00	0.00	0	0	102,258	0	4,167	106,425
1	0	0	PANCHAGARH	DEBIGANJ	177342009	5.30	3.90	1.40	0.00	0.00	0	0	40,100	0	1,699	41,799
1	0	0	PANCHAGARH	PANCHAGARH-S	177732007	13.00	5.43	7.57	0.00	0.00	0	0	102,258	0	4,167	106,425

Packages			District	Upazila	Road Code	Total Length (km)	Surface Type (km) as of December 2011				Cross-drainage needs (m)		Total cost (BDT '000) 2012 Prices			
Roads	Bridges > 30m	Bridges > 100m					Earthen	Flexible Pavement (BC)	Brick Pavement	Rigid Pavement (CC/RCC)	Existing Gaps	Replacement Structures	Road	Bridges & Culverts	Road Safety	Total
1	0	0	PANCHAGARH	TETULIA	177902006	4.01	4.01	0.00	0.00	0.00	0	0	30,340	0	1,285	31,625
4	**0**	**0**	**PANCHAGARH DISTRICT**		**4**	**35.31**	**24.09**	**11.22**	**0.00**	**0.00**	**0**	**0**	**274,955**	**0**	**11,319**	**286,274**
1	0	0	RANGPUR	GANGACHARA	185272002	8.93	4.32	4.61	0.00	0.00	0	0	72,333	0	2,927	75,260
1	0	0	RANGPUR	KAUNIA	185422005	1.75	1.75	0.00	0.00	0.00	0	2	14,175	747	574	15,495
1	0	0	RANGPUR	MITHAPUKUR	185582009	8.60	4.60	4.00	0.00	0.00	10	25	67,089	13,032	2,819	82,939
1	0	0	RANGPUR	PIRGACHA	185732005	12.70	7.13	5.57	0.00	0.00	0	11	102,870	4,310	4,162	111,342
1	0	0	RANGPUR	PIRGANJ	185762010	12.40	10.43	1.97	0.00	0.00	0	4	96,732	1,494	4,064	102,290
5	**0**	**0**	**RANGPUR DISTRICT**		**5**	**44.38**	**28.23**	**16.15**	**0.00**	**0.00**	**10**	**42**	**353,199**	**19,582**	**14,545**	**387,326**
1	0	0	THAKURGAON	BALIADANGI	194082004	7.90	6.85	1.05	0.00	0.00	0	0	62,141	0	2,532	64,674
1	0	0	THAKURGAON	PIRGANJ	194822007	4.50	4.11	0.00	0.39	0.00	0	0	34,047	0	1,443	35,490
1	0	0	THAKURGAON	RANISANKAIL	194862008	6.00	6.00	0.00	0.00	0.00	0	0	47,196	0	1,923	49,119
1	0	0	THAKURGAON	THAKURGAON-S	194942015	6.80	2.58	4.22	0.00	0.00	2	9	53,489	4,081	2,180	59,750
4	**0**	**0**	**THAKURGAON DISTRICT**		**4**	**25.20**	**19.54**	**5.27**	**0.39**	**0.00**	**2**	**9**	**196,873**	**4,081**	**8,078**	**209,032**
77	**31**	**3**	**TOTAL**		**69**	**637.29**	**440.42**	**173.58**	**22.26**	**1.03**	**1996**	**132**	**5,303,312**	**881,332**	**211,778**	**6,396,422**

Table A20-5 Selected Union road upgrading subprojects by District

Procurement Packages			District	Upazila	Road Code	Total Length (km)	Surface Type (km) as of December 2011				Cross-drainage needs (m)		Total cost (BDT '000) 2012 Prices			
Road	Bridge > 30m	Bridge > 100m					Earthen	Flexible Pavement (BC)	Brick Pavement	Rigid Pavement (CC/RCC)	Existing Gaps	Replacement Structures	Road	Bridges & Culverts	Road Safety	Total
1	1	0	JAMALPUR	DEWANGANJ	339153012	3.00	3.00	0.00	0.00	0.00	45		19,455	18171	1,014	38,640
1	**1**	**0**	**JAMALPUR DISTRICT**		**1**	**3.00**	**3.00**	**0.00**	**0.00**	**0.00**	**45**		**19,455**	**18171**	**1,014**	**38,640**
1	0	0	KISHOREGANJ	BAJITPUR	348063001	7.06	2.86	4.20	0.00	0.00			46,257	0	2,407	48,665
1	0	0	KISHOREGANJ	BHAIRAB	348113003	4.71	3.00	1.71	0.00	0.00			30,860	0	1,606	32,466
1	0	0	KISHOREGANJ	HOSSAINPUR	348273007	4.45	3.85	0.60	0.00	0.00	7	34	29,156	15,671	1,517	46,345
1	0	0	KISHOREGANJ	ITNA	348333002	11.80	10.75	0.00	0.00	1.05	5		77,314	1,921	4,023	83,258
1	0	0	KISHOREGANJ	KARIMGANJ	348423007	5.80	4.52	0.00	1.28	0.00	10		38,002	3,687	1,978	43,667
1	0	0	KISHOREGANJ	KATIADI	348453009	5.30	5.30	0.00	0.00	0.00			34,726	0	1,807	36,533
1	0	0	KISHOREGANJ	KISHOREGANJ-S	348493002	3.28	0.79	2.49	0.00	0.00			21,491	0	1,118	22,609
1	0	0	KISHOREGANJ	KULIARCHAR	348543003	4.10	1.34	2.30	0.46	0.00			26,863	0	1,398	28,261
1	0	0	KISHOREGANJ	PAKUNDIA	348793002	5.79	4.60	1.19	0.00	0.00			37,949	0	1,975	39,924
1	0	0	KISHOREGANJ	TARAIL	348923004	3.54	3.54	0.00	0.00	0.00			23,194	0	1,207	24,401
10	**0**	**0**	**KISHOREGANJ DISTRICT**		**10**	**55.83**	**40.55**	**12.49**	**1.74**	**1.05**	**22**	**34**	**365,811**	**21,279**	**19,037**	**406,128**
1	0	0	MYMENSINGH	DHOBAURA	361163001	6.75	2.97	3.78	0.00	0.00			44,226	0	2,302	46,528
1	0	0	MYMENSINGH	ISHWARGANJ	361313006	6.15	4.45	1.70	0.00	0.00			40,295	0	2,097	42,392
1	1	0	MYMENSINGH	MYMENSINGH-S	361523004	6.80	6.80	0.00	0.00	0.00	30		44,554	12,057	2,319	58,929
1	0	0	MYMENSINGH	NANDAIL	361723007	9.60	9.60	0.00	0.00	0.00			62,899	0	3,273	66,173
4	**1**	**0**	**MYMENSINGH DISTRICT**		**4**	**29.30**	**23.82**	**5.48**	**0.00**	**0.00**	**30**	**0**	**191,974**	**12,057**	**9,991**	**214,021**
1	1	0	NETROKONA	DURGAPUR	372183012	3.70	3.70	0.00	0.00	0.00	45		29,952	18,086	1,262	49,299
1	0	0	NETROKONA	KALMAKANDA	372403010	7.20	4.90	2.30	0.00	0.00			61,377	0	2,455	63,792
1	0	0	NETROKONA	KENDUA	372473005	6.95	6.95	0.00	0.00	0.00			56,276	0	2,370	58,647
1	0	0	NETROKONA	KHALIAJURI	372383007	6.31	6.31	0.00	0.00	0.00			41,343	0	2,152	43,495
1	0	0	NETROKONA	MOHANGANJ	372633003	3.85	2.85	0.62	0.00	0.38			25,225	0	1,313	26,538
1	0	0	NETROKONA	PURBADHALA	372833015	3.50	2.06	1.44	0.00	0.00			22,932	0	1,193	24,125 0
6	**1**	**0**	**NETROKONA DISTRICT**		**6**	**31.51**	**26.77**	**4.36**	**0.00**	**0.38**	**45**	**0**	**237,065**	**18,086**	**10,745**	**265,895**
1	0	0	SHERPUR	JHENAIGATI	389373005	9.44	4.26	5.18	0.00	0.00			61,218	0	3,189	64,408
1	**0**	**0**	**SHERPUR DISTRICT**		**1**	**9.44**	**4.26**	**5.18**	**0.00**	**0.00**	**0**	**0**	**61,218**	**0**	**3,189**	**64,408**
1	0	0	TANGAIL	DHANBARI	393963019	4.50	4.50	0.00	0.00	0.00			29,183	0	1,520	30,703
1	0	0	TANGAIL	GOPALPUR	393383002	2.13	1.55	0.58	0.00	0.00			13,813	0	720	14,533
2	3	0	TANGAIL	KALIHATI	393473004	16.89	14.89	2.00	0.00	0.00	112		109,532	45,226	5,706	160,464

Procurement Packages			District	Upazila	Road Code	Total Length (km)	Surface Type (km) as of December 2011				Cross-drainage needs (m)		Total cost (BDT '000) 2012 Prices			
Road	Bridge > 30m	Bridge > 100m					Earthen	Flexible Pavement (BC)	Brick Pavement	Rigid Pavement (CC/RCC)	Existing Gaps	Replacement Structures	Road	Bridges & Culverts	Road Safety	Total
1	0	0	TANGAIL	MIRZAPUR	393663005	5.06	1.97	3.09	0.00	0.00	12		32,814	4,626	1,710	39,150
5	**3**	**0**	**TANGAIL DISTRICT**		**4**	**28.58**	**22.91**	**5.67**	**0.00**	**0.00**	**124**	**0**	**185,341**	**49,852**	**9,656**	**244,849**
1	0	0	DINAJPUR	BOCHAGANJ	127213002	5.46	4.18	1.28	0.00	0.00			33,262	0	1,750	35,013
1	0	0	DINAJPUR	DINAJPUR-S	127643006	5.20	5.20	0.00	0.00	0.00	7		31,678	2,597	1,667	35,942
1	0	0	DINAJPUR	NAWABGANJ	127693012	7.20	6.83	0.37	0.00	0.00			43,862	0	2,308	46,170
1	0	0	DINAJPUR	PARBATIPUR	127773011	9.60	9.35	0.00	0.25	0.00		6	58,483	2,226	3,078	63,787
4	**0**	**0**	**DINAJPUR DISTRICT**		**4**	**27.46**	**25.56**	**1.65**	**0.25**	**0.00**	**7**	**6**	**167,286**	**4,823**	**8,803**	**180,912**
1	0	0	GAIBANDHA	FULCHARI	132213004	3.98	3.98	0.00	0.00	0.00			24,911	0	1,304	26,215
1	0	0	GAIBANDHA	GOBINDAGANJ	132303003	8.10	7.70	0.40	0.00	0.00			50,698	0	2,655	53,353
1	0	0	GAIBANDHA	SAGHATA	132883001	7.40	0.75	6.65	0.00	0.00			46,317	0	2,425	48,742
3	**0**	**0**	**GAIBANDHA DISTRICT**		**3**	**19.48**	**12.43**	**7.05**	**0.00**	**0.00**	**0**	**0**	**121,925**	**0**	**6,384**	**128,309**
1	0	0	KURIGRAM	BHURUNGAMARI	149063002	3.15	3.15	0.00	0.00	0.00		8	19,716	2,987	1,032	23,735
1	0	0	KURIGRAM	CHILMARI	149093003	6.00	3.70	2.30	0.00	0.00			37,554	0	1,966	39,520
1	0	0	KURIGRAM	KURIGRAM-S	149523006	9.40	1.75	7.65	0.00	0.00			58,835	0	3,081	61,915
1	0	0	KURIGRAM	NAGESWARI	149613010	7.50	3.80	3.70	0.00	0.00		6	46,943	2,240	2,458	51,641
1	0	0	KURIGRAM	ROWMARI	149793002	4.70	4.70	0.00	0.00	0.00		10	29,417	3,734	1,540	34,692
1	0	0	KURIGRAM	ULIPUR	149943005	6.00	5.10	0.90	0.00	0.00		18	37,554	6,721	1,966	46,242
6	**0**	**0**	**KURIGRAM DISTRICT**		**6**	**36.75**	**22.20**	**14.55**	**0.00**	**0.00**	**0**	**42**	**230,018**	**15,683**	**12,044**	**257,745**
1	0	0	LALMONIRHAT	HATIBANDHA	152333010	11.40	10.15	1.25	0.00	0.00			71,353	0	3,736	75,089
1	0	1	LALMONIRHAT	PATGRAM	152703005	11.85	11.35	0.50	0.00	0.00	32	198	74,169	90,229	3,884	168,282
42	**0**	**1**	**LALMONIRHAT DISTRICT**		**2**	**23.25**	**21.50**	**1.75**	**0.00**	**0.00**	**32**	**198**	**145,522**	**90,229**	**7,620**	**243,371**
1	0	0	NILPHAMARI	KISHOREGANJ	173453023	10.55	9.45	1.10	0.00	0.00	111	-100	66,032	4,107	3,457	73,597
1	0	0	NILPHAMARI	SAYEDPUR	173853009	5.20	5.20	0.00	0.00	0.00			32,547	0	1,704	34,251
2	**0**	**0**	**NILPHAMARI DISTRICT**		**2**	**15.75**	**14.65**	**1.10**	**0.00**	**0.00**	**111**	**-100**	**98,579**	**4,107**	**5,161**	**107,848**
1	0	0	PANCHAGARH	ATWARI	177043004	6.42	6.42	0.00	0.00	0.00			39,111	0	2,058	41,169
1	**0**	**0**	**PANCHAGARH DISTRICT**		**1**	**6.42**	**6.42**	**0.00**	**0.00**	**0.00**	**0**	**0**	39,111	0	2,058	41,169
2	0	0	RANGPUR	BADARGANJ	185033004	17.00	14.48	2.53	0.00	0.00			106,403	0	5,571	111,974
2	2	0	RANGPUR	RANGPUR-S	185493002	17.29	14.82	1.57	0.90	0.00	1	114	108,218	45,115	5,667	158,999
4	**2**	**0**	**RANGPUR DISTRICT**		**2**	**34.29**	**29.30**	**4.09**	**0.90**	**0.00**	**1**	**114**	**214,621**	**45,115**	**11,238**	**270,973**
1	0	0	THAKURGAON	HARIPUR	194513008	10.45	10.45	0.00	0.00	0.00			63,661	0	3,350	67,011
1	**0**	**0**	**THAKURGAON DISTRICT**		**1**	**10.45**	**10.45**	**0.00**	**0.00**	**0.00**	**0**	**0**	**63,661**	0	3,350	67,011
49	**8**	**1**	**TOTAL**		**47**	**331.51**	**263.81**	**63.38**	**2.89**	**1.43**	**416**	**294**	**2,141,589**	**279,401**	**110,290**	**2,531,279**

Table A20-6 Selected Phase I UNR rehabilitation subprojects by District

District	Upazila	Road name	Total length (km)	Cost (BDT '000)
DINAJPUR	BIROL	Birol Upazila H/Q. to Dhukurjhari hat road.	5.10	17,070
DINAJPUR	HAKIMPUR	Hakimpur-Ghoraghat Road Starting from Hilli CP BDR Camp	14.30	47,862
DINAJPUR DISTRICT		**2**	**19.40**	**64,932**
KURIGRAM	CHILMARI	Thanahat GC-Ramna River Ghat Road	3.02	10,424
KURIGRAM	KURIGRAM-S	Dharla bridge approach-Jatrapur GC	6.88	23,719
KURIGRAM DISTRICT		**2**	**9.91**	**34,143**
NILPHAMARI	DOMAR	Domar GC-Chilahati GC via Muktirhat road	26.00	89,622
NILPHAMARI	NILPHAMARI-S	Nilphamari to Bhobanigonj G.C.	11.68	40,261
NILPHAMARI DISTRICT		**2**	**37.68**	**129,883**
PANCHAGARH	DEBIGANJ	Debiganj R&H Road (Bat Tree More) - Jharbari GC	18.20	60,915
PANCHAGARH	PANCHAGARH-S	Panchagarh - Chaklahat Road.	13.80	46,189
PANCHAGARH DISTRICT		**2**	**32.00**	**107,104**
RANGPUR	PIRGANJ	Barodarga NHW-Madargonj GC	13.55	46,707
RANGPUR	MITHAPUKUR	Damdoma NHW to Nagarkotha GC via Begum Rokey Momu. Centre	29.50	101,687
RANGPUR	RANGPUR-S	NHW at Lalbag-Ranipukur GC.	9.60	33,091
RANGPUR DISTRICT		**3**	**52.65**	**181,485**
Total		**11 Roads**	**151.64**	**517,547**

Table A20-7 Selected Growth Center upgrading subprojects by District

District	Upazila	Name of GCM	Cost of Market BDT '000
Mymensingh area			
Jamalpur	Islampur	Guthail Bazar	7,630.0
Jamalpur	Islampur	Dharmakura Bazar	7,630.0
Jamalpur	Melandah	Hazrabari GC	7,630.0
Jamalpur	Sarishabari	Aramnagar Hat	7,630.0
Jamalpur District		**4**	**30,520.0**
Kishoreganj	Bhairab	Shimulkandi	7,600.0
Kishoreganj	Hossainpur	Hossainpur	7,600.0
Kishoreganj	Kuliarchar	Agarpur Bazar	7,600.0
Kishoreganj	Mithamoin	Mithamoin	7,600.0
Kishoreganj	Mithamoin	Katkhal	7,600.0
Kishoreganj	Pakundia	Adarshapara	7,600.0
Kishoreganj	Pakundia	Motkhola	7,600.0
Kishoreganj	Tarail	Jawer	7,600.0
Kishoreganj	Tarail	Tarail-Shachail	7,600.0
Kishoreganj District		**9**	**68,400.0**
Mymensingh	Bhaluka	Birunia	7,600.0
Mymensingh	Gouripur	Shyamgonj	7,600.0
Mymensingh	Gouripur	Gouripur	7,600.0
Mymensingh	Haluaghat	Haluaghat GC	7,600.0
Mymensingh	Haluaghat	Shakuai GC Market	7,600.0
Mymensingh	Ishwarganj	Rayer Bazar	7,600.0
Mymensingh	Phulpur	Bhaitkandi Bazar	7,600.0
Mymensingh District		**7**	**53,200.0**
Netrakona	Kendua	Bekhair Hati	7,600.0
Netrakona	Purbadhala	Hogla Bazar	7,600.0
Netrakona District		**2**	**15,200.0**
Sherpur	Jhenaigati	Jhenaigati	7,630.0
Sherpur	Jhenaigati	Gobindaganj Hat	7,630.0
Sherpur	Nakla	Narayankhola	7,630.0
Sherpur	Nakla	Nakla Bazar	7,630.0
Sherpur	Sreebordi	Karnojhora	7,630.0
Sherpur	Sherpur Sadar	Kamarerchar GC	7,630.0
Sherpur District		**6**	**45,780.0**
Tangail	Gopalpur	Bhengula Bazar	7,630.0
Tangail	Gopalpur	Nalin	7,630.0
Tangail	Gopalpur	Jhawail	7,630.0
Tangail	Madhupur	Madhupur	7,630.0
Tangail	Mirzapur	Hatubanga	7,630.0
Tangail	Mirzapur	Dewhata	7,630.0
Tangail	Nagarpur	Shahjani	7,630.0
Tangail	Nagarpur	Tebaria	7,630.0
Tangail	Shakhipur	Shakirpur Hat	7,630.0
Tangail	Shakhipur	Boheratail Hat	7,630.0
Tangail	Tangail Sadar	Torapgonj	7,630.0
Tangail District		**11**	**83,930.0**
Total		**39**	**297,030**

District	Upazila	Name of GCM	Cost of Market BDT '000
Rangpur Divisio			
Dinajpur	Birampur	Birampur Hat	7,370.0
Dinajpur	Birgonj	Golapganj hat	7,370.0
Dinajpur	Bochagonj	Setabganj Hat G.C	7,370.0
Dinajpur	Chirirbandar	Binnakuri	7,370.0
Dinajpur	Chirirbandar	Chirirhat	7,370.0
Dinajpur	Dinajpur Sadar	Fasiladanga	7,370.0
Dinajpur	Dinajpur Sadar	Raniganj	7,370.0
Dinajpur	Ghoraghat	Ranigonj	7,370.0
Dinajpur	Kaharol	Kaharol	7,370.0
Dinajpur	Khansama	Pakerhat	7,370.0
Dinajpur	Nawabgonj	Vaduria Hat	7,370.0
Dinajpur	Nawabgonj	Daudpur Hat	7,370.0
Dinajpur	Parbatipur	Khyarpukur	7,370.0
Dinajpur	Parbatipur	Bhabanipur	7,370.0
Dinajpur District		**14**	**103,180.0**
Gaibandha	Sadullapur	Sadullapur Bazar	7,400.0
Gaibandha	Sundarganj	Sovaganj	7,400.0
Gaibandha District		**2**	**14,800.0**
Kurigram	Rajibpur	Baliamari	7,400.0
Kurigram	Rowmari	Rowmari	7,400.0
Kurigram District		**2**	**14,800.0**
Lalmonirhat District		**0**	**-**
Nilphamari	Dimla	Shutibari Hat	7,400.0
Nilphamari	Dimla	Thakurgonj Hat	7,400.0
Nilphamari District		**2**	**14,800.0**
Panchagarh	Debiganj	Kaliganjhat	7,370.0
Panchagarh	Atwari	Fakirgonjr hat GC	7,370.0
Panchagarh	Tetulia	Shalbahan	7,370.0
Panchagarh District		**3**	**22,110.0**
Rangpur	Badargonj	Shyampur	7,400.0
Rangpur	Kaunia	Kaunia GC (Takipal hat)	7,400.0
Rangpur	Kaunia	Modhupur hat	7,400.0
Rangpur District		**3**	**22,200.0**
Thakurgaon	Baliadangi	Lahiri GC	7,370.0
Thakurgaon	Haripur	Jadurani GC	7,370.0
Thakurgaon	Pirganj	Jabor Hat	7,370.0
Thakurgaon	Ranisankail	Katihar	7,370.0
Thakurgaon	Thakurgaon Sadar	Shibganj	7,370.0
Thakurgaon District		**5**	**36,850.0**
Total		**31**	**228,740**
Grand Total		**70**	**525,770**

Table A20-8 Selected rural market upgrading subprojects by District

District	Upazila	Name of rural market	Cost of market BDT '000
Mymensingh area			
Jamalpur	Dewanganj	Katerbeel	4,580.0
Jamalpur	Dewanganj	Jalurchar	4,580.0
Jamalpur	Melandah	Beltail Bazar	4,580.0
Jamalpur District		**3**	**13,740.0**
Kishoreganj	Austagram	Bangalpara Bazar	4,560.0
Kishoreganj	Austagram	Abdullapur Bazar	4,560.0
Kishoreganj	Hossainpur	Pitalganj	4,560.0
Kishoreganj	Hossainpur	Thatarknda	4,560.0
Kishoreganj	Karimgonj	Gabtoli Bazar	4,560.0
Kishoreganj	Pakundia	Dorgha	4,560.0
Kishoreganj	Pakundia	Dogdoga	4,560.0
Kishoreganj	Tarail	Kawakhali	4,560.0
Kishoreganj District		**8**	**36,480.0**
Mymensingh	Bhaluka	Paruldia	4,560.0
Mymensingh	Bhaluka	Angargara	4,560.0
Mymensingh	Dhobaura	Chariakanda	4,560.0
Mymensingh	Gaffargaon	Mukhi school bazar	4,560.0
Mymensingh	Haluaghat	Dhurail	4,560.0
Mymensingh	Haluaghat	Mazrakura	4,560.0
Mymensingh	Ishwarganj	Charpara Bazar	4,560.0
Mymensingh	Ishwarganj	Surjer Bazar	4,560.0
Mymensingh	Muktagacha	Kheruajani Bazar	4,560.0
Mymensingh	Muktagacha	Shasa Bangla bazar	4,560.0
Mymensingh	Nandail	Seed Store Market	4,560.0
Mymensingh	Nandail	Bashati Market	4,560.0
Mymensingh	Phulpur	Horiagai Bazar	4,560.0
Mymensingh	Phulpur	Charia Bazar	4,560.0
Mymensingh	Trishal	Dhala Bazar	4,560.0
Mymensingh	Trishal	Kashigong Bazar	4,560.0
Mymensingh District		**16**	**72,960.0**
Netrakona	Purbadhala	Jaria Bazar	4,560.0
Netrakona District		**1**	**4,560.0**
Sherpur	Jhenaigati	Bakakura Bazar	4,580.0
Sherpur	Jhenaigati	Mohangong Hat	4,580.0
Sherpur	Nakla	Pathakata	4,580.0
Sherpur	Nalitabari	Noljora	4,580.0
Sherpur	Sherpur Sadar	Bimgonj Bazar	4,580.0
Sherpur	Sherpur Sadar	Rasulpur Bazar	4,580.0
Sherpur District		**6**	**27,480.0**
Tangail	Bhuapur	Gabshara Hat	4,580.0
Tangail	Delduar	Rupshi Hat	4,580.0
Tangail	Delduar	Naliapara	4,580.0
Tangail	Tangail Sadar	Gala Bazar	4,580.0
Tangail	Tangail Sadar	Binnafoir	4,580.0
Tangail District		**5**	**22,900.0**
Total		**39**	**178,120**

District	Upazila	Name of rural market	Cost of market BDT '000
Rangpur Divisio			
Dinajpur	Birgonj	Sanka	4,420.0
Dinajpur	Birol	Choker Hat	4,420.0
Dinajpur	Bochagonj	Sadamahal Hat	4,420.0
Dinajpur	Fulbari	Pukhuri Hat	4,420.0
Dinajpur	Fulbari	Khayerbari Bazar	4,420.0
Dinajpur	Ghoraghat	Chadpara	4,420.0
Dinajpur	Ghoraghat	Bologari	4,420.0
Dinajpur	Kaharol	Boleya hat	4,420.0
Dinajpur	Kaharol	Bogdoir	4,420.0
Dinajpur	Nawabgonj	Dolar Dorga Hat	4,420.0
Dinajpur	Nawabgonj	Charar Hat	4,420.0
Dinajpur District		**11**	**48,620.0**
Gaibandha	Palashbari	Talukjamira Hat	4,440.0
Gaibandha District		**1**	**4,440.0**
Kurigram	Fulbari	Pakhirhat	4,440.0
Kurigram	Kurigram Sadar	Sulkurbazar	4,440.0
Kurigram	Nageswari	Naykerhat	4,440.0
Kurigram	Nageswari	Momingonj	4,440.0
Kurigram	Rajarhat	Nakkatirhat	4,440.0
Kurigram	Rajibpur	Nayachar Bazar	4,440.0
Kurigram	Rowmari	Char Shoulmari	4,440.0
Kurigram	Rowmari	Pakhiura	4,440.0
Kurigram District		**8**	**35,520.0**
Lalmonirhat District		**0**	-
Nilphamari	Dimla	Khagakharibari	4,440.0
Nilphamari	Dimla	Shelhati	4,440.0
Nilphamari	Jaldhaka	Rother Bazar	4,440.0
Nilphamari	Jaldhaka	Baroghat hat	4,440.0
Nilphamari	Kishoregonj	Bangla Bazar (Magura UP)	4,440.0
Nilphamari	Nilphamari Sadar	Dhelapir hat	4,440.0
Nilphamari	Nilphamari Sadar	Jadur hat	4,440.0
Nilphamari District		**7**	**31,080.0**
Panchagarh	Atwari	Dungdungir hat	4,420.0
Panchagarh	Atwari	Rakhal Debi hat GC	4,420.0
Panchagarh	Debiganj	Laxmirhat	4,420.0
Panchagarh	Debiganj	Saldangaha	4,420.0
Panchagarh	Panchagarh Sadar	Jhalaihat	4,420.0
Panchagarh	Panchagarh Sadar	Futkibarihat	4,420.0
Panchagarh District		**6**	**26,520.0**
Rangpur	Kaunia	Joy Bangla Bazar	4,440.0
Rangpur	Kaunia	Jamtolir hat	4,440.0
Rangpur District		**2**	**8,880.0**
Thakurgaon District		**0**	**-**
Total		**35**	**155,060**
Grand Total		**74**	**333,180**

2.2 Upgrading of Upazila and Union roads

This cost calculation consists of improvement of Upazila and Union roads from earthen or brick roads by road grade type and embankment height, construction of culverts, RCC bridges and road safety measures, and providing tree-planting, caretaking and maintenance of village road by LCS. All the unit costs are calculated with the rates applied from the LGED schedule of rates for Mymensingh, Tangail, Rangpur and Dinajpur regions published in July 2012. The unit costs are shown in Table A20-9 to Table A20-25.

Table A20-9 Unit cost of Upazila road (Type 4) upgrading from earthen road per km

Rate and amount in BDT

Sl. No.	Item code	Item of works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
3		Maintenance & Protection of Traffic	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
4	2.1.04.01	Earth Filling for embankment 1,000*((9.8+14.3)/2*1.5-(4+8.5)/2*1.5+2.025*0.107/2)	8,808	m^3	121.75	1,072,374	121.75	1,072,374	121.75	1,072,374	121.75	1,072,374
5	2.1.08.02	Mechanical compaction of embankment 1,000*((9.8+14.3)/2*1.5-(4+8.5)/2*1.5+2.025*0.107/2)	8,808	m^3	36.66	322,901	36.66	322,901	36.66	322,901	36.66	322,901
6	3.1.03	E/W in Box Cutting up 450 mm 1,000*(5.5 + 0.125*2)	5,750	m^2	46.49	267,318	46.49	267,318	46.49	267,318	46.49	267,318
7	3.1.06.01	250-mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(5.5 + 0.125*2)*0.25	1,438	m^3	594.63	855,078	594.63	855,078	558.98	803,813	487.69	701,298
8	3.2.02.02	200-mm thick compacted Aggregate-Sand (1:1)Sub-Base 1,000*(5.5 x 0.025+(5.5 + 0.125*2)*0.175)	1,144	m^3	2,573.00	2,943,512	2,507.04	2,868,054	2,362.76	2,702,997	2,259.71	2,585,108
9	3.2.03.01	200-mm WBM (Material) for compacted base course 1,000*5.5*0.2*1.33	1,463	m^3	2,907.28	4,253,351	2,808.10	4,108,250	2,622.13	3,836,176	2,529.15	3,700,146
10	3.2.03.03	Labor for compacted base course (WBM) 1,000*5.5*0.2	1,100	m^3	271.85	299,035	271.85	299,035	271.85	299,035	271.85	299,035
11	3.2.15.02	Brick on end edging (125-mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
12	3.2.24.05	Track Coat @ 0.5 kg/m2 1,000*5.5	5,500	m^2	52.14	286,770	52.14	286,770	52.45	288,475	52.45	288,475
13	3.2.25.01	Bituminous Prime Coat 1,000*5.5	5,500	m^2	111.56	613,580	111.56	613,580	112.04	616,220	112.04	616,220
14	3.2.30.1	40-mm thick compacted BC 1,000*5.5	5,500	m^2	611.93	3,365,615	617.64	3,397,020	595.06	3,272,830	588.84	3,238,620
15	3.2.39	12-mm thick compacted seal Coat for BC pavement 1,000*5.5	5,500	m^2	226.95	1,248,225	228.32	1,255,760	226.69	1,246,795	224.76	1,236,180
16	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,370.29	131,109
17	6.050	Turf works for slope and soft shoulder 1,000*(2.704+2.028)*2	9,464	m^2	15.50	146,692	15.50	146,692	15.50	146,692	15.50	146,692
		Total				**16,210,349**		**16,020,143**		**15,384,819**		**14,974,416**

Table A20-10 Unit cost of Upazila road (Type 4) upgrading from HBB/BSF road per km

Rate and amount in BDT

Sl. No.	Item code	Item of works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
3		Maintenance & Protection of Traffic	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
4	2.1.04.01	Earth Filling for embankment 1,000*((9.8+14.3)/2*1.5-(4+8.5)/2*1.5+2.025*0.107/2)	8,808	m^3	121.75	1,072,374	121.75	1,072,374	121.75	1,072,374	121.75	1,072,374
5	2.1.08.02	Mechanical compaction of embankment 1,000*((9.8+14.3)/2*1.5-(4+8.5)/2*1.5+2.025*0.107/2)	8,808	m^3	36.66	322,901	36.66	322,901	36.66	322,901	36.66	322,901
6	3.1.03	E/W in Box Cutting up 450 mm 1,000*(5.5 + 0.125*2)	5,750	m^2	46.49	267,318	46.49	267,318	46.49	267,318	46.49	267,317
7	3.1.06.01	250-mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(5.5 + 0.125*2)*0.25	1,438	m^3	594.01	854,186	594.63	855,078	558.98	803,813	487.69	701,298
8	3.2.02.02	200-mm thick compacted Aggregate-Sand (1:1) Sub-Base 1,000*(5.5 x 0.025+(5.5 + 0.125*2)*0.175)	1,144	m^3	2,573.00	2,943,512	2,507.04	2,868,054	2,362.76	2,702,997	2,259.71	2,585,108
9	3.2.08	Picking up existing HBB and stake the materials (labor) 1,000*(3.7 + 0.125*2)	3,950	m^2	37.19	146,901	37.19	146,901	37.19	146,901	37.19	146,901
10	3.2.06.02	Breaking & spreading 1st class and picked brick chips 1,000*3.7* 0.125	463	m^3	297.55	137,766	297.55	137,766	297.55	137,766	297.55	137,766
w	3.2.03.01	200-mm WBM (Material) for compacted base course 1,000*5.5*0.2*1.33-463	1,000	m^3	2,907.28	2,907,280	2,808.10	2,808,100	2,622.13	2,622,130	2,529.15	2,529,150
12	3.2.03.03	Labor for compacted base course (WBM) 1,000*5.5*0.2	1,100	m^3	271.85	299,035	271.85	299,035	271.85	299,035	271.85	299,035
13	3.2.15.02	Brick on end edging (125-mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
14	3.2.24.05	Track Coat @ 0.5 kg/m2 1,000*5.5	5,500	m^2	52.14	286,770	52.14	286,770	52.45	288,475	52.45	288,475
15	3.2.25.01	Bituminous Prime Coat 1,000*5.5	5,500	m^2	111.56	613,580	111.56	613,580	112.04	616,220	112.04	616,220
16	3.2.30.1	40-mm thick compacted BC 1,000*5.5	5,500	m^2	611.93	3,365,615	617.64	3,397,020	595.06	3,272,830	588.84	3,238,620
17	3.2.39	12-mm thick compacted seal Coat for BC pavement 1,000*5.5	5,500	m^2	226.95	1,248,225	228.32	1,255,760	226.69	1,246,795	224.76	1,236,180
18	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,370.29	131,109
19	6.050	Turf works for slope and soft shoulder 1,000*(2.704+2.028)*2	9,464	m^2	15.50	146,692	15.50	146,692	15.50	146,692	15.50	146,692
		Total				**15,148,053**		**15,004,659**		**14,455,439**		**14,088,086**

Table A20-11 Unit cost of Upazila road (Type 4-B) upgrading from earthen road per km (Embankment height= 1.50 m)

Rate and amount in BDT

Sl. No.	Item code	Item of works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
3		Maintenance & Protection of Traffic	1	LS	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000	40,000.00	40,000
4	2.1.04.01	Earth Filling for embankment 1,000*((9.8+14.3)/2*1.5-(4+8.5)/2*1.5+2.025*0.107/2)	8,808	m^3	121.75	1,072,374	121.75	1,072,374	121.75	1,072,374	121.75	1,072,374
5	2.1.08.02	Mechanical compaction of embankment (1,000*((9.8+14.3)/2*1.5-(4+8.5)/2*1.5+2.025*0.107/2)	8,808	m^3	36.66	322,901	36.66	322,901	36.66	322,901	36.66	322,901
6	3.1.03	E/W in Box Cutting up 450mm 1,000*(5.5 + 0.125*2)	5,750	m^2	46.49	267,318	46.49	267,318	46.49	267,318	46.49	267,318
7	3.1.06.01	250-mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(5.5 + 0.125*2)*0.25	1,438	m^3	594.63	855,078	594.63	855,078	558.98	803,813	487.69	701,298
8	3.2.02.02	150-mm thick compacted Aggregate-Sand (1:1)Sub-Base 1,000*(5.5 x 0.075+(5.5 + 0.125*2)*0.075)	844	m^3	2,573.00	2,171,612	2,507.04	2,115,942	2,362.76	1,994,169	2,259.71	1,907,195
9	3.2.03.01	150-mm WBM (Material) for compacted base course 1,000*5.5*0.150*1.33	1,097	m^3	2,907.28	3,190,013	2,808.10	3,081,188	2,622.13	2,877,132	2,529.15	2,774,477
10	3.2.03.03	Labor for compacted base course (WBM) 1,000*5.5*0.150	825	m^3	271.85	224,276	271.85	224,276	271.85	224,276	271.85	224,276
11	3.2.15.02	Brick on end edging (125mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
12	3.2.24.05	Tack Coat @ 0.5 kg/m2 1,000*5.5	5,500	m^2	52.14	286,770	52.14	286,770	52.45	288,475	52.45	288,475
13	3.2.25.01	Bituminous Prime Coat 1,000*5.5	5,500	m^2	111.56	613,580	111.56	613,580	112.04	616,220	112.04	616,220
14	3.2.30.1	40-mm thick compacted BC 1,000*5.5	5,500	m^2	611.93	3,365,615	617.64	3,397,020	595.06	3,272,830	588.84	3,238,620
15	3.2.39	12-mm thick compacted seal Coat for BC pavement 1,000*5.5	5,500	m^2	226.95	1,248,225	228.32	1,255,760	226.69	1,246,795	224.76	1,236,180
16	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,370.29	131,109
17	6.050	Turf works for slope and soft shoulder 1,000*(2.250+2.028)*2	8,556	m^2	15.50	132,618	15.50	132,618	15.50	132,618	15.50	132,618
		Total				**14,286,278**		**14,152,135**		**13,628,114**		**13,282,001**

Table A20-12 Unit cost of Upazila road (Type 6) upgrading from earthen per km (Embankment height = 2.00 m)

Rate and amount in BDT

Sl. No.	Item code	Item of works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
3		Maintenance & Protection of Traffic	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
4	2.1.04.01	Earth Filling for embankment 1,000*((7.3+13.00)/2*2.00-(4+8.5)/2*2.00+0.084*1.675/2)	7,869	m^3	121.75	958,051	121.75	958,051	121.75	958,051	121.75	958,051
5	2.1.08.02	Mechanical compaction of embankment 1,000*((7.3+13.00)/2*1.00-(4+8.5)/2*1.00+0.084*1.675/2)	7,869	m^3	36.66	288,478	36.66	288,478	36.66	288,478	36.66	288,478
6	3.1.03	E/W in Box Cutting up 450 mm 1,000*(3.7 + 0.125*2)	3,950	m^2	46.49	183,636	46.49	183,636	46.49	183,636	46.49	183,636
7	3.1.06.01	250-mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(3.7 + 0.125*2)*0.25	988	m^3	594.63	587,494	594.63	587,494	558.98	552,272	487.69	481,838
8	3.2.02.02	150-mm thick compacted Aggregate-Sand (1:1) Sub-Base 1,000*(3.7* 0.075 +(3.7 + 0.125* 2)* 0.075)	574	m^3	2,573.00	1,476,902	2,507.04	1,439,041	2,362.76	1,356,224	2,259.71	1,297,074
9	3.2.03.01	150-mm WBM (Material) for compacted base course 1,000*3.7*0.15*1.33	738	m^3	2,907.28	2,145,573	2,808.10	2,072,378	2,622.13	1,935,132	2,529.15	1,866,513
10	3.2.03.03	Labor for compacted base course (WBM) 1,000*3.7*0.15	555	m^3	271.85	150,877	271.85	150,877	271.85	150,877	271.85	150,877
11	3.2.15.02	Brick on end edging (125-mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
12	3.2.24.05	Track Coat @ 0.5 kg/m2 1,000*3.7	3,700	m^2	52.14	192,918	52.14	192,918	52.45	194,065	52.45	194,065
13	3.2.25.01	Bituminous Prime Coat 1,000*3.7	3,700	m^2	111.16	411,292	111.16	411,292	112.04	414,548	112.04	414,548
14	3.2.29.1	25-mm thick compacted BC 1,000*3.7	3,700	m^2	388.70	1,438,190	392.27	1,451,399	380.17	1,406,629	376.22	1,392,014
15	3.2.34	7-mm thick compacted seal Coat for BC pavement 1,000*3.7	3,700	m^2	133.77	494,949	134.39	497,243	134.18	496,466	133.06	492,322
16	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,083.76	122,513
17	6.050	Turf works for slope and soft shoulder 1,000*(3.00+1.677)*2	9,354	m^2	15.50	144,987	15.50	144,987	15.50	144,987	15.50	144,987
		Total				**8,979,244**		**8,875,104**		**8,560,556**		**8,325,853**

Table A20-13 Unit cost of Upazila road (Type 6) upgrading from earthen per km (Embankment height =1.50 m)

Rate and amount in BDT

Sl. No.	Item Code	Item of works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
3		Maintenance & Protection of Traffic	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
4	2.1.04.01	Earth Filling for embankment (1,000*((7.3+11.8)/2*1.50-(4+8.5)/2*1.5+0.09*1.675/2)	5,025	m^3	121.75	611,794	121.75	611,794	121.75	611,794	121.75	611,794
5	2.1.08.02	Mechanical compaction of embankment 1,000*((7.3+11.8)/2*1.50-(4+8.5)/2*1.5+0.09*1.675/2)	5,025	m^3	36.66	184,217	36.66	184,217	36.66	184,217	36.66	184,217
6	3.1.03	E/W in Box Cutting up 450 mm 1,000*(3.7 + 0.125*2)	3,950	m^2	46.49	183,636	46.49	183,636	46.49	183,636	46.49	183,636
7	3.1.06.01	250-mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(3.7 + 0.125*2)*0.25	988	m^3	594.63	587,494	594.63	587,494	558.98	552,272	487.69	481,838
8	3.2.02.02	150-mm thick compacted Aggregate-Sand (1:1)Sub-Base 1,000*(3.7* 0.075 +(3.7 + 0.125* 2)* 0.075)	574	m^3	2,573.00	1,476,902	2,507.04	1,439,041	2,362.76	1,356,224	2,259.71	1,297,074
9	3.2.03.01	150-mm WBM (Material) for compacted base course 1,000*3.7*0.15*1.33	738	m^3	2,907.28	2,145,573	2,808.10	2,072,378	2,622.13	1,935,132	2,529.15	1,866,513
10	3.2.03.03	Labor for compacted base course (WBM) 1,000*3.7*0.15	555	m^3	271.85	150,877	271.85	150,877	271.85	150,877	271.85	150,877
11	3.2.15.02	Brick on end edging (125-mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
12	3.2.24.05	Track Coat @ 0.5 kg/m2 1,000*3.7	3,700	m^2	52.14	192,918	52.14	192,918	52.45	194,065	52.45	194,065
13	3.2.25.01	Bituminous Prime Coat 1,000*3.7	3,700	m^2	111.16	411,292	111.16	411,292	112.04	414,548	112.04	414,548
14	3.2.29.1	25-mm thick compacted BC 1,000*3.7	3,700	m^2	388.70	1,438,190	392.27	1,451,399	380.17	1,406,629	376.22	1,392,014
15	3.2.34	7-mm thick compacted seal Coat for BC pavement 1,000*3.7	3,700	m^2	133.77	494,949	134.39	497,243	134.18	496,466	133.06	492,322
16	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,083.76	122,513
17	6.050	Turf works for slope and soft shoulder 1,000*(2.704+1.677)*2	8,762	m^2	15.50	135,811	15.50	135,811	15.50	135,811	15.50	135,811
		Total				**8,519,550**		**8,415,410**		**8,100,862**		**7,866,159**

Table A20-14 Unit cost of Upazila road (Type 6) upgrading from earthen per km (Embankment height = 1.00 m)

Rate and amount in BDT

Sl. No.	Item Code	Item of works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
3		Maintenance & Protection of Traffic	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
4	2.1.04.01	Earth Filling for embankment 1,000*((7.3+11.8)/2*1.00-(4+8.5)/2*1.00+0.084*1.675/2)	3,370	m^3	121.75	410,298	121.75	410,298	121.75	410,298	121.75	410,298
5	2.1.08.02	Mechanical compaction of embankment 1,000*((7.3+11.8)/2*1.00-(4+8.5)/2*1.00+0.084*1.675/2)	3,370	m^3	36.66	123,544	36.66	123,544	36.66	123,544	36.66	123,544
6	3.1.03	E/W in Box Cutting up 450mm 1,000*(3.7 + 0.125*2)	3,950	m^2	46.49	183,636	46.49	183,636	46.49	183,636	46.49	183,636
7	3.1.06.01	250 mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(3.7 + 0.125*2)*0.25	988	m^3	594.63	587,494	594.63	587,494	558.98	552,272	487.69	481,838
8	3.2.02.02	150-mm thick compacted Aggregate-Sand (1:1)Sub-Base 1,000*(3.7* 0.075 +(3.7 + 0.125* 2)* 0.075)	574	m^3	2,573.00	1,476,902	2,507.04	1,439,041	2,362.76	1,356,224	2,259.71	1,297,074
9	3.2.03.01	150-mm WBM (Material) for compacted base course 1,000*3.7*0.15*1.33	738	m^3	2,907.28	2,145,573	2,808.10	2,072,378	2,622.13	1,935,132	2,529.15	1,866,513
10	3.2.03.03	Labor for compacted base course (WBM 1,000*3.7*0.15	555	m^3	271.85	150,877	271.85	150,877	271.85	150,877	271.85	150,877
11	3.2.15.02	Brick on end edging (125mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
12	3.2.24.05	Track Coat @ 0.5 kg/m2 1,000*3.7	3,700	m^2	52.14	192,918	52.14	192,918	52.45	194,065	52.45	194,065
13	3.2.25.01	Bituminous Prime Coat 1,000*3.7	3,700	m^2	111.16	411,292	111.16	411,292	112.04	414,548	112.04	414,548
14	3.2.29.1	25-mm thick compacted BC 1,000*3.7	3,700	m^2	388.70	1,438,190	392.27	1,451,399	380.17	1,406,629	376.22	1,392,014
15	3.2.34	7-mm thick compacted seal Coat for BC pavement 1,000*3.7	3,700	m^2	133.77	494,949	134.39	497,243	134.18	496,466	133.06	492,322
16	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,083.76	122,513
		Total				**8,219,841**		**8,115,700**		**7,801,152**		**7,566,450**

Table A20-15 Unit cost of Upazila road (Type 6) upgrading from HBB/BSF road per km

Rate and amount in BDT

Sl. No.	Item Code	Item of works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
3		Maintenance & Protection of Traffic	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
4	2.1.04.01	Earth Filling for embankment 1,000*((7.3+11.8)/2*1.50-(4+8.5)/2*1.5+0.09*1.675/2)	5,025	m^3	121.75	611,794	121.75	611,794	121.75	611,794	121.75	611,794
5	2.1.08.02	Mechanical compaction of embankment 1,000*((7.3+11.8)/2*1.50-(4+8.5)/2*1.5+0.09*1.675/2)	5,025	m^3	36.66	184,217	36.66	184,217	36.66	184,217	36.66	184,217
6	3.1.03	E/W in Box Cutting up 450mm 1,000*(3.7 + 0.125*2)	3,950	m^2	46.49	183,636	46.49	183,636	46.49	183,636	46.49	183,636
7	3.1.06.01	250-mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(3.7 + 0.125*2)*0.25	988	m^3	594.63	587,494	594.63	587,494	558.98	552,272	487.69	481,838
8	3.2.02.02	150-mm thick compacted Aggregate-Sand (1:1) Sub-Base 1,000*(3.7* 0.075 +(3.7 + 0.125* 2)* 0.075)	574	m^3	2,573.00	1,476,902	2,507.04	1,439,041	2,362.76	1,356,224	2,259.71	1,297,074
9	3.2.08	Picking up existing HBB and stake the materials (labor) 1,000*(3.7 + 0.125 x 2)	3,950	m^2	37.19	146,901	37.19	146,901	37.19	146,901	37.19	146,901
10	3.2.06.02	Breaking & spreading 1st class and picked brick chips 1,000*3.7*0.125	463	m^3	297.55	137,766	297.55	137,766	297.55	137,766	297.55	137,766
11	3.2.03.01	150-mm WBM (Material) for compacted base course 1,000*3.7*0.15*1.33-463	275	m^3	2,907.28	799,502	2,808.10	772,228	2,622.13	721,086	2,529.15	695,516
12	3.2.03.03	Labor for compacted base course (WBM) 1,000*3.7*0.15	555	m^3	271.85	150,877	271.85	150,877	271.85	150,877	271.85	150,877
13	3.2.15.02	Brick on end edging (125mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
14	3.2.24.05	Track Coat @ 0.5 kg/m2 1,000*3.7	3,700	m^2	52.14	192,918	52.14	192,918	52.45	194,065	52.45	194,065
15	3.2.25.01	Bituminous Prime Coat 1,000*3.7	3,700	m^2	111.16	411,292	111.16	411,292	112.04	414,548	112.04	414,548
16	3.2.29.1	25-mm thick compacted BC 1,000*3.7	3,700	m^2	388.70	1,438,190	392.27	1,451,399	380.17	1,406,629	376.22	1,392,014
17	3.2.34	7-mm thick compacted seal Coat for BC pavement 1,000*3.7	3,700	m^2	133.77	494,949	134.39	497,243	134.18	496,466	133.06	492,322
18	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,083.76	122,513
19	6.050	Turf works for slope and soft shoulder 1,000*(2.704+1.677)*2	8,762	m^2	15.50	135,811	15.50	135,811	15.50	135,811	15.50	135,811
Total						**7,458,146**		**7,399,925**		**7,171,482**		**6,979,829**

Table A20-16 Unit cost of Union road (Type 7) upgrading from earthen per km (Embankment height = 1.50 m)

Rate and amount in BDT

Sl. No.	Item Code	Item of Works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
3		Maintenance & Protection of Traffic	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
4	2.1.04.01	Earth Filling for embankment 1,000*((5.5+10)/2*1.5-(3.7+8.2)/2*1.5+0.875*0.044/2)	5 ,694	m^3	121.75	693,244	121.75	693,244	121.75	693,244	121.75	693,244
5	2.1.08.02	Mechanical compaction of embankment 1,000*((5.5+10)/2*1.5-(3+8.2)/2*1.5+0.875*0.044/2)	5,694	m^3	36.66	208,742	36.66	208,742	36.66	208,742	36.66	208,742
6	3.1.03	E/W in Box Cutting up 450mm 1,000*(3.7+ 0.125*2)	3,950	m^2	46.49	183,636	46.49	183,636	46.49	183,636	46.49	183,636
7	3.1.06.01	250 mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(3.7 + 0.125*2)*0.25	988	m^3	594.63	587,197	594.63	587,197	558.98	551,993	487.69	481,594
8	3.2.02.02	150-mm thick compacted Aggregate-Sand (1:1)Sub-Base 1,000*(3.7* 0.075 + (3.7 + 0.125*2)*0.075)	574	m^3	2,573.00	1,476,259	2,507.04	1,438,414	2,362.76	1,355,634	2,259.71	1,296,509
9	3.2.03.01	150-mm WBM (Material) for compacted base course 1,000*3.7*0.15*1.33	738	m^3	2,907.28	2,146,009	2,808.10	2,072,799	2,622.13	1,935,525	2,529.15	1,866,892
10	3.2.03.03	Labor for compacted base course (WBM) 1,000*3.7*0.15	555	m^3	271.85	150,877	271.85	150,877	271.85	150,877	271.85	150,877
11	3.2.15.02	Brick on end edging (125mm across) 1 x 1,000 x 2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
12	3.2.24.05	Tack Coat @ 0.5 kg/m2 1,000*3.7	3,700	m^2	52.14	192,918	52.14	192,918	52.45	194,065	52.45	194,065
13	3.2.25.01	Bituminous Prime Coat 1,000*3.7	3,700	m^2	111.56	412,772	111.56	412,772	112.04	414,548	112.04	414,548
14	3.2.29.1	25-mm thick compacted BC 1,000*3.7	3,700	m^2	388.70	1,438,190	392.27	1,451,399	380.17	1,406,629	376.22	1,392,014
15	3.2.34	7-mm thick compacted seal Coat for BC pavement 1,000*3.7	3,700	m^2	133.70	494,690	134.39	497,243	134.18	496,466	133.06	492,322
16	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,083.76	122,513
17	6.050	Turf works for slope and soft shoulder 1,000*(2.250+0.775)*2	6,050	m^2	15.50	93,775	15.50	93,775	15.50	93,775	15.50	93,775
		Total				**8,584,206**		**8,480,327**		**8,164,325**		**7,929,670**

Table A20-17 Unit cost of Union road (Type 8) upgrading from earthen per km (Embankment height = 1.50 m)

Rate and amount in BDT

Sl. No.	Item Code	Item of Works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
3		Maintenance & Protection of Traffic	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
4	2.1.04.01	Earth Filling for embankment 1,000*((5.5+10)/2*1.5-(3+7.5)/2*1.5+1.125*0.0625/2)	3,785	m^3	121.75	460,824	121.75	460,824	121.75	460,824	121.75	460,824
5	2.1.08.02	Mechanical compaction of embankment 1,000*((5.5+10)/2*1.5-(3+7.5)/2*1.5+1.125*0.0625/2)	3,785	m^3	36.66	138,758	36.66	138,758	36.66	138,758	36.66	138,758
6	3.1.03	E/W in Box Cutting up 450mm 1,000*(3 + 0.125*2)	3,250	m^2	46.49	151,093	46.49	151,093	46.49	151,093	46.49	151,093
7	3.1.06.01	250 mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(3 + 0.125*2)*0.25	813	m^3	594.63	483,434	594.63	483,434	558.98	454,451	487.69	396,492
8	3.2.02.02	150-mm thick compacted Aggregate-Sand (1:1)Sub-Base 1,000*(3* 0.075 + (3 + 0.125*2)*0.075)	469	m^3	2,573.00	1,206,737	2,507.04	1,175,802	2,362.76	1,108,134	2,259.71	1,059,804
9	3.2.03.01	150-mm WBM (Material) for compacted base course 1,000*3*0.15*1.33	599	m^3	2,907.28	1,741,461	2,808.10	1,682,052	2,622.13	1,570,656	2,529.15	1,514,961
10	3.2.03.03	Labor for compacted base course (WBM) 1,000*3*0.15	450	m^3	271.85	122,333	271.85	122,333	271.85	122,333	271.85	122,333
11	3.2.15.02	Brick on end edging (125mm across) 1 x 1,000 x 2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
12	3.2.24.05	Tack Coat @ 0.5 kg/m2 1,000*3	3,000	m^2	52.14	156,420	52.14	156,420	52.45	157,350	52.45	157,350
13	3.2.25.01	Bituminous Prime Coat 1,000*3	3,000	m^2	111.56	334,680	111.56	334,680	112.04	336,120	112.04	336,120
14	3.2.29.1	25-mm thick compacted BC 1,000*3	3,000	m^2	388.70	1,166,100	392.27	1,176,810	380.17	1,140,510	376.22	1,128,660
15	3.2.34	7-mm thick compacted seal Coat for BC pavement 1,000*3	3,000	m^2	133.70	401,100	134.39	403,170	134.18	402,540	133.06	399,180
16	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,083.76	122,513
17	6.050	Turf works for slope and soft shoulder 1,000*(2.250+1.125)*2	6,750	m^2	15.50	104,625	15.50	104,625	15.50	104,625	15.50	104,625
		Total				**6,973,462**		**6,887,311**		**6,626,585**		**6,431,651**

Table A20-18 Unit cost of Union road (Type 8) upgrading from HBB per km

Rate and amount in BDT

Sl. No.	Item Code	Item of Works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
3		Maintenance & Protection of Traffic	1	LS	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000	30,000.00	30,000
4	2.1.04.01	Earth Filling for embankment 1,000*((5.5+10)/2*1.5-(3+7.5)/2*1.5+1.125*0.0625/2)	3,785	m^3	121.75	460,824	121.75	460,824	121.75	460,824	121.75	460,824
5	2.1.08.02	Mechanical compaction of embankment 1,000*((5.5+10)/2*1.5-(3+7.5)/2*1.5+1.125*0.0625/2)	3,785	m^3	36.66	138,758	36.66	138,758	36.66	138,758	36.66	138,758
6	3.1.03	E/W in Box Cutting up 450mm 1,000*(3 + 0.125*2)	3,250	m^2	46.49	151,093	46.49	151,093	46.49	151,093	46.49	151,093
7	3.1.06.01	250-mm (Sand FM=0.80 filling) Improved Sub-grade compaction 1,000*(3 + 0.125*2)*0.25	813	m^3	594.63	483,434	594.63	483,434	558.98	454,451	487.69	396,492
8	3.2.02.02	150-mm thick compacted Aggregate-Sand (1:1)Sub-Base 1,000*(3*0.075+(3+0.125*2)* 0.075)	469	m^3	2,573.00	1,206,737	2,507.04	1,175,802	2,362.76	1,108,134	2,259.71	1,059,804
9	3.2.03.01	150-mm WBM (Material) for compacted base course 1,000*3*0.15*1.33-375	224	m^3	2,907.28	651,231	2,808.10	629,014	2,622.13	587,357	2,529.15	566,530
10	3.2.08	Picking up existing HBB and stake the materials (labor) 1,000*(3 + 0.125*2)	3,250	m^2	37.19	120,868	37.19	120,868	37.19	120,868	37.19	120,868
11	3.2.06.02	Breaking & spreading 1st class and picked brick chips 1,000*3*0.125	375	m^3	297.85	111,694	297.85	111,694	297.85	111,694	297.85	111,694
12	3.2.03.03	Labor for compacted base course (WBM) 1,000*3*0.15	450	m^3	271.85	122,333	271.85	122,333	271.85	122,333	271.85	122,333
13	3.2.15.02	Brick on end edging (125mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.47	248,940
14	3.2.24.05	Track Coat @ 0.5 kg/m2 1,000*3	3,000	m^2	52.14	156,420	52.14	156,420	52.45	157,350	52.45	157,350
15	3.2.25.01	Bituminous Prime Coat 1,000*3	3,000	m^2	111.16	333,480	111.16	333,480	112.04	336,120	112.04	336,120
16	3.2.29.1	25-mm thick compacted BC 1,000*3	3,000	m^2	388.70	1,166,100	392.27	1,176,810	380.17	1,140,510	376.22	1,128,660
17	3.2.34	7-mm thick compacted seal Coat for BC pavement 1 x 1,000 x 3.0	3,000	m^2	133.77	401,310	134.39	403,170	134.18	402,540	133.06	399,180
18	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,083.76	122,513
19	6.050	Turf works for slope and soft shoulder 1,000*(2.704+1.189)*2	7,786	m^2	15.50	120,683	15.50	120,683	15.50	120,683	15.50	120,683
		Total				**6,130,862**		**6,081,692**		**5,891,905**		**5,731,839**

Table A20-19 Unit cost of Union road (Type 8 with HBB) upgrading from earthen per km

Rate and amount in BDT

No.	Item code	Item of Works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.01	Cleaning and Grubbing	1	LS	24,000.00	24,000	24,000.00	24,000	24,000.00	24,000	24,000.00	24,000
2		Provide, Erect & Maintain Field Office & Facilities	1	LS	24,000.00	24,000	24,000.00	24,000	24,000.00	24,000	24,000.00	24,000
3		Maintenance & Protection of Traffic	1	LS	24,000.00	24,000	24,000.00	24,000	24,000.00	24,000	24,000.00	24,000
4	2.1.04.01	Earth Filling for embankment 1,000*((5.5+10)/2*1.5-(3+7.5)/2*1.5+1.125*0.0625/2)	3,785	m^3	121.75	460,824	121.75	460,824	121.75	460,824	121.75	460,824
5	2.1.08.02	Mechanical compaction of embankment 1,000*((5.5+10)/2*1.5-(3+7.5)/2*1.5+1.125*0.0625/2)	3,785	m^3	36.66	138,758	36.66	138,758	36.66	138,758	36.66	138,758
6	3.1.03	E/W in Box Cutting up 450mm 1,000*(3 + 0.125*2)	3,250	m^2	46.49	151,093	46.49	151,093	46.49	151,093	46.49	151,093
7	3.1.06.01	300 mm (sand / FM 0.8) of sub-grade Compaction 1,000*(3+0.125*2)*0.30	975	m^3	594.63	579,764	594.63	579,764	558.98	545,006	487.69	475,498
8	3.1.06.02	125 mm of sand (FM 0.5) cushioning 1,000*3* 0.125	375	m^3	558.98	209,618	558.98	209,618	523.34	196,253	452.05	169,519
9	3.2.11.04	75 mm of Brick flat soling (material) 1,000*3	3,000	m^2	317.26	951,780	307.65	922,950	288.06	864,180	277.71	833,130
10	3.2.12.01	75 mm of Brick flat soling (labor) 1,000*3	3,000	m^2	48.60	145,800	48.60	145,800	48.23	144,690	47.48	142,440
11	3.1.06.02	25-mm sand (FM 0.5) cushioning 1,000*3*0.025	75	m^3	558.98	41,924	558.98	41,924	523.34	39,251	452.05	33,904
12	3.2.13.03	125-mm single layer of HBB pavement (material) 1,000*3	3,000	m^2	540.05	1,620,150	523.93	1,571,790	490.83	1,472,490	472.98	1,418,940
13	3.2.14.03	125-mm single layer of HBB pavement (labor) 1,000*3	3,000	m^2	88.77	266,310	88.77	266,310	87.90	263,700	86.16	258,480
14	3.2.15.02	Brick on end edging (125mm across) 1,000*2	2,000	m	142.28	284,560	137.94	275,880	129.11	258,220	124.27	248,540
16	3.2.56.01	Palisading works	30	m	4,377.95	131,339	4,381.03	131,431	4,365.73	130,972	4,370.29	131,109
17	6.050	Turf works for slope and soft shoulder 1,000*(2.704+1.189)*2	7,786	m^2	15.50	120,683	15.50	120,683	15.50	120,683	15.50	120,683
		Total				**5,174,601**		**5,088,824**		**4,858,118**		**4,654,916**

Table A20-20 Unit cost of culverts (double lane) on Upazila road per linear meter (for 15.00 m)

Rate and amount in BDT

No.	Item code	Item of works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	4.1.03	Excavation of foundation for structures	596.10	m^3	105.38	62,817	105.38	62,817	105.38	62,817	105.38	62,817
2	4.1.09	Single layer brick flat soling	169.85	m^2	317.26	53,887	307.65	52,254	288.06	48,927	277.71	47,169
3	4.1.10.01.2	Cement concrete work in foundation	12.74	m^3	7,964.98	101,474	7,875.27	100,331	7,679.02	97,831	7,622.96	97,117
4	4.2.06.01	Fabrication of MS deformed bar	34,464	kg	81.86	2,821,223	81.86	2,821,223	81.86	2,821,223	81.86	2,821,223
5	4.2.01.01	RCC work in vertical member of abutments & wing wall	79.34	m^3	10,933.02	867,426	11,054.57	877,070	10,293.48	816,685	10,203.74	809,565
6	4.2.01.03	RCC work in cut of wall	11.29	m^3	12,350.81	139,441	12,472.36	140,813	11,711.27	132,220	11,622	131,207
7	4.2.03.01.1	RCC work in bottom slab	74.71	m^3	9,687.18	723,729	9,797	731,934	9,109.35	680,560	9,028.26	674,501
8	4.2.03.01.2.1	RCC work in top slab	48.03	m^3	11,850.33	569,171	11,984.67	575,624	11,143.47	535,221	11,044.28	530,457
9	4.2.05.01	RCC work in railing & rail post	3.67	m^3	13,554.27	49,744	13,691.81	50,249	12,830.58	47,088	12,729.03	46,716
10	4.2.09	Wearing course	4.53	m^3	9,665	43,780	9,771.13	44,263	9,103.51	41,239	9,024.79	40,882
11	2.3.06	E/W in approach road	765.54	m^3	192.41	147,298	192.41	147,298	192.41	147,298	192.41	147,298
12	2.1.08.02	Mechanical compaction of embankment	765.54	m^3	36.66	28,065	36.66	28,065	36.66	28,065	36.66	28,065
15	4.3.14	Backfilling of abutment with 50:50 brick khoa & sand	53.36	m^3	1,544.18	82,397	1,519.44	81,077	1,428.75	76,238	1,329.82	70,959
24	4.1.03.03	Rain water down pipe	5.70	m	155.85	888	155.85	888	155.85	888	155.85	888
21	4.3.22	Weep hole	45.40	m	315.03	14,302	306.60	13,920	289.95	13,164	280.38	12,729
20	4.3.04	Nosing	134.00	kg	157.95	21,165	157.95	21,165	157.95	21,165	157.95	21,165
21	5.02.02	Sand filling (FM = 1.0) under base	76.43	m^3	949.04	72,535	949.04	72,535	883.75	67,545	778.17	59,476
		Total				5,799,343		5,821,526		5,638,173		5,602,233
		per meter				**384,062**		**385,531**		**373,389**		**371,009**

Table A20-21 Unit cost of culverts (single lane) on Union road per linear meter (15.00 m)

Rate and amount in BDT

No.		Item of Works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	4.1.03	Excavation of foundation for structures	469.60	m^3	105.38	49,486	105.38	49,486	105.38	49,486	105.38	49,486
2	4.1.09	Single layer brick flat soling	120.40	m^2	317.26	38,198	307.65	37,041	288.06	34,682	277.71	33,436
3	4.1.10.01.2	Cement concrete work in foundation	9.03	m^3	7,964.98	71,924	7,875.27	71,114	7,679.02	69,342	7,622.96	68,835
4	4.2.06.01	Fabrication of MS deformed bar	27,346	kg	81.86	2,238,544	81.86	2,238,544	81.86	2,238,544	81.86	2,238,544
5	4.2.01.01	RCC work in vertical member of abutments & wing wall	62.78	m^3	10,933.02	686,375	11,054.57	694,006	10,293.48	646,225	10,203.74	640,591
6	4.2.01.03	RCC work in cut of wall	11.29	m^3	12,350.81	139,441	12,472.36	140,813	11,711.27	132,220	11,622	131,207
7	4.2.03.01.1	RCC work in bottom slab	52.96	m^3	9,687.18	513,033	9,797	518,849	9,109.35	482,431	9,028.36	478,142
8	4.2.03.01.2.1	RCC work in top slab	33.93	m^3	11,850.33	402,082	11,984.67	406,640	11,143.47	378,098	11,044.28	374,732
9	4.2.05.01	RCC work in railing & rail post	3.67	m^3	13,554.27	49,744	13,691.81	50,249	12,830.58	47,088	12,729.03	46,716
10	4.2.09	Wearing course	2.79	m^3	9,664.51	26,964	9,771.13	27,261	9,103.51	25,399	9,024.79	25,179
11	2.3.06	E/W in approach road	647.80	m^3	192.41	124,643	192.41	44,880	192.41	54,014	192.41	54,014
12	2.1.08.02	Mechanical compaction of embankment	647.80	m^3	36.66	23,748	36.66	23,748	36.66	23,748	36.66	23,748
15	4.3.14	Backfilling of abutment with 50:50 brick khoa & sand	43.22	m^3	1,544.18	66,739	1,519.44	65,670	1,428.75	61,751	1,329.42	57,458
24	4.3.01.04	Rain water down pipe	5.70	m	254.56	1,451	254.56	1,451	254.56	1,471	254.56	1,471
21	4.3.22	Weep hole	37.40	m	315.03	11,782	306.60	11,467	289.95	10,844	280.38	10,486
20	4.3.04	Nosing	88	kg	157.95	13,900	157.95	13,900	157.95	13,900	157.95	13,900
21	5.02.02	Sand filling (FM = 1.0) under base	54.18	m^3	949.04	51,419	949.04	51,419	883.75	47,882	778.17	42,161
		Total				4,509,473		4,446,538		4,317,124		4,290,106
		per meter				**298,641**		**294,473**		**285,902**		**284,113**

Table A20-22 Unit cost of RCC bridges (single lane) on Union road per linear meter of 20.00 m span

Rate and amount in BDT

No	Item code	Item of Works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	4.1.03	Excavation of foundation for structures	475.20	m^3	105.38	50,077	105.38	50,077	105.38	50,077	105.38	50,077
2	4.1.09	Single layer brick flat soling	69.30	m^2	317.26	21,986	307.65	21,320	288.06	19,963	277.71	19,245
3	4.1.10.01.2	Cement concrete work in foundation	5.20	m^3	7,964.98	41,418	7,875.27	40,951	7,679.02	39,931	7,622.96	39,639
4	4.2.06.01	Fabrication of MS deformed bar	43,144	kg	81.86	3,531,768	81.86	3,531,768	81.86	3,531,768	81.86	3,531,768
5	5.23.03.01.01	Boring of RCC cast-in-situ piles	360	m	1,076.85	387,666	1,076.85	387,666	1,076.85	387,666	1,076.85	387,666
6	5.23.03.02	Concreting of cast-in-situ piles	101.74	m^3	11,028.50	1,122,040	11,163.03	1,135,727	10,411.71	1,059,287	10,332.99	1,051,278
7	4.1.10.02.01	RCC work in pile caps of abutment & pier	69.30	m^3	10,252.42	710,493	10,368.64	718,547	9,640.93	668,116	9,555.93	662,226
8	4.2.01.01	RCC work in vertical member of abutments & wing wall	55.19	m^3	10,933.02	603,393	11,054.57	610,102	10,293.48	568,097	10,203.74	563,144
9	4.2.05.01	RCC work in railing & rail post	4.35	m^3	13,554.27	58,961	13,691.81	59,559	12,830.58	55,813	12,729.03	55,371
10	4.2.04.01	RCC work in deck slab, sidewalk	22.82	m^3	12,399.46	282,956	12,535.93	286,070	11,681.38	266,569	11,580.61	264,270
11	4.2.02.01.04	RCC work girder & cross girder	21.35	m^3	14,090.97	300,842	14,243.44	304,097	13,288.74	283,715	13,176.16	281,311
12	4.2.09	Wearing course	3.70	m^3	9,664.51	35,759	9,771.13	36,153	9,103.51	33,683	9,024.79	33,392
13	2.3.06	E/W in approach road	1,643.60	m^3	192.41	316,245	192.41	316,245	192.41	316,245	192.41	316,245
14	2.1.08.02	Mechanical compaction of embankment	1,643.60	m^3	36.66	60,254	36.66	60,254	36.66	60,254	36.66	60,254
15	4.3.14	Backfilling of abutment with 50:50 brick khoa & sand	49.65	m^3	1,544.18	76,669	1,519.44	75,440	1,428.75	70,937	1,329.42	66,006
16	4.1.27.1.2	Load test	1	no.	102,368.55	102,369	102,368.55	102,369	100,384.91	100,385	96,417.61	96,418
17	4.1.27.8.2	Integrity test		no.	52,070.72	52,072	52,070.72	52,072	52,070.72	52,072	52,070.72	52,072
18	4.3.06.2	Bridge bearing	5	no.	18,562.47	92,812	18,562.47	92,812	18,562.47	92,812	18,562.47	92,812
19	4.3.05	Expansion joint	222	kg	172.56	38,308	172.56	38,308	172.17	38,222	172.17	38,222
20	4.3.04	Nosing	76	kg	157.95	12004	157.95	12004	157.95	12004	157.95	12004
21	4.3.22	Weep hole	34	m	315.03	10,711	306.60	10,424	289.95	9,858	280.38	9,533
22	4.3.21.02	Spot welding	8,000	no.	2.99	23,920	2.99	23,920	2.99	23,920	2.99	23,920
23	4.3.21.03	Lapping welding	144	no.	22.72	3,272	22.72	3,272	22.72	3,272	22.72	3,272
24	4.3.01.04	Rain water down pipe	4.20	m	254.56	1,069	254.56	1,069	254.56	1,069	254.56	1,069
25	5.23.04	Breaking of pile head	3.39	m^3	4,959.12	16,811	4,959.12	16,811	4,959.12	16,811	4,959.12	16,811
26	4.1.02	Making earthen ring/cross bundh		LS		60,000		60,000		60,000		60,000
27	4.1.01.01	Soil bore hole	4		6,000	24,000	6,000	24,000	6,000	24,000	6,000	24,000
		Total				8,037,874		8,071,038		7,846,547		7,812,025
		per meter				**401,894**		**403,552**		**392,327**		**390,601**

Table A20-23 Unit cost of road safety measures

A. Unit cost of bus bay for Upazila road (Type 6) per place for 2.0 km

Rate and amount in BDT

Sl. No.	Item Code	Item of Works	Quantity	Unit	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	2.1.04.01	Earth Filling for embankment ((8.23+12.73)/2*1.5-(4+8.5)/2*1.5)*10*2+((9.16+13.66)/2*1.5-(4+8.5)/2*1.5)*27	335.88	m^3	121.75	40,893	121.75	40,893	121.75	40,893	121.75	40,893
2	2.1.08.02	Mechanical compaction of embankment ((8.23+12.73)/2*1.5-(4+8.5)/2*1.5)*10*2+((9.16+13.66)/2*1.5-(4+8.5)/2*1.5)*27	335.88	m^3	36.66	12,313	36.66	12,313	36.66	12,313	36.66	12,313
3	3.1.03	E/W in Box Cutting up 450mm ((3.7+0.125*2)+(5.5+0.125*2))/2*10*2+(5.5+0.125*2)* 27	252.25	m^2	46.49	11,727	46.49	11,727	46.49	11,727	46.49	11,727
4	3.1.06.01	250-mm (Sand FM=0.80 filling) Improved Sub-grade Compaction (((3.7+0.125*2)+(5.5+0.125*2))/2*10*2+(5.5+0.125*2) *27)*0.25	63.06	m^3	594.63	37,499	594.63	37,499	558.98	35,251	487.69	30,755
5	3.2.02.05	150-mm thick compacted Aggregate-Sand (1:1)Sub-Base ((3.7+5.5)/2*10*2+5.5*27)*0.075+(((3.7+0.125*2)+(5.5 +0.125*2))/2*10*2+(5.5+0.125*2)*27)*0.075	36.96	m^3	2,552.39	94,327	2,486.43	91,889	2,342.15	86,557	2,239.10	82,749
6	3.2.05.02	150-mm WBM (Material) for compacted base course ((3.7+5.5)/2*10*2 +5.5*27)*0.15*1.33	47.98	m^3	2,901.08	139,193	2,808.10	134,732	2,622.13	125,809	2,529.15	121,348
7	3.2.03.03	Labor for compacted base course (WBM) ((3.7+5.5)/2*10*2 +5.5*27)*0.15	36.08	m^3	271.85	9,807	271.85	9,807	271.85	9,807	271.85	9,807
8	3.2.15.02	Brick on end edging (125-mm across) (10*2 + 27)*2	94	m	142.28	13,374	137.94	12,966	129.11	12,136	124.47	11,700
9	3.2.24.05	Tack Coat @ 0.5 kg/m2 (3.7+5.5)/2*10*2 +5.5*27	240.50	m^2	52.14	12,540	52.14	12,540	52.45	12,614	52.45	12,614
10	3.2.25.01	Bituminous Prime Coat (3.7+5.5)/2*10*2 +5.5*27	240.50	m^2	111.16	26,734	111.16	26,734	112.04	26,946	112.04	26,946
11	3.2.29.1	25-mm thick compacted BC (3.7+5.5)/2*10*2 +5.5*27	240.50	m^2	388.70	93,482	392.27	94,341	380.17	91,431	376.22	90,481
12	3.2.34	7-mm thick compacted BC seal coat (3.7+5.5)/2*10*2 +5.5*27	240.50	m^2	133.70	32,155	134.39	32,321	134.18	32,270	133.06	32,001
13	6.050	Turf works for slope and soft shoulder (2.704+1.83)*(10*2 + 27)* 2	426.20	m^2	15.50	6,606	15.50	6,606	15.50	6,606	15.50	6,606
		Total				**530,651**		**524,369**		**504,361**		**489,940**
B. Unit cost of guard post & sign board for 2.0 km												
1	3.2.68	Supply and installation of guard post (10 guard post per curve section) 2*10*2=40 nos	40	no.	1,382.18	55,287	1,383.19	55,328	1378.18	55,127	1379.68	55,187
2	LGED standard	Supply and installation of sign board. 2*8=16 nos.	16	no.	6,000	96,000	6,000	96,000	6,000	96,000	6,000	96,000
		Total for 2.00 km				681,938		675,697		655,488		641,127
		Cost per km				**340,969**		**337,848**		**327,744**		**320,563**

Table A20-24 Unit cost of tree plantation and caretaking by LCS per km

Rate and amount in BDT

Item		Unit	Qty	Unit Cost	Total
Total					**265,600**
1	**Plantation**				**81,400**
1.1	Seedlings	no.	1,000	40	40,000
1.2	Pigeon peas	LS			2,400
1.3	bamboo stick and jute rope	no.	1,000	12	12,000
1.4	Fertilizer	no.	1,000	12	12,000
1.5	Labor charge	no.	1,000	15	15,000
2	**Care taking**				**175,200**
2.1	Labor charge (365 days for 2 years*2persons)	day	1,460	120	175,200
3	**Tools and equipment for care takers**				**5,500**
3.1	Iron spade	no.	1	700	700
3.2	Iron rammer *(durmuz)*	no.	1	400	400
3.3	Bucket	no.	1	500	500
3.4	Basket	no.	1	300	300
3.5	Iron chopper *(dao)*	no.	1	500	500
3.6	Iron scythe	no.	1	400	400
3.7	Iron bars *(shabol)*	no.	1	600	600
3.8	Apron	no.	2	700	1,400
3.9	Umbrella	no.	2	350	700
4	**Miscellaneous**				**3,500**
4.1	Signboard (900mmx600mm)	no.	1	3,000	3,000
4.2	Flag	no.	2	250	500

Table A20-25 Unit cost of maintenance of UZR and UNR by LCS per km

Item		Unit	Qty	Unit Cost (BDT)	Total (BDT)
Total					**233,400**
1	**Maintenance of Village roads**				**219,000**
1.1	Labor charge (365 days for 5 years)	day	1,825	120	219,000
2	**Tools and equipment for care takers**				**7,900**
2.1	Iron spade	no.	2	700	1,400
2.2	Iron rammer *(durmuz)*	no.	2	400	800
2.3	Basket	no.	2	300	600
2.4	Iron chopper *(dao)*	no.	2	500	1,000
2.5	Iron scythe *(kaste)*	no.	2	400	800
2.6	Iron bars *(shabol)*	no.	2	600	1,200
2.7	Apron	no.	2	700	1,400
2.8	Umbrella	no.	2	350	700
3	**Miscellaneous**				**6,500**
3.1	Signboard (900 mm x 600 mm)	no.	2	3,000	6,000
3.2	Flag	no.	2	250	500

2.3 Improvement of Growth Centers and rural markets

Calculations of unit costs for improvement of Growth Centers and rural markets include sales sheds and an open platform, an office for the management committee, toilets, and other facilities necessary for markets. These unit costs are also calculated with the rates applied from the LGED schedule of rates for Mymensingh, Tangail, Rangpur and Dinajpur regions published in July 2012. The unit costs are shown in Table A20-26 to Table A20-35.

Table A20-26 Unit cost of fish and meat shed [18 m x 12 m]

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	5.02.01	Excavate foundation in all kinds of soil	m^3	43	105.38	4,530	105.38	4,530	105.38	4,530	105.38	4,530
2	2.1.04.01	Back fill in foundations trenches	m^3	14	121.75	1,745	121.75	1,745	121.75	1,745	121.75	1,745
3	5.02.02	Sand filling in foundation trenches	m^3	96	874.04	83,838	874.04	83,838	833.75	79,973	753.17	72,244
4	3.2.11	Single layer brick flat soiling	m^2	257	317.63	81,542	308.02	79,075	288.43	74,046	278.09	71,391
5	4.1.10.01.2	Cement concrete work in foundation, floor	m^3	21	7,964.98	169,097	7,875.27	167,192	7,679.02	163,026	7,622.96	161,835
6		Reinforced cement concrete works (1:2:4)										
	5.05.01	a) Footing of column	m^3	4	8,649.89	38,665	8,665.29	38,734	8,588.97	38,393	8,611.73	38,494
	5.05.02	b) RCC work in column.	m^3	7	12,334.10	80,172	12,356.06	80,314	12,247.23	79,607	12,279.69	79,818
	5.05.03	c) RCC work in Grid beam & Tie beam	m^3	15	10,732.27	162,272	10,751.38	162,561	10,656.68	161,129	10,684.93	161,556
7	5.04.02	Brick work with 1st class bricks (1:4)	m^3	25	5,931.23	146,739	5,805.39	143,625	5,535.12	136,939	5,418.58	134,056
8	5.06.01.02	Supply, fabricate and fix in position of M/S	kg	3,072	81.86	251,474	81.86	251,474	81.86	251,474	81.86	251,474
9	5.06.02	Mild steel work in roof truss,	kg	5,011	116.72	584,884	116.72	584,884	116.72	584,884	116.72	584,884
10	5.09.01.01	Supplying, fitting and fixing for roofing	m^2	295	707.64	208,754	707.64	208,754	707.64	208,754	707.64	208,754
11	5.09.01.02	0.46-mm galvanized ion plain sheet ridging	m	45	225.35	10,141	225.35	10,141	225.35	10,141	225.35	10,141
12	5.13.01	25-mm thick artificial patent stone floor	m^2	205	294.51	60,433	292.60	60,042	286.47	58,784	284.89	58,459
13	5.12.02.	12-mm thickness cement plaster (1:6)	m^2	44	184.02	8,170	184.02	8,170	182.75	8,114	183.38	8,142
14	5.12.03	Minimum 6-mm thick cement plaster (1:4)	m^2	69	162.50	11,213	162.50	11,213	161.86	11,168	162.18	11,190
15	5.16.01.01	White washing three coats	m^2	69	19.83	1,368	19.83	1,368	19.83	1,368	19.83	1,368
16	5.03.10	Providing polythene sheet	m^2	271	18.36	4,976	18.36	4,976	18.36	4,976	18.36	4,976
		Total				**1,910,011**		**1,902,635**		**1,879,049**		**1,865,059**

Table A20-27 Unit cost of multipurpose shed [18 m x 8 m]

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	5.002.01	Excavate foundation in all kinds of soil	m^3	28.49	105.38	3,002	105.38	3,002	105.38	3,002	105.38	3,002
2	2.1.04.01	Back fill in foundations including compaction.	m^3	9.50	121.75	1,157	121.75	1,157	121.75	1,157	121.75	1,157
3	5.02.02	Sand filling in foundation trenches and inside plinth with sand (minimum F.M. 0.80)	m^3	41.27	874.04	36,072	874.04	36,072	833.75	34,409	753.17	31,083
4	5.03.01	Single layer brick flat soiling with 1st class or picked jhama kiln burnt bricks.	m^2	155.39	317.63	49,357	308.02	47,863	288.43	44,819	278.09	43,212
5	5.03.04.01	Cement concrete work in foundation, floor.	m^3	12.30	6,753.63	83,070	6,523.25	80,236	6,469.10	79,570	6,399.37	78,712
6	5.05.01.01	RCC in Footing	m^3	3.96	8,649.89	34,254	8,665.29	34,315	8,588.97	34,012	8,611.73	34,102
7	5.05.02.01	b) RCC work in column	m^3	3.74	12,334	46,130	12,356	46,212	12,247	45,805	12,280	45,926
8	5.05.03.01	c) RCC work in Tie beam & lintel.	m^3	6.94	10,732	74,482	10,751	74,615	10,657	73,957	10,685	74,153
9	5.04.02	Brick work with 1st class bricks as per design & drawing	m^3	4	5,931.23	21,056	5,805.39	20,609	5,535.12	19,650	5,418.58	19,236
10	5.06.01	Supply, fabricate and fix in position reinforcement mild steel deformed bars	kg	1,730	81.86	141,618	81.86	141,618	81.86	141,618	81.86	141,618
11	5.06.02	Mild steel work in roof truss,	kg	3,700	130	481,000	130	481,000	130	481,000	130	481,000
12	5.09.01.01	Supplying, fitting and fixing for roofing 0.45-mm thick galvanized iron corrugated sheet colored Brand	m^2	183	707.64	129,498	707.64	129,498	707.64	129,498	707.64	129,498
13	5.09.01.02	0.45-mm thick colored of the brand and color as of roofing material iron plain sheet	m	38	225.35	8,563	225.35	8,563	225.35	8,563	225.35	8,563
14	5.13.01	25-mm thick artificial patent stone floor (1:2:4)	m^2	144	294.51	42,409	174	25,112	286.47	41,252	284.89	41,024
15	5.12.02.01	12-mm thick cement plaster (1:6) to wall both inner and outer.	m^2	2.76	184.02	508	106	293	182.75	504	183.38	506
16	5.12.03.01	Minimum 6-mm thick cement plaster (1:4) to RCC columns,	m^2	48.30	162.50	7,849	162.50	7,849	161.86	7,818	162.18	7,833
17	5.16.01.01	White washing three coats over a coat of priming	m^2	48.30	19.83	958	19.83	958	19.83	958	19.83	958
18	5.03.10	Providing polythene sheet (0.18-mm thick)	m^2	162	18.36	2,974	18.36	2,974	18.36	2,974	18.36	2,974
		Total				**1,163,955**		**1,141,945**		**1,150,566**		**1,144,559**

Table A20-28 Unit cost of general shed without platform [18 m x 8 m]

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	5.02.01	Excavate foundation in all kinds of soil	m^3	28	105	3,002	105	3,002	105	3,002	105	3,002
2	2.1.04.01	Back fill in foundations	m^3	10	122	1,157	122	1,157	122	1,157	122	1,157
3	3.1.06.01	Sand filling in foundation (FM 0.80)	m^3	41	595	24,540	595	24,540	559	23,069	582	24,038
4	5.03.01	Single layer brick flat soiling	m^2	155	318	49,357	308	47,863	288	44,819	278	43,211
5	5.03.05.01	Cement concrete work in foundation, floor (1:2:4)	m^3	12	7,881	96,935	7,791	95,831	7,595	93,418	7,525	92,555
6		Reinforced cement concrete works (1:2:4)										
	5.05.01.01	a) Footing of column	m^3	4	8,650	34,859	8,665	34,921	8,589	34,614	8,612	34,705
	5.05.02.01	b) RCC work in column.	m^3	6	12,334	73,511	12,356	73,642	12,247	72,993	12,280	73,187
	5.05.03.01	c) RCC work in Grade beam & Tie beam	m^3	12	10,732	132,329	10,751	132,565	10,657	131,397	10,685	131,745
7	5.04.02	Brick work with 1st class bricks (1:4)	m^3	4	5,931	21,056	5,805	20,609	5,535	19,650	5,419	19,236
8	5.06.01.02	Supply, fabricate and fix in position of M/S	kg	2,627	82	215,046	82	215,046	82	215,046	82	215,046
9	5.06.02	Mild steel work in roof truss,	kg	4,379	117	511,117	117	511,117	117	511,117	117	511,117
10	5.09.01.01	Supplying, fitting and fixing for roofing	m^2	183	708	129,498	510	93,306	510	93,306	510	93,306
11	5.09.01.02	0.45-mm thick colored of the brand and color	m	38	225	8,563	225	8,563	225	8,563	225	8,563
12	5.13.01	25-mm thick artificial patent stone floor (1:2:4)	m^2	144	295	42,467	293	42,134	286	41,252	285	41,024
13	5.12.02.01	12-mm thick cement plaster (1:6)	m^2	3	184	508	184	508	183	504	183	506
14	5.12.03	Minimum 6-mm thick cement plaster (1:4)	m^2	62	163	10,091	163	10,091	162	10,052	162	10,071
15	5.16.01.01	White washing three coats	m^2	52	20	1,033	20	1,033	20	1,033	20	1,033
16	5.03.10	Providing polythene sheet	m^2	162	18	2,974	18	2,974	18	2,974	18	2,974
		Total				**1,358,044**		**1,318,904**		**1,307,966**		**1,306,478**

Table A20-29 Unit cost of open sales platform [18 m x 12 m]

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	3.1.03	Earth work in box cutting	m^2	223	46	10,356	46	10,356	46	10,356	46	10,356
2	3.1.06.01	Sand (F.M.0.80) filling 450-mm thick	m^3	97	595	57,798	595	57,798	559	54,333	488	47,403
3	3.2.13.01	Brick on edge pavement in single layer of Herring Bone Bond	m^2	216	541	116,839	525	113,357	492	106,207	474	102,349
4	5.04.02	Brick work with 1st class bricks as per design & drawing in cement (1:4)	m^3	12	5,931	73,429	5,805	71,871	5,535	68,525	5,419	67,082
5	5.12.02	12-mm thick cement plaster (1:6) to wall outside	m^2	27	184	4,969	184	4,969	183	4,934	183	4,951
6	5.03.10	Providing polythene sheet (0.18-mm thick)	m^2	234	18	4,296	18	4,296	18	4,296	18	4,296
		Total				**267,686**		**262,646**		**248,651**		**236,438**

Table A20-30 Unit cost of women's shed [18 m x 6 m]

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	5.02.01	Earth work in excavation foundation	m^3	38.72	105.38	4,080	105.38	4,080	105.38	4,080	105.38	4,080
2	2.1.04.01	Back fill in foundations	m^3	12.91	121.75	1,572	121.75	1,572	121.75	1,572	121.75	1,572
3	5.02.02	Sand filling in foundation (F.M. 0.80)	m^3	26.96	874.04	23,564	874.04	23,564	833.75	22,478	753.17	20,305
4	5.03.01	Single layer brick flat soiling with 1st class	m^2	153.58	317.63	48,782	308.02	47,306	288.43	44,297	278.09	42,709
5	5.03.04.01	Cement concrete work (1:2:4)	m^3	11.52	6,612.97	76,181	6,523.25	75,148	6,327.01	72,887	6,256.93	72,080
6		Reinforced cement concrete works (1:2:4)										
	5.05.01.01	a) Footing of column	m^3	4.03	8,649.89	34,859	8,665.29	34,921	8,588.97	34,614	8,611.73	34,705
	5.05.02.01	b) RCC work in column	m^3	5.96	12,334.10	73,511	12,356.06	73,642	12,247.23	72,993	12,279.69	73,187
	5.05.03.01	c) RCC work in Tie beam, grade beam & lintel	m^3	10.66	10,732.27	114,406	10,751.38	114,610	10,656.68	113,600	10,684.93	113,901
7	5.04.02	Brick work with 1st class bricks	m^3	10.84	5,931.23	64,295	5,805.39	62,930	5,535.12	60,001	5,418.58	58,737
8	5.04.10.01	125-mm brick work with 1st class bricks in cement mortar (1:4)	m^2	203.18	838.52	170,370	821.92	166,998	785.53	159,604	770.53	156,556
9	5.03.08	38-mm thick Damp Proof Course (DPC) with cement concrete (1:1.5:3)	m^2	16.76	408.05	6,839	404.65	6,782	397.20	6,657	395.07	6,621
10	5.06.01.02	Supply, fabricate and fix in position reinforcement MS deformed bars	kg	2,431	81.86	199,002	81.86	199,002	81.86	199,002	81.86	199,002
11	5.06.02	Mild steel work in roof truss, supplying and fabrication of mild steel	kg	4,004	116.72	467,347	116.72	467,347	116.72	467,347	116.72	467,347
12	5.09.01.01	Supplying, fitting and fixing for roofing 0.45-mm thick galvanized iron	m^2	148	707.64	104,731	707.64	104,731	707.64	104,731	707.64	104,731
13	5.09.01.02	0.45-mm thick colored roofing ridging	m	35	225.35	7,887	225.35	7,887	225.35	7,887	225.35	7,887
14	5.13.01	25-mm thick artificial patent stone floor (1:2:4)	m^2	108	294.91	31,850	292.60	31,601	286.47	30,939	284.89	30,768
15	5.12.02.01	12-mm thick cement plaster (1:6)	m^2	267	184.02	49,133	184.02	49,133	182.75	48,794	183.38	48,962
16	5.12.03	Minimum 6-mm thick cement plaster (1:4)	m^2	62.10	162.50	10,091	162.50	10,091	161.86	10,052	162.18	10,071
17	5.12.01	Minimum 12-mm thick cement plaster (1:4) to skirting, dado	m^2	42.30	229.09	9,691	229.01	9,687	228.07	9,647	228.58	9,669
18	5.16.01.01	White washing three coats over a coat of priming with slacked	m^2	329	19.83	6,524	19.83	6,524	19.83	6,524	19.83	6,524

19	5.03.10	Providing polythene sheet (0.18-mm thick) on floor in ground	m^2	154	18.36	2,827	18.36	2,827	18.36	2,827	18.36	2,827
20	5.18.07	Supplying, fitting and fixing of rolling shutter made of 24 SWG	m^2	45	5,509.09	247,909	5,509.09	247,909	5,509.09	247,909	5,509.09	247,909
21	5.10.03	Supplying, fitting and fixing in women shed grill	m^2	16.10	2,617.59	42,143	2,617.59	42,143	2,617.59	42,143	2,617.59	42,143
22		Supplying, fitting and fixing main/sub-main switches with fuse										
	8.01.01.01	(a) 500-volt ICTP, i) 200 amps	no.	1	8,247.01	8,247	8,247.01	8,247	8,247.01	8,247	8,247.01	8,247
	8.01.02.01	(b) 250-volt ICTP, i) 30 amps	no.	5	1,677.42	8,387	1,677.42	8,387	1,677.42	8,387	1,677.42	8,387
23	8.02.01	Supplying, fitting and fixing fuse distribution board, i) 4 way	nos.	5	3,829.28	19,146	3,829.28	19,146	3,829.28	19,146	3,829.28	19,146
24		Supplying, fitting and fixing every meter with cutout teak										
	8.03.01.01	500-volt 3-phase 200 amps	no.	1	17,419.05	17,419	17,419.05	17,419	17,419.05	17,419	17,419.05	17,419
25	8.06.07.02	Supplying, fitting and fixing PVC insulated	m	50	241.78	12,089	241.78	12,089	241.78	12,089	241.78	12,089
26	8.09.02	Supplying, fitting and fixing 20-mm thick switch board, i) 250 mm x 350 mm	nos.	5	325.44	1,627	325.44	1,627	325.44	1,627	325.44	1,627
27	8.07.03	25-mm (1") thick wooden cupboard	each	1	1,106.50	1,107	1,106.50	1,107	1,106.50	1,107	1,106.50	1,107
28	8.12	Supplying, fitting and fixing meter board i) 30 amps.	sq.m	1	529.82	662	529.82	662	529.82	662	529.82	662
29	8.24	Supplying, fitting and fixing 5 amps 2-pin socket with switch	nos.	5	609.18	3,046	609.18	3,046	609.18	3,046	609.18	3,046
30	8.21.03	Supplying, fitting and fixing and 250 volts capacitor type ceiling fan	nos.	5	2,617.05	13,085	2,617.05	13,085	2,617.05	13,085	2,617.05	13,085
31	8.41.03.05	Supplying, fitting and fixing the following) energy saving lamp 20 watt	each	10	345.41	3454	345.41	3454	345.41	3454	345.41	3454
32	8.23.05	Supplying, fitting and fixing teak wood batters minimum 20-mm thick	m	50	118.33	5,917	118.33	5,917	118.33	5,917	118.33	5,917
		Total				**1,891,781**		**1,884,622**		**1,864,772**		**1,856,483**

Table A20-31 Unit cost of Market Management Committee office [8.25 m x 8.25 m]

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	5.02.01	Earth work in excavation foundation	m^3	14	105.38	1,431	105.38	1,431	105.38	1,431	105.38	1,431
2	2.1.04.01	Back fill in foundations including compaction.	m^3	5	121.75	550	121.75	550	121.75	550	121.75	550
3	5.02.02	Sand filling in foundation (FM 0.80)	m^3	27	874.04	23,555	874.04	23,555	833.75	22,470	753.17	20,298
4	5.03.01	Single layer brick flat soiling	m^2	22	317.63	6,870	308.02	6,662	288.43	6,239	278.09	6,015
5	5.03.04.01	Cement concrete work in foundation, floor.	m^3	2	6,613	10,713	6,523	10,568	6,327	10,250	6,257	10,136
6		Reinforced cement concrete works										
	5.05.11	a) RCC in great beam, roof beam & lintel. Minimum concrete cylinder strength 21MPa	m^3	1	12,299	17,342	12,319	17,370	12,221	17,231	12,250	17,272
	5.05.13.01	b) RCC work in roof slab. Minimum concrete cylinder strength 21MPa (N/mm2) after 28 days curing.	m^3	6	12,122	78,430	12,142	78,556	12,045	77,930	12,074	78,117
7	5.04.02	Brick work with 1st class bricks (1:4)	m^3	4	5,931	23,013	5,805	22,525	5,535	21,476	5,419	21,024
8	5.06.02	Mild steel work in roof truss,	kg	751	117	87,633	117	87,633	117	87,633	117	87,633
9	5.04.03`	250-mm brick work with 1st class bricks in cement	m^3	5	5,789	31,258	5,661	30,568	5,383	29,067	5,265	28,433
10	5.04.10.01	125-mm brick work with 1st class bricks in cement mortar (1:4)	m^2	21	839	17,408	822	17,063	786	16,308	771	15,996
11	5.03.07	25-mm thick Damp Proof Course (DPC) with cement concrete (1:1.5:3) with Portland cement	m^2	3	280	962	277	954	272	937	271	932
12	5.03.08	38-mm thick artificial patent stone floor (1:2:4) with portland cement	m^2	30	408	12,295	405	12,192	397	11,968	395	11,903
13	5.07.01.07	Supplying and making door and window frames with seasoned wood of required size from B.F.I.D.C	m^3	0	127,183	49,601	127,183	49,601	127,183	49,601	127,183	49,601
14	5.08.01.01	Supplying, fitting and fixing 38-mm thick well matured season wood from B.F.I.D.C flush door shutter	m^2	12	7,124	85,845	7,124	85,845	7,124	85,845	7,124	85,845
15	5.130	Supplying, fitting and fixing in women shed grill	m^2	2	1,733	3,952	1,733	3,952	1,733	3,952	1,733	3,952
16	5.16.10.01	Painting to door and window frames and shutters in two coats with synthetic enamel paint	m^2	4	178	722	178	722	178	722	178	722
17	5.16.02.01	Color wash with yellow ochre in two coats over a coat	m^2	28	21	600	21	600	21	600	21	600
18	5.12.02.01	12-mm thick cement plaster (1:6) to wall both inner and outer.	m^2	21	184	3,820	184	3,820	183	3,794	183	3,807
19	5.12.03	Minimum 6-mm thick cement plaster (1:4) to RCC columns	m^2	72	163	11,780	163	11,780	162	11,733	162	11,756
20	5.12.01	Minimum 12-mm thick cement plaster (1:4) to skirting, dado	m^2	46	229	10,568	229	10,568	228	10,521	229	10,544
21	5.16.01.01	White washing three coats over a coat of priming	m^2	11	20	214	20	214	20	214	20	214
22	7.08.05.04	100-mm diameter rain water PVC 'B' class pipe	m	119	376	44,590	376	44,590	376	44,590	376	44,590

23	7.01.04.01	Supplying, fitting and fixing, Bangladesh pattern "BISF STANDARD" long pan (Model-313, Size-520 mm x 290 mm x 260 mm)	each	11	6,127	67,275	6,119	67,187	6,103	67,010	6,095	66,923
24	7.08.17	Supplying, fitting and fixing 100-mm diameter C.I. Trap (Siphon trap or 'P' trap)	each	2	442	884	442	884	442	884	442	884
25	7.08.05.01	Supplying, fitting and laying PVC Sewerage pipe	each	2	1,283	2,566	1,283	2,566	1,283	2,566	1,283	2,566
26	7.11.05.03	Construction of soak well with 250-mm thick solid brick work (1:6) and 250-mm honey comb brick work (1:6)	each	1	85,995	85,995	86,272	86,272	81,650	81,650	80,634	80,634
27	7.10.02.0`1	Supplying, placing and fixing with all necessary fittings 500-liter best quality plastic tank for storing water in toilets, complete in all respect as per direction of the E-I-C.	each	2	6,477	12,955	6,477	12,955	6,477	12,955	6,477	12,955
28	7.07.02.01	Supplying, fitting and fixing toilet paper holder (150 mm x 150 mm)	each	1	663	663	663	663	663	663	663	663
29	7.07.03.01	Supplying, fitting glass plate shelf (600 mm x 125 mm)	each	2	633	1,266	633	1,266	633	1,266	633	1,266
30	7..04.01.01	Supplying, fitting "BISF STANDARD" Hand basin	each	2	3,541	7,082	3,541	7,082	3,541	7,082	3,541	7,082
31	7.08.09,01	Supplying fitting and fixing PVC vent pipe	each	1	2,024	2,024	2,024	2,024	2,024	2,024	2,024	2,023
		Electrical works										
32	8.02.01	Sub distribution board	no.	1	3,929	3,929	3,929	3,929	3,929	3,929	3,929	3,929
33	8.09.01	Switch board	no.	1	391	391	391	391	391	391	391	391
34	8.41.02.03	100-watt Mounted Light Fitting	no.	4	51	205	33	134	51	205	51	205
35	8.31	40-watt fluorescent tube light fitting	no.	4	872	3,489	872	3,489	872	3,489	872	3,489
36	8.21.01	56"-diameter sweep ceiling fan (National Tongi)	no.	2	3,869	7,738	3,869	7,738	3,869	7,738	3,869	7,738
37	8.24	2 pin 5A switch socket	no.	2	609	1,218	609	1,218	609	1,218	609	1,218
38	8.25	3 pin 5A switch socket	no.	4	707	2,829	707	2,829	707	2,829	707	2,829
39	8.06.09.01	Conceal Conduit wiring (BRB Cable) (6 x 60)	m	4	191	765	191	765	191	765	191	765
40	8.06.09.02	Cancel Conduit wiring (BRB Cable) (6 x 10)	m	100	260	26,023	260	26,023	260	26,023	260	26,023
41	8.03.01.05	Fitting, fixing of meter with cut-out teak wood	no.	20	11,003	220,064	11,003	220,064	11,003	220,064	11,003	220,064
42	8.35.01	Metal Timber switch (6 x 4)	no.	1	310	310	310	310	310	310	310	310
43	8.17.02	25-mm PVC pipe (7 x 6)	m	6	115	690	115	690	115	690	115	690
		Total				**971,515**		**969,800**		**958,812**		**954,020**

Table A20-32 Unit cost of male toilet

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	5.02.01	Excavate foundation in all kinds of soil to the required width	m^3	4.01	105.38	423	105.38	423	105.38	423	105.38	423
2	2.1.04.01	Back fill in foundations including compaction.	m^3	10.27	121.75	1,250	121.75	1,250	121.75	1,250	121.75	1,250
3	5.03.01	Single layer brick flat soiling with 1st class or picked jhama kiln	m^2	33.75	317.63	10,720	308.02	10,396	288.43	9,735	278.08	9,385
4	5.03.05.01	Cement concrete work in foundation, floor (1:2:4)	m^3	3.43	7,880.87	27,031	7,791.16	26,724	7,594.92	26,051	7,524.83	25,810
5		Reinforced cement concrete works (1:2:4)										
	5.05.01.01	a) Footing of column.	m^3	0.91	8,649.89	7,871	8,665.29	7,885	8,588.97	7,816	8,611.73	7,837
	5.05.02.01	b) RCC work in column.	m^3	1.71	12,334	21,091	12,356.06	21,129	12,247.23	20,943	12,279.69	20,998
	5.05.03.01	c) RCC work in grade beam & lintel.	m^3	2.21	10,732	23,718	10,751.38	23,761	10,656.68	23,551	10,684.93	23,614
	5.05.07.01	d) RCC work in sun shed (Parapet).	m^2	16.22	1,211.23	19,646	1,213.18	19,678	1,203.43	19,520	1,206.35	19,567
	5.05.05	e) RCC work in roof slab	m^3	6.30	11,212.82	70,641	12,232.13	77,062	11,133.85	70,143	11,163.35	70,329
	5.05.04.01	f) RCC work in roof beam.	m^3	1.23	11,373	13,989	11,393.25	14,014	11,292.90	13,890	11,322.83	13,927
6	5.06.01.02	Supply, fabrication & fixed in position MS rod	kg	2,252	81.86	184,349	81.86	184,349	81.86	184,349	81.86	184,349
7	5.04.02	Brick work with 1st class bricks (1:4)	m^3	2.24	5,931.23	13,286	5,805.39	13,004	5,535.12	12,399	5,418.58	12,138
8	5.04.10.01	125-mm brick work with 1st class bricks in cement mortar (1:4)	m^2	71.89	838.52	60,281	821.92	59,088	785.53	56,472	770.53	55,393
9	5.03.08	38-mm thick Damp Proof Course (DPC) with cement concrete (1:1.5:3)	m^2	3.97	408.05	1,620	404.65	1,606	397.20	1,577	395.07	1,568
10	5.13.01	25-mm thick artificial patent stone floor (1:2:4)	m^2	59.53	294.91	17,556	292.60	17,418	286.47	17,054	284.89	16,960
11	5.12.02.01	12-mm thick cement plaster (1:6)	m^2	70.40	184.02	12,955	184.02	12,955	182.75	12,866	183.38	12,910
12	5.12.03	Minimum 6-mm thick cement plaster (1:4)	m^2	104.96	162.50	17,056	162.50	17,056	161.86	16,989	162.18	17,022
13	5.12.01	Minimum 12-mm thick cement plaster (1:4)	m^2	77.52	229.09	17,759	229.09	17,759	228.07	17,680	228.58	17,720
14	5.16.01.01	White washing three coats over a coat	m^2	175.37	19.83	3,478	19.83	3,478	19.83	3,478	19.83	3,478
15	5.07.01.07	Supplying and making door frames with seasoned wood ,Jack wood	m^3	0.39	127,183	49,601	127,183	49,601	127,183	49,601	127,183	49,601
16	5.08..01.01	Supplying, fitting and fixing 38-mm thick well matured season solid wood door shutters	m^2	11.81	7,124.09	84,136	7,124.09	84,136	7,124.09	84,136	7,124.09	84,136
17	5.16.10.01	Painting to door frames and shutters in two coats	m^2	31.47	178.19	5,608	178.19	5,608	178.19	5,608	178.19	5,608
18	5.03.10	Providing polythene sheet	m^2	46	18.36	845	18.36	845	18.36	845	18.36	845
19	7.08.05	Supplying, fitting, fixing and laying 150-mm diameter PVC "B" Class pipe	m	33	1,283.06	42,341	1,283.06	42,341	1,276.03	42,109	1,261.97	41,645
20	7.11.01.01	Construction of masonry inspection pit	each	3	3,312.54	9,938	3,247.90	9,744	3,107.11	9,321	3,048.27	9,145
21	7.12.01.01	Manufacturing and supplying of RCC ring	each	60	370.82	22,249	371.42	22,285	368.44	22,106	369.33	22,160
22	7.01.04.01	Supplying, fitting and fixing, long pan	each	7	6,127.09	42,890	6,119.03	42,833	6,102.91	42,720	6,095	42,664
		Total				**782,327**		**786,426**		**772,629**		**770,480**

Table A20-33 Unit cost of female toilet

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	5.02.01	Excavate foundation in all kinds of soil	m^3	5	105.38	533	105.38	533	105.38	533	105.38	533
2	2.1.04.01	Back fill in foundations and filling in floor	m^3	7	121.75	866	121.75	866	121.75	866	121.75	866
3	5.03.01	Single layer brick flat soiling	m^2	22	317.63	7,124	308.02	6,909	288.43	6,469	278.08	6,237
4	5.03.05.01	Cement concrete work in foundation, floor (1:2:4)	m^3	2	7,880.87	17,732	7,791.16	17,530	7,594.92	17,089	7,524.83	16,931
5		Reinforced cement concrete works (1:2:4)										
	5.05.01.01	a) Footing of column	m^3	1	8,649.89	7,958	8,665.29	7,972	8,588.97	7,902	8,611.73	7,923
	5.05.02.01	b) RCC work in column	m^3	2	12,334.10	23,435	12,356.06	23,477	12,247.23	23,270	12,279.69	23,331
	5.05.03.01	c) RCC work in grade beam & lintel.	m^3	1	10,732.27	13,308	10,751.38	13,332	10,656.68	13,214	10,684.93	13,249
	5.05.07.01	d) RCC work in sun shed (Parapet)	m^2	13	1,211.23	15,698	1,213.18	15,723	1,203.43	15,596	1,206.35	15,634
	5.05.05	e) RCC work in roof slab	m^3	3	11,212.82	32,741	12,232.13	35,718	11,133.85	32,511	11,163.35	32,597
	5.05.04.01	f) RCC work in roof beam	m^3	1	11,373	7,279	11,393.25	7,292	11,292.90	7,227	11,322.83	7,247
6	5.06.01.02	Supply, fabricate and fix in position reinforcement mild steel deformed bars	kg	1,187	81.86	97,168	81.86	97,168	81.86	97,168	81.86	97,168
7	5.04.02	Brick work with 1st class bricks (1:4)	m^3	2	5,931.23	12,811	5,805.39	12,540	5,535.12	11,956	5,418.58	11,704
8	5.04.10.01	125mm brick work with 1st class bricks in cement mortar (1:4)	m^2	52	838.52	43,846	821.92	42,978	785.53	41,075	770.53	40,291
9	5.03.08	38-mm thick Damp Proof Course (DPC) (1:1.5:3)	m^2	3	408.05	1,187	404.65	1,178	397.20	1,156	395.07	1,150
10	5.13.01	25-mm thick artificial patent stone floor (1:2:4)	m^2	36	294.91	10,655	292.60	10,572	286.47	10,350	284.89	10,293
11	5.12.02.01	12-mm thickness cement plaster (1:6)	m^2	48	184.02	8,842	184.02	8,842	182.75	8,781	183.38	8,811
12	5.12.03	Minimum 6-mm thick cement plaster (1:4)	m^2	71	162.50	11,612	162.50	11,612	161.86	11,567	162.18	11,589
13	5.12.01	Minimum 12-mm thick cement plaster (1:4) to skirting, dado	m^2	50	229.09	11,363	229.09	11,363	228.07	11,312	228.58	11,338
14	5.16.01.01	White washing three coats	m^2	120	19.83	2,370	19.83	2,370	19.83	2,370	19.83	2,370
15	5.07.01.07	Supplying and making door frames with seasoned wood	m^3	0.30	127,183	38,155	127,183	38,155	127,183	38,155	127,183	38,155
16	5.08..01.01	Supplying, fitting and fixing flush door shutters	m^2	10	7,124.09	69,175	7,124.09	69,175	7,124.09	69,175	7,124.09	69,175
17	5.16.10.01	Painting to door frames and shutters in two coats	m^2	25	178.19	4,524	178.19	4,524	178.19	4,524	178.19	4,524
18	5.03.10	Providing polythene sheet (0.18-mm thick) on floor	m^2	31	18.36	569	18.36	569	18.36	569	18.36	569
19	7.11.01.01	Construction of masonry inspection pit	each	3	3,312.54	9,938	3,247.90	9,744	3,107.11	9,321	3,048.27	9,145
20	7.08.05	Supplying fitting fixing and laying 150-mm diameter PVC pipe	m	23	1,283.06	29,510	1,283.06	29,510	1,276.03	29,349	1,261.97	29,025
21	7.12.01.01	Manufacturing and supplying of RCC ring of .04m wall	each	40	370.82	14,833	371.42	14,857	368.44	14,738	369.33	14,773
22	7.01.04.01	Supplying, fitting and fixing, Bangladesh pattern "BISF STANDARD" long pan (Model-313, Size: 520 mm x 290 mm x 260 mm) of pan	each	5	6,127.09	30,635	6,119	30,595	6,102.91	30,515	6,095	30,474
		Total				**523,868**		**525,102**		**516,758**		**515,103**

Table A20-34 Unit cost of tube well

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	10.01	Mobilization	LS	1	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5000
2	10.02.01	Boring by using 100-mm diameter cutter and 38-mm diameter G.I. Pipe (0-50m)	m	50	123.98	6,199	123.98	6,199	123.98	6,199	123.98	6199
	10.02.02	Boring by using 100-mm diameter cutter and 38-mm diameter G.I. Pipe (50-100m)	m	50	136.18	6,809	136.18	6,809	136.18	6,809	136.18	6809
	10.02.03	Boring by using 100-mm diameter cutter and 38-mm diameter G.I. Pipe (100-150m)	m	50	150.01	7,501	150.01	7,501	150.01	7,501	150.01	7501
		Supplying and lowering 38-mm diameter water grade PVC pipe										
3	10.03.01	a) Hand pump No. 6 complete set (EPL/RFL)	each	3	2,501.63	7,505	2,501.63	7,505	2,501.63	7,505	2,501.63	7505
4	10.03.02	b) 38-mm diameter G.I pipe	m	3	630.47	1,891	630.47	1,891	630.47	1,891	630.47	1891
5	10.03.03	38-mm PVC pipe	m	140	135.98	19,037	135.98	19,037	135.98	19,037	135.98	19037
6	10.03.04	d) 38-mm diameter water graded PVC strainer	m	6	209.53	1,257	209.53	1,257	209.53	1,257	209.53	1257
7	10.03.05	e) 38-mm diameter socket adapter	each	23	16.50	380	16.50	380	16.50	380	16.50	380
8	10.03.06	f) Best quality 38-mm diameter PVC cap	each	1	60.01	60	60.01	60	60.01	60	60.01	60
9	10.08	Construction of platform	each	1	2,771.89	2,772	2,677.85	2,678	2,572.99	2,573	2,521.84	2521.84
		Total				**58,411**		**58,317**		**58,212**		**57,951**

Table A20-35 Unit cost of dust bins (2 nos.)

Rate and amount in BDT

No.	Item code	Item of Works	Unit	Quantity	Mymensingh region		Tangail region		Rangpur region		Dinajpur region	
					Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount
1	5.02.01	Single layer brick flat soling	m^2	3	317.63	794	308.02	770	288.43	721	278.08	695
2	5.05.01.01	Reinforced cement concrete works	m^3	1	8,649.89	6,487	8,665.29	6,499	8,588.97	6,442	8,611.73	6,459
3	5.06.01.02	Supply, fabricate and fix in position reinforcement mild steel 10-mm diameter 150-mm C/C deformed bars	kg	100	81.86	8,186	81.86	8,186	81.86	8,186	81.86	8,186
4	5.12.03	Minimum 6-mm thick cement plaster with net cement finishing (1:4)	m^2	18	162.50	2,925	162.50	2,925	161.86	2,913	162.18	2,919
5	5.03.10	Providing polythene sheet (0.18-mm thick)	m^2	3	18.36	46	18.36	46	18.36	46	18.36	46
		Total				**18,438**		**18,426**		**18,308**		**18,305**

3 Costs for Component 3: Project implementation support

Costs for Component 3: consultancy services consist of three subcomponents: 1) Design, Supervision and Monitoring (DSM); 2) Governance Improvement and Capacity Development (GICD); and 3) Benefit Monitoring and Evaluation (BME). The summary of the consultancy service costs is shown in Table A20-36, and the details are presented in Table A20-37, Table A20-38, and Table A20-39, respectively.

3.1 Summary of the consultancy service costs

Table A20-36 Summary of the consultancy service costs

Item	Quantity		FC (mill. BDT)	LC (mill. BDT)	Total (mill. BDT)	%
Total Consultancy Service Cost	**10,500**	PM	**566.5**	**1,772.5**	**2,339.0**	**100.0%**
Subcomponent 3-1: Engineering services of Design, Supervision and Monitoring (DSM) for C1 and SC2-1	**5,229**	PM	**546.2**	**815.5**	**1,361.7**	**58.2%**
Consultancy service cost total (I + II)	**5,229**	PM	**546.2**	**815.5**	**1,361.7**	
I. Consultant and support staff remuneration			**487.6**	**626.3**	**1,113.9**	
II. Reimbursable expenses			**58.6**	**189.2**	**247.7**	
I. Consultant and support staff remuneration total	**5,229**	PM	**487.6**	**626.3**	**1,113.9**	
Total of 1. and 2.1 (consultant cost only)	4,313	PM	488	595.1	1,082.7	
1. International consultants	211	PM	487.6		487.6	
2.1 National consultants	4,102	PM		595.1	595.1	
2.2 Administrative staff	916	PM		31.2	31.2	
II. Reimbursable expenses total			**58.6**	**189.2**	**247.7**	
A. International travel	24	trip	5.5		5.5	0.2%
B. Accommodation allowance	211	month	51.2		51.2	2.2%
C. Miscellaneous expenses	60	month	1.9		1.9	0.1%
A. Accommodation allowance	2,350	month		117.5	117.5	
B. Transportation	1	LS		24.0	24.0	
C. Miscellaneous expenses	1	LS		47.7	47.7	
Subcomponent 3-2: Governance Improvement and Capacity Development (GICD) for SC2-2	**4,953**	PM		**914.9**	**914.9**	**39.1%**
Consultancy service cost total (I + II)	**4,953**	PM		**914.9**	**914.9**	
I. Consultant and support staff remuneration				**653.7**	**653.7**	
II. Reimbursable expenses				**261.2**	**261.2**	
I. Consultant and support staff remuneration total	**4,953**	PM		**653.7**	**653.7**	
Total of 1. and 2.1 (consultant cost only)	4,361	PM		633.6	633.6	
1. International consultants		PM				
2.1 National consultants	4,361	PM		633.6	633.6	
2.2 Administrative staff	592	PM		20.1	20.1	
II. Reimbursable expenses total				**261.2**	**261.2**	
A. International travel		trip				
B. Accommodation allowance		month				
C. Miscellaneous expenses		month				
A. Accommodation allowance	3,180	month		238.5	238.5	
B. Transportation	1	LS		21.0	21.0	
C. Miscellaneous expenses	1	LS		1.7	1.7	
Subcomponent 3-3: Benefit Monitoring and Evaluation (BME) for C1 and C2	**318**	**PM**	**20.4**	**42.1**	**62.5**	**2.7%**
Consultancy service cost total (I + II)	**318**		**20.4**	**42.1**	**62.5**	
I. Consultant and support staff remuneration	**318**		**15.6**	**30.9**	**46.5**	
II. Reimbursable expenses			**4.7**	**11.2**	**15.9**	
I. Consultant and support staff remuneration total	**318**	**PM**	**15.6**	**30.9**	**46.5**	
Total of 1. and 2.1 (consultant cost only)	264	PM	15.6	29.0	44.6	
1. International consultants	6	PM	15.6		15.6	
2.1 National consultants	258	PM		29.0	29.0	
2.2 Administrative staff	54	PM		1.9	1.9	
II. Reimbursable expenses total			**4.7**	**11.2**	**15.9**	
A. International travel	6	trip	1.6		1.6	
B. Accommodation allowance	6	month	3.0		3.0	
C. Miscellaneous expenses	18	month	0.2		0.2	
A. Accommodation allowance	120	month		9.0	9.0	
B. Transportation	1	LS		1.8	1.8	
C. Miscellaneous expenses	1	LS		0.4	0.4	

3.2 Detailed costs for DSM consultant

Table A20-37 Detailed costs for DSM consultants

Summary

Item	BDT (mill.)	JPY (mill.)
Consultancy service cost total (I + II)	**1,361.7**	**1,284.4**
I. Consultant and support staff remuneration	1,113.9	1,046.4
II. Reimbursable expenses	247.7	238.0
Consultancy service cost total (1 + 2)	**1,361.7**	**1,284.4**
1. Cost in foreign currency	546.2	524.7
2. Cost in local currency	815.5	759.8

I. Consultant and support staff remuneration **0.9606 JPN/BDT**

Consultants and support staff		PM	Fees BDT/PM ('000)	Fees JPY ('000)	Bill rate %	Total/PM BDT ('000)	Total/PM JPY ('000)	Total Cost BDT (mill.)	Total Cost JPY (mill.)
I. Consultant and support staff remuneration total		**5,229**						**1,114**	**1,046**
Total of 1. and 2.1 (consultant cost only)		**4,313**						**1,083**	**1,016**
1. Cost in foreign currency		**211**						**488**	**468**
International consultants		**211**						**488**	**468**
Infrastructure Development Specialist/Team Leader	PMO	58	1,041	1,000	250%	2,603	2,500	150.9	145.0
Resident Engineer	SMO*3	147	916	880	250%	2,290	2,200	336.7	323.4
Road Maintenance Specialist	PMO	6	916	880	250%	2,290	2,200	13.7	13.2
2. Cost in local currency		**5,018**						**626**	**578**
2.1 National consultants		**4,102**						**595**	**548**
Senior Municipal Engineer/Deputy Team Leader	PMO	60	150	154	150%	225	216	13.5	13.0
Design & Construction Quality Control Specialist	PMO	60	150	106	150%	225	216	13.5	13.0
Road Design Engineer	PMO*2	36	110	106	150%	165	158	5.9	5.7
Market/Ghat Designer	PMO*2	36	110	106	150%	165	158	5.9	5.7
Structural Engineer (Bridge)	PMO*3	72	110	106	150%	165	158	11.9	11.4
Road Safety Specialist (Engineering)	PMO	34	110	106	150%	165	158	5.6	5.4
Materials Engineer	PMO	18	110	106	150%	165	158	3.0	2.9
Road Maintenance Specialist	PMO	24	110	106	150%	165	158	4.0	3.8
Municipal Drainage Engineer	PMO	27	110	154	150%	165	158	4.5	4.3
Municipal Waste Management Engineer	PMO	29	110	154	150%	165	158	4.8	4.6
Municipal Road & Transport Engineer	PMO	40	110	86	150%	165	158	6.6	6.3
Municipal Water & Sanitation Engineer	PMO	40	110	106	150%	165	158	6.6	6.3
Municipal Structural & Design Engineer	PMO	40	110	106	150%	165	158	6.6	6.3
Municipal Architect	PMO	40	110	106	150%	165	158	6.6	6.3
Sociologist/Gender Specialist	PMO	60	110	106	150%	165	158	9.9	9.5
Rehabilitation & Resettlement Specialist	PMO	60	110	106	150%	165	158	9.9	9.5
Environmental Specialist	PMO	60	110	106	150%	165	158	9.9	9.5
Procurement & Contract Management Specialist	PMO	60	110	86	150%	165	158	9.9	9.5
Municipal Engineer	PIU*18	1,080	110	86	150%	165	158	178.2	171.2
Road Safety Specialist (Education)	PMO	39	90	106	150%	135	130	5.3	5.1
Training Coordinator	PMO	24	90	86	150%	135	130	3.2	3.1
Assistant Resident Engineer	SMO*3	151	90	86	150%	135	130	20.4	19.6
Quality Control Engineer	SMO*3	151	90	86	150%	135	130	20.4	19.6
Field Engineer	PIO*14	672	90	67	150%	135	130	90.7	87.1
Computer Expert	PMO	28	90	86	150%	135	130	3.8	3.6
Regional Rehabilitation & Resettlement Expert	SMO*3	141	90	86	150%	135	130	19.0	18.3
Regional Environmental Expert	SMO*3	141	90	86	150%	135	130	19.0	18.3
Regional Sociologist/Gender Expert	SMO*3	141	90	86	150%	135	130	19.0	18.3
Site Engineer	PIO*14	504	70	48	150%	105	101	52.9	50.8
Jr. Office Engineer	PMO	141	70	48	150%	105	101	14.8	14.2
AutoCAD Operator	PMO	93	70	48	150%	105	101	9.8	9.4
2.2 Administrative staff		**916**						**31**	**30**
Office Manager cum Accountant	PMO	60	50	48	120%	60	58	3.6	3.5
Jr. Office Manager	SMO*3	168	30	29	120%	36	35	6.0	5.8
Computer Operator	PMO, SMO*3	224	30	29	120%	36	35	8.1	7.7
Office Assistant	PMO, SMO*3	224	10	19	120%	12	12	2.7	2.6
Driver	PMO, SMO*3	240	30	29	150%	45	43	10.8	10.4

II. Reimbursable expenses **0.9606 JPN/BDT**

Items	Unit cost			Quantity		Total Cost	
	BDT ('000)	JPY ('000)	unit	Value	Unit	BDT (mill.)	JPY (mill.)
II. Reimbursable expenses total						**247.7**	**238.0**
1. Cost in foreign currency						**58.6**	**56.3**
A. International travel (Normal economy class)				**24**		**5.5**	**5.3**
Infrastructure Development Specialist/Team Leader	260	250	/trip	6	trips	1.6	1.5
Resident Engineer	260	250	/trip	15	trips	3.9	3.8
Road Maintenance Specialist	260	250	/trip	3	trips	0.8	0.8
B. Accommodation allowance				**211**		**51.2**	**49.2**
Infrastructure Development Specialist/Team Leader	250	240	/month	58	month	14.5	13.9
Resident Engineer	250	240	/month	147	month	36.7	35.3
Road Maintenance Specialist	250	240	/month	6	month	1.5	1.4
C. Miscellaneous expenses				**60**		**1.9**	**1.8**
1) International communications, etc.	31	30	/month	60	months	1.9	1.8
2. Cost in local currency						**189.2**	**181.7**
A. Accommodation allowance						**117.5**	**112.8**
National consultants	50	48	/month	2,350	months	117.5	112.8
B. Transportation						**24.0**	**23.1**
Fuel and maintenance of project vehicles	50	48	/month	240	months	12.0	11.5
Vehicle rental (4x4; fuel included)	100	96	/month	120	months	12.0	11.5
C. Miscellaneous expenses						**47.7**	**45.8**
Domestic communications	10	10	/month	60	months	0.6	0.6
PC for administration	100	96	/PM	16	PM	1.6	1.5
Topographic survey (Roads)	20	19	/km	969	km	19.4	18.6
Soil investigation (Bridges)	2,775	2,666	/LS	1	LS	2.8	2.7
Topographic survey (Bridges)	20	19	/location	75	location	1.5	1.4
Hydrological and morphological survey (Large bridges)	2,000	1,921	/location	4	location	8.0	7.7
Other investigation (EIA, etc.)	13,863	13,316	/LS	1	LS	13.9	13.3

3.3 Detailed costs for GICD consultant

Table A20-38 Detailed costs for GICD consultant

Summary

Item	BDT (mill.)	JPY (mill.)
Consultancy service cost total (I + II)	**914.9**	**878.9**
I. Consultant and support staff remuneration	653.7	628.0
II. Reimbursable expenses	261.2	250.9
Consultancy service cost total (1 + 2)	**914.9**	**878.9**
1. Cost in foreign currency		
2. Cost in local currency	914.9	878.9

I. Consultant and support staff remuneration **0.9606 JPN/BDT**

Consultants and support staff		PM	Fees BDT/PM ('000)	Fees JPY ('000)	Bill rate %	Total/PM BDT ('000)	Total/PM JPY ('000)	Total Cost BDT (mill.)	Total Cost JPY (mill.)
I. Consultant and support staff remuneration total		**4,953**						**653.7**	**628.0**
Total of 1. and 2.1 (consultant cost only)		**4,361**						**633.6**	**608.6**
1. Cost in foreign currency									
International consultants									
2. Cost in local currency		**4,953**						**653.7**	**628.0**
2.1 National consultants		**4,361**						**633.6**	**608.6**
Senior Urban Governance Specialist (Team Leade	UMSU	60	150	144	150%	225	216	13.5	13.0
Urban Governance Specialist (Deputy Team Lead	UMSU*1	60	110	106	150%	165	158	9.9	9.5
Municipal Finance & Accounting Specialist	UMSU	35	110	106	150%	165	158	5.8	5.5
System Analyst	UMSU	35	110	106	150%	165	158	5.8	5.5
Urban Planning & Management Specialist	UMSU	35	110	106	150%	165	158	5.8	5.5
Community Mobilization Specialist	UMSU	35	110	106	150%	165	158	5.8	5.5
Mid Level Programmer/Hardware Specialist	UMSU	35	110	106	150%	165	158	5.8	5.5
Governance Improvement Facilitator	PIO*18	1,080	110	86	150%	165	158	178.2	171.2
Urban Governance Specialist (Regional Team Lea	RUMSU*2	116	90	106	150%	135	130	15.7	15.0
Municipal Finance & Accounting Specialist	RUMSU*2	74	90	106	150%	135	130	10.0	9.6
Urban Planning & Management Specialist	RUMSU*2	116	90	106	150%	135	130	15.7	15.0
Community Mobilization Specialist	RUMSU*2	116	90	106	150%	135	130	15.7	15.0
Mid Level Programmer/Hardware Specialist	RUMSU*2	116	90	106	150%	135	130	15.7	15.0
Municipal Finance and Accounting Facilitator	PIO*18	684	90	86	150%	135	130	92.3	88.7
Urban Planning Facilitator	PIO*18	684	90	86	150%	135	130	92.3	88.7
Community Mobilization Facilitator	PIO*18	1,080	90	86	150%	135	130	145.8	140.1
2.2 Administrative staff		**592**						**20.1**	**19.3**
Office Manager cum Accountant	UMSU	58	50	48	120%	60	58	3.5	3.3
Jr. Office Manager	RUMSU*2	116	30	29	120%	36	35	4.2	4.0
Computer Operator	UMSU, RUMSU*2	151	30	29	120%	36	35	5.4	5.2
Office Assistant	UMSU, RUMSU*2	151	10	19	120%	12	12	1.8	1.7
Driver	RUMSU*2	116	30	29	150%	45	43	5.2	5.0

II. Reimbursable expenses **0.9606** **JPN/BDT**

Items	Unit cost			Quantity		Total Cost	
	BDT ('000)	JPY ('000)	unit	Value	Unit	BDT (mill.)	JPY (mill.)
II. Reimbursable expenses total						**261.2**	**250.9**
1. Cost in foreign currency							
A. International travel (Normal economy class)							
B. Accommodation allowance							
C. Miscellaneous expenses							
2. Cost in local currency						**261.2**	**250.9**
A. Accommodation allowance						**238.5**	**229.1**
National consultants	75	72	/month	3,180	months	238.5	229.1
B. Transportation						**21.0**	**20.2**
Fuel and maintenance of project vehicles	50	48	/month	180	months	9.0	8.6
Vehicle rental (4x4; fuel included)	100	96	/month	120	months	12.0	11.5
C. Miscellaneous expenses						**1.7**	**1.6**
Domestic communications	10	10	/month	60	months	0.6	0.6
PC for administration	100	96	/PM	11	PM	1.1	1.1

3.4 Detailed costs for BME consultant

Table A20-39 Detailed costs for BME consultant

Summary

Item	BDT (mill.)	JPY (mill.)
Consultancy service cost total (I + II)	**62.5**	**60.0**
I. Consultant and support staff remuneration	46.5	44.7
II. Reimbursable expenses	15.9	15.3
Consultancy service cost total (1 + 2)	**62.5**	**60.0**
1. Cost in foreign currency	20.4	19.6
2. Cost in local currency	42.1	40.5

I. Consultant and support staff remuneration **0.9606 JPN/BDT**

Consultants and support staff		PM	Fees BDT/PM ('000)	Fees JPY ('000)	Bill rate %	Total/PM BDT ('000)	Total/PM JPY ('000)	Total Cost BDT (mill.)	Total Cost JPY (mill.)
I. Consultant and support staff remuneration total		**318**						**46.5**	**44.7**
Total of 1. and 2.1 (consultant cost only)		**264**						**44.6**	**42.8**
1. Cost in foreign currency		**6**						**15.6**	**15.0**
International consultants		**6**						**15.6**	**15.0**
Senior Monitoring and Evaluation Specialist/Team Leader	PMO	6	1,041	1,000	250%	2,603	2,500	15.6	15.0
2. Cost in local currency		**312**						**30.9**	**29.7**
2.1 National consultants		**258**						**29.0**	**27.8**
Monitoring and Evaluation Specialist 1/Deputy Team Leac	PMO	18	110	144	150%	165	158	3.0	2.9
Monitoring and Evaluation Specialist 2	PMO	18	90	144	150%	135	130	2.4	2.3
Economic Analysis Specialist	PMO	9	90	144	150%	135	130	1.2	1.2
Monitoring and Evaluation Surveyor 1	PIO	105	70	144	150%	105	101	11.0	10.6
Monitoring and Evaluation Surveyor 2	PIO	108	70	144	150%	105	101	11.3	10.9
2.2 Administrative staff		**54**						**1.9**	**1.9**
Office Manager cum Accountant	PMO	18	50	48	120%	60	58	1.1	1.0
Computer Operator	PMO	18	30	29	120%	36	35	0.6	0.6
Office Assistant	PMO	18	10	19	120%	12	12	0.2	0.2

II. Reimbursable expenses **0.9606 JPN/BDT**

Items	Unit cost BDT ('000)	Unit cost JPY ('000)	unit	Quantity Value	Quantity Unit	Total Cost BDT (mill.)	Total Cost JPY (mill.)
II. Reimbursable expenses total						**15.9**	**15.3**
1. Cost in foreign currency						**4.7**	**4.6**
A. International travel (Normal economy class)						**1.6**	**1.5**
Senior Monitoring and Evaluation Specialist/Team Leader	260	250	/trip	6	trips	1.6	1.5
B. Accommodation allowance						**3.0**	**2.9**
Senior Monitoring and Evaluation Specialist/Team Leader	500	480	/month	6	month	3.0	2.9
C. Miscellaneous expenses						**0.2**	**0.2**
1) International communications, etc.	10	10	/month	18	months	0.2	0.2
2. Cost in local currency						**11.2**	**10.7**
A. Accommodation allowance						**9.0**	**8.6**
National consultants	75	72	/month	120	months	9.0	8.6
B. Transportation						**1.8**	**1.7**
Vehicle rental (4x4; fuel included)	100	96	/month	18	months	1.8	1.7
C. Miscellaneous expenses						**0.4**	**0.4**
Domestic communications	5	5	/month	18	months	0.1	0.1
PC for administration	100	96	/PM	3	PM	0.3	0.3

4 Costs for Component 4: Project administration support

4.1 Detailed costs for Administration assistant (PMRS. PAS, EPS, PME SA and PC)

Table A20-40 Detailed costs for Administration assistant

Summary

Item	BDT (mill.)	JPY (mill.)
Consultancy service cost total (I + II)	**49.9**	**47.9**
I. Consultant and support staff remuneration	45.3	43.6
II. Reimbursable expenses	4.5	4.3
Consultancy service cost total (1 + 2)	**45.3**	**43.6**
1. Cost in foreign currency		
2. Cost in local currency	45.3	43.6

I. Consultant and support staff remuneration **0.9606** JPN/BDT

Consultants and support staff		PM	Fees BDT/PM ('000)	Fees JPY ('000)	Bill rate %	Total/PM BDT ('000)	Total/PM JPY ('000)	Total Cost BDT (mill.)	Total Cost JPY (mill.)
I. Consultant and support staff remuneration total		**301**						**45.3**	**43.6**
Total of 1. and 2.1 (consultant cost only)		**301**						**45.3**	**43.6**
1. Cost in foreign currency									
International consultants									
2. Cost in local currency		**301**						**45.3**	**43.6**
2.1 National consultants		**301**						**45.3**	**43.6**
Performance Monitoring and Evaluation Consultant (PME)	UMSU	60	110	106	150%	165	158	9.9	9.5
Statistic Analysis Consultant (SA)	UMSU	35	110	106	150%	165	158	5.8	5.5
Publicity Campaign Consultant (PC)	PMO	35	110	106	150%	165	158	5.8	5.5
Equipment Procurement Support Consultant (EPS)	PMO	27	110	106	150%	165	158	4.5	4.3
Project Monitoring and Reporting Support (PMRS)	PMO	72	90	144	150%	135	130	9.7	9.3
Project Accounting Support Consultant (PAS)	PMO	72	90	106	150%	135	130	9.7	9.3

II. Reimbursable expenses **0.9606** JPN/BDT

Items	Unit cost BDT ('000)	Unit cost JPY ('000)	unit	Quantity Value	Quantity Unit	Total Cost BDT (mill.)	Total Cost JPY (mill.)
II. Reimbursable expenses total						**4.5**	**4.3**
1. Cost in foreign currency							
A. International travel (Normal economy class)							
B. Accommodation allowance							
C. Miscellaneous expenses							
2. Cost in local currency							
A. Accommodation allowance						**4.5**	**4.3**
National consultants	75	72	/month	60	months	4.5	4.3

5 Costs for Project implementation office staff

The costs for the Project implementation office staff of the LGED and the target Pourashavas are calculated by component. The office staff for Component 1 and 2-1 is under PMO, PMU in LGED Headquarters, three SMOs in LGED Regional Offices, and 14 QAOs for LGED Upazila Offices. The Project staff for Component 2-2 is under the UMSU in the LGED Headquarters, two RUMSUs in Regional Offices, and 18 PIUs in the target Pourashava Offices. The summary of the Project implementation office staff costs is shown in Table A20-41, and the details are presented in Table A20-42, Table A20-43, Table A20-44, and Table A20-45 respectively.

5.1 Summary of the Project implementation office staff costs

Table A20-41 Summary of the Project implementation office staff costs

Component	PM	Total BDT ('000)
Total	**53,784**	**1,046,892**
Component 1 and Subcomponent 2-1: PMO, SMO, PIO and LGED Upazila Office	**31,680**	**618,115**
A. PMO, LGED Headquarters, Dhaka	3,168	54,400
B. SMO, LGED RO: Mymensingh/Rangpur/Dinajpur	2,592	38,467
C. PIO, LGED District Offices 14	9,072	105,447
D. LGED Upazila Office	16,848	222,225
Sub-total of E, F, G, H, and I		197,576
Subcomponent 2-1and 2-2: PMO and UMSU	**72**	**4,849**
A. PMO and UMSU, LGED Headquarters, Dhaka	72	2,939
Sub-total of E, F, G, H, and I		1,910
Subcomponent 2-2: UMSU and RUMSU	**5,184**	**127,037**
A. UMSU, LGED Headquarters, Dhaka	1,584	23,885
B. RUMSU, LGED RO: Mymensingh/Rangpur	3,600	61,891
Sub-total of E, F, G, H, and I		41,260
Component 2-2: PIU	**16,848**	**296,891**
A. Infrastructure Improvement Section (IIS)	13,608	144,718
B. Urban Governance Improvement Section (UGIS)	1,296	12,442
C. Environmental, Sanitation & Slum Improvement Section (ESSIS)	1,944	16,281
Sub-total of E, F, G, H, and I		123,451

5.2 Detailed costs of Project office staff for Component 1 and Subcomponent 2-1

Table A20-42 Office staff costs for PMO, SMO, PIO and LGED Upazila Office

Name of the Post	Pay Scale/Consolidated Pay (BDT)	No.	PM	Monthly payment BDT	Total for 72 PM BDT ('000)
Total		**440**	**31,680**		**618,115**
Sub-total of A, B, C, and D		**440**	**31,680**		**420,539**
A. PMO, LGED Headquarters, Dhaka		**44**	**3,168**		**54,400**
Project Director	25,750-33,750/45,200 (GOB official)	1	72	45,200	3,254
Deputy Project Director (RIDI)	22,250-31,250/40,820 (GOB official)	2	144	40,820	5,878
Executive Engineer	22,250-31250/40,820 (GOB official)	2	144	40,820	5,878
Senior Assistant Engineer	18,500-29700/37,210 (GOB official)	4	288	37,210	10,716
Socio-economist	11,000-20,370/25,000 (GOB official)	1	72	25,000	1,800
Environment Engineer	18,500-29,700/37,210 (GOB official)	1	72	37,210	2,679
Procurement officer	11,000-20,370/25,000 (GOB official)	1	72	25,000	1,800
MIS Officer	11,000-20,370/25,000 (GOB official)	1	72	25,000	1,800
Accounts & Audit Officer	12,960 (Project staff)	1	72	12,960	933
Administrative Officer	12,960 (Project staff)	1	72	12,960	933
Accountant	10,930 (Project staff)	2	144	10,930	1,574
Sub-Assistant Engineer	10,930 (Project staff)	4	288	10,930	3,148
CAD Operator	10,930 (Project staff)	3	216	10,930	2,361
Computer Operator	10,930 (Project staff)	3	216	10,930	2,361
Accountant Assistant	8,890 (Project staff)	2	144	8,890	1,280
Office Assistant	7,980 (Project staff)	1	72	7,980	575
Driver	7,980 (Project staff)	7	504	7,980	4,022
Messenger/MLSS	6,760 (Project staff)	4	288	6,760	1,947
Photocopier Operator	6,760 (Project staff)	2	144	6,760	973
Cleaner	6,760 (Project staff)	1	72	6,760	487
B. SMO, LGED RO: Mymensingh/Rangpur/Dinajpur		**36**	**2,592**		**38,467**
Regional Deputy Director (RDPD)	22,250-31,250/36,810 (GOB official)	3	216	36,810	7,951
Senior Assistant Engineer	18,500-29,700/37,210 (GOB official)	3	216	37,210	8,037
Sociologist	16,370 (Project staff)	3	216	16,370	3,536
Computer Operator	10,890 (Project staff)	3	216	10,890	2,352
Sub-Assistant Engineer	10,890 (Project staff)	3	216	10,890	2,352
Accounts Assistant	8,890 (Project staff)	3	216	8,890	1,920
Surveyor/work assistant	12,960 (Project staff)	6	432	12,960	5,599
Office assistant	8,390 (Project staff)	3	216	8,390	1,812
Driver	7,990 (Project staff)	6	432	7,980	3,447
Messenger/MLSS	6,760 (Project staff)	3	216	6,760	1,460
C. PIO, LGED District Offices 14		**126**	**9,072**		**105,447**
Accountant	10,890 (Project staff)	14	1,008	16,370	16,501
Account Assistant	8,890 (Project staff)	14	1,008	8,890	8,961
Computer Operator	10,890 (Project staff)	14	1,008	10,890	10,977
Lab Technician	10,890 (Project staff)	14	1,008	10,130	10,211
Lab Assistant	8,890 (Project staff)	14	1,008	10,130	10,211
Assistant Engineer	12,960 (Project staff)	14	1,008	12,960	13,064
Sub-Assistant Engineer	10,890 (Project staff)	14	1,008	10,890	10,977
Sociologist	16,370 (Project staff)	14	1,008	16,370	16,501
Operator/Driver: Construction Equipment	7,990 (Project staff)	14	1,008	7,980	8,044
D. LGED Upazila Office		**234**	**16,848**		**222,225**
Sub-Assistant Engineer	17,490 (Project staff)	117	8,424	17,490	147,336
Work Assistant	8,890 (Project staff)	117	8,424	8,890	74,889
Sub-total of E, F, G, H, and I					**197,576**
E. Festival Allowance (24% of the sub-total)					**100,929**
F. Service Benefit for Incremental Staff (13% of the sub-total)					**54,670**
G. Deputation Allowance for GOB Staff (20% of the basic pay)					**5,044**
H. Gratuity for Project Staff (two months of basic pay/year)					**3,289**
I.TA, DA, overtime, etc. (8% of the sub-total)					**33,643**

5.3 Detailed costs of Project office staff for Subcomponent 2-1 and 2-2

Table A20-43 Office staff costs for PMO and UMSU

Name of the Post	Pay Scale/Consolidated Pay (BDT)	No.	PM	Monthly payment BDT	Total BDT ('000)
Total		**1**	**72**		**4,849**
Sub-total of A, B, C, and D		**1**	**72**		**2,939**
A. PMO and UMSU, LGED Headquarters, Dhaka		**1**	**72**		**2,939**
Deputy Project Director (Deputy Director of UMSU)	22,250-31,250/40,820 (GOB official)	1	72	40,820	2,939
Sub-total of E, F, G, H, and I					**1,910**
E. Festival Allowance (24% of the sub-total)					**705**
F. Service Benefit for Incremental Staff (13% of the sub-total)					**382**
G. Deputation Allowance for GOB Staff (20% of the basic pay)					**588**
H. Gratuity for Project Staff (two months of basic pay/year)					
I. TA, DA, overtime, etc. (8% of the sub-total)					**235**

Table A20-44 Office staff costs for UMSU and RUMSU

Name of the Post	Pay Scale/Consolidated Pay (BDT)	No.	PM	Monthly payment BDT	Total BDT ('000)
Total		**122**	**5,184**		**127,037**
Sub-total of A, B, C, and D		**122**	**5,184**		**85,776**
A. UMSU, LGED Headquarters, Dhaka		**22**	**1,584**		**23,885**
Assistant Engineer	11,000-20,370/25,000 (GOB official)	3	216	25,000	5,400
Community Development Officer	11,000-20,370/25,000 (GOB official)	1	72	25,000	1,800
Social & Gender Development Officer	11,000-20,370/25,000 (GOB official)	1	72	25,000	1,800
Training Officer	11,000-20,370/25,000 (GOB official)	2	144	25,000	3,600
Urban Planner	11,000-20,370/25,000 (GOB official)	1	72	25,000	1,800
Account Officer	11,000-20,370/25,000 (GOB official)	1	72	25,000	1,800
Computer Operator	10890 (Project staff)	2	144	10,890	1,568
Accountant	9440 (Project staff)	1	72	9,440	680
U.D Assistant	8,890 (Project staff)	1	72	8,890	640
Account Assistant	8,890 (Project staff)	1	72	8,890	640
Driver	7990 (Project staff)	3	216	7,980	1,724
Photocopier Operator	6,760 (Project staff)	1	72	6,760	487
Messenger	6,760 (Project staff)	1	72	6,760	487
MLSS	6,760 (Project staff)	2	144	6,760	973
Cleaner	6,760 (Project staff)	1	72	6,760	487
B. RUMSU, LGED RO: Mymensingh/Rangpur		**100**	**3,600**		**61,891**
(To be funded by GOB for 3 years after Jan. 2015)					
Deputy Director RUMSU	22250-31250/40820 (GOB official)	10	360	27,440	9,878
Assistant Director (Urban Planning & management)	25130 (Project staff)	10	360	25,130	9,047
Assistant Director (Municipal Finance & Accounting)	25130 (Project staff)	10	360	25,130	9,047
Assistant Director (Monitoring & Evaluation)	25130 (Project staff)	10	360	25,130	9,047
Assistant Director (Community Mobilization)	25130 (Project staff)	10	360	25,130	9,047
Computer Operator	10890 (Project staff)	10	360	10,890	3,920
Accountant	9440 (Project staff)	10	360	9,440	3,398
Accounts Assistant	8890 (Project staff)	10	360	8,890	3,200
Driver	7990 (Project staff)	10	360	7,980	2,873
Cleaner	6760 (Project staff)	10	360	6,760	2,434
Sub-total of E, F, G, H, and I					**41,260**
E. Festival Allowance (24% of the sub-total)					**20,586**
F. Service Benefit for Incremental Staff (13% of the sub-total)					**11,151**
G. Deputation Allowance for GOB Staff (20% of the basic pay)					**755**
H. Gratuity for Project Staff (two months of basic pay/year)					**1,906**
I.TA, DA, overtime, etc. (8% of the sub-total)					**6,862**

5.4 Detailed costs of Project office staff for Subcomponent 2-2

Table A20-45 Office staff costs for PIU

Name of the Post	Pay Scale/Consolidated Pay (BDT)	No.	PM	Total PM	Monthly payment BDT	Fund release rate by PMO	Total for 72 PM BDT ('000)
Total		**342**	**684**	**16,848**			**296,891**
Sub-total of A, B, C, and D		**342**	**684**	**16,848**			**173,440**
A. Infrastructure Improvement Section (IIS)		**252**	**504**	**13,608**			**144,718**
Assistant Engineer	11,000-20,370/25,000 (GOB staff)	18	36	648	25,000	50%	8,100
Sub Assistant Engineer (Civil)-1	8,000-16,540/19,710 (GOB staff)	18	36	648	19,710	50%	6,386
Surveyor	5,900-13,125/14,410 (GOB staff)	18	36	648	14,410	50%	4,669
Account Assistant	4,700-9,745/12,320 (GOB staff)	18	36	648	12,320	50%	3,992
Work Assistant-1, 2	4,700-9,745/12,320 (GOB staff)	36	36	1,296	12,320	50%	7,983
Slum Development Officer	12,960 (Project staff)	18	36	648	19,710	100%	12,772
Sub Assistant Engineer (Civil)-2,3 from LGED	17,490 (Project staff)	36	72	2,592	17,490	100%	45,334
Computer Operator	10,890 (Project staff)	18	72	1,296	10,890	100%	14,113
Work Assistant-3	7,980 (Project staff)	18	72	1,296	7,980	100%	10,342
Community Field Worker	7,980 (Project staff)	54	72	3,888	7,980	100%	31,026
B. Urban Governance Improvement Section (UGIS)		**36**	**72**	**1,296**			**12,442**
Secretary	11,000-20,370/25,000 (GOB staff)	18	36	648	25,000	50%	8,100
Accountant	5,000-12,095/13,400 (GOB staff)	18	36	648	13,400	50%	4,342
C. Environmental, Sanitation & Slum Improvement Section (ESSIS)		**54**	**108**	**1,944**			**16,281**
Health Officer	11,000-20,370/25,000 (GOB staff)	18	36	648	25,000	50%	8,100
Sanitary Inspector	5,000-12,095/13,400 (GOB staff)	18	36	648	13,400	50%	4,342
Conservancy Inspector	4,900-10,450/11,850 (GOB staff)	18	36	648	11,850	50%	3,839
Sub-total of E, F, G, H, and I							**123,451**
E. Festival Allowance (24% of the sub-total)							**41,626**
F. Service Benefit for Incremental Staff (13% of the sub-total)							**22,547**
G. Deputation Allowance for GOB Staff (20% of the basic pay)							**22,344**
H. Gratuity for Project Staff (two months of basic pay/year)							**23,058**
I.TA, DA, overtime, etc. (8% of the sub-total)							**13,875**

6 Costs of capacity development for Component 1 and 2-2

The costs and details of the capacity development programs for Component 1 and 2-2 are presented in Table A20-46 and Table A20-47.

Table A20-46 Costs and details of the capacity development programs for Component 1

No.	Major contents	Location (Central/ Regional)	No. of locations	No. of participants	Days	No. of sessions	No. of total trainee	No. of total days	Trainee days	Unit cost (BDT)	Total cost (BDT)
LGED Officials/Community-based Road Safety Group (CBRSG) Members											
1-1	Kick-off and progress meetings where the project objectives, institutional arrangements, procedures and activity plans and budgets	Central level	1	30	1	7	210	7	210	1,757	368,900
1-2	Training of trainers (TOT) to upgrade the capacity of Upazila/Union CBRS Team	Upazila/Union level	6	12	4	6	72	144	288	2,692	775,400
1-3	TOT to upgrade the capacity of CBRS Facilitators	Ward level	Various	20	8	6	120	48	960	807	775,160
1 total									1,458	1,317	1,919,460
Road safety campaign by CBRS facilitators and Wards volunteers											
1	Road traffic safety awareness/education to Ward residents by CBRS Facilitators and Ward Volunteers	Ward level	Various	20	24	6	120	144	2,880	646	1,861,200
LGED officials											
1	Kick-off and progress meetings where the project objectives, institutional arrangements, procedures and activity plans and budgets	Central level	1	100	1	1	100	7	100	1,770	177,000
2	TOT to upgrade the capacity of LGED and other relevant government officials	Central level	1	43	3	6	258	18	774	1,194	924,380
3	Training on administration, technical and financial management, aiming at increasing the practical knowledge	Central level	1	43	2	1	43	2	86	1,428	122,820
4	Training on gender, social and environmental aspects of the project, intended to provide LGED with improved knowledge on the potential benefits and impacts of the project interventions	Central level	1	43	2	1	43	2	86	1,428	122,820
5	Special foundation training to newly-recruited Junior Assistant Engineers and Junior Upazila Engineers to acquire basic knowledge and skills as civil service engineers	Central level	1	172	14	6	1032	84	14,448	990	14,300,180
6	Overseas training targeting LGED and relevant government officials on specific topics for an increase practical knowledge and skills on advanced techniques	Overseas	Various	10	14	6	60		840	38,000	31,920,000
Contractors and construction workers											
1	Training will cover topics such as contract documents, analysis of rates, standards and specifications, construction planning management, quality control and laboratory testing, BoQ, invoicing and payment procedures	Upazila level	117	340	2	1	340	234	680	1,253	851,700
2	Training for improving their skills in masonry and construction techniques. The training will also include sessions on HIV/AIDS	Upazila level	117	340	2	1	340	234	680	1,253	851,700
Upazila Chairpersons, UNOs and UP Chairpersons											
1	Project kick-off meeting where the project objectives, institutional arrangements, procedures and activity plans and budgets	Upazila level	117	190.5	1	6	1143	702	1,143	1,140	1,303,020
Growth center markets and rural market stakeholders											
1	Sensitization workshop to raise the awareness and increase the understanding of the project, and the specific subproject. It is also intended to enhance the linkages between the various stakeholders, and strengthen the sense of ownership and understanding of their responsibilities	District level	14	10	10	10	100	1400	1,000	1,721	1,721,000

No.	Major contents	Location (Central/ Regional)	No. of locations	No. of participants	Days	No. of sessions	No. of total trainee	No. of total days	Trainee days	Unit cost (BDT)	Total cost (BDT)
2	An orientation meeting on preparatory planning which will focus on the dissemination of information on the participatory process for the planning of the GCM/ rural market	District level	14	10	10	10	100	1400	1,000	1,746	1,746,000
3	Training on land ownership and the leasing system	District level	14	10	10	10	100	1400	1,000	1,746	1,746,000
4	Training on proper operation and maintenance of the GCM/ rural markets intended to enhance knowledge and skills on operation and maintenance issues and the roles and responsibilities of stakeholders in planning, monitoring and reporting on activities	District level	14	10	10	10	100	1400	1,000	1,746	1,746,000
5	Training on gender, social and environmental issues, aiming mainly at representatives permanent shopkeepers for them to better understand the promotion of Women Market Sections	District level	14	10	10	10	100	1400	1,000	1,576	1,576,000
Women Market Section											
1	0orientation training for women potentially interested in becoming shopkeepers	Locally	140	112	1	4	448	560	448	1,075	481,600
2	Training on shop management and skills development, targeting selected women shopkeepers	Locally	140	70	3	2	140	840	420	1,450	609,000
3	Training on social gender and environmental issues designed to introduce the basics to the female shopkeepers, which will help to raise self-confidence, and self sustainability of participants	Locally	140	112	2	1	112	280	224	1,075	240,800
4	Introductions of the functions of the MMC and the Banik Samitys to women and physically challenged shopkeepers	Locally	140	56	1	2	112	280	112	1,700	190,400
LCS members											
1	Skills development on off-pavement maintenance to provide selected LCS workers with the required knowledge and skills to carry out specific maintenance works	Locally	117	19	2	117	2223	27378	4,446	603	2,678,715
2	Training on tree-planting and caretaking, covering the importance of planting trees and taking care of them. It will also include technical aspects, profit sharing systems for planted trees, supervision and monitoring, quality control, distribution of works, and maintenance of tools and equipment	Locally	117	27.3504	2	117	3200	27378	6,400	603	3,856,000
3	Training on social and gender awareness, covering roles, needs, economic structures, gender issues covered by the project, and the value of self-reliance and self-confidence	Locally	117	17.7778	3	117	2080	41067	6,240	582	3,629,600
4	Training on group formation and management which presents the participants with the benefits of group formation and group dynamics and management	Locally	117	17.094	2	117	2000	27378	4,000	603	2,410,000
5	Training on health and hygiene, covering issues related to the importance of maintaining good health, and the methods of keeping good hygiene	Locally	117	17.094	2	117	2000	27378	4,000	603	2,410,000
6	Training on saving and credit management, which will cover the basic principles of the credit saving system used for LCS, and the importance of group and individual savings	Locally	117	17.7778	1	117	2080	13689	2,080	665	1,383,200

No.	Major contents	Location (Central/ Regional)	No. of locations	No. of participants	Days	No. of sessions	No. of total trainee	No. of total days	Trainee days	Unit cost (BDT)	Total cost (BDT)
7	Training on skills development for income generation, which will be on skills development for income generation to increase the chances for a sustainable livelihood after the completion of the LCS works. Activities will include planning for income generating activities, investment budget, account keeping, dealing with customers, and sales promotion	Locally	117	13.6752	5	117	1600	68445	8,000	565	4,520,000

Table A20-47 Costs and details of the capacity development programs for Component 2-2

No.	Course title	Major contents	Participant	Trainee days	Unit cost (BDT)	Total cost (BDT)		
						Phase 1	Phase 2	Phase 3
1	Orientation for Mayors on NRRDLGIP	Introduction of NRRDLGIP, mayor's mandates stipulated by the Pourashava Act, and detail area-wise description of UGIAP, implementation of UGIAP phase-I, PDP, GAP, and PRAP	Mayors	18	3,494	62,900		
2	Orientation for Mayors on NRRDLGIP phase-II	Introduction of NRRDLGIP phase-2, detailed area-wise description of UGIAP phase-2 and its implementation	Mayors	18	3,494		62,900	
3	Orientation for Mayors on NRRDLGIP phase-III	Introduction of NRRDLGIP phase-3, detail area-wise description of UGIAP phase-3 and its implementation	Mayors	18	3,494			62,900
4	Orientation Training for Councilors for each Region on NRRDLGIP	Introduction of NRRDLGIP, powers, functions and role of ward councilor in relation to UGIAP phase-1 including GAP and PRAP	All councilors	216	2,822	609,500		
5	Orientation Training for Councilors for each Region on NRRDLGIP	Introduction of NRRDLGIP phase-2, role of ward councilor for the implementation of UGIAP phase-2 including GAP & PRAP	All councilors	216	2,822		609,500	
6	Orientation Training for Councilors for each Region on NRRDLGIP	Introduction of NRRDLGIP phase-3, role of ward councilor for the implementation of UGIAP phase-3 including GAP & PRAP	All councilors	216	2,822			609,500
7	Orientation Training for AE & Secretary on NRRDLGIP	Introduction of NRRDLGIP, UGIAP, PDP, GAP& PRAP	Secretary, AE	72	3,000	216,000		
8	Training program on UGIAP Phase-2	Introduction of UGIAP phase-2, and area-wise discussion	Secretary, AE, SDO	108	2,919		315,200	
9	Concept of good governance & its application in Pourashavas	Perspectives of good governance (transparency, accountability, participation, rule of laws, etc.), application of good governance, good governance practice in municipalities	Mayors	36	3,244			116,800
10	Orientation for Pourashava officials on administration and office management	Office management, record keeping regarding infrastructure development and UGIAP implementation	Secretary, AE	72	3,000	216,000		
11	Basic Computer Training for Pourashava staff	Introduction of Basic Computer, Microsoft Office, Advance MS Word Technique, Microsoft Excel and Overview of MS Access	AE, SAE, Accountant, Assistant Accountant, Tax Assessor, Tax Collector, Trade License Officer, Assistant Collector, Bill Clerk, Cashier	900	2,791		2,511,500	
12	Orientation for account official on account management of NRRDLGIP fund	Introduction of NRRDLGIP, accounts record keeping, statement of expenditure (SOE) submission, and bill voucher preparation	Accounts Officer /Accountant and Assistant accountant	108	2,958		319,500	
13	Trainers Training for Pourashava officials under NRRDLGIP, and Training Unit and RMSU officials	Training concept, qualities of a good trainer, facilitation skill, principals of use training materials, use of manual	AE, Secretary and Town Planner of Pourashava, and Assistant Director of UMSU	540	2,812		1,518,500	
14	Trainers Training for Pourashava officials under NRRDLGIP, and Training Unit and RMSU officials	Training concept, qualities of a good trainer, facilitation skill, principals of use training materials, use of manual	AE, Secretary and Town Planner of Pourashava, and Assistant Director of UMSU	540	2,812		1,518,500	

No.	Course title	Major contents	Participant	Trainee days	Unit cost (BDT)	Total cost (BDT)		
						Phase 1	Phase 2	Phase 3
15	Orientation on Accounts, Trade, Tax and water billing updated software	Installation Procedure, Data Entry (Save, Edit, Delete, Report View), Bill Generation, All Reports, Data Backup	Assistant Director in charge of Finance of UMSU, Consultants in charge of Finance	54	3,161	170,700		
16	Orientation for Consultants on NRRDLGIP	Introduction of NRRDLGIP, quality control of infrastructure works, and implementation of UGIAP.	all consultant	90	2,903	261,300		
17	Orientation for Consultants on NRRDLGIP	Introduction of NRRDLGIP phase-2, quality control of infrastructure works, and implementation of UGIAP.	all consultant	90	2,903		261,300	
18	Training for TLCC member for each Region	Introduction of UGIAP Phase-2, and TLCC members' responsibilities for implementation	TLCC members	720	2,775		1,998,300	
19	Sensitization Workshop for TLCC members at Pourashava Level	TLCC members responsibilities, citizen participant group work	TLCC member	900	2,791		2,512,300	
20	Orientation for WLCC secretary on organizing WLCC meeting	Introduction of WLCC guidelines, procedures for holding a WLCC meeting, and meeting minutes preparation, and record keeping	Secretary of WLCC	162	2,844	460,700		
21	Training for WLCC member	Introduction of UGIAP Phase-2, and WLCC members' responsibilities for implementation	Member of WLCC	180	2,835		510,300	
22	Training for WLCC member	Introduction of UGIAP Phase-2, and WLCC members' responsibilities for implementation	Member of WLCC	180	2,835		510,300	
23	Orientation on roles and responsibilities of CBO members	Social Development Plan preparation, meeting minute preparation & record keeping	President, Secretary, Casher of CBO	540	2,782	1,502,300		
24	Orientation workshop on community mobilization for Pourashava officials	Community mobilization, CBO formation, preparation of social development plan	AE, Secretary, SDO	54	3,020		163,100	
25	Orientation workshop on community mobilization for chairman & Secretary of CBO and steering committee	Community mobilization, roles of chairman & secretary of CBO and steering committee, preparation of social development	Chairman and Secretary of CBO	72	2,954		212,700	
26	Orientation for CBO members on performing CBO activities	Members' roles & responsibilities, active participation in WLCC, preparation of social development	12 members of CBO	216	2,822		609,500	
27	Training for Pourashava staff on participation tools	Basic concept of citizen charter and citizen report card, and their preparation, and establishment procedure for grievance redress cell and mass-communication cell	Secretary	18	3,550	63,900		
28	Orientation on PDP preparation	Introduction of PDP preparation guidelines, and preparation of PDP	Town planner, Facilitator (UP)	72	3,000	216,000		
29	Training for preparation of Pourashava base map, and land-use plan	Survey data collection database preparation and base map preparation, and procedure and methodology for reviewing PDP.	Town planner, Facilitator (UP)	180	2,925		526,500	
30	Workshop on preparation of Pourashava base map, and land-use plan	Survey data collection database preparation and base map preparation.	Town planner, Facilitator (UP)	72	3,000		216,000	
31	Training on annual review of PDP	Procedure and methodology for reviewing PDP	Town planner, Facilitator (UP)	72	3,000			216,000
32	Training on Infrastructure database and base map preparation	Survey, infrastructure data collection process, using format and computerized database preparation, preparation and updating of infrastructure, facilities, and equipment inventories containing geographical location, size, status, construction year, cost/price, etc.	AE ,SAE, Surveyor, Estimators	450	2,826	1,271,500		
33	Training on Pourashava base map preparation using Auto CAD	Auto CAD operation, data review, base map preparation method	AE, SAE, Surveyor, Estimators	450	2,826		1,271,500	

No.	Course title	Major contents	Participant	Trainee days	Unit cost (BDT)	Total cost (BDT)		
						Phase 1	Phase 2	Phase 3
34	Training on preparation of annual O&M plan and its implementation	Concept of O&M plan, preparation of annual O&M plan including budget requirement, and implementation of O&M plan	AE, SAE	72	3,014		217,000	
35	Orientation for relevant officials on preparation of GAP	Preparation of GAP, and function, roles and responsibility of Pourashava staff	Secretary, relevant officials	108	2,919	315,200		
36	Orientation on GAP implementation	Introduction of GAP, GAP implementation, and monitoring and reporting	Chairman of Gender Committee	18	3,494		62,900	
37	Orientation on GAP implementation for Gender committees' member	Gender committee meeting, minute preparation, and GAP implementation	Gender Committees' member	108	2,888		311,900	
38	Training on GAP for PMO officials	Introduction of GAP concept, and GAP implementation	Officials in PMO LGED HQ, Sub-Assistant Engineer in Pourashava	30	2,923		87,700	
39	Training for Gender Committee members on GAP implementation	Organization of Gender Committee meeting, and preparation of minutes, securing of fund in the Pourashava budget for operation of GAP	Gender Committee members	108	2,888			311,900
40	Orientation for relevant officials on preparation of PRAP	Preparation of PRAP, and function, roles & responsibilities of SDO and CFW	Secretary, AE, SDO, CFW	252	2,829	713,000		
41	Orientation for CFW on PRAP Implementation	Role and responsibilities for the implementation of PRAP	CFW	54	3,020		163,100	
42	Training program for implementation of PRAP	Introduction of PRAP & CAP, formation of Primary Group, SIC and its activities, implementation procedure, accounting system	AE, SDO, CFW	90	2,914		262,300	
43	Preparation of CAP and its implementation	Introduction of PRAP, preparation of CAP, priority selection, accounting system, basic service implementation process, leadership	SIC members	1,080	2,793		3,016,900	
44	Training on Tax billing, Municipal accounts, Trade license	Installation Procedure, Data Entry (Save, Edit, Delete, Report View, Bill Generation, All Reports, Data Backup	Accountant, Assistant Accountant Tax assessor, Tax Collector, Trade license officer, Assistant Collector, Bill Clerk, Cashier	540	2,814		1,519,500	
45	Training & Troubleshooting on Water Billing Software (Diameter System) for the Employees of Water Section of Pourashavas	Installation Procedure, Data Entry (Save, Edit, Delete, Report, View), Bill Generation, All Reports, Data Backup	Bill clerk, casher	108	2,958		319,500	
46	Training on Municipal Accounting System for Accounts Officer and Accountant	Municipal Accounts Management, Double Entry Accounting System, Municipal Budget	Accounts Officer/ Accountant and Assistant Accountant	144	2,938		423,000	
47	Training on Budget preparation for Pourashava Accounts' Officer and Staff	Municipal Accounts Management, Budget preparation, Budget Exercise, Pourashava finance related Local Government (Pourashava) Act 2009	Accounts Officer/ Accountant and Assistant Accountant	72	3,000		216,000	
48	Training for Pourashava staff on conducting tax assessment and collection	Procedure and methodology for interim tax assessment, tax collection, and tax billing, and procedure and methodology for tax reassessment.	Accounts Officer/ Accountant, Tax Assessor, Tax Collector	162	2,897	469,300		
49	Workshop on tax assessment and collection	Discussion and information sharing sessions on interim tax assessment, tax reassessment, tax collection, and tax billing.	Accounts Officer/ Accountant, Tax Assessor, Tax Collector	108	2,928		316,200	
50	Orientation for Pourashava staff on e-governance	Basic concept of e-governance, establishment of website, and information and communication technology	Secretary, Administration Officer	36	3,153		113,500	

No.	Course title	Major contents	Participant	Trainee days	Unit cost (BDT)	Total cost (BDT)		
						Phase 1	Phase 2	Phase 3
51	Training on basic design and cost estimation	Basic course on design and cost estimation	AE, SAE (civil, electrical, water), Work Assistant	120	5,443	653,200		
52	Training on basic design and cost estimation	Basic course on design and cost estimation	AE, SAE (civil, electrical, water), Work Assistant	120	5,443		653,200	
53	Orientation for AE & SAE on implementation of infrastructure work	Introduction of NRRDLGIP phase-2, subproject preparation, scheme selection, tendering, monitoring and supervision of physical work	AE, SAE	108	2,919		315,200	
54	Training on public procurement rules (PPR) rules 2008 and contract management	Public procurement rules, procedure for procurement and lease-out, and contract management	AE, Secretary, SAE	144	2,878		414,400	
55	Training course on cost estimate for physical infrastructure	Estimate of HBB Road, CC road, Iron Concrete Beam, Box Culvert and 10 Estimate of Bleedings' Slab and Exercise, Group-wise practical session	Cost Estimator, Work Assistant	180	2,925		526,500	
56	Training on quality control and supervision of civil works of Pourashava	Quality control and construction supervision on road, bridge, culvert, drain, streetlight, parking, bus/truck terminal, piped water supply, tubewell, toilet, slaughterhouse, facilities for solid waste management, etc.	AE, SAE (civil, electrical), Work Assistant	180	5,774		1,039,400	
57	Training on quality control and supervision of civil works of Pourashava	Quality control and construction supervision on road, bridge, culvert, drain, streetlight, parking, bus/truck terminal, piped water supply, tubewell, toilet, slaughterhouse, facilities for solid waste management, etc.	AE, SAE (civil, electrical), Work Assistant	180	5,774			1,039,400
58	Orientation for engineering staff on implementation of infrastructure works	Monitoring, supervision, and quality control of infrastructure works	AE, SAE, Work Assistant	144	2,878		414,400	
59	Training on procedure for infrastructure implementation	Subproject preparation, scheme selection, tendering, monitoring and supervision of physical work	AE, SAE, Work Assistant	144	2,885			415,400
60	Training on O&M of maintenance of infrastructure and facilities	Operation and maintenance of road, bridge, culvert, drain, streetlight, parking, bus terminal, piped water supply, tubewell, toilet, slaughterhouse, landfill, and equipment including planning and budgeting of O&M	AE, SAE (civil, electrical), secretary, health officer	75	5,504		412,800	
61	Training on O&M of maintenance of infrastructure and facilities	Operation and maintenance of road, bridge, culvert, drain, streetlight, parking, bus terminal, piped water supply, tubewell, toilet, slaughterhouse, landfill, and equipment including planning and budgeting of O&M	AE, SAE (civil, electrical), secretary, health officer	75	5,504			412,800
62	Training on planning of drainage system	Planning and design of drainage, drainage layout, importance of adjusting designs in accordance with topography including field practice	AE, SAE (civil)	30	6,320	189,600		
63	Training on planning of drainage system	Planning and design of drainage, drainage layout, importance of adjusting designs in accordance with topography including field practice	AE, SAE (civil)	30	6,320		189,600	
64	Training on solid waste management	Components for solid waste management (dustbin, storage, landfill, compost plants, collection and transport including house-to-house collection, etc.), citizens' awareness enhancement, workshop session on solid waste management appropriate for each Pourashava	AE, secretary, health officer, conservancy inspector	288	2,847		819,800	

No.	Course title	Major contents	Participant	Trainee days	Unit cost (BDT)	Total cost (BDT)		
						Phase 1	Phase 2	Phase 3
65	Training on compost plant	Operation and technique for compost plants	AE, health officer, conservancy inspector	108	2,919		315,200	
66	Training on kitchen waste management for CBO member	Door to door collection, management, record keeping, and equipment maintenance	CBO members	100	2,746		274,600	
67	Training on sanitary environment	Management of waste, sewage, and leachate from garbage, toilets, slaughterhouses, etc., for sanitary environment	AE, SAE (civil), health officer, conservancy inspector, sanitary inspector, slaughterhouse inspector	90	5,413		487,200	
68	Training on sanitary environment	Management of waste, sewage, and leachate from garbage, toilets, slaughterhouses, etc., for sanitary environment	AE, SAE (civil), health officer, conservancy inspector, sanitary inspector, slaughterhouse inspector	90	5,413			487,200
69	Training on water supply	Introductory session on piped water supply and tubewell installation, including related regulations and policies	AE, water supply supervisor (AE)	40	2,945		117,800	
70	Physical, financial and UGIAP progress review meeting	Activity-wise review of progress of UGIAP phase-2	AE, AO, Secretary, Conservancy Inspector	72	2,954		212,700	
71	Physical, financial and UGIAP progress review meeting	Activity-wise review of progress of UGIAP phase-3	AE, AO, Secretary, Conservancy Inspector	80	2,659			212,700
72	Progress review meeting on infrastructure and other activities	Area-wise review of progress	AE, AO, Secretary, Conservancy Inspector	80	2,646		211,700	
73	Progress review meeting on infrastructure and other activities	Area-wise review of progress	AE, AO, Secretary, Conservancy Inspector	80	2,646			211,700
					Sub-total	7,391,100	29,081,400	4,096,300
					Total	40,568,800		

Annex 21

Comparison of project costs with similar projects

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List of tables

1 Project costs, breakdown of costs and other information for procurement

The similar and latest infrastructure projects of the LGED were studied to analyze the procurement methods for the Project. Five ongoing and one completed projects were selected for the study with the following criteria:

- Target area;
- Total project cost and its breakdown;
- Design conditions and specification;
- Tendering system and contract conditions;
- Construction methods; and
- Lessons learned for procurement.

The project information is summarized as Table A21-1 to Table A21-6 below.

Table A21-1 Second Rural Transport Infrastructure Project (RTIP-2)

Project title	Second Rural Transport Infrastructure Project (RTIP-2), WB						
Target area	Total 26 Districts (Breakdown in Division wise)						
	Dhaka and Rajshahi (Central Project Area)	Dhaka and Sylhet (North-eastern Project Area)	Chittagong (South-eastern Project Area)				
	9	9	8				
Project duration	Start: January 2011 End: June 2016			Status		Ongoing	
Executing agency	Local Government Engineering Department (LGED)			Donor(s)		World Bank (WB)	

Total amount of project cost (in BDT and USD)	Particulars	USD in million	BDT in million	Percentage
	WB	300.00	21,000.00	72.05
	GoB	116.35	8,144.50	27.95
	Total	**416.35**	**29,144.50**	**100.00**

Breakdown of the project cost

Proposed Project Cost Summary

(BDT 1= JPY 1.543) (USD in Million) (USD 1=BDT 70, September, 2010)

Component	Indicative costs (USD M)	Local (USD M) GOB	Foreign (USD M) RPA	%of IDA's share	IDA share	Million JPY Local (GOB)	Million JPY F.C.	Million JPY Total	% of Total
Component A									
1.Rural road improvement									
a) Improvement of Upazila road	108.75	10.88	97.88	90%	97.88	1,175.15	10,572.10	7,560.7	26.12%
b) Improvement of Union road	37.03	3.70	33.33	90%	33.33	399.64	3,600.10	3,999.61	8.89%
2.Rural road maintenance									
a) Rehabilitation &Maintenance	153.09	61.24	91.85	60%	91.85	6,614.53	9,990.40	16,535.25	36.77%
b) PBMC	13.92	6.26	7.66	55%	7.66	676.1	827.40	1,503.50	3.34%
3.Market Development									
a) Construction of GCM (inc.Women Market Section)	4.69	0.47	4.22	90%	4.22	50.76	455.70	506.57	1.13%
b) Market Operation &Management	0.52	0.05	0.47	90%	0.47	5.60	51.10	56.16	0.12%
4. Rural Waterways									
a) Pilot Dredging	1.49	0.15	1.34	90%	1.34	16.10	144.90	160.93	0.36%
b) River Transport Infrastructure	1.63	0.16	1.47	90%	1.47	17.50	158.90	176.06	0.39%
5.Project Supervision Consultancies									
a) Management Support Consultancy	2.50	0.25	2.25	90%	2.25	27.30	242.90	270.02	0.60%
b) Design and Supervision Consultancies(2)	10.00	1.00	9.00	90%	9.00	107.8	972.09	1,080.10	2.40%
c) Eqipment and Supervision Consultancies/Accessories	4.50	0.45	4.05	90%	4.05	48.30	437.50	486.04	1.08%
Component B									
1. Institutional Strengthening									
Management & governance strengthening ($3.15M), Maintenance planning &operations improvements ($2.60M), Development in design standards,works preparation and management ($2.15M), Advanced staff training, sector research ($1.00M)	8.90	0.89	8.01	90%	8.01	95.90	865.20	961.29	2.14%
2. Capacity Building									
HRD,Social monitoring surveys, Integrated Performance Audit (IPA),other consultancies.	3.00	0.30	2.70	90%	2.70	32.20	291.90	324.03	0.72%
Component C									
a) Road Safety	2.70	0.27	2.43		0.65%	29.40	262.50	291.63	
Other									
Physical contingency (10%)	32.11	8.29	23.82		23.82	295.33	2,572.50	3,468.20	7.71%
Price contingency (4%)	12.84	3.32	9.53		9.53	358.4	1,029.00	1,386.85	3.09%
Sub – Total	**397.68**	**97.68**	**300**		**300**	**10,550.40**	**32,403**	**42,953.34**	**95.52%**
Salary,Allowance & Operating	8.60	8.60				928.90	0.00	928.89	2.07%

	cost								
	Land Acquisition	9.72	9.72			1,050	0.00	1,049.86	2.34
	CD, VAT	0.35	0.35			37.8	0.00	37.80	0.08%
	Sub-Total	**18.67**	**18.67**			**2,016.70**	0.00	2016.54	**4.48%**
	Grand Total	**416.35**	**116.35**	**300**	**300**	**12,561.56**	**32,403.00**	**44,969.96**	**100%**
Design conditions and specifications	The latest Road Design Standard for Rural road circulated by the Local Government Engineering Department (LGED) is followed in the case of designing the roads and other ancillary works (road embankment protection, road side drain, road junction, etc.). Individual segments of the Civil works are guided by the Specifications made by the Procuring Entity following the Specifications Guidelines circulated by the LGED. There are specifications for traffic maintenance, site facilities and TESTING of the construction materials, earth works, every layer of pavement works, structure works consisting of bridge, culvert, drain, building works, road embankment protective works, road sign & signals etc.								
Tendering system	Goods, services, and civil works financed by WB will be procured following some modifications in the Particular conditions of contracts of the Public Procurement Rules -2008. All civil works contracts will be through National Competitive Bidding (NCB), if acceptable to WB.								
Contract conditions	General Conditions of Contract and Particular Conditions of Contracts prescribed by Central Procurement Technical Unit (CPTU) for making the Contract conditions in the Standard Tender Document (national) for procurement of works must be followed.								
Construction methods	Following the Specifications provided in the Tender Document, method of construction is to be selected. To attain the desired level of test result as per specifications of works and quality of different component of the works, the materials and equipment & machineries are to be selected.								
Lessons learned on procurement	Consultant selection: Project preparation was completed by the project preparation consultant. Cause of the delay of construction work: Waiting for approval of the World Bank (Donor).								
Remarks	• The Project area will include 26 Districts of Dhaka, Rajshahi, Sylhet and Chittagong Division out of 64 Districts (Zilas) and 224 Upazilas out of 508 Upazilas of Bangladesh. • In Dhaka and Rajshahi Divisions, those Districts are Dhaka, Gazipur, Manikgonj, Munshigonj, Narayangonj, Narsingdhi, Pabna, Sirajgonj and Tangail. This is named Central Project area. • In Dhaka and Sylhet Division, those Districts are Jamalpur, Kishoregonj, Mymensingh, Netrokona, Sherpur, Hobigonj, Moulvibazar, Sunamgonj and Sylhet. This is known as North-eastern Project Area. • In Chittagong Division, those Districts are Brahmanbaria, Chandpur, Comilla, Feni, Noakhali, Laxmipur, Chittagong and Cox's Bazar. This is named as South-eastern Project Area. • Major work components of the project include improvement and rehabilitation of UZR &UNR, construction of GCM, market operation & management, dredging & river Jetties, and institutional strengthening and capacity building. • The project area of 26 Districts (area of 61,000 sq. km) amounts to 41% of the total territory of Bangladesh. The population of the project area is more than 60 million as per 2001 census. These people will benefit from the project. • Increase of rural incomes and reduce rural poverty through sustainable economic growth, rural development, social & gender development and improved infrastructure in the project area are expected.								

Source: Consolidated Feasibility Study Report Documentation of RTIP-II, 2011

* Photos are not available since construction work has not started.

Table A21-2 South-western Bangladesh Rural Development Project (SWBRDP)

Project title	South-Western Bangladesh Rural Development Project (SWBRDP), JICA						
Target area	Total 14 Districts (Breakdown in Division wise)						
	Barisal	Dhaka	Khulna				
	6	5	3				
Project duration	Start: 1 January 2010 End: 31 December 2013			Status		Ongoing	
Executing agency	Local Government Engineering Department (LGED)			Donor(s)		JICA	

Total amount of project cost (in BDT and USD)	Particulars	USD in million	BDT in million	Percentage
	JICA	155.23	10,711.28 (RPA=10,105.07)	72.34
	GOB	58.93	4,095.95	27.66
	Total	**214.16**	**14,807.23**	**100.00**

Breakdown of the project cost

(BDT in Lakh)

Budget head	Item description	GOB	Estimated cost: Project Aid RPA Through GOB	Project Aid RPA Special Account	Project Aid DPA	Total	% of the Total Cost	Remarks
1	2		3	4	5	6	7	8
a) Revenue Component	Pay of officers	605.00				605.00	0.408	
	Pay of Establishment	565.00				565.00	0.382	
	Allowances	1410.35				1,410.35	0.952	
	Supplies and Services	19,820.77		323.00	4,315.80	24,459.57	16.52	
	Repair Maintenance and Rehabilitation	135.00				135.00	0.091	
	Block Allocation			326.38		326.38	0.220	
Sub-Total (Revenue Component))		22,536.12		649.38	4,315.80	27,501.30	18.57	
b) Capital Component	Acquisition of Assets	379.19		2092.06	1,513.24	3,984.49	2.69	
	Acquisition/Purchase of Land	400.00				400.00	0.27	
	Construction of Works	15,024.54		85,557.35		100,581.89	67.93	
	Others							
	Price Contingency	1,330.83		7,639.18	233.00	9,203.01	6.21	
	Physical Contingency	857.14		5,112.78		5,969.92	4.03	
	Interest during construction	31.66				31.66	0.021	
	CD/VAT	400.00				400.00	0.27	
Sub-Total (Capital Component)		18,420.94		100,401.37	1,746.24	120,768.55	81.56	
Grand Total (a+ b)		40,959.48		101,050.75	6,062.04	148,072.27	100.00	

USD 1.00= BDT 69.00= JPY 91.50
BDT 1.00= JPY 1.33 (November 19,2009)

Proposed Project Cost Summary

Item	Local Currency (million BDT) FC (Project Aid) RPA	DPA	Total	LC (GOB)	Total	Foreign currency (BDT 1=JPN 1.543) (million JPN) FC (Project Aid) RPA	DPA	Total	LC (GOB)	Total	% of Total
Total Project cost (A+B+C+D)	10,105.08	606.22	10,711.30	4,095.95	**14,807.25**	15,592.12	935.37	16,527.49	6,320.05	22,847.55	**100%**
A. Revenue component											
I. Pay of officers				60.50	60.50				93.35	93.35	0.41%
II. Pay of establishment				56.50	56.50				87.18	87.18	0.38%
III. Allowances				141.03	141.03				217.61	217.61	0.95%
IV. Supplies and services	32.30	431.58	463.88	1,982.08	2445.96	49.84	665.93	715.77	3,058.35	3,774.12	16.52%
V. Repair Maintenance and Rehabilitation				13.50	13.50						0.09%
VI Block Allocation	32.64		32.64		32.64	50.36		50.36		50.36	0.22%
Sub-total (Revenue Component)	64.94	**431.58**	496.52	2253.61	**2,750.13**	100.20	665.93	766.13		3,447.32	**18.57%**
B. Capital component											
I. Acquisition of Assets	209.21	151.34	360.55	37.92	3,398.45	322.81	233.52	556.33	58.51	5,243.81	22.95%
II. Acquisition/Purchase of land				40.00	40.00				61.72	61.72	0.27%
III. Construction of works	8555.73		8555.73	1,502.45	10,058.19	13,201.49		13,201.49	2,318.28	15,519.79	67.93%
IV. CD / Vat				40.00	40.00				61.72	61.72	0.27%
V. Interest During Construction				3.17	3.17				4.89	4.89	0.02%
C. Physical contingency	511.28		**511.28**	**85.71**	**596.99**	788.90		788.90	132.25	921.15	4.03%
D. Price contingency	763.92	**23.30**	**787.22**	**133.08**	**920.30**	1,178.73	35.95	1,214.68	205.34	1,420.02	6.21%
Sub-total (Capital Component)	1,0040.14	**174.64**	**10,214.78**	**1,842.34**	**12,057.12**	15,491.93	269.47	15,761.40	2842.73	18,604.14	**81.43%**

Design conditions and specifications

The latest Road Design Standard (RDS) for Rural road circulated by the LGED is followed in the case of designing the roads pavement and other ancillary works (road embankment and its protection, road side drain, road junction, etc.).
Individual segments of the civil works are guided by the Specifications made by the Procuring Entity following the Specifications Guidelines circulated by the LGED. There are specifications for traffic maintenance, site facilities and testing of the construction materials, earth works, every layer of pavement works, structure works consisting of bridge, culvert, drain, building works, road embankment protective works, road sign & signals, maintenance of village road, tree plantation, etc.

Tendering system	The tendering for procurement of Goods, services, and civil works financed by JICA shall be done by using the following method: a) Open tendering b) Restricted tendering c) Direct procurement d) Two-stage tendering e) Request for quotations. Procurement of vehicles & equipment and civil works contracts of value equivalent to US$2.0 million may be procured by International Competitive Bidding (ICB) and others may be by National Competitive Bidding (NCB) following the Open Tendering Method and packaging guidelines. For recruitment of Consulting Firms shall be done following Quality and Cost-Based Selection (QCBS) method. The procedures to be followed for National Competitive Bidding (NCB) shall be those set forth for the National Open Tendering Method in the Government's Public Procurement Rules, 2008 and Public Procurement Act, 2006 and following the provisions of the Procurement Guidelines using the Standard Tender Documents.
Contract conditions	General Conditions of Contract and Particular Conditions of Contracts prescribed for making the Contract condition in the Standard Tender Document (national) for procurement of works must be followed.
Construction methods	The specifications for works and construction materials are the guiding factor for selecting the construction methods. To attain the quality and the desired level of Test Result as per Tender Specifications, the method with the equipment & machineries are to be selected. Method of construction is specified in the specifications, which is to be followed during execution of the works.
Lessons learned on procurement	Selection of consultants: The time of selection of consultant must be completed in less than one year. Designing, estimation, preparation of tender documents: Designing of structures, especially long bridges, is delayed due to insufficient design engineer of the consultant. Tendering for contractors: No problem in tendering and selecting contractors except long bridges. As the designing is delayed, tendering & selection of contractor for long bridge is also delayed. Cause of the delay of construction work: 4 (four) nos. long bridge more than 500 m designed by consultant is delayed. Tendering selection and completion of construction is also delayed.
Remarks	• The Project area will include 14 Districts of Barisal, Dhaka and Khulna Division covering 93 Upazilas. • In Barisal Division, those Districts are Barisal, Bhola, Jhalokati, Pirojpur, Barguna and Patuakhali Districts. • In Dhaka Division, those Districts are Faridpur, Madaripur, Rajbari, Gopalgonj and Shariatpur Districts. • In Barisal Division, those Districts are Barisal, Bhola, Jhalokati, Pirojpur, Barguna and Patuakhali Districts. • In Dhaka Division, those Districts are Faridpur, Madaripur, Rajbari, Gopalgonj and Shariatpur Districts. • In Khulna Division, those Districts are Bagerhat, Khulna and Satkhira. • Within the project area of 14 Districts (area of 32,525 sq. km) that covers 22.03% of the total area of the country; in which 19.93 million (based on census 2001) people which is 20% of the total population of Bangladesh, will be benefited. The Project area is a poor one prone to natural calamities such as flood and cyclone. Increase of rural income and reduce rural poverty through sustainable economic growth, rural development, social & gender development and improved infrastructure in the project area. • The objectives of the project are to improve the physical structures & safety measures of Upazila &Union road, to create employment opportunities, to build the capacity of the stakeholders, and to upgrade the facilities of the growth centers & rural market.

Source: Development Project Proposal (DPP), Part-A for South- Western Bangladesh Rural Development Project, March 2010

Photographs

District: Patuakhali, UZ: Galachipa, Pkg: PATU-07
WBM laid in single layer on AS

District: Patuakhali, UZ: Galachipa, Pkg: PATU-07
Road embankment construction work

District: Barguna, UZ: Sadar, Pkg: BAR-06
Completed 4mx4m Box Culvert with railing

District: Barguna, UZ: Sadar, Pkg: BAR-03
B. Chips for AS laid on ISG

District: Pirojpur, UZ: Mothbaria, Pkg: PIROJ-07
AS in progress

District: Barisal, UZ: Hizla, Pkg:-02
Double plate palisading work

Table A21-3 Sustainable Rural Infrastructure Improvement Project (SRIIP)

Project title	Sustainable Rural Infrastructure Improvement Project (SRIIP), ADB						
Target area	Total 21 Districts (Breakdown in Division wise)						
	Khulna	Rangpur	Rajshahi				
	7	8	6				
Project duration	Start: January 2011 End: June 2016			Status		Ongoing	
Executing agency	Local Government Engineering Department (LGED)			Donor(s)		ADB & KfW	

Total amount of project cost (in BDT and USD)	Particulars	USD in million	BDT in million	Percentage
	ADB	76.40	5,271.60	70.05
	GoB	32.66	2,253.54	29.95
	Pourashava			
	Beneficiaries			
	Total	**109.66**	**7,525.14**	**100.00**

Breakdown of the project cost

(USD in Million)

PROJECT COMPONENT	ADB		KfW		GOB		
A. Investment Costs	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Total Cost
	(A)	(A/D)	(B)	(B/D)	©	(C/D)	(D)
1.Civil Works	44.433	50.37%	13.920	15.78%	29.861	33.85%	88.214
2.Mechanical and Eqipment	0.551	66.55%			0.277	33.45%	0.828
3.Consultants							
a) D & S Consultants	3.468	100%					3.468
b) ISM Consultants	0.864	50.53%	0.846	49.47%			1.710
4.Capacity Development	0.388	50.69%	0.377	49.31%			0.765
Subtotal (A)	49.703	52.33%	15.143	15.94%	30.138	31.73%	94.985
B. Recurrent Costs							
1.Salaries					0.822	100%	0.822
2.Eqipment operation and maintenance	0.387	100%					0.387
Subtotal B	0.387	31.99%			0.822	68.01%	1.209
Total Base Cost (A+B)	50.090	52.07 %	15.143	15.74%	30.959	32.18%	96.194
C. Contigencies	8.276	78.21%	0.757	7.16%	1.548	14.63%	10.581
D. Financing Charges during Implementation	1.635	100%					1.635
Total Project Cost(A+B+C+D)	60.000	55.35%	15.900	14.67%	32.507	29.99%	108.410
% Total Project Cost		55.35		14.67		29.99	100.00

(1 US $==BDT 69.00 on 31-8-2010)

TA Grant for Gender Related Practice

(i) Japan Fund for Poverty Reduction (JFPR) US $ 0.50 million (BDT 345.00 Lakh)
(ii) GOB (in kind) US$ 0.16 million (BDT 110.40 Lakh)
Total: US$0.66 million (BDT 455.40 Lakh)
Total Project Cost = US$108.410 + US$0.660 = US$109.07 million

Design conditions and specifications

The latest Road Design Standard for Rural road circulated by Local Government Engineering Department (LGED) is followed in the case of designing the roads and other ancillary works (road embankment protection, road side drain, road junction, etc.).
Individual segments of the civil works are guided by the Specifications made by the Procuring Entity following the Specifications Guidelines circulated by the LGED. There are specifications for traffic maintenance, site facilities and Testing of the construction materials, earth works, every layer of pavement works, structure works consisting of bridge, culvert, drain, building works, road embankment protective works, road sign & signals etc.

Tendering system

Goods, services, and civil works financed by ADB and KfW will be procured following ADB's Procurement Guide lines (2010, as amended from time to time). All civil works contracts will be through National Competitive Bidding (NCB), if acceptable to ADB and KfW. If the Asian Development Bank (ADB) or KfW (for KfW financed contracts) agree with the following procurement process, then the following process shall apply for procurement of goods and works:

Procurement of Goods and Works

Method	Threshold
International Competitive Bidding (ICB) for Goods	Over $1,000,000
National Competitive Bidding (NCB) for Works	Below $1,000,000
National Competitive Bidding (NCB) for Goods	Beneath that stated for ICB, Goods
Shopping for Works	Below $50,000
Shopping for Goods	Below $50,000
Community Participation	Below $50,000

For recruitment of Consulting Firms shall be done following Quality and Cost-Based Selection (QCBS).

	The procedures to be followed for National Competitive Bidding (NCB) shall be those set forth for the National Open Tendering Method in the Government's Public Procurement Rules, 2008 and Public Procurement Act, 2006 and following the provisions of the Procurement Guidelines using the Standard Tender Documents.
Contract conditions	General Conditions of Contract and Particular Conditions of Contracts prescribed by Central Procurement Technical Unit (CPTU) for making the Contract conditions in the Standard Tender Document (national) for procurement of works must be followed.
Construction methods	Following the Specifications provided in the Tender Document method of construction was selected. To attain the desired level of Test result as per specifications of works and quality of different component of the works, the materials and equipment & machineries are to be selected.
Lessons learnt on procurement	Consultant Selection: About 1.5 years required for selection of Consultants, increases the project completion time. Designing, Estimation, Preparation of Tender Documents: In progress, and no problem is found yet. Tendering for Contractors: This is also in progress. Cause of the delay of Construction Work: Delay in selecting Consultant is the cause of starting of construction work.
Remarks	• The Project area will include 21 Districts of Rangpur, Rajshahi, and Khulna Division covering 140 Upazilas. • In Rangpur Division, those Districts are Rangpur, Gaibandha, Kurigram, Lalmonirhat, Nilphamari, Panchgarh, Thakurgaon and Dinajpur. • In Rajshahi Division, those Districts are Rajshahi, Natore, Joypurhat, Bogra, Naogaon and Chapai Nawabgonj. • In Khulna Division, those Districts are Kushtia, Chuadanga, Meherpur, Jessore, Jhenaidah, Narail and Magura. • Within the project area of 21 Districts (area of 38,768 sq. km) in which 13.847 million people will benefit. Increase of rural incomes and reduce rural poverty through sustainable economic growth, rural development, social & gender development and improved infrastructure in the project area are expected.

Source: Development Project Proposal (DPP) for Sustainable Rural Infrastructure Improvement Project (SRIIP), December 2010
* Photos are not available since construction work has not started.

Table A21-4 Second Rural Infrastructure Improvement Project (RIIP-2)

Project title	Second Rural Infrastructure Improvement Project (RIIP-2), ADB, DFID, KfW, GTZ						
Target area	Total 23 Districts (Breakdown in Division wise)						
	Dhaka	Rajshahi	Chittagong				
	12	8	3				
Project duration	Start: July 2006 (original) End: June 2011 (original) Start: June 2012 (extended) End: June 2013 (extended)			Status		Ongoing	
Executing agency	Local Government Engineering Department (LGED)			Donor(s)		ADB ,DFID, KfW, GTZ	
Total amount of project cost (in BDT and USD)	Particulars	USD in million		BDT in million		Percentage	
		Original	Revised	Original	Revised	Original	Revised
	ADB	96.10	96.10	11,977.00	9,370.20	68.93	63.48
	DFID	4.80	4.80	(11,217.00),	(8,338.90),		
	KfW	21.60	21.60	RPA	RPA		
	GTZ	7.00	7.00				
	GOB	77.11	76.98			31.07	36.52
				5398.00	5,388.80		
	Total	**206.60**	**206.48**	**17,375.00**	**14,759.00**	**100.00**	**100.0**

Breakdown of the project cost

(USD in Million)

Name of Important Components (with quantity)	Original Cost in m BDT	Revised cost in m BDT	ADB,DFID,KfW,GTZ (m USD) F.C.Amount	(BDT 1= JPY 1.543) (million JPN) L.C. (GOB),Revised amount	% of Total
A. Revenue Expenditure					
1. Manpower	352.57	452.39		690.04	3.06%
2. Supplies & Services	722.45	225.60		348.10	1.52%
Service charge (for ADB)		132.50		204.45	0.90%
3. Training:					
Training for Officer/Staff of LGED & others 68342 (P/days)	582.45	368.81		569.07	2.50%
4.Technical Assistance a)DS &M Consultants, 2822 MM	459.76	440.00		678.92	2.98%
b)IST (Trg.) Consultant, 840 MM	101.98	345.77		533.52	2.34%
c) ISC Consultant, 1800 MM	43.56	44.90		69.28	0.30%
d)Performance Audit Consult.		40.71		62.81	0.27%
e) Bench Mark Audit Consultant		13.80		21.29	0.14%
5.Repair, Main & Reh					
a)Veh, Furniture & Equipment .	91.00	64.40		99.37	0.44%
b) Civil Infrastructure: 1,050	374.93	173.90		268.3	1.18%
B. Capital Expenditure					
6.Vehicles 331 nos.	97.82	92.03		142.00	0.62%
7. Const. & lab Eqippent 46 Nos.	153.00	174.36		269.03	1.18%
8.a) Computer with accessories 298 Nos	21.43	18.20		28.08	0.12%
b) Other appliances 52 Nos.	19.33	14.64		22.59	0.10%
c) Office furniture 182 Nos.	21.49	16.20		25.00	0.11%
9. Land acquisition 11.65 ha	132.50	43.47		67.07	0.29%
10. Civil works					
a)Functional building(13000 sqm)	190.00	195.00		300.88	1.32%
b)Upgradation of Upazila roads (873 Km)	5,440.00	6547.50		1,002.79	44.36%
c)Upgradation of Union roads(380 Km)	1,950.00	2090.00		3224.80	14.16%
d) Structure on UZR/UNR(5400m)	1,330.25	1593.00		2458.00	10.79%
e) Const. of submersible roads (48 Km)	300.00	393.60		607.32	2.67%
f) Resectioning of village roads(100 Km)	575.57	52.40		80.85	0.35%
g) Structures on village road(310 m)	1,128.89	38.40		59.25	0.26%
h) Tree plantation(1000 Km)	227.25	45.00		69.43	0.30%
i)Impro. of UPa HQ GCMs(4)	416.00	22.40		34.56	0.15%
j) Impro. of others GCs(34 Nos)	520.00	170.00		262.31	1.15%
k) Impro. Of rural hat/bazars (56 Nos.)	4,550.0	212.80		328.35	1.44%
l) Const. of jetty/ghats(3 Nos)	125.00	15.90		24.53	0.10%
m) Const. of UPC(56 Nos.)	728.00	397.60		613.50	2.69%
n) Const. of WMS in GCs(43 Nos.)	218.40	64.41		99.38	0.44%
o) Const. of flood refuge shelter(3 Nos.)	18.00	18.00		27.77	0.11%
p) Road safety Impro. On UZr. (207 Km.)	95.20	20.70		31.94	0.14%
11. Physical contingency	468.55	100.95		155.76	0.68%
12. CD/VAT	114.62	119.60		184.54	0.81%
Grand Total	**17,375**	**14,759**	**129.50**	**22,773.14**	**100%**

(1 USD ==BDT 70.00 as per agreement)

Design conditions and specifications	The latest Road Design Standard for Rural road circulated by the LGED is followed in designing the roads and other ancillary works (road embankment protection, road side drain, road junction, etc.). Individual segments of the Civil works are guided by the Specifications made by the Procuring Entity

	following the Specifications Guidelines circulated by the LGED. There are specifications for traffic maintenance, site facilities and Testing of the construction materials, earth works, every layer of pavement works, structure works consisting of bridge, culvert, drain, building works, road embankment protective works, road sign & signals etc.
Tendering system	Goods, services, and civil works financed by ADB, DFID, KfW and GTZ will be procured following ADB's Procurement Guide lines (2010, as amended from time to time). All civil works contracts will be through National Competitive Bidding (NCB), if acceptable to donors. For procurement of vehicles ICB method was followed. For recruitment of Consulting Firms was done following Quality and Cost-Based Selection (QCBS) method. The procedures followed for National Competitive Bidding (NCB) shall be those set forth for the National Open Tendering Method in the Government's Public Procurement Rules, 2008 and Public Procurement Act, 2006 and following the provisions of the Procurement Guidelines using the Standard Tender Documents.
Contract conditions	General Conditions of Contract and Particular Conditions of Contracts prescribed by Central Procurement Technical Unit (CPTU) for making the Contract conditions in the Standard Tender Document (national) for procurement of works must be followed.
Construction methods	Following the Specifications provided in the Tender Document, method of construction was selected. To attain the desired level of Test result as per specifications of works and quality of different component of the works, the materials and equipment & machineries are to be selected.
Lessons learned on procurement	Consultant Selection: Almost one and half year was required for selecting consultants and is the cause of delay in completion. Process of selecting Consultant should start well ahead of the beginning of the project. Designing, Estimation, Preparation of Tender Documents: Consultant should be cautious about design and preparation of estimate after visiting site. Approval limit for excess work 10% beyond the estimated cost should be reduced to 5% in order for consultant and field office to complete design and estimation accurately and cautiously. Cause of the delay of Construction Work: The project is delayed due to the increase of price of construction materials.
Remarks	• The Project area will include 23 Districts of Dhaka, Rajshahi and Chittagong Division covering 182 Upazilas. • In Dhaka Division, those Districts are Dhaka, Munshigonj, Manikgonj, Narayangonj, Narsingdi, Gazipur, Mymensingh, Jamalpur, Sherpur, Kishorgonj, Ntrokona and Tangail covering 93 Upazilas. In Rajshahi Division, those Districts are Rangpur, Gaibandha, Kurigram, Lalmonirhat, Nilphamari, Panchgarh, Thakurgaon and Dinajpur covering 58 Upazilas. • In Chittagong Division, those Districts are Comilla, Brahmanbaria and Chandpur covering 31 nos. Upazila. • The people in the project area of 23 Districts will benefit. Increase of rural incomes and reduce rural poverty in 23 Districts of Dhaka, Rajshahi and Chittagong Division of Bangladesh by expanding the economic opportunities of rural poor by improving rural infrastructure (mainly roads, jetties, bridges, and culvert and growth center markets), social and gender development and improved local governance. • The project also provides indirect assistance in developing economic opportunities through partnership arrangement, strengthening of local government institutions and empowers rural poor women to enhance their participation in economic and social life.

Source: Project Monitoring Form of Second Rural Infrastructure Improvement Project (RIIP-II), November 2011

Photographs

Jhawal-Hadira via Chatulia UNR implemented in 2011

Jhawal-Hadira via Chatulia UNR implemented in 2011

Open shed at Silimphur Market implemented in 2011

Women's shed at Mutuni Hat implemented in 2011

Table A21-5 Second Urban Governance and Infrastructure Improvement (Sector) Project (UGIIP-2)

Project title	Second Urban Governance And Infrastructure Improvement(Sector) Project (UGIIP-2), ADB, KfW, GTZ					
Target area	Total 35 Pourashava (Breakdown in Division wise)					
	Dhaka	Chittagong	Khulna	Rajshahi	Barisal	Sylhet
	8	7	5	8	4	3
Project duration	Start: 1st January 2009 End: 31st December 2014			Status		Ongoing
Executing agency	Local Government Engineering Department (LGED)			Donor(s)		ADB, KfW, GTZ

Total amount of project cost (in BDT and USD)	Particulars	USD in million	BDT in million	Percentage
	ADB	87.00	5965.59	51.94
	KfW	36.07	2473.59	21.54
	GTZ	4.70	322.28	2.80
	GoB	31.72	2175.45	18.94
	Pourashava equity	7.30	500.56	4.36
	Beneficiaries	0.70	48.00	0.42
	Total	**167.49**	**11,485.47**	**100.00**
		Exchange rate is 1US$ = BDT 68.57 on 01.01.2008		

Breakdown of the project cost

Proposed Project Cost Summary

Item	Local currency (million tk.)			Foreign currency (tk.1=yen 1.543) (million yen)			% to total
	FC	LC	Total	FC	LC	Total	
Total Project cost (A+B+C+D)	12,614.94	102,239.81	**114,854.75**	19,464.85	157,756.03	**177,220.88**	100%
A. PORTION ELIGIBLE FOR LOAN	12,614.94	74,999.70	**8,7614.64**	19,464.85	115,724.54	135,189.38	**76.28%**
Revenue component			**11,754.95**			18,137.88	10.23%
I. Supplies and services	4,027.14	7,520.61	11,547.75	6,213.88	11,604.30	17,818.18	10.05%
Repair, maintenance and rehabilitation		207.20	207.20		319.71	319.71	0.18%
II. Capital component							
Acquisition of Assets	8,587.80	724.00	9,311.80	13,250.97	1,117.13	14,368.11	8.11%
Construction of works		57,399.27	57,399.27		88,567.07	88,567.07	49.97%
Capital Block Allocation & Misc Capital Expenditure		1,996.76	1,996.76		3081.00	3081.00	1.74%
III. Physical contingency		1,735.41	**1,735.41**		2,677.74	2,677.74	1.51%
IV. Price contingency		**5,416.45**	**5,416.45**		8,357.58	8,357.58	4.71%
B. PORTION NONELIGIBLE FOR LOAN		**26,314.42**	**26,314.42**		40,603.15	40,603.15	**22.91%**
I. Pay of officers		1,196.48	1,196.48		1,846.17	1,846.17	1.04%
II. Pay of establishment		790.71	790.71		1,220.06	1,220.06	0.69%
III. Allowances		2,092.59	2,092.59		3,228.87	3,228.87	1.82%
IV. Supplies and services		56.37	56.37		86.98	86.98	0.05%
Capital component							
I. Acquisition/Purchase of land & Landed Properties of Assets		4,349.39	4,349.39		6,711.11	6,711.11	3.79%
II. Construction of works		10,491.89	10,491.89		16,188.99	16,188.99	9.13%
III. Development Import Duty and Vat		7,336.99	7,336.99		11,320.97	11,320.97	6.39%
C. Physical contingency		**561.59**	**561.59**		866.53	866.53	**0.49%**
D. Price contingency		**364.10**	**364.10**		561.81	561.81	**0.32%**

Design conditions and specifications

The latest Road Design Standard for Rural road circulated by the LGED is followed in designing the roads and other ancillary works (road embankment protection, road side drain, road junction, etc.).
Individual segments of the Civil works are guided by the Specifications made by the Procuring Entity following the Specifications Guidelines circulated by the LGED. There are specifications for traffic maintenance, site facilities and testing of the construction materials, earth works, every layer of pavement works, structure works consisting of bridge, culvert, drain, building works, road embankment protective works, road sign & signals, etc.
There are also consultancy services for Governance Improvement capacity development services, workshops and campaigns to enhance the capacity of Pourashava Personnel and citizens.

Tendering system

Goods, services, and civil works financed by ADB and KfW will be procured following ADB's Procurement Guide lines (2010, as amended from time to time). All civil works contracts will be through National Competitive Bidding (NCB), if acceptable to ADB and KfW. If the Asian Development Bank (ADB) or KfW (for KfW financed contracts) agrees with the following procurement process, then the following process shall apply for procurement of goods and works:

For recruitment of Consulting Firms shall be done following Quality and Cost-Based Selection (QCBS) method.
The procedures to be followed for National Competitive Bidding (NCB) shall be those set forth for the National Open Tendering Method in the Government's Public Procurement Rules, 2008 and Public

	Procurement Act, 2006 and following the provisions of the Procurement Guidelines using the Standard Tender Documents.
Contract conditions	General Conditions of Contract and Particular Conditions of Contracts prescribed by Central Procurement Technical Unit (CPTU) for making the Contract conditions in the Standard Tender Document (national) for procurement of works shall be followed.
Construction methods	Following the Specifications provided in the Tender Document method of construction was selected. To attain the desired level of test result as per specifications of works and quality of different component of the works, the materials and equipment & machineries are to be selected.
Lessons learned on procurement	Consultant Selection: Request for variation of consultant selection including consulting firms and individual consultants. Designing, Estimation, Preparation of Tender Documents: To avoid non tender item and variation in the BOQ amount, consultants and field officers should be cautious in designing and estimation as per the field requirements. Cause of the delay of Construction Work: Delay in handing over the construction site and price escalation of construction materials are the cause of delay in construction work.
Remarks	• The Project area will include 35 selected Pourashava of the Dhaka, Chittagong, Khulna, Rajshahi Barisal and Sylhet Division. • In Dhaka Division, those Pourashava are Bhanga, Mymensing, Faridpur, Sreepur, Jamalpur, Ghorashal, Munshigonj and Mirzapur. • In Chittagong Division, those Pourashavas are Cox's Bazar, Noakhali, Chandpur, B.Baria, Comilla, Chawmohoni and Parshuram. • In Khulna Division, those Pourashavas are Satkhira, Jhenaidah, Narail, Bagerhat and Benapole. • In Rajshahi Division, those Pourashavas are Rangpur, Thakurgaon, Natore, Dinajpur, Kurigram, Gaibandah, Sirajgonj and Nachol. • In Barisal Division, those Pourashavas are Bhola, Borguna, Jhalokanthi and Kolapara. • In Sylhet Division, those Pourashavas are Sunamgonj, Sreemangal, and Golapgonj. • The primary objective of the project is to promote sustainable human development, economic growth and poverty reduction by enhancing municipal management and strengthening capacity of municipal services. This will also improve physical infrastructure and urban services 35 secondary towns (Pourashava) of Bangladesh. • Within the project area of 35 Pourashava (area of 38,768 sq. km), 13.847 million people will benefit. Increase of rural incomes and reduce rural poverty through sustainable economic growth, rural development, social & gender development and improved infrastructure in the project area are expected.

Source: Development Project Proposal (DPP) for Second Urban Governance and Infrastructure Improvement (Sector) Project (UGIIP-II), November 2008

Photographs

Paiksa Modhurghat Ghorasahal Palash main road to Paiksa Govt. Primary School road in Ghhorashal Pourashava

Chiladhchar Bazar to Hogladangi Miraj Molla house road in Bhanga Pourashava

Sripur Pourashava Road

Table A21-6 Urban Governance and Infrastructure Improvement (Sector) Project (UGIIP)

Project title	Urban Governance and Infrastructure Improvement (Sector) Project (UGIIP), ADB						
Target area	Total 30 Districts (Breakdown in Division wise)						
	Dhaka	Chittagong	Rajshahi	Sylhet	Khulna	Barisal	
	11	6	7	2	3	1	
Project duration	Start: 1 July 2003 End: 30 December 2010 (as per ADB loan agreement)			Status		Completed	
Executing agency	Local Government Engineering Department (LGED)			Donor(s)		ADB	

Total amount of project cost (in BDT and USD)	Particulars	USD in million		BDT in million		Percentage	
		Original	Revised	Original	Revised	Original	Revised
	ADB	54.43	67.28	3,600.00 (RPA=3,035.84)	4,450.20 (RPA=3,919.03)	69.72	68.95
	GOB	23.64	30.30	1,563.86	2,003.84	30.28	31.05
	Total	**78.07**	**97.58**	**5,163.86**	**6,454.04**	**100.00**	**100.00**

Breakdown of the project cost

(BDT 1.00= JPY 1.543) (BDT in Million)

Item of Works		Quantity	Total Cost (BDT in millions)	Project Aid			Total cost (JPY in million)	% of the Total Cost
				RPA		DPA		
				Through GOB	Special Account			
1	2	3	4	5	6	7	8	9
Urban Infrastructure Improvement	i)Roads	538.63 km	2,044.55				3,154.74	32.31%
	ii)Traffic Management Improvement	L.S.	16.62				25.64	0.26%
	iii) Bridges & Culvert	561.50m	115.25				177.83	1.82%
	iv) Storm Water Drainage	283.32m	1,287.86				1,987.17	20.35%
	v) Sanitation							
	-Twin Pit Latrine	71 nos.	0.30				0.46	
	-Establish sludge management system in project town	3 nos.	11.97				18.47	0.19%
	-Public Toilet	34 nos.	30.28				46.72	0.48%
	vi) Solid waste Management	1330 nos.	151.61				233.93	2.40%
	vii) Municipal Facilities	43 nos.	361.87				558.36	5.72%
	viii) Slump Upgrading	24,900 family	134.98				208.27	2.13%
	ix) Water Supply	L.S.	87.12				134.43	1.38%
Urban Governance Improvement	i) Micro Credit	24,900 family	80.00				123.44	1.26%
	ii) Community Poverty Alleviation Activities	24,900 family	157.13				242.45	2.48%
	iii) Institutional Reform and Capacity building							
	-MSU training for 43 Pourashavas	L.S.	35.99				55.53	0.57%
	-MSU training for 33 UGIIP Pourashavs	L.S.	45.76				70.61	0.72%
	-UMSU/RUMSU Staffing	4,704 mm	61.28				94.55	0.97%
	-UMSU/RUMSU Equipment/vehicles	27 nos.	15.98				24.66	0.25%
	- UMSU/RUMSU Operating Costs	L.S.	17.94				27.68	0.28%
Capacity Building and Implementation Assistance	i)Consulting Services :							
	(a)MDS and ME Consultants	2,260 mm	323.17				498.65	5.10%
	(b) Facilitators	1,363.5m m	47.01				72.54	0.74%
	(c) GPD Consultants	95mm	29.30				45.21	0.46%
	(d) PEM Consultant	228mm	15.52				23.95	0.24%
	ii)Incremental O & M:							
	(a) PMO staffing	2,520mm	84.68				130.66	1.34%
	(b)PIU Staffing	6,552mm	364.71				562.75	5.76%
	(c)Equipment/Vehicle (PMO &PIU)	195 nos.	73.55				113.49	1.16%
	(d) Operating Costs (PMO &PIU)	L.S.	119.56				184.48	1.89%
	(e) Construction O&M Equipment (Inc.CDS/Vat)	175 nos.	237.90				367.08	3.76%
	iii) IDC/TA Piggy backed	L.S.	175.68				271.07	0.28%
2007 Flood Rehabilitation Work	i) Roads (Flood Rehabilitation)	58.29 Km.	132.44				204.35	0.21%
	ii) Bridges & culvert (Flood Rehabilitation)	75 m	0.56				0.86	
	iii) Drain (Flood Rehabilitation)	2.00 Km	43.65				67.35	0.075
	iv) Others (Flood Rehabilitation)	L.S.	23.13				35.69	0.04%
	Total		**6,327.36**	**1,966.53 (31.08%)**		**4,360.83 (68.92%)**	**9,763.12**	**100%**

Design	The latest Road Design Standard (RDS) for rural road circulated by the LGED is followed in the case of

conditions and specifications	designing and construction of the roads pavement and other ancillary works (road embankment and its protection, road side drain, road junction, etc.). Individual segments of the civil works are guided by the Specifications made by the Procuring Entity following the Specifications Guidelines circulated by the LGED. There are specifications for traffic maintenance, site facilities and Testing of the construction materials, earth works, every layer of pavement works, structure works consisting of bridge, culvert, drain, building works, road embankment protective works, road sign & signals, maintenance of village road, etc.
Tendering system	Procurement of vehicles & equipment procured by International Competitive Bidding (ICB) and civil works by National Competitive Bidding (NCB) following the Open Tendering Method and packaging guidelines. Recruitment of Consulting Firms shall be done by the Quality and Cost-Based Selection (QCBS) method. The procedures was followed for National Competitive Bidding (NCB) as set forth for the National Open Tendering Method in the Government's Public Procurement Rules of 2008 and Public Procurement Act, following the provisions of the Procurement Guidelines using the Standard Tender Documents.
Contract conditions	General Conditions of Contract and Particular Condition of Contracts prescribed for making the Contract condition in the Standard Tender Document (national) for procurement of works must be followed.
Construction methods	The Specifications for works and construction materials is the guiding factor for selecting the construction methods. To attain the quality and the desired level of test result as per Tender Specifications, the method with the equipment & machinery is to be selected. Method of construction is specified in the specifications, which was followed during execution of the works.
Remarks	• The Project area includes 30 Districts of Dhaka, Chittagong, Rajshahi, Sylhet, Khulna and Barisal Division covering 32 Pourashavas. • In Dhaka Division, those Districts are Dhaka, Narayangonj, Gazipur, Sherpur, Tangail, Netrokona, Kishoregonj, Manikgonj, Narshingdi, Rajbari and Shariatpur Districts covering 13 Pourashavas. • In Chittagong Division, those Districts are Khagrachori, Rangamati, Bandarban, Feni, Laksham and Laxmipur Districts covering 6 Pourashavas. • In Rajshahi Division, those Districts are Panchagarh, Lalmonirhat, Joypurhat, Chapai Nowabgonj, Natore, Pabna and Sirajgonj Districts covering 7 Pourashavas. • In Sylhet Division, those Districts are Hobigonj and Moulvibazar Districts covering 2 Pourashavas. • In Barisal Division, the District is Jhalokati Districts covering 1 Pourashavas. • In Khulna Division, those Districts are Kushtia, Meherpur and Jessore covering 3 Pourashavas. • The entire population within the project area of 30 Districts covering 32 Pourashava will be benefited through the development of urban physical infrastructure with governance improvement and capacity development of the Pourashavas. • Urban Infrastructure Improvement, Urban Governance Improvement and Capacity Building and Implementation Assistance are the three components of the Project. • The primary objective of the project is to promote human development and good urban governance in secondary towns of Bangladesh. The project will assist the selected Pourashavas to: a) Enhance accountability in municipal management and their capabilities in the provision of municipal service. b) Develop and expand physical infrastructure and urban services to increase economic opportunities. c) Benefit the entire urban community in general and to focus on upgrading the conditions of the poor living in slum areas. d) Promote active participation of women in municipal management and services both as beneficiaries and agents.

Source: Project Completion Report (PCR) for Urban Governance and Infrastructure Improvement (Sector) Project (UGIIP), February, 2011

Photographs

Isa Khan Road in Narayanganj Pourashava

Tongi Pourashava Kitchen Market Construction

Drain Construction in Laksham Pourashava

Barabil Khal bridge (61 m) on Barabil Mortaz to Uttarpara road in Shahzadpur Pourashava Daroga House

Foot Bridge in Rangamati

Bangabandhu Road in Narayangonj Pourashava

Chapai Nawabgonj Pourashoba Bus Stand Construction Work

Gazipur Bus Terminal

2 Unit costs for subprojects

The Survey team analyzed the unit costs for major subprojects from similar infrastructure projects. To take cost inflation into account, the cost inflators for the various projects were applied from the smoothed index for price escalation analysis in Annex 20. The summary of the cost inflators is shown in Table A21-7.

Table A21-7 Similar projects and cost inflators

Similar project	Reference year of cost	Cost inflator (in Annex 20)
NRRDLGIP (Proposed)	2012	1.0000
RTIP-2 (F/S)	2011	1.0781
SWBRDP (DPP)	2010	1.1623
SRIIP (DPP)	2010	1.1623
RIIP-2 (Contract)	2009	1.2531
UGIIP-2 (DPP)	2008	1.3509

With the cost inflators applied, the results of unit cost of major sub-projects for five similar projects are summarized in Table A21-8.

Table A21-8 Comparison of major sub-project costs for other similar projects

Project	Quantity	Unit	Amount (BDT mill.)	Unit cost (BDT mill.)	Cost inflator	Inflated unit cost (BDT mill.)
NRRD LGIP (Proposed in 2012)						
Upazila Road	637.29	km	5,303.312	8.322	1.0000	8.322
Union Road	331.51	km	2,141.589	6.460	1.0000	6.460
Bridge/Culvert on Upazila Road	2,128.00	m	881.332	0.414	1.0000	0.414
Bridge/Culvert on Union Road	710.00	m	279.401	0.394	1.0000	0.394
Growth Center Market (incl. Women's Section)	70.00	nos	525.770	7.511	1.0000	7.511
Rural Market	74.00	nos	333.180	4.502	1.0000	4.502
RTIP-II (Feasibility study in 2011)						
Improvement of Upazila Road (incl. Bridge)	750.00	km	7,612.500	10.150	1.0781	10.943
Improvement of Union Road (incl. Bridge)	500.00	km	2,592.100	5.184	1.0781	5.589
Growth Center Market (incl. Women's Section)	50.00	nos	328.300	6.566	1.0781	7.079
WSB RDP (DPP in 2010)						
Upazila Road	1,034.50	km	9,157.700	8.852	1.1623	10.289
Union Road	66.70	km	443.385	6.647	1.1623	7.726
Bridge/Culvert on Upazila Road	7,961.90	m	2,504.600	0.315	1.1623	0.366
Bridge/Culvert on Union Road	339.00	m	102.862	0.303	1.1623	0.353
Growth Center Market (incl. Women's Section)	38.00	nos	176.300	4.639	1.1623	5.392
Rural Market	12.00	nos	40.800	3.400	1.1623	3.952
SRIIP (DPP in 2010)						
Improvement of Upazila Road	700.00	km	3,850.000	5.500	1.1623	6.393
Improvement of Union Road	100.00	km	450.000	4.500	1.1623	5.230
Bridge/Culvert on Upazila Road	3,100.00	m	1,162.500	0.375	1.1623	0.436
Bridge/Culvert on Union Road	170.00	m	63.750	0.375	1.1623	0.436
Improvement of Growth Center Market	98.00	nos	343.000	3.500	1.1623	4.068
RIIP-II (Contracted in 2008-2011)						
Improvement of Upazila Road	901.04	km	6,894.351	7.652	1.2531	9.588
Upgrading of Union Road	407.75	km	3,276.318	8.035	1.2531	10.069
Bridge/Culvert on Upazila & Union Road	5,318.00	m	1,669.806	0.314	1.2531	0.393
Improvement of Growth Center	38.00	nos	184.642	4.859	1.2531	6.089
Improvement of Rural Hat Bazar	51.00	nos	185.337	3.634	1.2531	4.554
UGIIP-II (DPP in 2008)						
Rehabilitation of Road	122.62	km	613.086	5.000	1.3509	6.755
Bridge/Culvert on Road	900.00	m	200.000	0.222	1.3509	0.300
Improvement of Kitchen Market	70.00	nos	210.000	3.000	1.3509	4.053

Source: LGED

Annex 22

Proposed anti-corruption measures

Table of contents

1 Introduction

Possibilities for corruption lie in the procurement and financial management process in the implementation of any project. Thus, during the implementation of the upcoming NRRDLGIP, the following measures will be taken to prevent corruption and minimize damage from it if it occurs.

2 Specific measures

(1) Special training course

Prior to the bidding process of the NRRDLGIP, a three-day special training course on procurement procedures and financial management will be held for about 150 officials from the LGED and 54 people from Pourashavas. This course will be held in seven batches. The course will be organized again a few times from September 2013.

(2) Pre-bid meeting

Procuring entities will alert bidders in a pre-bid meeting on the consequences of corrupt and similar behaviors, i.e., collusion, coercion, fraud and corruption. The Project Management Office (PMO) will inform all the Project Implementation Office (PIO) and Project Implementation Unit (PIU) field offices of the code of ethics in conformity with the (Bangladesh) Public Procurement Regulations 2008 (PPR-2008). In the meeting, the bidders will also be taught how to prepare bids correctly.

(3) Bid Opening Committee

Now the Bid Opening Committee (BOC) is functioning in each District and Upazila to open bids in public. For improved transparency, the BOC will be reformed with the participation of representatives from the LGED and consultants.

(4) Sending of BOM, BOC, readout bid price and 'copy bid' to PMO

On the day of bid opening, as per the Implementation Guidelines issued by the LGED, photocopies of the following documents will be sent to the Project Director's Office either by fax, post, or a special messenger: Bid Opening Minutes (BOM), Bid Opening Checklist (BOC), Readout Bid Prices, and bids submitted by the bidders. If necessary, the PMO will send the copies of the BOM, BOC, and Readout Bid Prices to JICA as well.

(5) Bid Evaluation Committee

The Bid Evaluation Committee (BEC) has been formed as per PPR-2008 in the District and Upazila levels and is functioning in each District and Upazila to evaluate bids in accordance with the Procurement Guidelines and PPR-2008. The BEC is headed by the LGED engineer, and includes two external members (i.e., engineers and officers from RHD, BWDB and other departments) who are not under the control of the LGED. In addition, a consultant representative (AE) will be a member of the BEC.

(6) Bid evaluation, timelines and award of contract

In accordance with the procurement approval process of the Government of Bangladesh (GOB), bid evaluation reports will include a certificate of impartiality and will be submitted directly to the contract approving authority following the stipulated deadlines. The LGED will work especially hard to ensure award of contract in the initial period of bid/proposal validity so that no extension of validity is required.

JICA may not finance contracts which are not awarded within the first extended period of bid validity. The LGED will closely monitor the status of bid validity and submit a quarterly report to JICA on the timeliness of the bid/proposal evaluation and approval in accordance with PPR-2008.

(7) Delegation of decision-making authority

The LGED has delegated part of its decision making authority to the field level. For a package up to an estimated cost of BDT 40 million, the Executive Engineers (XENs) of the Districts have authority in bid evaluation, contract awarding, and contract administration.

[It is recommended that LGED and JICA discuss whether this action is to be included in the action plan, because this action has been already taken by LGED.]

(8) Action against corrupt and unethical practices by bidders

If collusion is found or established by such indications as same handwriting, identical unit prices in BOQs, consecutive serial numbers in bank guarantees for Bid Security, then the procuring entities (LGED field offices) will initiate actions including debarring contractors from bidding as appropriate in accordance with PPR-2008 and the JICA Guidelines. If any firm is debarred, the list of debarred firms will appear in the websites of the CPTU and the LGED, and the debarment notice will be circulated to all LGED field offices as a lesson to discourage corrupt or unethical behavior. The LGED will always share the debarred firms list with JICA.

(9) Action against corrupt and unethical practices by GOB staff

If a possible corrupt or unethical practice is detected, the LGED will thoroughly investigate it. If involvement of GOB officials is established, the LGED will take a departmental or disciplinary action against those concerned, in accordance with the service rules of the GOB. The procurement officials and the bidders shall strictly observe the Code of Conduct for Procurement Officials and the Code of Ethics for Bidders issued by the CPTU. Any breach of the Code of Conduct for Procurement Officials will lead to initiation of proceeding under the Government Servants (Discipline and Appeal) Rule 1985. A summary of the disciplinary action taken by the authority will be published in the annual report of the LGED.

(10) Low competition among bidders and high price of bids

The case(s) of low completion (not solely based on the number of bidders) coupled with high-priced bids will be reviewed by the LGED. The review and decision in this regard would be made from such aspects as qualification criteria (too stringent?), the contract size (too small or too large?), location and accessibility of the site, and capacity of the local contractors (for smaller and less attractive contracts). If necessary, the LGED may change the scope of work. If local bidders' capacity is very low, a contract package may be divided into small pieces to create a competitive environment.

(11) Measures to reduce coercive practices

If an allegation of coercive practices resulting in low competition is received, the LGED will look into the matter and take appropriate measures. Observations of the LGED will be shared with JICA, along with the evaluation reports. The LGED may seek assistance from law enforcement agencies to provide adequate security for bidders during the bid submission.

(12) Filing and record-keeping

The procuring entities (LGED field offices etc.) will preserve all records and documents regarding their procurement in accordance with PPR-2008, and make them available on request for audit, investigation, or review by the GOB or JICA.

(13) Liquidated damages

The LGED will enforce imposition of liquidated damages (LD) for delayed contract implementation in accordance with the conditions of the contract.

(14) Delayed payment

The LGED will develop mechanisms to avoid delayed payments. A payment monitoring checklist will be developed to ensure timely payment to the recipient.

(15) Procurement plan

The procurement plan of the NRRDLGIP will be published in the LGED website and updated twice a year.

(16) Procurement processing information to CPTU

The LGED will provide the CPTU with information on the LGED's public procurement processing activities as per PPR-2008. The LGED HQ will enter all information related to procurement monitoring into the database software. The LGED HQ will transmit the information to the CPTU online or offline so that the CPTU can incorporate it into the CPTU's central MIS database. Quarterly reports will be generated for monitoring the procurement performance of the LGED. These reports will be shared with JICA.

(17) Publication of award of contract

Within two weeks of contract awarding, the LGED and the CPTU will post the following information on their websites: identity of contract package; date of advertisement; number of bids sold; number of submitted bids; number of valid bids; name of the winning bidder and the price it offered; date of notification of award; date of contract signing; proposed completion date of contract; and brief description of the contract awarded.

(18) Complaint mechanism

The LGED will enforce a complaint handling mechanism in accordance with PPR-2008 including submission and disposal of complaints within the timeline stipulated therein. In the Chief Engineer's Office, PMO-NRRDLGIP and in the District XEN's Offices, the LGED will introduce a complaint box. In the pre-bid meeting, bidders will be informed of their right to complain.

(19) Monitoring and oversight function by PMO

With all of its field offices, the PMO will monitor compliance with the actions 1 to l8 above in the following ways: review the cases on corrupt and similar practices; review contract management issues (i.e., LDs, delayed payments); prepare reports on monitoring of contracts; and submit quarterly reports to the office of the Chief Engineer of the LGED and share them with JICA.

(20) Monitoring and oversight function by LGD and LGED

Both the Local Government Division (LGD) and the LGED HQ have formed a number of inspection teams that now regularly visit the work sites under various projects of LGD/LGED. Moreover, the LGD holds the ADP progress review meeting every month to discuss utilization of funds, physical progress, quality control issues and procurement issues of various projects under this division. Usually those meetings are chaired by the Secretary of the LGD and attended by, among others, the representatives from the Planning Commission, ERD, and IMED. Sometimes the Honorable Minister also reviews the progress. Apart from the above measures, the LGED plans some additional measures for the long term.

[This is not a specific measure under NRRDLGIP. It is recommended that the LGED and JICA discuss whether this should be included in this action plan.]

(21) E-procurement

In order to minimize collusive and coercive bidding practices, the LGED has started e-procurement in collaboration with the CPTU on a pilot basis in a few projects. If this undertaking indicates that e-procurement is desirable and feasible, then the NRRDLGIP will introduce e-procurement in its procurement process with the help of the LGED whose IT infrastructure is one of the best in the Bangladesh government agencies.

(22) Formulation of monitoring formats

Before starting procurement and during implementation of the NRRDLGIP, monitoring formats for transparent and corruption-free administration will be formulated in consultation with JICA and consultants while learning from and adopting the advantages of GOB regulations and the JICA Guidelines.

3 Anti-corruption monitoring sheet

The proposed anti-corruption monitoring sheet is attached below as an example for consideration of LGED and JICA. This monitoring sheet will be prepared and reported under the following three steps in each project year:

1) At the start of each project year, the PMO will elaborate the details of respective actions in the anti-corruption action plan (column 1), and set the timing to take those actions in the project year (column 2).
2) At the end of each quarter, the PMO will assess the current status of those actions (column 3), and identify next steps to be taken (column 4).
3) The PMO will attach the anti-corruption monitoring sheet to Quarterly Progress Monitoring Report submitted to JICA.

Attachment 1 Anti-corruption monitoring sheet (draft)

	Specific measures and actions	Timing of actions	Current status	Next steps
1	**Special training course:** Prior to the bidding process of the NRRDLGIP, a three-day special training course on procurement procedures and financial management will be held for about 150 officials from the LGED and 54 people from Pourashavas. This course will be held in seven batches. The course will be organized again a few times from September 2013.			
2	**Pre-bid meeting:** Procuring entities will alert bidders in a pre-bid meeting on the consequences of corrupt and similar behaviors, i.e., collusion, coercion, fraud and corruption. The Project Management Office (PMO) will inform all the Project Implementation Office (PIO) and Project Implementation Unit (PIU) field offices of the code of ethics in conformity with the (Bangladesh) Public Procurement Regulations 2008 (PPR-2008). In the meeting, the bidders will also be taught how to prepare bids correctly.			
3	**Bid Opening Committee:** Now the Bid Opening Committee (BOC) is functioning in each District and Upazila to open bids in public. For improved transparency, the BOC will be reformed with the participation of representatives from the LGED and consultants.			
4	**Sending of BOM, BOC, readout bid price and 'copy bid' to PMO:** On the day of bid opening, as per the Implementation Guidelines issued by the LGED, photocopies of the following documents will be sent to the Project Director's Office either by fax, post, or a special messenger: Bid Opening Minutes (BOM), Bid Opening Checklist (BOC), Readout Bid Prices, and bids submitted by the bidders. If necessary, the PMO will send the copies of the BOM, BOC, and Readout Bid Prices to JICA as well.			

	Specific measures and actions	Timing of actions	Current status	Next steps
5	**Bid Evaluation Committee:** The Bid Evaluation Committee (BEC) has been formed as per PPR-2008 in the District and Upazila levels and is functioning in each District and Upazila to evaluate bids in accordance with the Procurement Guidelines and PPR-2008. The BEC is headed by the LGED engineer, and includes two external members (i.e., engineers and officers from RHD, BWDB and other departments) who are not under the control of the LGED. In addition, a consultant representative (AE) will be a member of the BEC.			
6	**Bid evaluation, timelines and award of contract:** In accordance with the procurement approval process of the Government of Bangladesh (GOB), bid evaluation reports will include a certificate of impartiality and will be submitted directly to the contract approving authority following the stipulated deadlines. The LGED will work especially hard to ensure award of contract in the initial period of bid/proposal validity so that no extension of validity is required. JICA may not finance contracts which are not awarded within the first extended period of bid validity. The LGED will closely monitor the status of bid validity and submit a quarterly report to JICA on the timeliness of the bid/proposal evaluation and approval in accordance with PPR-2008.			
7	**Delegation of decision-making authority:** The LGED has delegated part of its decision making authority to the field level. For a package up to an estimated cost of BDT 40 million, the Executive Engineers (XENs) of the Districts have authority in bid evaluation, contract awarding, and contract administration.			
8	**Action against corrupt and unethical practices by bidders:** If a possible corrupt or unethical practice is detected, the LGED will thoroughly investigate it. If involvement of GOB officials is established, the LGED will take a departmental or disciplinary action against those concerned, in accordance with the service			

	Specific measures and actions	Timing of actions	Current status	Next steps
	rules of the GOB. The procurement officials and the bidders shall strictly observe the Code of Conduct for Procurement Officials and the Code of Ethics for Bidders issued by the CPTU. Any breach of the Code of Conduct for Procurement Officials will lead to initiation of proceeding under the Government Servants (Discipline and Appeal) Rule 1985. A summary of the disciplinary action taken by the authority will be published in the annual report of the LGED.			
9	**Action against corrupt and unethical practices by GOB staff:** If a possible corrupt or unethical practice is detected, the LGED will thoroughly investigate it. If involvement of GOB officials is established, the LGED will take a departmental or disciplinary action against those concerned, in accordance with the service rules of the GOB. The procurement officials and the bidders shall strictly observe the Code of Conduct for Procurement Officials and the Code of Ethics for Bidders issued by the CPTU. Any breach of the Code of Conduct for Procurement Officials will lead to initiation of proceeding under the Government Servants (Discipline and Appeal) Rule 1985. A summary of the disciplinary action taken by the authority will be published in the annual report of the LGED.			
10	**Low competition among bidders and high price of bids:** The case(s) of low completion (not solely based on the number of bidders) coupled with high-priced bids will be reviewed by the LGED. The review and decision in this regard would be made from such aspects as qualification criteria (too stringent?), the contract size (too small or too large?), location and accessibility of the site, and capacity of the local contractors (for smaller and less attractive contracts). If necessary, the LGED may change the scope of work. If local bidders' capacity is very low, a contract package may be divided into small pieces to create a competitive environment.			
11	**Measures to reduce coercive practices:**			

	Specific measures and actions	Timing of actions	Current status	Next steps
	If an allegation of coercive practices resulting in low competition is received, the LGED will look into the matter and take appropriate measures. Observations of the LGED will be shared with JICA, along with the evaluation reports. The LGED may seek assistance from law enforcement agencies to provide adequate security for bidders during the bid submission.			
12	**Filing and record-keeping:** The procuring entities (LGED field offices etc.) will preserve all records and documents regarding their procurement in accordance with PPR-2008, and make them available on request for audit, investigation, or review by the GOB or JICA.			
13	**Liquidated damages:** The LGED will enforce imposition of liquidated damages (LD) for delayed contract implementation in accordance with the conditions of the contract.			
14	**Delayed payment:** The LGED will develop mechanisms to avoid delayed payments. A payment monitoring checklist will be developed to ensure timely payment to the recipient.			
15	**Procurement plan:** The procurement plan of the NRRDLGIP will be published in the LGED website and updated twice a year.			
16	**Procurement processing information to CPTU:** The LGED will provide the CPTU with information on the LGED's public procurement processing activities as per PPR-2008. The LGED HQ will enter all information related to procurement monitoring into the database software. The LGED HQ will transmit the information to the CPTU online or offline so that the CPTU can incorporate it into the CPTU's central MIS database. Quarterly reports will be generated for monitoring the procurement performance of the LGED. These reports will be shared with JICA.			
17	**Publication of award of contract:** Within two weeks of contract awarding, the LGED and the			

	Specific measures and actions	Timing of actions	Current status	Next steps
	CPTU will post the following information on their websites: identity of contract package; date of advertisement; number of bids sold; number of submitted bids; number of valid bids; name of the winning bidder and the price it offered; date of notification of award; date of contract signing; proposed completion date of contract; and brief description of the contract awarded.			
18	**Complaint mechanism:** The LGED will enforce a complaint handling mechanism in accordance with PPR-2008 including submission and disposal of complaints within the timeline stipulated therein. In the Chief Engineer's Office, PMO-NRRDLGIP and in the District XEN's Offices, the LGED will introduce a complaint box. In the pre-bid meeting, bidders will be informed of their right to complain.			
19	**Monitoring and oversight function by PMO:** With all of its field offices, the PMO will monitor compliance with the actions 1 to l8 above in the following ways: review the cases on corrupt and similar practices; review contract management issues (i.e., LDs, delayed payments); prepare reports on monitoring of contracts; and submit quarterly reports to the office of the Chief Engineer of the LGED and share them with JICA.			
20	**Monitoring and oversight function by LGD and LGED:** Both the Local Government Division (LGD) and the LGED HQ have formed a number of inspection teams that now regularly visit the work sites under various projects of LGD/LGED. Moreover, the LGD holds the ADP progress review meeting every month to discuss utilization of funds, physical progress, quality control issues and procurement issues of various projects under this division. Usually those meetings are chaired by the Secretary of the LGD and attended by, among others, the representatives from the Planning Commission, ERD, and IMED. Sometimes the Honorable Minister also reviews the			

	Specific measures and actions	Timing of actions	Current status	Next steps
	progress. Apart from the above measures, the LGED plans some additional measures for the long term.			
21	**E-procurement:** In order to minimize collusive and coercive bidding practices, the LGED has started e-procurement in collaboration with the CPTU on a pilot basis in a few projects. If this undertaking indicates that e-procurement is desirable and feasible, then the NRRDLGIP will introduce e-procurement in its procurement process with the help of the LGED whose IT infrastructure is one of the best in the Bangladesh government agencies.			
22	**Formulation of monitoring sheet:** Before starting procurement and during implementation of the NRRDLGIP, monitoring formats for transparent and corruption-free administration will be formulated in consultation with JICA and consultants while learning from and adopting the advantages of GOB regulations and the JICA Guidelines.			

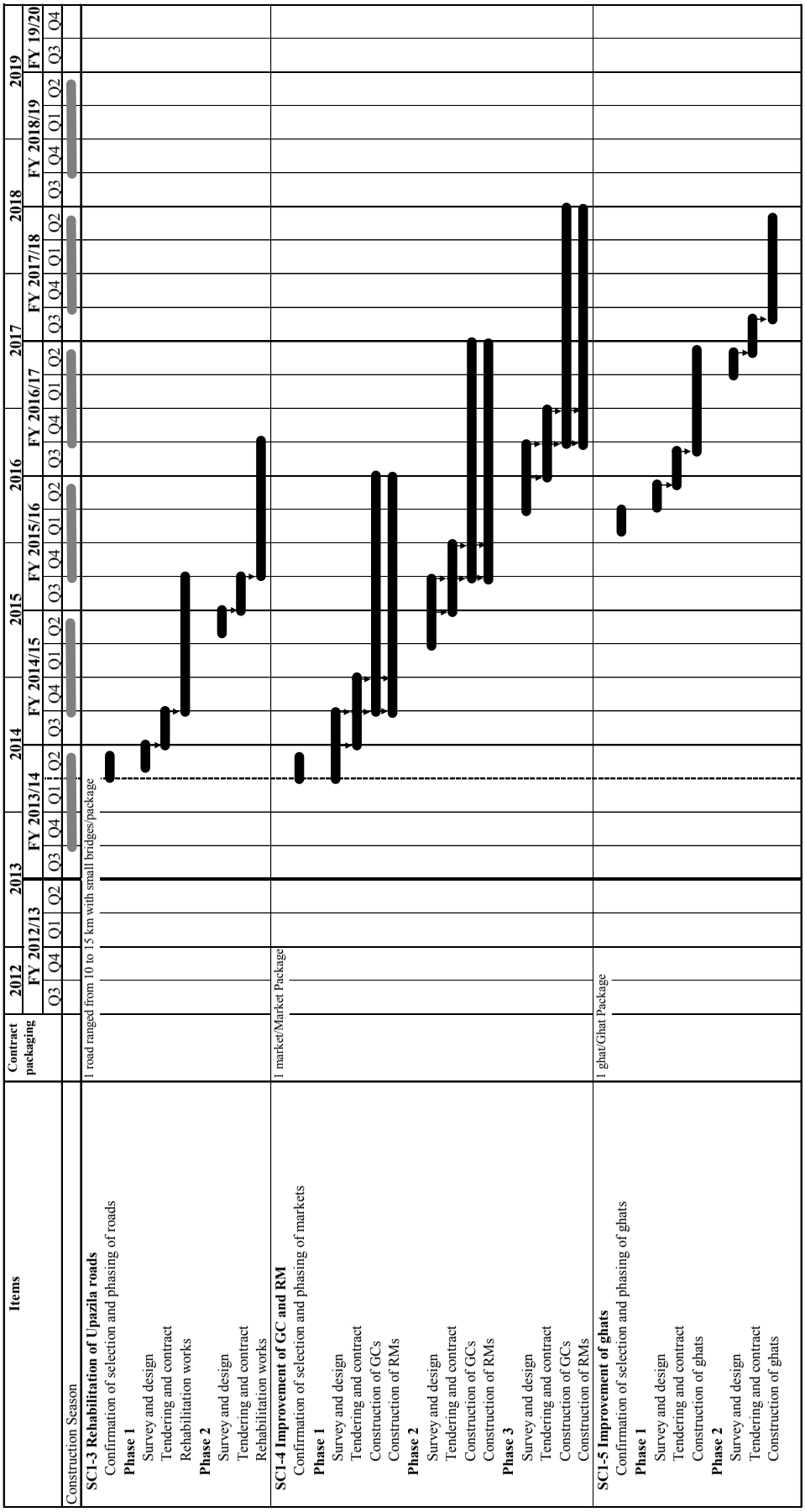
Annex 23

Project implementation schedule

List of tables

Table A23-1 Project implementation schedule

Items	Contract packaging	2012	2013			2014				2015				2016				2017				2018				2019			
		FY 2012/13				FY 2013/14				FY 2014/15				FY 2015/16				FY 2016/17				FY 2017/18				FY 2018/19				FY 19/20	
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Construction Season																													
Preliminary activities																													
Appraisal mission																													
Exchange of note																													
Loan agreement																													
Preparation of Development Project Proposal (DPP)																													
GOB approval																													
Establishment of PMO																													
Preparation of formats of tender document and approval																													
Component 1: Rural infrastructure development																													
SC1-1 Upgrading of Upazila roads	1 road ranged from 10 to 15 km with small bridges/package																												
Confirmation of selection and phasing of roads																													
Phase 1																													
Survey and design																													
Tendering and contract																													
Pavement works (including small bridges, culverts, etc.)																													
Bridge construction	1 bridge more than 30m length/package																												
Phase 2																													
Survey and design																													
Tendering and contract																													
Pavement works (including small bridges, culverts, etc.)																													
Bridge construction	1 bridge more than 30m length/package																												
Phase 3																													
Survey and design																													
Tendering and contract																													
Pavement works (including culverts, etc.)																													
Bridge construction	1 bridge more than 30m length/package																												
SC1-2 Upgrading of Union roads	1 road ranged from 10 to 15 km with small bridges/package																												
Confirmation of selection and phasing of roads																													
Phase 1																													
Survey and design																													
Tendering and contract																													
Pavement works (including small bridges, culverts, etc.)																													
Bridge construction	1 bridge more than 30m length/package																												
Phase 2																													
Survey and design																													
Tendering and contract																													
Pavement works (including small bridges, culverts, etc.)																													
Bridge construction	1 bridge more than 30m length/package																												
Phase 3																													
Survey and design																													
Tendering and contract																													
Pavement works (including small bridges, culverts, etc.)																													
Bridge construction	1 bridge more than 30m length/package																												
Large bridges for UZR and UNR	1 bridge more than 100m length/package																												
Confirmation of phasing of roads with large bridges																													
Phase 1																													
Environmental impact assessment (EIA)																													
Survey and design																													
Tendering and contract																													
Bridge construction																													
Phase 2																													
Environmental impact assessment (EIA)																													
Survey and design																													
Tendering and contract																													
Bridge construction																													


Items
Contract packaging
2012
2013
2014
2015
2016
2017
2018
2019
FY 2012/13
FY 2013/14
FY 2014/15
FY 2015/16
FY 2016/17
FY 2017/18
FY 2018/19
FY 19/20
Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
Construction Season
SC1-3 Rehabilitation of Upazila roads
1 road ranged from 10 to 15 km with small bridges/package
Confirmation of selection and phasing of roads
Phase 1
Survey and design
Tendering and contract
Rehabilitation works
Phase 2
Survey and design
Tendering and contract
Rehabilitation works
SC1-4 Improvement of GC and RM
1 market/Market Package
Confirmation of selection and phasing of markets
Phase 1
Survey and design
Tendering and contract
Construction of GCs
Construction of RMs
Phase 2
Survey and design
Tendering and contract
Construction of GCs
Construction of RMs
Phase 3
Survey and design
Tendering and contract
Construction of GCs
Construction of RMs
SC1-5 Improvement of ghats
1 ghat/Ghat Package
Confirmation of selection and phasing of ghats
Phase 1
Survey and design
Tendering and contract
Construction of ghats
Phase 2
Survey and design
Tendering and contract
Construction of ghats

Items	Contract packaging	2012	2013	2014	2015	2016	2017	2018	2019
		FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 19/20
		Q3 Q4	Q1 Q2	Q3 Q4	Q1 Q2	Q3 Q4	Q1 Q2	Q3 Q4	Q1 Q2	Q3 Q4	Q1 Q2	Q3 Q4	Q1 Q2	Q3 Q4	Q1 Q2	Q3 Q4	Q1 Q2	Q3 Q4	Q1 Q2	Q3 Q4
Construction Season									
SC1-6 Labor contracting society (LCS) scheme	1 road (max.7km length)/package								
Maintenance of UZR and UNR by LCS									
Tree planting and caretaking by LCS									
SC1-7 Community-based road safety program	1 program/package								
Road safety training to CBRSG members									
Road safety campaign									
SC1-8 Training and capacity development									
Special foundation training by BARD	1 package								
Training									
Overseas training	1 training/package								
Procurement									
Training									
Training by NGOs	1 training/package								
Tendering and contract									
Training									
Component 2: Urban infrastructure and governance improvement									
Subcomponent 2-1: Urban infrastructure development and service delivery									
Phase 1: Infrastructure/service delivery improvement (20%)	Similar-subproject group/Sub-projects Package, ranged from 5 to 40 million BDT								
Detailed design and bid preparation									
Land acquisition for Phase 1 physical investments									
Conclusion of Sub-project Agreement									
Conclusion of Subsidiary Loan Agreement									
Tendering and contract awarding									
Implementation and supervision of physical works									
Final inspection									
Land acquisition for Phase 2 physical investments									
Phase 2: Infrastructure/service delivery improvement (40%)	Similar-subproject group/Sub-projects Package, ranged from 5 to 40 million BDT								
Detailed design and bid preparation									
Conclusion of Sub-project Agreement									
Conclusion of Subsidiary Loan Agreement									
Tendering and contract awarding									
Implementation and supervision of physical works									
Final inspection									
Land acquisition for Phase 3 physical investments									
Phase 3: Infrastructure/service delivery improvement (40%)	Similar-subproject group/Sub-projects Package, ranged from BDT 5 to 40 million								
Detailed design and bid preparation									
Conclusion of Sub-project Agreement									
Conclusion of Subsidiary Loan Agreement									
Tendering and contract awarding									
Implementation and supervision of physical works									
Final inspection									


Items
Contract packaging
2012
2013
2014
2015
2016
2017
2018
2019
FY 2012/13
FY 2013/14
FY 2014/15
FY 2015/16
FY 2016/17
FY 2017/18
FY 2018/19
FY 19/20
Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
Construction Season
Subcomponent 2-2: Governance improvement and capacity development
Implementation of Phase 1 UGIAP
TLCC/ WLCC Formulation
PDP Preparation
Performance Evaluation
Implementation of Phase 2 UGIAP
Phase 2 UGIAP
Performance Evaluation
Implementation of Phase 3 UGIAP
Phase 3 UGIAP
Preliminary
Final
Preliminary
Final
Component 3: Project implementation support
Selection of firm
Purchase committee approval
Consultancy service
1 team/package
Component 4: Project administration support
Administration assistant (PMRS, PAS, EPS, PME, SA and PC)
Selection of assistant
Assistance service
1 assistant/package
Procurement of vehicles and equipment
Vehicles/package
Construction equipment/package
Road maintenance equipment/package
Office equipment/package
Batch 1
Batch 2
Batch 3
Capacity development conducted by LGED
In-country training, workshops, and meetings conducted by LGED
Rural road maintenance action plan
Pourashava infrastructure O&M action plan
Project operation
Agreement with residents and land acquisition

Table A23-2 Detailed schedule for selection of consultants and contractors

Items	Period (day)	Month 1	2	3	4	5	6	7	8	9	10	11	12
I. Procurement of services													
Selection of consulting firm by QCBS of ICB		9 months											
Preparation of tender documents for selection of consultants	45												
Approval by LGED, MLGRD&C and JICA	30												
Notification and preparation of EOI	21												
Assessment of EOI and preparation of short-list	15												
Approval by LGED, MLGRD&C and JICA	20												
Issue of RFP and preparation of proposal	42												
Technical evaluation and approval	20												
Financial evaluation and contract negotiation	7												
Approval by LGED, MLGRD&C, purchase committee and JICA	45												
Signing and formalities of agreement	14												
II. Procurement of goods and works		3 months											
Preparatory work													
Preparation of tender documents and contract forms	60												
Approval by LGED, MLGRD&C and JICA	30												
Selection of contractors by NCB (contract amount: up to BDT 50 mill.)		2.5 months											
Tender notice and preparation of proposal	21												
Tender opening, evaluation and approval	14												
Contract negotiation	7												
Approval by LGED (and MLGRD&C)	10												
NOA, signing and formalities of contract	14												
Selection of contractors by NCB (contract amount: more than BDT 50 mill.)		2.8 months											
Tender notice and preparation of proposal	28												
Tender opening, evaluation and approval	14												
Contract negotiation	7												
Approval by LGED and MLGRD&C	10												
NOA, signing and formalities of contract	14												
Selection of contractors for goods by ICB		3 months											
Tender notice and preparation of proposal	42												
Tender opening, evaluation and approval	14												
Contract negotiation	7												
Approval by LGED and MLGRD&C	10												
NOA, signing of contract and mobilization of contractor	14												

Table A23-3 Action plan of the Project key activities

Items	Activities	Action by	To be completed within	Means of verification
Preliminary activities	Preparation of DPP	LGED	Q1 2013	Development of Project Proposal
	Establishment of PMO	LGED	Q2 2013	Member list
Selection of administration assistants	Direct procurement	PMO	Q2 2013	Contract agreement
Selection of consultants	Bid preparation	PMO	Q3 2013	Tender documents
	Tendering and contract	PMO	Q1 2014	Contract agreement
Upgrading of Upazila roads	Designing and bid preparation	PMO and DSM	Phase 1 Q3 2014 Phase 2 Q3 2015 Phase 3 Q3 2016	Tender documents
	Tendering and contract	PMO, SMO, PIO, and DSM	Phase 1 Q4 2014 Phase 2 Q4 2015 Phase 3 Q4 2016	Contract agreement
	Supervision of construction work	PMO, SMO, PIO, LGED Upazila Office and DSM	Phase 1 Q2 2016 Phase 2 Q2 2017 Phase 3 Q2 2018	Completion certificate
Upgrading of Union roads	Designing and bid preparation	PMO and DSM	Phase 1 Q4 2014 Phase 2 Q4 2015 Phase 3 Q4 2016	Tender documents
	Tendering and contract	PMO, SMO, PIO, and DSM	Phase 1 Q4 2014 Phase 2 Q4 2015 Phase 3 Q4 2016	Contract agreement
	Supervision of construction work	PMO, SMO, PIO, LGED Upazila Office and DSM	Phase 1 Q2 2016 Phase 2 Q2 2017 Phase 3 Q2 2018	Completion certificate
Large bridges for UZR and UNR	Environmental impact assessment (EIA)	PMO and DSM	Phase 1 Q2 2014 Phase 2 Q2 2015	EIA report
	Designing and bid preparation	PMO and DSM	Phase 1 Q3 2014 Phase 2 Q3 2015	Tender documents
	Tendering and contract	PMO, PIO, PIU and DSM	Phase 1 Q4 2014 Phase 2 Q4 2015	Contract agreement
	Supervision of construction work	PMO, SMO, PIO, LGED Upazila Office and DSM	Phase 1 Q4 2016 Phase 2 Q4 2017	Completion certificate
Rehabilitation of Upazila roads	Designing and bid preparation	PMO and DSM	Phase 1 Q2 2014 Phase 2 Q2 2015	Tender documents
	Tendering and contract	PMO, SMO, PIO, and DSM	Phase 1 Q3 2014 Phase 2 Q3 2015	Contract agreement
	Supervision of construction work	PMO, SMO, PIO, LGED Upazila Office, PIU and DSM	Phase 1 Q3 2015 Phase 2 Q3 2016	Completion certificate

Items	Activities	Action by	To be completed within	Means of verification
Upgrading of GCs and RMs	Designing and bid preparation	PMO and DSM	Phase 1 Q3 2014 Phase 2 Q3 2015 Phase 3 Q3 2016	Tender documents
	Tendering and contract	PMO, SMO, PIO, and DSM	Phase 1 Q4 2014 Phase 2 Q4 2015 Phase 3 Q4 2016	Contract agreement
	Supervision of construction work	PMO, SMO, PIO, LGED Upazila Office, PIU and DSM	Phase 1 Q2 2016 Phase 2 Q2 2017 Phase 3 Q2 2018	Completion certificate
Improvement of ghats	Designing and bid preparation	PMO and DSM	Phase 1 Q2 2016 Phase 2 Q2 2017	Tender documents
	Tendering and contract	PMO, PIO, PIU and DSM	Phase 1 Q3 2016 Phase 2 Q3 2017	Contract agreement
	Supervision of construction work	PMO, SMO, PIO, LGED Upazila Office, PIU and DSM	Phase 1 Q2 2017 Phase 2 Q2 2018	Completion certificate
Poverty reduction, road safety and capacity development programs	Poverty reduction program by LCS	PMO, PIO, PIU and DSM	Q2 2019	Progress reports
	Road safety training and campaign	PMO, PIO, PIU and DSM	Q2 2018	
	Capacity development	PMO, PIO, PIU and DSM	Q2 2018	
Implementation of subprojects (Category B and C Pourashavas)	Designing and bid preparation	PMO, PIU and DSM	Phase 1 Q3 2014 Phase 2 Q4 2015 Phase 3 Q3 2017	Tender documents
	Subproject agreement and subsidiary loan agreement	PMO, PIU and DSM	Phase 1 Q3 2014 Phase 2 Q2 2015 Phase 3 Q4 2016	Subproject agreement Subsidiary loan agreement
	Tendering and contract	PMO, PIU and DSM	Phase 1 Q3 2014 Phase 2 Q4 2015 Phase 3 Q3 2017	Contract agreement
	Supervision of construction work	PMO, PIU and DSM	Phase 1 Q4 2015 Phase 2 Q2 2017 Phase 3 Q1 2019	Completion certificate
Implementation of UGIAP	TLCC/WLCC formulation	UMSU, RUMSU, PIU, GICD	Phase 1 Q2 2014	Member lists, Minutes of meetings
	PDP preparation	UMSU, RUMSU, PIU, GICD	Phase 1 Q2 2014	Pourashava Development Plan
	Trainings and workshops	UMSU, RUMSU, PIU, GICD	Phase 2 Q2 2017 Phase 3 Q1 2019	Training/workshop reports
Procurement of vehicles, construction equipment and office equipment	Bid preparation	PMO	Phase 1 Q3 2013 Phase 2 Q3 2015 Phase 3 Q3 2017	Tender documents
	Tendering and purchase	PMO	Phase 1 Q1 2014 Phase 2 Q1 2016 Phase 3 Q1 2018	Purchase order Invoice

Items	Activities	Action by	To be completed within	Means of verification
In country training by LGED	For LGED and government officials	PMO, SMO, PIO, PIU and DSM	Q2 2018	Minutes of meetings Training/workshop reports
	For contractors and construction workers	PMO, PIO, PIU and DSM	Q2 2018	
	For Upazila Chairpersons, UNO and UP Chairpersons	PMO, PIO, PIU and DSM	Q2 2018	
	For GC/RM stakeholders	PMO, PIO, PIU and DSM	Q2 2018	
	For women and physically challenged shopkeepers	PMO, PIO, PIU and DSM	Q2 2018	
	For LCS members	PMO, PIO, PIU and DSM	Q2 2018	
Rural road maintenance action plan (RRMAP)	Project road maintenance plan preparation	PMO, RMRSU and DSM	Q2 2015	Project road maintenance plan
	Sustainability program preparation	PMO, RMRSU and DSM	Q2 2014	Sustainability program
	Approval of road maintenance policy	PMO	Q4 2013	Policy gazetted
	Annual RRMAP work plan preparation	PMO, RMRSU and DSM	Q2 2014-2018	Annual RRMAP work plan
	Annual RRMAP work plan implementation	PMO, SMO, PIO and DSM	Q2 2015-2019	Progress reports
	Monitoring of road maintenance service delivery	PMO, RMRSU and DSM	Q2 2015-2019	Road maintenance monitoring reports
Pourashava infrastructure O&M action plan	Pourashava Infrastructure O&M Action Plans (PIOMAPs) preparation	PMO, PIU, DSM, and GICD	Q2 2014, Q2 2015	PIOMAPs
	PIOMAPs implementation	PMO, PIU, DSM, and GICD	Phase 1 Q4 2014 Phase 2 Q4 2015 Phase 3 Q4 2016	Reports from PIUs
	Infrastructure inventory preparation and update	PMO, PIU, DSM, and GICD	Phase 1 Q4 2014 Phase 2 Q4 2015 Phase 3 Q4 2016	Inventories of infrastructure
	Annual O&M Plan preparation	PMO, PIU, DSM, and GICD	Q2 of 2015-2019	Annual O&M Plans
	Annual O&M Plan implementation	PMO, PIU, DSM, and GICD	Q2 of 2016-2019	Reports from PIUs

Annex 24

Economic evaluation

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1 Introduction

The scope of Component 1 "Rural infrastructure development" is the upgrading of Upazila roads and Union roads including bridges and culverts, rehabilitation of Upazila roads including bridges and culverts, upgrading of Growth Center and rural markets, and improvement of ghats. Of these infrastructure subprojects, the largest benefits are expected to be accrued from improvements in Upazila roads and Growth Centers. The Survey team carried out economic appraisal of Upazila roads, Union roads, Growth Centers and rural markets. The methods applied for economic appraisal of rural roads and Growth Center markets are the VOC saving benefit and the spoilage savings methods, respectively. These methods are the standard methods used by rural road and market development projects in Bangladesh. The methods are explained in detail in the Guidelines for Effect Monitoring and Evaluation (EME) of Rural Road and Market improvement (LGED, 1999).

As for Subcomponent 2-1 "Urban infrastructure and service delivery," the economic appraisal on sample urban infrastructures was conducted on four selected Pourashavas from 33 candidates. Since Subcomponent 2-1 is expected to implement a number of types of subprojects, the benefits accruing from them will be different. Among those benefits, only quantifiable benefits have been selected for sample economic appraisals in this Survey.

2 Evaluation of rural infrastructure

2.1 Upazila roads and Union roads

(1) Overview

There are two methods for calculating economic benefits of road improvement projects, namely: User's Cost Saving (UCS) approach, and Vehicle Operating Costs (VOCs) approach. For the economic appraisal of this Project, the VOCs approach has been adopted for the following reasons:

- In rural areas of Bangladesh, their demographic, agricultural, and trading characteristics generate a large demand for the movement of goods and people via the rural road network, which constitutes the rationale for calculating benefits based on traffic, i.e., using the VOCs approach.
- The VOCs approach is recommended by the LGED guidelines (LGED, 1999) and has been used in the formation of preceding LGED projects such as the South-western Bangladesh Rural Development Project (SWRDP) and the Rural Transport Infrastructure Project 2 (RTIP-2).

The VOCs approach is based on the quantification of savings in financial and economic VOCs by vehicles before and after the implementation of road development projects. The method is explained in detail in the Guidelines for Effect Monitoring and Evaluation (EME) of Rural Road and Market improvement (LGED, 1999).

The economic evaluation with the VOCs approach involves the following three steps:

1) Collection of traffic counts;
2) Calculation of VOCs; and
3) Calculation of Economic Internal Rate of Return (EIRR)

(2) Assumptions

A set of key assumptions as follows have been set up to obtain economic indicators and other relevant factors:

a) Costs

- The capital cost generated on the basis of the type of physical work and per unit cost with respect to four cost regions in the Project area.
- Road development is assumed to be completed in two years, 60% in year one and the remainder in year two.
- For Upazila and Union roads, the periodic maintenance cost is 10% of the capital cost, and will be implemented every five years. The annual routine maintenance cost is 1% of the capital cost.
- The design and supervision cost is assumed to be 5% of the capital cost, and is added during the construction period.
- Financial costs (capital and maintenance) have been converted to economic costs at a standard conversion factor 0.8 to remove tax and duty components, as well as to adjust for any market distortions (such as subsidies) in financial prices.

b) Benefits

The benefit is the reduction in VOCs of motorized and non-motorized vehicles. The ex-ante and ex-post project VOCs are calculated to obtain the benefits. The approach to calculate the benefit is based on those of preceding projects such as SWRDP and RTIP-2.

First, the pre-development annual average daily traffic (AADT) is determined for each road using the information by the LGED. The traffic of the following categories of vehicles was counted: 1) motorized vehicles (auto-rickshaw, jeep, taxi, car, motor cycle, pick-up, microbus, bus, minibus, truck, tractor); 2) non-motorized vehicles (bicycle, bullock cart, rickshaw, rickshaw van); and 3) pedestrians.

Second, the post-development AADT is determined. After the development of the road, it is assumed that traffic reaches 160% of the pre-development traffic volume when full effect of the development is achieved. Further, an annual 8% increase in traffic volume is assumed based on the 5.5% economic growth per annum.

Third, the data set on unit VOCs for various vehicle types and surface roughness used by RTIP-2 is employed to calculate the VOCs before and after the development of each road, as this is the best available data set. VOCs before and after the development of each road give the difference between the VOCs at different roughness levels (International Roughness Index=IRI) which generates the savings of VOC. For this analysis, in the "without project" scenario, IRI equals 18 for typical earthen road, IRI=14 for HBB road, and IRI=9 for the BC type of road surface. In the "with project" scenario, IRI is equal to 4, which represents a well-paved road surface and outcome of road improvement work.

Unit VOCs are based on the RTIP-2 study conducted in the 2011 monetary values. They are updated to the 2012 monetary values at the inflation rate of 11.23 %. However, the following assumptions have been applied to have the project benefit in the cost-benefit stream.

- 40% and 70 % of the annual VOCs benefit are accrued by the existing traffic in the first and second year, respectively, after the completion of road development.
- From the third year onwards, 100 % of the benefit is assumed to be accrued.
- For newly generated traffic, 60% of the annual VOCs benefit has been realized in the 3rd year after development completion and 100% from the fourth year onwards.

Table A24-1 Economic vehicle operating costs

(BDT per vehicle km)

	IRI	Bicycle/Helicopter	Rickshaw	Rickshaw-Ven	Bullock Cart	Push Cart	Motorcycle	Auto-rick/Tempo	Pickup	Bus/ Mini-bus	Truck/ Tractor	Car	Pedestrian
Develop--------	4	1.16	3.36	3.36	8.16	8.16	2.05	3.98	14.58	29.73	37.41	15.99	0.44
	5	1.20	3.68	3.68	8.33	8.33	2.08	4.09	15.14	30.71	38.95	16.46	0.45
	6	1.24	3.56	3.56	8.48	8.48	2.12	4.19	15.82	31.69	40.54	16.95	0.47
	7	1.23	3.70	3.70	8.64	8.64	2.13	4.31	16.62	32.67	42.19	17.43	0.48
	8	1.27	3.78	3.78	8.79	8.79	2.15	4.43	17.60	33.70	43.88	17.91	0.48
	9	1.30	3.88	3.88	8.96	8.96	2.15	4.57	18.76	34.89	45.64	18.46	0.49
BC------	10	1.34	3.98	3.98	9.12	9.12	2.16	4.70	20.09	36.29	47.50	19.06	0.51
	11	1.44	4.26	4.26	9.65	9.65	2.18	4.86	21.54	37.89	49.47	19.72	0.55
	12	1.54	4.57	4.57	10.24	10.24	2.23	5.03	23.06	39.68	51.53	20.40	0.59
	13	1.67	4.94	4.94	10.91	10.91	2.29	5.20	24.65	41.61	53.65	21.14	0.64
HBB/WBM---	14	1.81	5.36	5.36	11.67	11.67	2.35	5.37	26.29	43.64	55.88	21.88	0.71
	15	1.98	5.86	5.86	12.55	12.55	2.43	5.58	27.96	45.76	58.14	22.65	0.78
	16	2.19	6.46	6.46	13.55	13.55	2.51	5.79	29.66	47.88	60.47	23.44	0.86
	17	2.44	7.21	7.21	14.73	14.73	2.60	5.99	31.41	50.05	62.89	24.26	0.96
Earthen----	18	2.77	8.16	8.16	16.14	16.14	2.70	6.20	33.20	52.24	65.40	25.11	1.10

Source: Rural Transport Improvement Project-2 (RTIP-2) Preparation Study Report (2012)
Note: Since the original table was measured in 2011, the Survey team adjusted it to the current value by multiplying it by the inflation rate from 2011-12.

c) Other assumptions

- The project life is set at 20 years, following the practices of preceding projects such as SWRDP and RTIP 2.
- Price contingency, and taxes and duties are excluded from the economic costs.
- A discount factor of 0.12 is used to derive the net present value (NPV), as the standard discount rate 12% is used in economic analyses of projects currently implemented in Bangladesh.

(3) Calculation

The EIRR and NPV are calculated for each Upazila and Union road using a spreadsheet. The quantified benefits for the roads are the VOCs in economic prices. These benefits are compared with the economic costs of road improvement and maintenance. All costs and benefits are expressed in constant 2011/2012 prices. The calculation format used is presented in Table A24-5.

(4) Results

EIRR on Upazila roads (development)
69 Upazila roads in total passed the selection and appraisal procedure. All 69 UZRs were economically viable with having the EIRR higher than 12%. The EIRR for these UZRs ranges from 12 % to 57 % and the average is 25.58 %. This indicates moderately high economic viability.

EIRR on Upazila roads (rehabilitation)
18 Upazila roads passed the preliminary selection and appraisal procedure. All UZRs were economically viable, with having EIRR higher than the standard discount rate of 12%. The EIRR for these UZRs range from 14.5% to 53.4%, and the average EIRR is 31.4%. These results indicate high economic viability.

EIRR on Union roads
47 Union roads in total passed the selection and appraisal procedure. The EIRR for these union roads ranges from 12% to 41% and the average is 21.43%. This indicates moderately high economic viability.

Table A24-2 Result of economic analysis: UZR

DISTRICT	UPAZILA	ROAD CODE	ROAD NAME	EIRR	NPV (million BDT)
DINAJPUR	BIRAMPUR	127102005	Tatakpur RHD-Madhala GC (Janipur) via Munnapara River ghat & Jotjoyram	22.56%	61.1
DINAJPUR	CHIRIRBANDAR	127302008	Binnakuri GC to Ishamati National HY	23.54%	67.7
DINAJPUR	GHORAGHAT	127432009	Bager hat GC (Azad mor)-Osmanpur GC via T&T mor.	23.92%	60.5
DINAJPUR	BIROL	127172009	Narabari GC to Pulhat RHD	24.60%	81.3
DINAJPUR	HAKIMPUR	127472003	Hilli GC-Katlahat GC starting from Satkuri Railgate via NAYANAGAR HAT GC	31.98%	79.8
DINAJPUR	KHANSHAMA	127602006	Khansama-Kachinia hat G.C.	35.98%	313.9
DINAJPUR	BIRGANJ	127122004	Kobiraj GC (NHW)-Mahugaon R&H.Road	40.16%	153.8
DINAJPUR	KAHAROL	127562006	Mutunihat-Noshipurhat Rd.	40.46%	129.4
DINAJPUR	FULBARI	127382008	Amdungihat GC-Baraihat GC via Pathokparahat and Samser nagar hat Rd.	41.93%	222.1
GAIBANDHA	GAIBANDHA-S	132242009	Tulsighat hat-Ramchandrapur Palli Health center road	13.47%	6.3
GAIBANDHA	SUNDARGANJ	132912005	Sundargonj-Materhat G.C (FRA)	15.51%	38.3
GAIBANDHA	SADULLAPUR	132822009	Madergonj G.C-Pachar bazar G.C	25.79%	109.7
GAIBANDHA	PALASHBARI	132672004	Palashbari Upazila H/Q-Chattra GC Road via Kishorgari UP office	29.70%	143.6
JAMALPUR	JAMALPUR-S	339362005	Banschara G.C-Jamalpur-Chacua-Moktagasa D.R at Gopalpur.	12.11%	0.8
JAMALPUR	BAKSHIGANJ	339072008	Dotterchar R&H-Sarmara G.C.	18.47%	24.0
JAMALPUR	ISLAMPUR	339292007	Mosharofgonj R & H-Guthail GC Via Belghacha UP Rd.	25.19%	137.1
JAMALPUR	MADARGANJ	339582009	Rayaganj GC-Simla Bazar RHD Road via Royerchara Bazar Rd. (Madarganj Part)	27.00%	119.2
JAMALPUR	MELENDAH	339612010	Tonkey GC - Durmut GC (Shundara fasal) Road	27.24%	28.4
JAMALPUR	SARISHABARI	339852009	Simlabazar (RHD)-Rayagonj GC Road via Borobaria	36.20%	109.4
KISHOREGANJ	MITHAMOIN	348592003	Mithamoin-Natunhati-Austagram Rd (Mithamoin Part).	15.65%	15.5
KISHOREGANJ	NIKLI	348762006	Nikli Bazar-Chuntikhali Launch Ghat-Ashtagram Road	16.96%	28.6
KISHOREGANJ	AUSTAGRAM	348022002	Austagram-Mitamoin Road	26.41%	143.4
KURIGRAM	FULBARI	149182006	Fulbari-Gagla G. C.-Gongerhat R & H Road to Ramkhana Dighirpar Via Anantopur Bar	12.53%	2.5
KURIGRAM	RAJIBPUR	149082003	Rajibpur GC-Kadalkati G.C.	13.80%	8.2
KURIGRAM	RAJARHAT	149772005	Nazimkhan GC-Ratigram GC via Dangrarhat.	19.14%	31.8
LALMONIRHAT	LALMONIRHAT-S	152552010	Lalmonirhat upazilla H/Q at purbo thana para to Mohendranagar GC via Dhebdhebir hat.	18.59%	44.3
LALMONIRHAT	KALIGANJ	152392008	Durakuti GC to Zill Road at Bhularhat via chapar Hat	27.91%	129.7
LALMONIRHAT	ADITMARI	152022007	Mohishkhocha GC-Namurihat Zila road .	31.67%	93.7
MYMENSINGH	GOURIPUR	361232005	Shyamgonj GC-Hogla GC (Gouripur part).	12.51%	2.3
MYMENSINGH	GAFFARGAON	361222010	Lamkain-Kandipara Rd.	13.28%	3.5
MYMENSINGH	MUKTAGACHA	361652010	Muktagacha Trimohini Natun Bazar GC-Mohammadnagar GC via Hazi Kashem Ali Girls	14.26%	12.3
MYMENSINGH	HALUAGHAT	361242003	R&H (Nagla)-Goatola GC via Shakuai GC(Haluaghat part).	17.20%	75.5
MYMENSINGH	PHULPUR	361812007	kakni R&H-Shyamgonj GC Road via Bhusher Bazar & Raijdarikel G.C.	22.97%	136.4
MYMENSINGH	FULBARIA	361202011	Hatkalir Bazar GC-Kalibari Bazar via Garajan	27.50%	38.8
MYMENSINGH	TRISHAL	361942010	Chakrampur GC-Kalirbazar GC road .	30.88%	221.7
MYMENSINGH	BHALUKA	361132004	Mallikbari Bazar-Borchona	36.07%	214.3
NETROKONA	ATPARA	372042008	Avoypasha R&H-Najirganj G.C. road via Mobarakpur	13.91%	17.4
NETROKONA	BARHATTA	372092007	Amtala-Samaj GC Road (Barhatta Portion)	16.72%	31.0
NETROKONA	NETRAKONA-S	372742006	Netrakona-Shidly GC Road. (Sadar part.)	21.16%	214.3
NETROKONA	MADAN	372562008	Teosree GC-Fatepur GC.	46.36%	305.0
NILPHAMARI	DOMAR	173152013	Sonarai Hat RHD road -Basunia Hat GC via Sonarai UP Office.	21.48%	38.9
NILPHAMARI	DIMLA	173122011	Baburhat G.C-CARE bazar R&H Road	22.83%	35.6
NILPHAMARI	NILPHAMARI-S	173642018	Nilphamari-Jaldhaka R&H road at Kachukata Bondor to Nilphamari-Domar R&H road v	30.12%	215.8
NILPHAMARI	JALDHAKA	173362007	Jaldhaka Bazar (Upazila H/Q)-Mirgonj GC Via Binnabari hat	47.44%	208.6
PANCHAGARH	TETULIA	177902006	Panchagarh-Banglabandha R&H (Dargashing) - Shalbahan GC	19.38%	17.4
PANCHAGARH	DEBIGANJ	177342009	Saldanga R&H at Gp School - Shakoa GC	24.84%	32.4
PANCHAGARH	BODA	177252006	Maidandighi GC - Bottoli G.C Road.	31.92%	203.9
PANCHAGARH	PANCHAGARH-S	177732007	Panchagarh Barister Institute - Goaljharhat via Amtola Road.	38.44%	300.6
RANGPUR	KAUNIA	185422005	Mahigonj Pawtana (Damurchakla)-Nabdigonj Tapamodhupur GC (Kaunia Portaion)	16.25%	4.6
RANGPUR	MITHAPUKUR	185582009	Bairagigonj Busstand NHW to Ranipukur Via Dhap Bazar.	20.67%	55.7
RANGPUR	GANGACHARA	185272002	Gangachara UZHQ (Near College)-Paglapir GC Via Birabarihat	23.73%	72.7
RANGPUR	PIRGANJ	185762010	Bhendabari GC to Nawabgonj GC via Pirerhat-Tukuria-Katchdaherghat	53.72%	555.8
RANGPUR	PIRGACHA	185732005	Chowdhurani GC-Sundarganj UZHQ (Part)	57.52%	481.5

DISTRICT	UPAZILA	ROAD CODE	ROAD NAME	EIRR	NPV (million BDT)
SHERPUR	SHERPUR-S	389882010	Lasmanpur RHD - Nandina GC Road via. Gugurakandi UP	12.54%	6.8
SHERPUR	NAKLA	389672003	Nakla-Tarakanda GC-Nalitabari Road.	15.28%	24.6
SHERPUR	NALITABARI	389702011	Araiani Bazar-Ghagpara bazar-Kalakuma-Karanga para	17.11%	50.2
SHERPUR	SREEBORDI	389902004	Bhayadanga-Bakshigonj Road.	28.09%	130.5
TANGAIL	TANGAIL-S	393952006	Torapgonj-Jamuna Bridge Approach Road via char pouly	15.07%	72.3
TANGAIL	BHUAPUR	393192002	Shialkol GC-Nikrail GC Via Golabari road	15.15%	17.0
TANGAIL	MADHUPUR	393572003	Chapri-Garohat Road	18.34%	24.3
TANGAIL	SHAKHIPUR	393852004	Sakhipur - Suruj GC Road via Salgrampur,Tejpur Ferryghat.	22.77%	88.4
TANGAIL	DELDUAR	393232003	Delduar-Natiapara Rd.	25.80%	100.2
TANGAIL	NAGARPUR	393762003	Nagarpur-Mirzapur Road Via Mokna	28.86%	362.6
TANGAIL	BASAIL	393092004	Basail-Natiapara GC via Bilpara Road.	31.85%	253.9
TANGAIL	GHATAIL	393282005	Dhalapara-Deopara-Purbasinda Road	34.60%	162.9
THAKURGAON	THAKURGAON-S	194942015	Parpugi RHD-Neckmorad GC Road.	14.18%	8.6
THAKURGAON	BALIADANGI	194082004	Lahiri G.C-Ramnath G.C via Chowrangi hat Road	28.53%	96.8
THAKURGAON	RANISANKAIL	194862008	Nekmord College R&H-Moharaja GC Road	33.88%	106.9
THAKURGAON	PIRGANJ	194822007	Nakkatihat GC-Sinua RHD Road.	43.08%	125.7

Table A24-3 Result of economic analysis: UZR (Rehabilitation)

DISTRICT	UPAZILA	ROAD CODE	ROAD NAME	EIRR	NPV
DINAJPUR	HAKIMPUR	127472001	Hakimpur-Ghoraghat Road Starting from Hilli CP BDR Camp	53.4%	268.1
DINAJPUR	KAHAROL	127562001	Kaharol-Bochaganj (D-2) Road .	25.2%	40.3
DINAJPUR	BIROL	127172002	Birol Upazila H/Q. to Dhukurjhari hat road.	30.3%	30.3
JAMALPUR	MELENDAH	339612004	Bhabki RHD - Raigonj GC Via Beltail Bazar.	14.5%	9.4
KURIGRAM	CHILMARI	149092005	Thanahat GC-Ramna River Ghat Road	27.5%	14.9
KURIGRAM	KURIGRAM-S	149522003	Dharla bridge approach-Jatrapur GC	41.5%	81.5
LALMONIRHAT	ADITMARI	152022003	Burirhat GC-Bhelabari GC	22.3%	25.8
MYMENSINGH	TRISHAL	361942014	RHD road at Raghamara-Chakrampur GC.	23.2%	26.6
MYMENSINGH	GOURIPUR	361232006	Kaltapara RHD-Gouripur.	19.9%	11.8
NILPHAMARI	NILPHAMARI-S	173642001	Nilphamari to Bhobanigonj G.C.	22.9%	37.2
NILPHAMARI	DOMAR	173152002	Domar GC-Chilahati GC via Muktirhat road	34.4%	209.8
PANCHAGARH	PANCHAGARH-S	177732002	Panchagarh - Chaklahat Road.	49.3%	221.9
PANCHAGARH	DEBIGANJ	177342002	Debiganj R&H Road (Bat Tree More) - Jharbari GC	35.1%	148.4
PANCHAGARH	ATWARI	177042001	Fakirgonj hat GC - Shathkhamar R&H Road	29.9%	99.5
RANGPUR	PIRGANJ	185762002	Barodarga NHW-Madargonj GC	32.0%	93.8
RANGPUR	RANGPUR-S	185492005	NHW at Lalbag-Ranipukur GC.	30.3%	59.1
RANGPUR	MITHAPUKUR	185582005	Damdoma NHW to Nagarkotha GC via Begum Rokey Momu. Centre	33.8%	229.4
TANGAIL	DELDUAR	393232001	Delduar-Lowhati GCCR.	39.6%	126.5

Table A24-4 Result of economic analysis: UNR

DISTRICT	UPAZILA	ROAD COD	ROAD NAME	EIRR	NPV
DINAJPUR	PARBATIPUR	127773011	R & H Road at Jakerganj-Chaklardanga hat via Sundarpir, Gomostapara ,Belichan	15.8%	16.28
DINAJPUR	NAWABGANJ	127693012	Nandanpur to Kapaldara via Binodnagar	18.9%	23.24
DINAJPUR	DINAJPUR-S	127643006	Jhanjira hat-Torongini-Ramdobi hat.	26.1%	43.37
DINAJPUR	BOCHAGANJ	127213002	Mushidhat-Rangaon UP office	27.1%	46.15
GAIBANDHA	SAGHATA	132883001	Saghata GC-Kachua UP Office via Ullah Sonatala Bazar	15.8%	12.53
GAIBANDHA	FULCHARI	132213004	Udakhali U.P H/Q-Udakhali Bazar	17.4%	10.09
GAIBANDHA	GOBINDAGANJ	132303003	Shakahar U.P-Bager hat GC (Ghoraghat Mazar) Via Deghir hat	25.2%	59.05
JAMALPUR	DEWANGANJ	339153012	Bahadurabad UP-Shekpara Bazar	26.4%	48.99
KISHOREGANJ	BAJITPUR	348063001	Ujanchar bazar-Halimpur UP Rd.	12.8%	2.50
KISHOREGANJ	KULIARCHAR	348543003	Kuliarchar UZHQ to Nowapara Bazar	13.3%	2.37
KISHOREGANJ	PAKUNDIA	348793002	Tarakandi bazar-Char Faradi UP Rd.	17.8%	16.55
KISHOREGANJ	KARIMGANJ	348423007	Kadirjangal UP H/Q-Nilganj GC Road via Hatrapara Bazar	18.2%	19.40
KISHOREGANJ	ITNA	348333002	Dhanpur UP-Janatagonj Bazar Road	19.6%	47.09
KISHOREGANJ	KISHOREGANJ-S	348493002	Jalalpur bazar-Majkhapanj UP Rd.	27.1%	29.73
KISHOREGANJ	BHAIRAB	348113003	Shimulkandi UP H.Q-Ananda Bazar Rd.	29.2%	50.62
KISHOREGANJ	HOSSAINPUR	348273007	Char Pumdi bazar-Pumdi UP H/Q Road	29.9%	77.33
KISHOREGANJ	KATIADI	348453009	Banagram UP H/Q.-Madhyapara bazar Rd.	36.5%	91.73
KISHOREGANJ	TARAIL	348923004	Thana H.Q-Dhamiha Bazer	40.5%	75.56
KURIGRAM	ROWMARI	149793002	Dantbhanga Feeder(Shalur more)--Kazaikata hat	12.0%	-0.09
KURIGRAM	ULIPUR	149943005	Tabakpur UP-Adarsa bazar.	15.6%	11.39
KURIGRAM	NAGESWARI	149613010	Nageswari Gc-Hashnabad UP office.	18.0%	22.42
KURIGRAM	CHILMARI	149093003	Thanahat UP office at Gabtola to Ranigonj UPC.	20.0%	23.68
KURIGRAM	KURIGRAM-S	149523006	Pangachi-Bhitorbond road.	22.2%	49.60
KURIGRAM	BHURUNGAMARI	149063002	Jomyonirhat UP-Bhurangamari(Bus stand)	22.2%	19.28
LALMONIRHAT	PATGRAM	152703005	Patgram UP-Varverirhat Via Kawamarihat & Kalirhat.	20.08%	105.17
LALMONIRHAT	HATIBANDHA	152333010	Dakalibandha to Fepranogre(Dauwabari up) via Ketkibari	23.9%	73.26
MYMENSINGH	ISHWARGANJ	361313006	Mogtola U.P-Modhupur Bazar Road.	12.9%	2.42
MYMENSINGH	DHOBAURA	361163001	Dhobaura up-Ghosegoan up Rd [Started from Hospita]	16.7%	15.04
MYMENSINGH	NANDAIL	361723007	Chandipasha U.P-Shialdhara Bazar Road via Bashati bazar	17.9%	28.01
MYMENSINGH	MYMENSINGH-S	361523004	Dapunia UP-Montala Bazar Rd. via Shorshamala Bazar	30.8%	104.30
NETROKONA	MOHANGANJ	372633003	Mohonganj Upazila H/Q (Satur)-Maghan Shiadhar UP rd.	13.6%	2.78
NETROKONA	KHALIAJURI	372383003	Khaliajuri UP-Proshadpur Bazar via Roail-Adawara Nayanagar	15.0%	24.06
NETROKONA	DURGAPUR	372183012	Durgapur UP office(Attraikhali)-Fanda bazar rd.	17.6%	20.10
NETROKONA	PURBADHALA	372833015	Netrokona (Hatkhola bazar)-Dhala Mulgaon UP road	18.5%	11.44
NETROKONA	KENDUA	372473005	Goradoba UP office-Bashati bazar via Biddha ballab and Goradoba Bazar	19.6%	33.36
NETROKONA	KALMAKANDA	372403010	Langura UP Office-Rahimpur Bazar via Nalchapra Bz. Rd.	28.2%	93.09
NILPHAMARI	KISHOREGANJ	173453023	Chandkhana UP Office-Kellabarirhat via Darjitari, Burirhat & Chandkhana ghat.	14.6%	12.51
NILPHAMARI	SAYEDPUR	173853009	Banirhat-Shibarhat.	35.2%	80.00
PANCHAGARH	ATWARI	177043004	Dhamore UP - Sonapatila Hat Via Kiron Babu Hat Road	21.2%	29.34
RANGPUR	BADARGANJ	185033004	Bisnupur UP-Matherhat via Kaligonj	19.7%	64.53
RANGPUR	RANGPUR-S	185493002	UZHQ to Nekirhat Bazar via Horidebpur UPC	20.1%	97.89
SHERPUR	JHENAIGATI	389373005	Jhinaigati GC-Sribordi RHD Road via Garjaripa UP.	24.9%	69.50
TANGAIL	MIRZAPUR	393663005	Bhabkhanda Bazar-Khagutia bazar Anaitola UP Road	12.56%	1.37
TANGAIL	KALIHATI	393473004	Kokdohara-Pathalia Road via Bagutia	17.3%	60.87
TANGAIL	GOPALPUR	393383002	Syedpur-Nagdasimla UP office	22.1%	11.60
TANGAIL	DHANBARI	393963019	Kendua-Paiska road	37.5%	81.53
THAKURGAON	HARIPUR	194513008	Bakua UP Office-Chapdahat Road.Via Buzrok,Singhari.	14.1%	9.35

Table A24-5 Sample estimation of EIRR for Upazila roads

District: DINAJPUR Road Name: 127562006 Mutunihat-Noshipurhat Rd.
Upazila: KAHAROL
Total Capital Cost 41.71 Earthen 5.05 Road length 5.05 km

Routine Maint Cost 0.417 HBB 0 Construction Period(Yrs) 2

Periodic Maint Cost 4.171 BC 0 Project life (Yrs) 20

Vehicle type	Without project situation: Traffic volume Hat Day	Non Hat Day	AADT	Vkm /day (Qud)	Vkm VOC (Cud)	With project situation: Vkm /day (Qd)	Vkm VOC (Cd)	Annual VOCs Benefits: Vkm VOC savings	VOCs on Existing Traffic (VOCs ET)	VOCs on Generated Traffic (VOCs GT)
AR			3	16	6.20	28	3.98	2.22	13,236	4,818
Pv			0	0	25.11	0	15.99	9.12	-	-
M			356	1796	2.70	3103	2.05	0.64	421,510	153,430
Pv			0	0	33.20	0	14.58	18.63	-	-
B			0	0	52.24	0	29.73	22.51	-	-
T			2	9	65.40	15	37.41	27.99	88,163	32,091
Bi			2203	11125	2.77	19224	1.16	1.61	6,532,336	2,377,770
Pc			0	0	16.14	0	8.16	7.99	-	-
R			0	0	8.16	0	3.36	4.80	-	-
Rv			498	2516	8.16	4348	3.36	4.80	4,405,968	1,603,772
P	0	0	3868	19533	1.10	33753	0.44	0.66	4,728,504	1,721,176
Total (Million BDT)									16.19	5.89

Where

Vkm=	Vehicle Kilometer	Shadow Pricing Factor(SPF)	
Qud=	Vehicle Kilometer of Undeveloped Rd	For Capital Cost	0.800
Qd=	Vehicle Kilometer of developed Rd	For Maintenance Cost	0.800
Cud=	Per Vkm VOC of Undeveloped Rd	Traffic Growth Rate (%)	8%
Cd=	Per Vkm VOC of developed Rd	Discount Factor	12%

AADT Factor For Hat Day 45%, Non Hat Day 30% and Seasonal Factor for Dry Season 0.92

Coding Instruction, Bi=Bi-cycle, BC=Bullock Card, R=Rickshaw, Rv=Rickshaw van, AR=Auto Rickshaw, Pc=Push cart, M=Motor Cycle, Pv=Pickup/Jeep/Car, B=Bus/Minibus,T=Truck/Tractor,P=Pedestrian

Base Case and Sensitivity Test (Million BDT)

Year	Costs: Capital Cost	Maint. Cost	Total Cost	Benefits: Existing Traffic	Generated Traffic	Total Benefits	Cash flow	Sensitivity Test: Cost) (+20%	Benefit (-20%	Both Case	Existing Traffic
1	20.021		20.0			0.00	-20.02	-24.0	-20.0	-24.0	-20.0
2	13.347		13.3			0.00	-13.35	-16.0	-13.3	-16.0	-13.3
3		0.33	0.33	6.48	0	6.48	6.14	6.1	4.8	4.8	6.1
4		0.33	0.33	11.33	0	11.33	11.00	10.9	8.7	8.7	11.0
5		0.33	0.33	16.19	3.54	19.73	19.39	19.3	15.4	15.4	15.9
6		0.33	0.33	17.48	5.89	23.38	23.04	23.0	18.4	18.3	17.2
7		3.34	3.34	18.88	6.36	25.25	21.91	21.2	16.9	16.2	15.5
8		0.33	0.33	20.39	6.87	27.27	26.93	26.9	21.5	21.4	20.1
9		0.33	0.33	22.03	7.42	29.45	29.12	29.0	23.2	23.2	21.7
10		0.33	0.33	23.79	8.02	31.81	31.47	31.4	25.1	25.0	23.5
11		0.33	0.33	25.69	8.66	34.35	34.02	33.9	27.1	27.1	25.4
12		3.34	3.34	27.75	9.35	37.10	33.76	33.1	26.3	25.7	24.4
13		0.33	0.33	29.97	10.10	40.07	39.73	39.7	31.7	31.7	29.6
14		0.33	0.33	32.36	10.91	43.27	42.94	42.9	34.3	34.2	32.0
15		0.33	0.33	34.95	11.78	46.73	46.40	46.3	37.1	37.0	34.6
16		0.33	0.33	37.75	12.72	50.47	50.14	50.1	40.0	40.0	37.4
17		3.34	3.34	40.77	13.74	54.51	51.17	50.5	40.3	39.6	37.4
18		0.33	0.33	44.03	14.84	58.87	58.54	58.5	46.8	46.7	43.7
19		0.33	0.33	47.55	16.03	63.58	63.25	63.2	50.5	50.5	47.2
20		0.33	0.33	51.36	17.31	68.67	68.33	68.3	54.6	54.5	51.0
NPV@ 12%			33.0	157.2	46.61	162.4	129.4	122.8	96.9	90.3	92.3

Base Case: EIRR(%)	NPV(M.BDT)	BCR	Sensitivity Test: Cost) (+20%	Benefit (-20%	Both Case	Existing Traffic
40.46%	129.43	4.92	36.0%	35.1%	31.2%	35.5%

2.2 Growth Centers

(1) Overview

The method used for the economic analysis of Growth Center (CG) markets and rural markets is the "Spoilage Savings" (SS) method, a prominent method adopted in a number of LGED projects. This method measures the portion of revenue lost to the seller as a result of deterioration of perishable commodities. The deterioration arises due to the lack of market facilities such as selling sheds, storage and un-improved transport infrastructure connected to the market. The sellers have to take back the unsold commodities for other markets or for the next market day. As a result, the sellers sell their commodities, particularly perishable ones, at a lower price at the end of the market day. Therefore, prices fluctuate widely throughout the day in the market that creates a revenue loss. This forms the basis of the Spoilage Savings method. In a developed market, this loss is plausibly expected to be less and the turnover of commodities is higher, due to better interaction of market forces and protection to perishable commodities. This cost-benefit approach is adopted to construct economic indicators of improving GC and rural markets.

(2) Costs

The capital costs for the development of Growth Center and rural markets were estimated by the Survey team by regions in the Project area. The costs are presented in the table below.

Table A24-6 Region based capital cost

(Unit: Million BDT)

District	Region	GC markets	Rural markets
Mymensingh	Mymensingh, Kishoreganj & Netrokona	7.60	4.56
Tangail	Tangail, Jamalpur & Sherpur	7.63	4.58
Rangpur	Nilphamari, Kurigram & Gaibandha	7.40	4.44
Dinajpur	Dinajpur, Thakurgaon & Panchagarh	7.37	4.42

Other important assumptions are as follows:

- The design and supervision cost is assumed to be 5% of the capital cost during construction, and will be added.
- The annual routine maintenance and miscellaneous costs are assumed to be 4% and 2% of the capital cost, respectively.
- The Shadow Pricing Factor for capital and maintenance is 0.8 to remove tax and duty components, and adjust for any market distortions (such as subsidies) in financial prices.
- 100% of the capital cost will be assigned in the first year as the construction period of GC and rural markets is assumed to be one year.

(3) Benefits

The benefit is measured by the difference of spoilage savings of perishable goods in the market before and after development. The spoilage estimate is made from survey data. The spoilage is the difference of revenue at the maximum price and the actual revenue received at the actual average price of the day. The average price is calculated on the basis of the maximum and minimum prices of a commodity on that day. It is assumed that spoilage will be eliminated for peak hat days after development, while no change is assumed for off-peak hat days. Therefore, the spoilage savings of peak hat days are considered to be the benefit of market development. The following assumptions are made in calculating the annual spoilage:

- There are 104 hat days in a year, among which 49 are peak hat days and 55 are off-peak hat days.
- A year contains 261 non-hat days, and they are converted to 17 off-peak hat days by adjusting the difference on sales volume. With this, the total number of off-peak hat days becomes 72, adding 17 days to the original 55 off-peak hat days.
- In conclusion, there are 49 peak hat days and 72 off-peak hat days

Third, an annual increase in trading volume is assumed to be 6.21% because the average GDP growth rate during the period of 2005-2011 (seven years) is 6.21% in Bangladesh.

(4) Other assumptions

The project life is set as 20 years. A discount factor of 0.12 is used to derive the NPV. It is assumed that for each of Growth Center markets, all capital costs will be incurred in Year 1 and the benefits will be accrued from Year 2 onward. These assumptions are based on the standard practices followed by other recent projects.

(5) Calculation

EIRR and NPV are calculated for each Growth Center market using a spreadsheet. The format used is presented in Table A24-11.

(6) Results

EIRR on Growth Center markets
In total, 70 Growth Center markets passed the selection and appraisal procedure. The EIRR ranges from 16% to 2,076% and the average EIRR is a robust 199%. This high EIRR can be attributed mainly to the relatively low-cost investment which is substantially exceeded by the benefits in the form of reduced spoilage of produce. Among them, two markets have even higher EIRR (over 2,000%) due to the large volume of the most perishable commodities such as fish that suffer from the greatest reduction in price over the course of the trading day.

EIRR on Rural markets
In total, 126 rural markets passed the selection and appraisal procedure. The EIRR ranges from 12% to 1,580% and the average EIRR is a robust 115%. The reasons of this high EIRR are the same as those on Growth Center markets.

Table A24-7 Summary of economic analysis results: GCM/RM-1

District	Upazila	Name of Market	Type	EIRR	NPV
Dinajpur	Birampur	Birampur Hat	GCM	99.0%	51.0
Dinajpur	Birgonj	Golapganj hat	GCM	115.2%	60.7
Dinajpur	Bochagonj	Setabganj Hat G.C	GCM	89.2%	45.1
Dinajpur	Chirirbandar	Binnakuri	GCM	78.6%	38.7
Dinajpur	Chirirbandar	Chirirhat	GCM	38.2%	14.5
Dinajpur	Dinajpur Sadar	Fasiladanga	GCM	48.9%	20.9
Dinajpur	Dinajpur Sadar	Raniganj	GCM	43.0%	17.3
Dinajpur	Ghoraghat	Ranigonj	GCM	59.6%	27.3
Dinajpur	Kaharol	Kaharol	GCM	294.2%	167.8
Dinajpur	Khansama	Pakerhat	GCM	58.5%	26.7
Dinajpur	Nawabgonj	Daudpur Hat	GCM	110.5%	57.9
Dinajpur	Nawabgonj	Vaduria Hat	GCM	109.3%	57.1
Dinajpur	Parbatipur	Bhabanipur	GCM	18.7%	3.3
Dinajpur	Parbatipur	Khyarpukur	GCM	82.0%	40.8
Dinajpur	Birampur	Desham Hat	RM	34.3%	7.2
Dinajpur	Birgonj	Sanka	RM	64.3%	18.1
Dinajpur	Birgonj	Khalsihat	RM	22.5%	3.2
Dinajpur	Birol	Fulbari Hat	RM	31.7%	6.3
Dinajpur	Birol	Choker Hat	RM	199.1%	66.5
Dinajpur	Bochagonj	Sadamahal Hat	RM	79.8%	23.7
Dinajpur	Bochagonj	Preetir Bazaar	RM	41.9%	10.0
Dinajpur	Chirirbandar	Dangarhat	RM	14.9%	0.8
Dinajpur	Dinajpur Sadar	North Gopalpur	RM	51.4%	13.4
Dinajpur	Fulbari	Pukhuri Hat	RM	236.6%	79.9
Dinajpur	Fulbari	Khayerbari Bazar	RM	95.3%	29.2
Dinajpur	Ghoraghat	Bologari	RM	41.6%	9.9
Dinajpur	Ghoraghat	Chadpara	RM	89.3%	27.1
Dinajpur	Hakimpur	Khattauchna	RM	33.2%	6.9
Dinajpur	Hakimpur	Jangoi Hat	RM	27.3%	4.8
Dinajpur	Kaharol	Boleya hat	RM	84.6%	25.4
Dinajpur	Kaharol	Bogdoir	RM	76.2%	22.4
Dinajpur	Khansama	Dangarhat	RM	25.3%	4.1
Dinajpur	Nawabgonj	Charar Hat	RM	282.8%	96.5
Dinajpur	Nawabgonj	Dolar Dorga Hat	RM	94.8%	29.0
Dinajpur	Parbatipur	Banirhat	RM	31.2%	6.2
Gaibandha	Sadullapur	Sadullapur Bazar	GCM	112.9%	59.6
Gaibandha	Sundarganj	Sovaganj	GCM	28.8%	8.9
Gaibandha	Gobindagonj	Gheedanga hat	RM	28.1%	5.1
Gaibandha	Palashbari	Talukjamira Hat	RM	114.7%	36.4
Gaibandha	Sadullapur	Edrakpur Bazar	RM	13.4%	0.4
Gaibandha	Saghata	Kochuahat	RM	25.3%	4.1
Gaibandha	Saghata	Ullah Sonatola	RM	28.0%	5.1
Gaibandha	Sundarganj	Baruarhat	RM	22.1%	3.1
Gaibandha	Sundarganj	Saitantola	RM	38.1%	8.7
Jamalpur	Islampur	Dharmakura Bazar	GCM	542.0%	327.0
Jamalpur	Islampur	Guthail Bazar	GCM	542.0%	327.0
Jamalpur	Melandah	Hazrabari GC	GCM	54.4%	25.0
Jamalpur	Sarishabari	Aramnagar Hat	GCM	176.7%	101.0
Jamalpur	Dewanganj	Katerbeel	RM	320.3%	114.0
Jamalpur	Dewanganj	Jalurchar	RM	67.5%	19.9
Jamalpur	Melandah	Beltail Bazar	RM	42.5%	10.6
Jamalpur	Melandah	Kahetpara Bazar	RM	36.8%	8.5

Table A24-8 Summary of economic analysis results: GCM/RM-2

District	Upazila	Name of Market	Type	EIRR	NPV
Kurigram	Rajibpur	Baliamari	GCM	76.8%	37.8
Kurigram	Rowmari	Rowmari	GCM	152.5%	83.3
Kurigram	Fulbari	Pakhirhat	RM	299.0%	102.7
Kurigram	Kurigram Sadar	Sulkurbazar	RM	35.6%	7.8
Kurigram	Nageswari	Naykerhat	RM	68.7%	19.7
Kurigram	Nageswari	Momingonj	RM	32.4%	6.6
Kurigram	Rajarhat	Nakkatirhat	RM	41.1%	9.7
Kurigram	Rajibpur	Nayachar Bazar	RM	92.7%	28.4
Kurigram	Rowmari	Char Shoulmari	RM	86.7%	26.3
Kurigram	Rowmari	Pakhiura	RM	69.2%	19.9
Mymensingh	Bhaluka	Birunia	GCM	59.7%	28.2
Mymensingh	Gouripur	Shyamgonj	GCM	82.3%	42.3
Mymensingh	Gouripur	Gouripur	GCM	73.9%	37.0
Mymensingh	Haluaghat	Shakuai GC Market	GCM	45.2%	19.2
Mymensingh	Haluaghat	Haluaghat GC	GCM	66.1%	32.2
Mymensingh	Ishwarganj	Rayer Bazar	GCM	2076.1%	1,271.2
Mymensingh	Phulpur	Bhaitkandi Bazar	GCM	123.0%	67.4
Mymensingh	Bhaluka	Angargara	RM	377.2%	134.6
Mymensingh	Bhaluka	Paruldia	RM	241.9%	84.5
Mymensingh	Dhobaura	Chariakanda	RM	182.3%	62.4
Mymensingh	Gaffargaon	Mukhi school bazar	RM	65.8%	19.2
Mymensingh	Haluaghat	Dhurail	RM	118.5%	38.8
Mymensingh	Haluaghat	Mazrakura	RM	157.5%	53.2
Mymensingh	Ishwarganj	Charpara Bazar	RM	342.1%	121.6
Mymensingh	Ishwarganj	Surjer Bazar	RM	111.2%	36.1
Mymensingh	Muktagacha	Shasa Bangla bazar	RM	85.6%	26.6
Mymensingh	Muktagacha	Kheruajani Bazar	RM	479.4%	172.4
Mymensingh	Nandail	Bashati Market	RM	38.4%	9.0
Mymensingh	Nandail	Seed Store Market	RM	102.1%	32.7
Mymensingh	Phulpur	Charia Bazar	RM	195.7%	67.4
Mymensingh	Phulpur	Horiagai Bazar	RM	117.9%	38.6
Mymensingh	Trishal	Dhala Bazar	RM	69.1%	20.5
Mymensingh	Trishal	Kashigong Bazar	RM	33.3%	7.1
NETROKONA	Kalmakanda	Pagla Bazar	RM	31.7%	6.5
NETROKONA	Kendua	Bekhair Hati	GCM	19.0%	3.5
NETROKONA	Khaliajuri	Udaypur Bazar	RM	17.7%	1.7
NETROKONA	Khaliajuri	Satgaon	RM	12.3%	0.1
NETROKONA	Madan	Singher Bazar	RM	16.9%	1.5
NETROKONA	Mohanganj	Charpar Bazar	RM	30.3%	6.0
NETROKONA	Purbadhala	Hogla Bazar	GCM	35.4%	13.1
NETROKONA	Purbadhala	Jaria Bazar	RM	81.6%	25.1
NILPHAMARI	Dimla	Shutibari Hat	GCM	462.6%	269.6
NILPHAMARI	Dimla	Thakurgonj Hat	GCM	316.8%	182.0
NILPHAMARI	Dimla	Khagakharibari Hat	RM	517.5%	181.4
NILPHAMARI	Dimla	Shalhati Hat	RM	443.1%	154.6
NILPHAMARI	Jaldhaka	Baroghat hat	RM	46.4%	11.6
NILPHAMARI	Jaldhaka	Rother Bazar	RM	281.3%	96.4
NILPHAMARI	Kishoreganj	Bangla Bazar (Magura UP)	RM	93.2%	28.6
NILPHAMARI	Sadar	Dhelapir hat	RM	66.8%	19.0
NILPHAMARI	Sadar	Jadur hat	RM	18.2%	1.8

Table A24-9 Summary of economic analysis results: GCM/RM-3

District	Upazila	Name of Market	Type	EIRR
PANCHAGARH	Atwari	Fakirgonjr hat GC	GCM	122.3%
PANCHAGARH	Atwari	Dungdungir hat	RM	79.7%
PANCHAGARH	Atwari	Rakhal Debi hat GC	RM	68.5%
PANCHAGARH	Boda	Balaram Hat	RM	38.7%
PANCHAGARH	Boda	Tepukuria Hat	RM	16.8%
PANCHAGARH	Debiganj	Kaliganjhat	GCM	152.2%
PANCHAGARH	Debiganj	Saldangahat	RM	24.2%
PANCHAGARH	Debiganj	Laxmirhat	RM	65.5%
PANCHAGARH	Sadar	Futkibarihat	RM	112.1%
PANCHAGARH	Sadar	Jhalaihat	RM	165.1%
PANCHAGARH	Tetulia	Shalbahan	GCM	149.1%
PANCHAGARH	Tetulia	Magurmari Chowrasta	RM	21.9%
PANCHAGARH	Tetulia	Ranachandi hat	RM	33.4%
RANGPUR	Badargonj	Shyampur	GCM	101.7%
RANGPUR	Badargonj	Madargonj	RM	15.0%
RANGPUR	Badargonj	Shakerhat	RM	27.5%
RANGPUR	Kaunia	Modhupur hat	GCM	73.3%
RANGPUR	Kaunia	Takipal hat	GCM	87.2%
RANGPUR	Kaunia	Jamtolir hat	RM	51.4%
RANGPUR	Kaunia	Joy Bangla Bazar	RM	92.7%
SHERPUR	Jhenaigati	Jhenaigati	GCM	134.0%
SHERPUR	Jhenaigati	Gobindaganj Hat	GCM	149.6%
SHERPUR	Jhenaigati	Mohangong Hat	RM	71.4%
SHERPUR	Jhenaigati	Bakakura Bazar	RM	79.9%
SHERPUR	Nakla	Narayankhola	GCM	267.0%
SHERPUR	Nakla	Nakla Bazar	GCM	64.8%
SHERPUR	Nakla	Baromaisha	RM	46.8%
SHERPUR	Nakla	Pathakata	RM	186.0%
SHERPUR	Nalitabari	Ghakpara	RM	20.2%
SHERPUR	Nalitabari	Noljora	RM	58.0%
SHERPUR	Sherpur Sadar	Kamarerchar GC	GCM	368.2%
SHERPUR	Sherpur Sadar	Bimgonj Bazar	RM	520.0%
SHERPUR	Sherpur Sadar	Rasulpur Bazar	RM	431.9%
SHERPUR	Sreebordi	GILAGACHA	RM	27.7%
SHERPUR	Sreebordi	BALIJHURI	RM	12.7%

Table A24-10 Summary of economic analysis results: GCM/RM-4

District	Upazila	Name of Market	Type	EIRR	NPV
TANGAIL	Basail	Moytha Janjania Notun Bazar	RM	44.7%	11.4
TANGAIL	Bhuapur	Gabshara Hat	RM	98.1%	31.3
TANGAIL	Shakhipur	Boheratail Hat	GCM	18.1%	3.0
TANGAIL	Delduar	Naliapara	RM	149.7%	50.6
TANGAIL	Delduar	Rupshi Hat	RM	251.1%	88.3
TANGAIL	Tangail Sadar	Torapgonj	GCM	216.1%	125.3
TANGAIL	Tangail Sadar	Gala Bazar	RM	316.5%	112.6
TANGAIL	Dhanbari	Zagirachala	RM	12.6%	0.2
TANGAIL	Tangail Sadar	Binnafoir	RM	142.4%	47.8
TANGAIL	Dhanbari	Bhaight	RM	22.2%	3.2
TANGAIL	Ghatail	Delutia	RM	35.7%	8.0
TANGAIL	Ghatail	Pacharata	RM	49.6%	13.2
TANGAIL	Gopalpur	Bhengala Bazar	GCM	300.6%	177.6
TANGAIL	Gopalpur	Jhawail	GCM	53.2%	24.3
TANGAIL	Kalihati	Powjan	RM	17.0%	1.5
TANGAIL	Madhupur	Madhupur	GCM	57.4%	26.9
TANGAIL	Madhupur	Lawfula	RM	24.4%	3.9
TANGAIL	Mirzapur	Hatubhanga	GCM	109.6%	59.4
TANGAIL	Mirzapur	Dewhata	GCM	468.6%	281.6
TANGAIL	Nagarpur	Tebaria	GCM	16.1%	2.0
TANGAIL	Nagarpur	Shahjani	GCM	22.0%	5.2
TANGAIL	Nagarpur	Bhadra	RM	17.1%	1.5
TANGAIL	Nagarpur	Panan	RM	18.1%	1.8
TANGAIL	Shakhipur	Shakhipur Hat	GCM	23.1%	5.9
THAKURGAON	Baliadangi	Khochabari hat	RM	31.6%	6.3
THAKURGAON	Baliadangi	Dhogachi hat	RM	23.3%	3.4
THAKURGAON	Baliadangi	Lahiri GC	GCM	350.8%	201.7
THAKURGAON	Haripur	Jadurani GC	GCM	250.7%	141.8
THAKURGAON	Pirganj	Jabor Hat	GCM	267.4%	151.8
THAKURGAON	Ranisankail	Katihar	GCM	81.2%	40.3
THAKURGAON	Thakurgaon Sadar	Shibganj	GCM	48.7%	20.8
THAKURGAON	Thakurgaon Sadar	Danarhat	RM	21.9%	3.0
THAKURGAON	Thakurgaon Sadar	Rangianihat	RM	36.5%	8.0

Table A24-11 Example of estimation of EIRR for Growth Centers

District:	Dinajpur	Upazila:	Bochagonj	Name of market	Setabganj Hat G.C
Type	GCM				

Name of Commodity	no.of Seller	Quantity sold (Kg)	Max. sale price(BDT)/ kg	Min. sale price(BDT)/ kg	Avg. sale price(BDT) /kg	Total sale Max.(BDT)	Total sale Avg.(BDT)	Spoilage per hat day (BDT)	Spoilage peak period (BDT)	Spoilage off peak period (BDT)	Annual total Spoilage (BDT)
Rice	37	2,960	35	32	33.5	103,600	99,160	4,440	217,560	319,680	537,240
Ata(Wheat Flour)	5	150	30	28	29.0	4,500	4,350	150	7,350	10,800	18,150
Fish	32	1,600	110	100	105.0	176,000	168,000	8,000	392,000	576,000	968,000
Fruits	15	1,500	180	150	165.0	270,000	247,500	22,500	1,102,500	1,620,000	2,722,500
Paddy	3	1,500	16	14	15.0	24,000	22,500	1,500	73,500	108,000	181,500
Poultry(no.)	11	1,573	180	140	160.0	283,140	251,680	31,460	1,541,540	2,265,120	3,806,660
Meat	9	5,400	260	250	255.0	1,404,000	1,377,000	27,000	1,323,000	1,944,000	3,267,000
Vegetables	75	3,375	40	30	35.0	135,000	118,125	16,875	826,875	1,215,000	2,041,875
Other	30	60	35	25	30.0	2,100	1,800	300	14,700	21,600	36,300
Other					0.0	-	-	-	-	-	-
			Annual Total Spoilage (Million BDT)						**5.50**	**8.08**	**13.58**
			Annual Total Spoilage Savings (Million BDT)								**5.50**

	Type	(Million BDT)		
Capital Cost of Investment	4	7.74	Shadow Pricing Factor	
Maintenance Cost (4% of Capital Cost)		0.3096	For Capital Cost	0.8
Miscellaneous Cost (2% of Capital Cost)		0.1548	For Maintenance Cost	0.8
Discount Factor		12%	Project Life (Years)	20
			Annual growth rate of sales (%)	6%

Economic Analysis

(Million BDT)

Year	Costs			Total benefit	Cash flow	Sensitivity Test		
	Capital Cost	Maint. Cost	Total Cost			Cost) (+20%	Benefit (-20%	Both Case
1	6.19	0.00	6.19	0	-6.19	-7.43	-6.19	-7.43
2		0.37	0.37	5.50	5.13	5.05	4.03	3.95
3		0.37	0.37	5.83	5.46	5.38	4.29	4.22
4		0.37	0.37	6.18	5.81	5.73	4.57	4.50
5		0.37	0.37	6.55	6.18	6.10	4.87	4.79
6		0.37	0.37	6.94	6.57	6.50	5.18	5.11
7		0.37	0.37	7.36	6.99	6.91	5.52	5.44
8		0.37	0.37	7.80	7.43	7.35	5.87	5.79
9		0.37	0.37	8.27	7.90	7.82	6.24	6.17
10		0.37	0.37	8.76	8.39	8.32	6.64	6.57
11		0.37	0.37	9.29	8.92	8.84	7.06	6.99
12		0.37	0.37	9.85	9.48	9.40	7.51	7.43
13		0.37	0.37	10.44	10.07	9.99	7.98	7.91
14		0.37	0.37	11.07	10.69	10.62	8.48	8.41
15		0.37	0.37	11.73	11.36	11.28	9.01	8.94
16		0.37	0.37	12.43	12.06	11.99	9.57	9.50
17		0.37	0.37	13.18	12.81	12.73	10.17	10.10
18		0.37	0.37	13.97	13.60	13.52	10.80	10.73
19		0.37	0.37	14.81	14.44	14.36	11.47	11.40
20		0.37	0.37	15.70	15.32	15.25	12.19	12.11
NPV@12%	5.53	2.44	7.97	53.08	45.11	43.52	34.50	32.90

Base Case			Sensitivity Test		
EIRR(%)	NPV(M.BDT)	BCR	Cost) (+20%	Benefit (-20%	Both Case
89.21%	45.11	6.66	74%	72%	60%

2.3 Component 2 (Pourashava Infrastructure Development)

(1) Pourashava road

a) Overview

Pourashava roads are located in Pourashava, and fall under the responsibility of Pourashava Parisad. Many of these roads are connected to Upazila roads or Union roads.

For economic appraisal of developing Pourashava roads, a Pourashava road that is connected to either the main Pourashava market or Pourashava bhaban has been selected from one Pourashava through discussion with the Pourashava engineer. Then the Survey team has selected the following four Pourashava roads:

Table A24-12 Selected Pourashava roads

Pourashava	Selected Pourashava Road	Road Length (km)	Respective Upazila Road* (Road Code)
Ulipur	Gobar mor to Bazar mor Road	1	Ulipur-Ranigonj- Fakirerhat Road (149942002)
Haragach	Haragach Pourashava Road	4	Mirbag Kadamtola R&H-Sarai GC (185422002)
Gouripur	Bangha Boundu Road	2	Ramgopalpur RHD to Shyamgonj GC via Gouripur (361232001)
Nandail	Nandail Old Bus Station Road	4	Nandail H.Q-Bakchanda G.C Road (361722002)

* Exists on either side or both sides of the Pourashava road

b) Methodology

The methods and assumptions on economic appraisal of Pourashava roads are similar to those of Upazila roads (UZRs) and Union roads (UNRs). A standard cost-benefit analysis method with Vehicle Operating Cost (VOC) savings approach was adopted to carry out economic evaluation of Pourashava roads. A two-day traffic count (one in hat-day and another in non-hat day) was undertaken in each Pourashava to perform economic appraisal. Then the AADT was calculated in the same way as that of UZRs and UNRs. In the same way as the improvement of rural road, the capital cost was generated on the basis of the type of physical work and per unit cost with respect to four cost regions in the Project area. Based on the review by the Survey team, the unit cost for Upazila road was adopted.

c) Results

The EIRR of the four sample Pourashava roads ranges from 68% to 150%, and the average EIRR is 107%. These indicate the high economic viability of the sample subprojects. A sensitivity analysis shows that a 20% increase in the capital cost will result in an average EIRR of 96%, whereas a 20 % decrease in benefit will result in an average EIRR of 94%. Finally, in a combined case of a 20% increase in the capital cost and a 20% decrease in benefit, the EIRR accounts for 85%. Moreover, if no growth of traffic occurs, EIRR results in 101%. Therefore, the project remains viable to significant variations in cost and benefit.

Table A24-13 Result of economic analysis: Pourashava roads

Pourashava	Selected Pourashava Road	EIRR	NPV
Ulipur	Gobar mor to Bazar mor Road	67.6%	30.04
Haragachh	Haragach Pourashava Road	114.6%	79.49
Gouripur	Bangha Boundu Road	95.8%	60.15
Nandail	Nandail Old Bus Station Road	149.8%	137.00

(2) Pourashava market

a) Overview

Each Pourashava has are some Growth Center Markets (GCM) or municipal markets (MM). If a market is utilized properly and generates sufficient lease revenue to cover development activity and facilities, then the market could be used as an important trading point in an urban area. Therefore, each Pourashava market should be improved to increase opportunities to trade, increase market lease revenue, and reduce spoilage of perishable goods. For economic appraisal, four Pourashava markets, which are the major agricultural crops markets in the Pourashavas, were selected in Kurigram, Rangpur and Mymensingh districts. A market survey was carried out on a hat day with a prescribed questionnaire to have the necessary market input for economic appraisal. As in the case of markets under Component 1, a spoilage savings method was adopted to carry out economic appraisal of the four Pourashava markets. Among the four Pourashava markets, Ulipur under Kurigram district and Nandail under Mymensingh district are two Growth Center markets (GCM), whereas the other two markets, Haragach in Rangpur district and Gouripur under Mymensingh districts, are municipal markets (MM). In the same way as the assessment on rural market, the capital cost of Pourashava market development is based on regions and types of markets. Table A24-14 shows selected GCN and MM.

Table A24-14 Selected GCM/MM

District	Pourashava	Type	Name of market
Kurigram	Ulipur	GCM	Ulipur Kacha Bazar
Rangpur	Haragachh	MM	Haragach Pourashava Market
Mymensingh	Gouripur	MM	Pourashava Market Modha Bazar
Mymensingh	Nandail	GCM	Nandail Pourashava Bazar

b) Methodology

The cost and benefits of GCM/MM are assumed to spread over 20 years, which is also the project life. The benefit will be the annual peak period spoilage value (in million BDT). The economic indicators of EIRR, NPV and BCR are calculated for each proposed GCM/RM using a spreadsheet. The format adopted is the same as the one in the analysis of GCM/RM in Component 1. A sensitivity analysis of respective GCM/MM was conducted to see whether the concerning GCM/MM remains viable in the following three cases: 1) cost plus 20%; 2) benefit minus 20%; and 3) combination of cases 1 and 2.

c) Results

The EIRR of the four sample Pourashavas markets range from 75% to 254%, and the average EIRR is 175%. These results indicate high economic viability of the sample subproject. A sensitivity analysis shows that a 20% increase in the capital cost will result in an average EIRR of 146%, and a 20% decrease in benefit will result in an average EIRR of 141%. Finally, in the combined case of a 20% increase in the capital cost and a 20% decrease in benefit, the EIRR becomes 117%. Therefore, the subproject remains viable even with a significant variation in cost and benefit.

Table A24-15 Results of economic analysis: Pourashava market

District	Pourashava	Name of market	EIRR	NPV
Kurigram	Ulipur	Ulipur Kacha Bazar	232.9%	161.65
Rangpur	Haragach	Haragach Pourashava Market	75.1%	29.41
Mymensingh	Gouripur	Pourashava market Modha Bazar	254.1%	118.61
Mymensingh	Nandail	Nandail Pourashava Bazar	139.9%	77.86

(3) Urban drainage

a) Overview

The expected benefit of improvement of the drainage component derives from reduced flooding to roads, houses and other properties. In addition, the income loss of inactive days due to flooding will be reduced. To assess these benefits, a sample survey was conducted in four Pourashavas in three Districts, i.e., Ulipur in Kurigam district, Haragach in Rangpur district, and Gouripur and Nandail in Mymensingh district.

b) Methodology

To assess the benefits described above, the following assumptions are adopted, based on the result of a sample survey in the four Pourashavas, and on the methodologies used in preceding LGED projects such as UGIIP-2.

- The construction period is two years. 60% and 40% of the capital cost will be assigned for the first and second years of construction, respectively.
- The percentage of roads and the number of houses damaged by flood are based on interviews with Pourashava engineers and residents who were affected by flood.
- Assumption of a 50% reduction in damage is applied as a benefit of improvement.
- Average monthly income for the respective Pourashavas is applied to take into account the amount of income loss during inactive days by flood.
- Damage by flood varies depending on the year. Thus the average of the damage in the last two years is applied, as the data of the last two years is the most accurate.
- The unit rate of 4.25 million BDT per km is applied for improvement of drainage, based on the Project cost estimate described in Chapter 6.
- 5% of the design and supervision cost is added to the capital cost.
- 5% of the annual O&M cost is estimated based on the data used in UGIIP-2.
- Financial cost (capital & maintenance) will be converted to economic cost using a conversion factor of 0.8.

c) Results

The economic analysis of the four sample Pourashava markets generated the average EIRR of 71.7% and the EIRR lies between 53% and 116%. A sensitivity analysis shows that a 20% increase in the capital cost results in an average EIRR of 47%, whereas a 20 % decrease in benefit pushes the EIRR down to 43%. Finally, a combined case of a 20% increase in the capital cost and a 20% decrease in benefit results in EIRR of 29%. These results indicate high economic viability of those subprojects.

Table A24-16 Results of economic analysis: urban drainage

District	Pourashava	EIRR	NPV(million BDT)
Kurigram	Ulipur	115.8%	43.21
Rangpur	Haragach	54.0%	25.77
Mymensingh	Gouripur	63.7%	29.69
Mymensingh	Nandail	53.2%	25.43
Average		71.7	31.02

Table A24-17 Sample estimation of EIRR for urban drainage

Pourasahava name: Haragacha
Category C

Project economic life	15	years
Captail cost	4.25	/ km
Capital cost (economic)	3.40	/ km
Design and supervision cost	5%	of caiptal cost
O&M cost	5%	of caiptal cost
Population	42480	
Household	11620	
Length of drainage	6	km
Shadow pricing factor	80%	
Construction 1st year	60%	
Construction 2nd year	40%	
Assumptions on benefit		
Road length total	81	km
Length of road damaged by flood/heavy rain	9%	of total
Number of house damaged by flood/heavy rain	30	average b/w 2010-11
Number of inactive days by flood/heavy rain	3.6	days/year
Percentage of affected people	30%	of whole household
Average daily income	6978	/ month
	317	/ day
Road maintenance cost	1.2	/km/year (million BDT)
House maintenance cost	1203	/unit (BDT)
Damage reduced	40%	
Discount factor	12%	
Sensitivity analysis		
Cost increase	20%	
Benefit decrease	20%	

	Cost			Benefit				Cash flow		Sensitivity		
Year	Cost total	Capital cost	O&M cost	Benefit total	Road	House	Income loss	Annual	Cumulative	Cost+20%	Benefit-20%	Both case
1	13.88	12.86	1.02	7.49	3.50	0.01	3.98	-6.39	-6.39	-9.16	-7.89	-10.66
2	9.59	8.57	1.02	7.49	3.50	0.01	3.98	-2.10	-8.49	-4.02	-3.60	-5.52
3	1.02		1.02	7.49	3.50	0.01	3.98	6.47	-2.01	6.27	4.97	4.77
4	1.02		1.02	7.49	3.50	0.01	3.98	6.47	4.46	6.27	4.97	4.77
5	1.02		1.02	7.49	3.50	0.01	3.98	6.47	10.93	6.27	4.97	4.77
6	1.02		1.02	7.49	3.50	0.01	3.98	6.47	17.41	6.27	4.97	4.77
7	1.02		1.02	7.49	3.50	0.01	3.98	6.47	23.88	6.27	4.97	4.77
8	1.02		1.02	7.49	3.50	0.01	3.98	6.47	30.35	6.27	4.97	4.77
9	1.02		1.02	7.49	3.50	0.01	3.98	6.47	36.83	6.27	4.97	4.77
10	1.02		1.02	7.49	3.50	0.01	3.98	6.47	43.30	6.27	4.97	4.77
11	1.02		1.02	7.49	3.50	0.01	3.98	6.47	49.77	6.27	4.97	4.77
12	1.02		1.02	7.49	3.50	0.01	3.98	6.47	56.25	6.27	4.97	4.77
13	1.02		1.02	7.49	3.50	0.01	3.98	6.47	62.72	6.27	4.97	4.77
14	1.02		1.02	7.49	3.50	0.01	3.98	6.47	69.19	6.27	4.97	4.77
15	1.02		1.02	7.49	3.50	0.01	3.98	6.47	75.67	6.27	4.97	4.77
							EIRR	54%		37%	34%	24%
							NPV	25.77		20.7	15.6	10.5

2.4 Synergy effect between Component 1 and 2

(1) Overview

One of the key approaches of the Project is integrated rural and urban development, in which rural-urban linkages will be strengthened to generate extra benefits or synergy effect for both rural and urban people. This approach aims to achieve the extra benefit or synergy effect by strategically coordinating the design and implementation of subprojects in Component 1 and Subcomponent 2-2.

The main objective of Component 1 is to enhance access to opportunities, such as trade, education, and health facilities. These benefits will be enhanced by improving adjacent urban infrastructure under Subcomponent 2-1. For example, improving rural roads will improve access to urban areas, and thereby enable rural residents to seek employment opportunities in urban areas where they can expect higher earnings. Rural farmers will be able to expand their reach to urban areas as a new market to sell their products.

From the Pourashava development perspective, Component 1 will enhance the synergy effect by strategically coordinating the development of urban and rural infrastructure. By attracting inflow of goods and labor forces from rural areas, it will accelerate economic development of Pourashavas. Economic development will in turn benefit rural areas by expanding their opportunities of trade, businesses and employment. This virtuous cycle will be achieved by integrated rural and urban development in which subprojects of respective components are strategically coordinated.

A concrete example of strategic coordination of subprojects in Component 1 and Subcomponent 2-1 is the improvement of an Upazila road and Pourashava roads that are directly connected to each other. It was reported in the Survey that there are many incidences in which, although an Upazila road has been improved by the LGED, some Pourashava roads connecting to the Upazila road remain in poor conditions, which undermines the impact of the development of the Upazila road. If those Pourashava roads are improved strategically in coordination with Pourashava under Subcomponent 2-2, a synergy effect could be created.

(2) Methodology

The Survey team examined the possibility to quantify the synergy effect between Component 1 and Subcomponent 2-1 by applying existing methodologies of economic analysis. Based on the review, the Survey team conducted the analysis on Pourashava markets and rural roads as to how the coordination of Component 1 and Subcomponent 2-1 would enhance their benefits. To assess the additional benefits, a sample survey was conducted in the four sample Pourashavas to collect relevant data. The idea of analysis and methodology applied are as follows:

- Identify the rural road connecting to Pourashava roads and markets.
- Collect market data to identify the origin of commodities sold in the market.
- Interview market sellers to identify the use of roads for respective commodities.
- Collect the traffic volume of relevant means such as cargo trucks and vans, which are usually used for commodity transport.
- Based on the economic analysis on rural roads and Pourashava roads, a 50% reduction in the travel time and a 50% VOC savings for the transport are expected. This would consequently increase the efficiency and volume of commodity transport, resulting in a 30% increase based upon the collected sample data.
- This synergy effect will be enhanced over time, as the market would grow and enhance economic activities between Pourashava and adjacent rural areas. This cycle is assumed to add a 3% growth rate of sales on top of the annual growth rate.

(3) Results

The economic analysis of sample Pourashava markets showed a 3% to 29% increase from standard EIRR, indicating the tangible impact of the synergy effect of Component 1 and Subcomponent 2-1. The range of EIRR is generated by the type of commodities transported on the respective rural roads. The EIRR will become higher when the road improvements enhance transport of high-value, most perishable commodities such as fish, meat and vegetables. This indicates that strategic selection of roads and markets with consideration on each market and transport demand are critical to achieving higher economic benefits.

Table A24-18 Sample economic analysis on synergy effect

Name of Pourashava: Ulipur Name of market: Ulilpur Kacha Bazar	Commodities transported	EIRR	NPV (million BDT)
1. Standard EIRR/NPV		232.88%	131.65
2. EIRR/NPV when "Hatia to ulipur bazar road" is improved	Rice, paddy	244.84%	138.83
3. EIRR/NPV when "Kurigram to Ulipur por Kacha Bazar Road" is improved	Fish, meat, vegetables	270.21%	154.05

Name of Pourashava: Haragach Name of market: Haragach Pourashava Market	Commodities transported	EIRR	NPV (million BDT)
1. Standard EIRR/NPV		75.07%	29.41
2. EIRR/NPV when "Rangpur to Haragach Por Road" is improved	Rice, wheat flour, fish, fruits, poultry, vegetables	93.97%	38.53
3. EIRR/NPV when "Sarai to Haragach Por Road" is improved	Paddy	75.99%	29.85
4. EIRR/NPV when "Khansama to Haragach Por Road" is improved	Meat	78.43%	31.03

Annex 25
Draft Environmental Framework

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1 Objectives of Environmental Framework

This Environmental Framework aims to guide the executing agency (i.e., the LGED for Component 1 or Pourashavas for Component 2) in fulfilling the requirements of the national laws and policies, and the JICA Guidelines for Environmental and Social Considerations (hereinafter the "JICA Guidelines") in the implementation phase of the Northern Region Rural Development and Local Governance Improvement Project (NRRDLGIP). The Framework describes the basic concept, potential impacts and necessary mitigation measures, survey and monitoring items, and implementation arrangements with respect to environmental and social considerations under the NRRDLGIP.

2 Institutional framework for environmental and social considerations

2.1 Legal framework

(1) Environment Conservation Act 1995

The Environment Conservation Act (ECA) 1995 is the main legal framework for environmental conservation in Bangladesh. The main objectives of the ECA are: 1) conservation and improvement of the environment; and 2) control and mitigation of pollution in the environment. To achieve these objectives, the ECA focuses on the following items:

1) Declaration of Ecologically Critical Areas (Section 5);
2) Regulations for emissions from vehicles (Section 6);
3) Issuance of environmental clearances (Section 12);
4) Formulation of environmental guidelines (Section 13);
5) Regulation of development activities' discharge permits (Section 20);
6) Promulgation of standards for the quality of air, water, noise, and soil (Section 20); and
7) Promulgation of standard limits for waste discharge (Section 20).

The ECA also stipulates the establishment of the Department of the Environment (DOE) and the power and functions of the Director General (DG) to carry out the purposes of the ECA (Section 3 and 4). For instance, the DG, who is appointed by the Government of Bangladesh (GOB) may issue directions of prohibition or regulations for an industry, undertaking, or process when he or she considers it necessary for environmental conservation. In addition, according to Section 12 of the ECA, all development projects shall obtain an Environmental Clearance Certificate (ECC) from the DG of the DOE.

(2) Environment Conservation Rules 1997

The Environment Conservation Rules (ECR) 1997, which was issued by the Ministry of the Environment and Forest (MOEF), spells out the detailed procedures and requirements for the enforcement of the ECA. The ECR was promulgated in exercise of the powers conferred by Section 20 of the ECA, stating that the government is empowered to make rules for carrying out the purposes of the ECA. The subjects relevant to environmental assessment are as follows:

1) Considerations for the declaration of Ecologically Critical Areas (Rule 3)
2) Classification of projects (Rule 7)
3) Procedures to obtain ECCs (Rule 7)
4) Requirements for Initial Environmental Examinations (IEE) and Environmental Impact Assessments (EIA) (Rule 7)
5) Determination of environmental quality standards for air, water, noise, odor and other components of the environment (Rule 12)

6) Determination of standards for waste discharge and gaseous emissions from industry or development projects (Rule 13)

Rule 3 defines the factors to be considered in declaration of Ecologically Critical Areas such as wetlands and forest areas as per Section 5 of the ECA. It also empowers the government to specify the activities which cannot be continued or initiated in an Ecologically Critical Area.

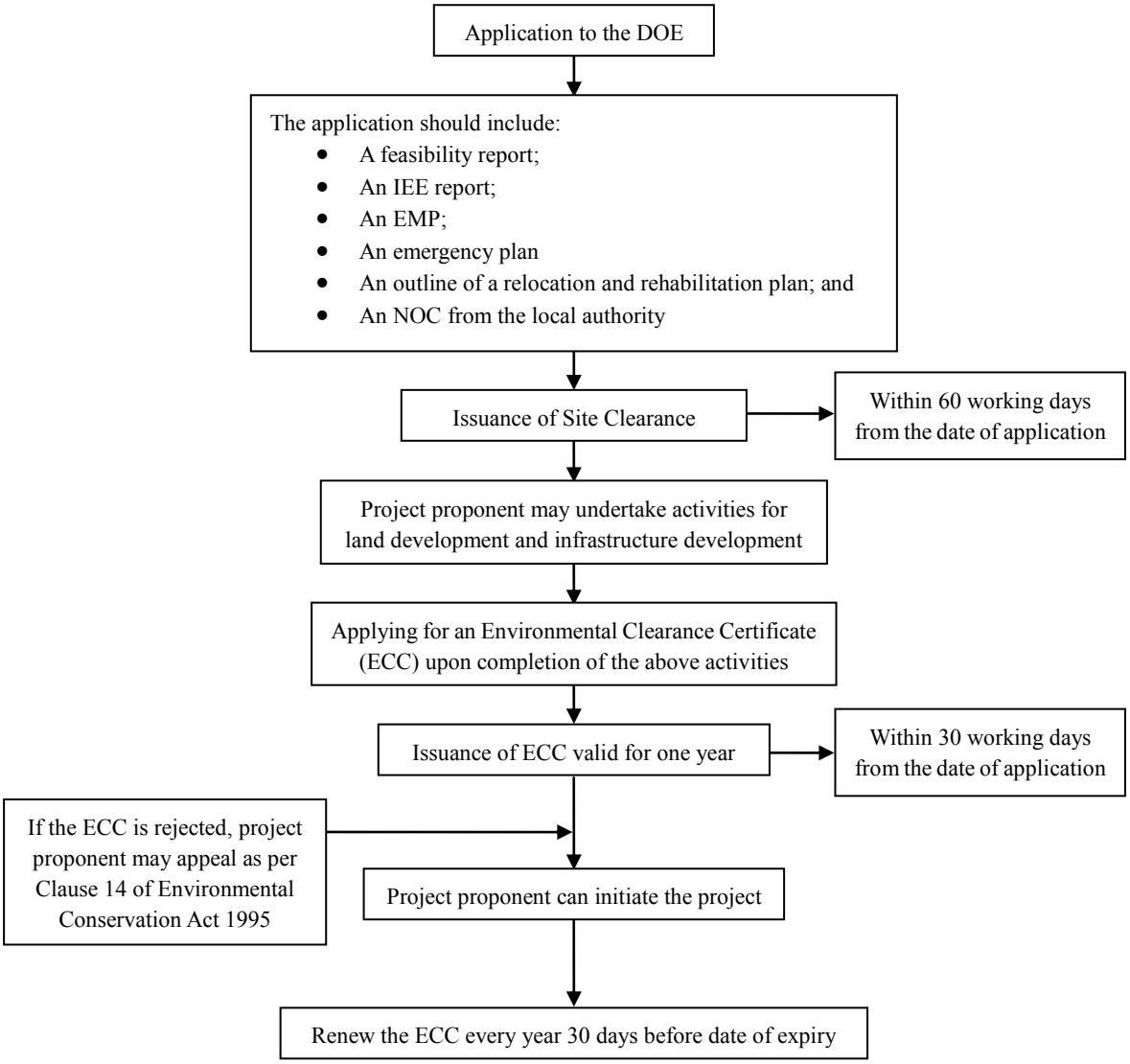
Rule 7 provides a classification for development projects into four categories depending upon their environmental impact and location. These categories are labeled as: 1) Green; 2) Orange A; 3) Orange B; and 4) Red. Classified projects shall obtain an ECC for each category in accordance with the requirements stipulated in the ECR. Table A25-1 illustrates the documents for each category which are required to be submitted to the Division Officer of the DOE for an application for the ECC. All development projects that are considered to be low-polluting are classified in the Green category, and shall automatically be granted an ECC after the submission of the application with the necessary documents. Projects that are considered to be potentially polluting are classified as Orange A, Orange B, and Red categories in order of the magnitude of the potential environmental impact, and are required to obtain first a Site Clearance Certificate, and thereafter an ECC after the submission of the application form and other required documents according to their categories in Table A25-1. Apart from the general requirements and the Environmental Management Plan (EMP), for projects classified as Orange B and Red category projects, the application shall also be accompanied with an IEE or EIA report on the basis of the terms of reference approved by the DOE, respectively. The flowcharts describing the detailed procedures for Orange-B and Red categories are presented in Figure A25-1 and Figure A25-2, respectively.

Table A25-1 Requirements by environmental categories

Category	Requirements
Green	General information, no objection certificate (NOC) from the local authority, etc.
Orange-A	General information, NOC etc.
Orange-B	IEE, EMP, NOC, etc.
Red	EIA, EMP, NOC, etc.

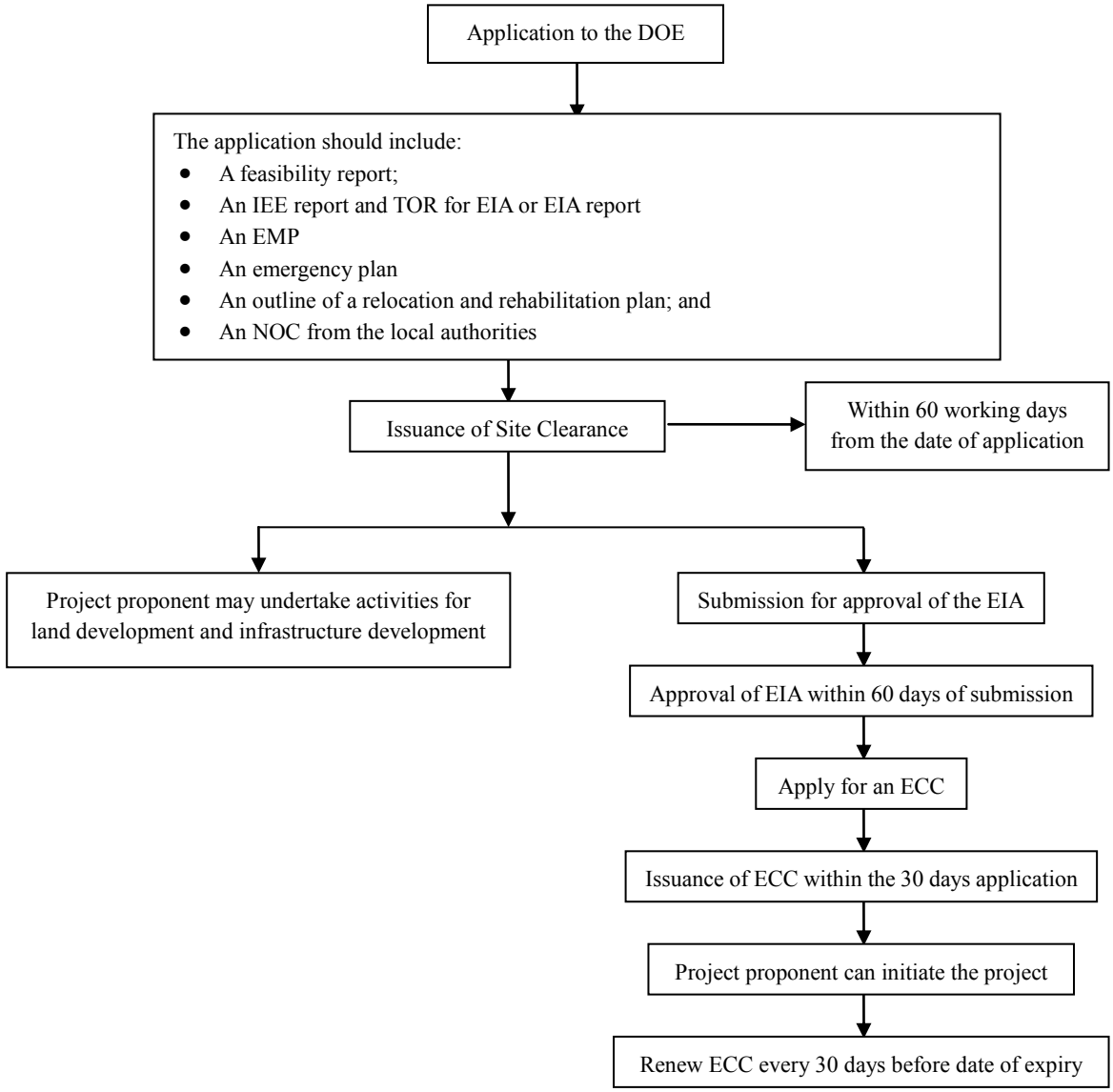
Source: GOB (1997)

Normally, if a project consists of multiple subprojects, the project proponent needs to obtain an ECC for each subproject separately in accordance with the ECR. However, according to officials from the DOE and the Bangladesh Municipal Development Fund (BMDF), a company under the Ministry of Finance, there is one exception. If the DG of the DOE decides that a project will not be highly hazardous and the subprojects need sufficient time for their implementation, he may issue an ECC after the implementing agency submits its IEE or EIA report for only one sample of the subproject. Indeed, the DG has given an ECC for the Municipal Service Project (MSP) funded by the World Bank after the BMDF, the implementing agency, submitted an EIA report for only one sample of the subproject. This is because the DG considered the subprojects of the MSP to be unlikely to have adverse impacts on the environment and society, and because the BMDF had an environmental and social safeguard specialist to monitor the activities through all stages of the project. Thus, for the issuance of an ECC for the NRRDLGIP, the LGED will need to coordinate with the DOE.



Source: Adapted from LGED (2008)

Figure A25-1 Procedures of Orange-B category projects



Source: Adapted from LGED (2008)

Figure A25-2 Procedures of Red category projects

(3) Acquisition and Requisition of the Immovable Property Ordinance 1982

The Acquisition and Requisition of the Immovable Property Ordinance (ARIPO) 1982, and subsequent amendments made during 1993 and 1994, constitute the legal framework used to govern all cases of land acquisition in Bangladesh. The ARIPO contains the procedural details required for land acquisition. However, the ARIPO does not cover project-affected persons (PAPs) who do not possess titles of ownership records. It does not ensure replacement value of any property acquired. In addition, the ARIPO has no provisions related to the resettlement or restoration of livelihoods for PAPs, even though these efforts are required by international donor agencies including JICA. To supplement the gaps, past projects similar to the NRRDLGIP prepared Resettlement Policy Frameworks (RPFs) and Resettlement Action Plans (RAPs).

Thus, if the NRRDLGIP requires land acquisition, the LGED or Pourashava shall coordinate with the DC and the Division Commissioner or the Ministry of Land to engage in necessary procedures for land acquisition. In addition, if resettlement of less than 200 persons is expected, the LGED or

Pourashava needs to prepare a Abbreviated Resettlement Action Plan (ARAP) in accordance with the JICA Guidelines. Detailed procedures to be implemented can be found in the draft RPF for NRRDLGIP.

(4) JICA Guidelines for Environmental and Social Considerations

To ensure the environmental and social sustainability of its funded projects, JICA formulated the Guidelines for Environmental and Social Considerations (hereafter "JICA Guidelines") in April 2010. The objectives of the JICA Guidelines are to: 1) encourage the executing agency to have appropriate considerations for environmental and social impacts; and 2) ensure that JICA's support for, and examination of, environmental and social considerations is conducted accordingly. The JICA Guidelines require that all executing agencies of JICA-funded projects shall meet certain requirements. The key requirements include, but are not limited to the following:

1) Assessment of potential environmental and social impacts and elaboration of mitigation measures during the earliest possible planning stage, and incorporation of them into the project plan.
2) Examination of multiple alternatives to avoid or minimize adverse impacts, and to select better project options
3) Conduct of sufficient consultations with local stakeholders to ensure disclosure of information at the earliest stage.
4) Compliance with laws, standards, and plans.
5) Avoidance of significant adverse impacts on ecosystem and biota.
6) Avoidance and minimization of involuntary resettlement, where feasible, and preparation and implementation of RAPs, where involuntary resettlement is unavoidable.
7) Implementation of special considerations for indigenous people.
8) Conduct of sufficient monitoring to check the performance and effectiveness of mitigation measures.

Thus, as the executing agencies of subprojects of the NRRDLGIP, the LGED and Pourashavas shall satisfy all of the above requirements, as well as others described in the JICA Guidelines, even if the national laws and policies do not fully prescribe requirements for these issues.

(5) LGED Environmental Guidelines

The LGED published the "Environmental Guidelines for the LGED Projects" (hereinafter the "LGED Guidelines") in 2008, as part of its goal to implement all development projects in an environmentally sound and sustainable manner. If a project follows the LGED Guidelines, it will meet all requirements of the GOB and its financing partners, including JICA. The guidelines outline required procedures and formats for IEEs and EIAs for rural infrastructure development and urban sector projects. For example, procedures such as analysis of alternatives, public consultations, and preparation of EMPs are included in the suggested outline of the EIA report. Thus, it can be concluded that conduct of an IEE and EIA in accordance with the LGED Guidelines would generally satisfy the requirements of the JICA Guidelines.

2.2 Organizational framework

(1) Local Government Engineering Department

The LGED, under the Ministry of Local Government, Rural Development, and Cooperatives (MLGRD&C), is one of the executing agencies that perform for the NRRDLGIP. Therefore, the LGED is responsible for the fulfillment of the requirements of both the national laws and the JICA Guidelines for subprojects related to rural infrastructure i.e., Component 1. The specific requirements

to be fulfilled by the LGED include: 1) to obtain ECCs from the DOE in accordance with the ECR; and 2) preparation and implementation of land acquisition plans and ARAPs in accordance with the ARIPO and the JICA Guidelines, if any subproject involves involuntary resettlement. The LGED can use this Environmental Framework for the former requirements, and the draft RPF for the latter one as guiding materials.

To obtain ECCs, the LGED needs to prepare IEE and EIA reports. However, the LGED does not have any environmental units or posts for environmental specialists at any of its levels including the headquarters and the Regional, District, and Upazila levels. Thus, the LGED usually commissions environmental consultants to conduct IEEs and EIAs. With respect to environmental monitoring, no specific person is responsible for this task for the LGED. Normally, LGED staff members at the District level are given the additional responsibility to assist environmental consultants in the conduct of IEEs or EIAs and monitoring projects. According to an LGED Assistant Engineer and an LGED Laboratory Technician at the District level, LGED staff members have received general environmental trainings from a number of different projects including the Small Scale Water Resources Development Sector Project (SSWRDSP) and the RDP 21, and assisted the IEE or EIA and environmental monitoring in those previous development projects. According to the Social Safeguard Specialists of the BMDF, the BMDF commissioned an environmental expert to monitor the environment in the project area. The LGED also employed the same scheme for the UGIIP-2. Thus, for the NRRDLGIP, environmental consultants need to be commissioned, and, with their assistance, the LGED shall conduct IEEs and/or EIAs, and environmental monitoring for Component 1.

Similarly in relation to involuntary resettlement and land acquisition, the LGED needs to prepare and implement land acquisition plans and ARAPs for each subproject, if they are confirmed in field surveys during the detailed design phase. Since it has no social consideration unit, the LGED needs to commission resettlement and/or land acquisition consultants for the preparation and implementation of land acquisition plans and RAPs.

The LGED is, in general, considered capable of performing environmental and social considerations in rural and urban projects, taking into account its experiences in similar projects in the past. However, the LGED needs to recruit consultants who will properly conduct environmental and social assessments. Therefore, a Design, Supervision, and Monitoring (DSM) consultant team including Environmental Specialist and Resettlement & Rehabilitation Specialist should be assigned under the NRRDLGIP.

(2) Pourashava

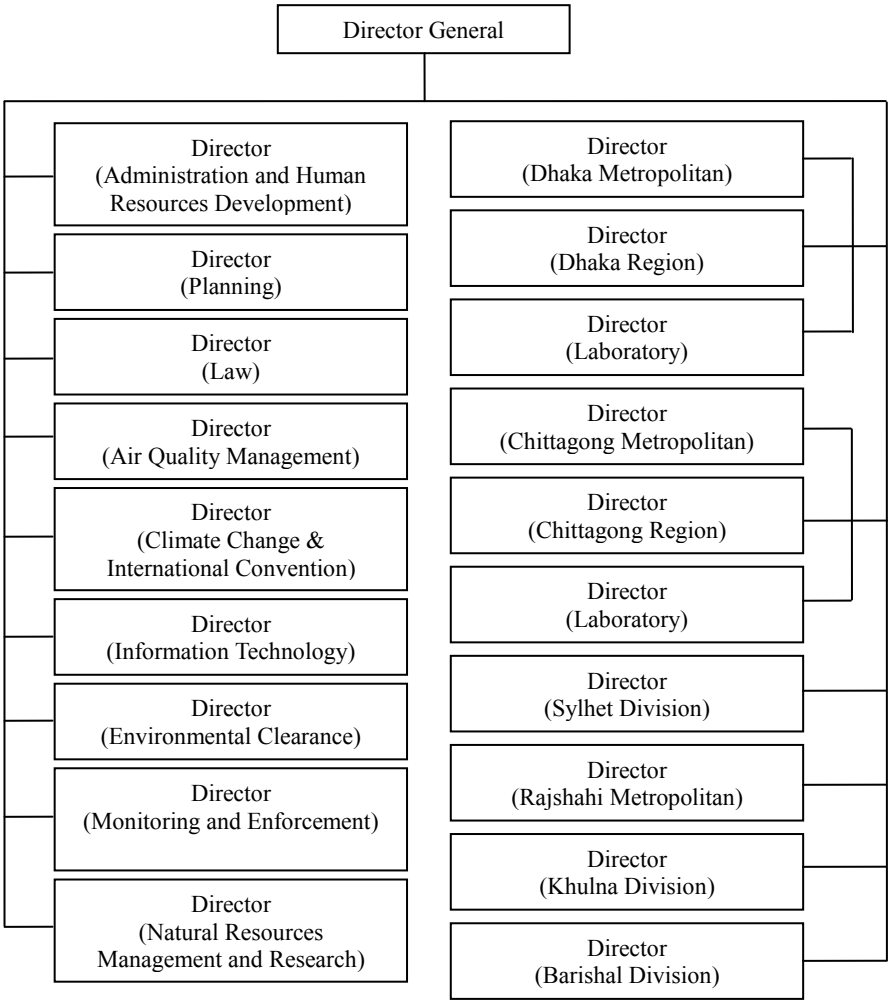
Pourashavas are the other executing agency for the NRRDLGIP. Therefore, they are responsible for fulfillment of the same requirements of national laws and policies, and requirements of the JICA Guidelines for subprojects related to urban infrastructure, i.e., Subcomponent 2-1. If any subprojects fall under Orange-B or Red categories under the ECR, then Pourashavas are responsible for the conduct of IEE or EIA in accordance with the ECR. If any subprojects involve involuntary resettlement, concerned Pourashavas are required to prepare and implement land acquisition plans and ARAPs in accordance with ARIPO and JICA Guidelines. Pourashavas can rely on this Environmental Framework and the RPF for guidance.

Pourashavas generally suffer from a lack of human resources. There is no section in charge of environmental and social assessment found in the organizational chart prescribed by the Local Government Division. No posts for environmental or social assessment specialist have been assigned in Pourashavas. They normally lack experience in the conduct of IEEs and EIAs, land acquisition, and involuntary resettlement. Therefore, the Project Management Office (PMO) should provide support to Pourashavas in performing their environmental and social responsibilities. In this regard, DSM consultants, especially Environmental Specialists and Resettlement & Rehabilitation Specialists, need

to be assigned at the Regional level to assist Pourashavas.

(3) Department of Environment

The DOE within the MOEF is responsible for environmental laws and regulations. The DG oversees the DOE's activities. DOE Headquarters is currently organized into nine main functional areas that are subdivided into six Division Offices that ensure the overall management of the environment. Their efforts are supported by laboratory analysis (Figure A25-3). The DOE also serves as the regulatory body responsible for the enforcement of the ECA and ECR. Under the legal framework, the DOE issues ECCs required for the implementation of development projects. Therefore, if an IEE and EIA are required for the NRRDLGIP, the LGED needs to coordinate with the DOE.



Source: Department of Environment

Figure A25-3 Organogram of the Department of Environment

2.3 Consistency with the JICA Guidelines

Many gaps were identified between the JICA Guidelines and the laws and policies that concern environmental and social considerations in Bangladesh. The Survey Team identified the following gaps: 1) Although the ECR generally covers major requirements of JICA in environmental considerations, there are still partial insufficiencies; 2) The ARIPO does not cover JICA requirements for social considerations related to assistance for resettlement or restoration of livelihood of PAPs.

With respect to environmental considerations, there are three key insufficiencies of the ECR to satisfy the JICA requirements: 1) analysis of alternatives; 2) range of impacts to be assessed; and 3) public consultation and information disclosure. These issues are not addressed in any domestic laws or policies, including the ECR. They are only recommended in the LGED Guidelines. Additional specific gaps found in environmental considerations are listed in Table A25-2.

With respect to social considerations, there are two key insufficiencies in the ARIPO: 1) restoration of livelihood of PAPs; and 2) eligibility of PAPs that have no legal rights to land. These issues have not been sufficiently addressed in the ARIPO. Detailed gaps regarding land acquisition and involuntary resettlement have been specified in the draft Resettlement Policy Framework.

To bridge these gaps, the LGED and Pourashavas need to take appropriate measures in accordance with the JICA Guidelines. The LGED has already agreed to take these actions. Specific measures to bridge the gaps related to environmental considerations have been described in this draft Environmental Framework. Measures to address social considerations have been described in the draft RPF.

Table A25-2 Comparison between relevant laws, regulations and guidelines of GOB and JICA

Requirements by JICA Guidelines	ECR, ARIPO and other relevant policies	Gap	Gap bridging measures to be taken in the NRRDLGIP
Analysis of alternatives and mitigation measures	The ECR provides for the submission of mitigation plans to cover the effects of pollution for the issuance of ECC (ECR §7). In addition, analysis of alternative measures is recommended in the LGED Guidelines.	Analysis of alternatives is not provided in legal instruments of Bangladesh, but recommended in the LGED guidelines.	Alternative options will be analyzed in the process of environmental assessment in accordance with the JICA Guidelines and LGED Guidelines.
Scope of impacts to be assessed	The ECR has no provision for the scope of impacts to be assessed for environmental assessment, but the LGED guidelines recommend using a checklist covering a broad range of environmental and social issues.	Scope of impacts to be assessed is not provided in legal instruments of Bangladesh, but recommended in the LGED guidelines.	Scope of impacts to be assessed will be determined in accordance with the JICA Guidelines and LGED Guidelines.
Information disclosure and consultation with stakeholders	The ECR has no provision for information disclosure or public consultation, but the LGED guidelines provide general recommendations for information disclosure and public consultation in environmental assessment.	Information disclosure and public consultation is not provided in legal instruments of Bangladesh, but recommended in the LGED guidelines.	Stakeholder meeting will be held, and findings of environmental analysis as well as the draft IEE/EIA reports will be explained in the local language.
Grievance mechanism	The ECR or the LGED guidelines have no provision for grievance mechanism.	Grievance mechanism is not provided in legal instruments of Bangladesh or the LGED guidelines.	Grievance mechanism will be established in accordance with the JICA Guidelines.
Consideration for ecosystems and biota	The ECR provides for the consideration of ecosystems and biota by declaring Ecologically Critical Areas and limiting activities in those areas (ECR §3).	There is no significant gap.	Ecologically Critical Areas declared under the ECR will be excluded from the Project site. Besides, all impacts on ecosystem and biota will be considered in accordance with the JICA Guidelines.
Restoration of livelihoods of PAPs to pre-project level at least.	The ARIPO has no provisions regarding livelihood restoration.	Restoration of livelihoods and standards of living of the PAPs is not provided in legal instruments of Bangladesh or the LGED Guidelines.	Measures to restore livelihoods and standards of living of the PAPs will be taken based on their needs in accordance with the JICA Guidelines.
Eligibility of benefits for PAPs with formal or informal legal rights to land	The ARIPO does not cover PAPs without titles of ownership record for compensation.	While JICA Guidelines provide eligibility of PAPs without titles of ownership record, the ARIPO does not.	The PAPs without titles of ownership record who indeed require assistance will be carefully screened out in social survey, and entitlement will be delivered to them in accordance with the JICA Guidelines.
Special consideration for vulnerable group	The ECR or the LGED guidelines have no provision for special consideration for vulnerable groups.	Special consideration for vulnerable groups is not provided in legal instruments of Bangladesh or the LGED guidelines.	Vulnerable groups will be specially considered in accordance with the JICA Guidelines.
Monitoring	The ECR provides for the submission of an EMP for the issuance of an ECC (ECR §7).	There is no significant gap.	EMP which comprises environmental monitoring plan will be prepared to obtain ECC prior to the implementation of the Project. Monitoring will be conducted according to the EMP.

Source: Survey Team
Note: "§" indicates provision of the ECR and ARIPO. (e.g., ECR §3 indicates Rule 3, and ARIPO §5 indicates Section 5.)

3 Overview of subprojects to be assessed

This section describes the characteristics of each subproject to be assessed and categorization and requirements based on the institutional framework mentioned in the previous section.

3.1 Infrastructure and work type of subprojects

The NRRDLGIP covers eight Districts of the Rangpur Division and six Districts in the northern area of the Dhaka Division. The characteristics of the Project area are described in Chapter 3. The NRRDLGIP consists of three components. Component 1 will develop basic rural infrastructures. Component 2 will consist of two subcomponents. Subcomponent 2-1 will improve Pourashavas' basic infrastructure and service delivery. Subcomponent 2-2 will enhance Pourashavas' local governance and capacity development. Component 1 and Subcomponent 2-1 will involve physical infrastructure work that may cause adverse impacts on the environment and society in the Project area.

Component 1 will include the following:1) upgrading of Upazila roads (UZR) and Union roads (UNR) including construction of bridges and culverts; 2) rehabilitation of UZR; 3) improvement of Growth Centers and rural markets; and 4) improvement of *ghats*. Upgrades and/or rehabilitation of UZR and UNR may involve bituminous pavement of unpaved sections, road widening as per the Road Design Standards of 2005 (RDS, 2005), minor realignments, construction of bridges, and installation of culverts and other facilities. With respect to Growth Center markets and rural markets, major components may include access and internal road rehabilitation, improvement of drainage facilities, construction of modern sheds, installation of sanitary latrines and tubewells, and construction of garbage pits.

No subprojects within Subcomponent 2-1 have presently been determined at present since they will be selected through participatory approaches during the implementation phase of the NRRDLGIP. The eligible types of infrastructure works under the subcomponent may include: 1) improvement and rehabilitation of Pourashava roads, bridges, and culverts; 2) repair, rehabilitation, and expansion of drains; 3) improvement of municipal markets; 4) construction of slaughter houses; 5) rehabilitation and expansion of water distribution network and tubewells; 6) construction of public and community toilets; 7) construction of solid waste management facilities; 8) construction of bus and truck terminals; 9) installation of streetlights; 10) establishment of parking areas; and 11) other basic infrastructures for the poor. Improvement of Pourashava roads and markets may include the rehabilitation, repair, and widening of existing roads in the Pourashavas. The repair, rehabilitation, and rehabilitation of drainage may involve: 1) the elimination of blockages on existing drainage paths; 2) the cleaning of existing drains; 3) the construction of new drains; and 4) construction of missing links. The construction of bus and truck terminals may involve: 1) the placement of fill material to bring the site to grade; 2) surfacing of parking areas; and 3) the construction of a terminal building and public toilet.

3.2 Environmental category under relevant laws and policies

(1) JICA Guidelines for Environmental and Social Considerations

According to the JICA Guidelines, all to-be-funded subprojects are categorized into four groups based on the extent of the environmental and social impacts: Category A, B, C and FI. The NRRDLGIP is classified as category FI. This is because any subproject of Component 2 and some subprojects of Component 1, for example ghat improvement, cannot be specified prior to the funding approval of JICA.

(2) Environmental Conservation Rules 1997

In accordance with the ECR, some of the subprojects under the NRRDLGIP are classified as either Red or Orange-B categories depending on their work types. Table A25-3 demonstrates the categorization of subprojects by the ECR.

In Component 1, construction of bridge over 100m is classified under Red category, and the upgrading and rehabilitation of UZR and UNR, and the construction of bridge below 100 m under Orange B category. Although there is no specific categorization for the improvement of Growth Center and rural markets, they may be categorized as Orange B if they involve the construction of public or community toilets. The construction of culverts and improvement of *ghats* are not classified under any category. The LGED needs to prepare EIA and IEE reports for the Red category subprojects, and IEE report for the Orange B category subprojects in consultation with the DOE.

Regarding Subcomponent 2-1, the rehabilitation and expansion of water distribution networks and construction of solid waste management facilities are classified under Red category, and the improvement and rehabilitation of Pourashava roads, construction of bridges below 100 m, construction of public and community toilets under Orange B category. Although there is no specific categorization for the improvement of municipal markets, construction of bus and truck terminals, and establishment of parking areas, they may be categorized as Orange B if they involve the construction of public or community toilets. The construction of slaughterhouses and tubewells, installation of streetlights, and repair, rehabilitation and expansion of drains are not classified under any category. The concerned Pourashavas will bear the responsibility for conducting EIA and IEE for Red category subprojects, and IEE for Orange B category subprojects in consultation with the DOE.

In addition, according to the ECR, subprojects may be categorized as Orange B if they involve engineering works up to 1 million BDT and as Red if they involve those above 1 million BDT. In those cases, the LGED and concerned Pourashavas will need to coordinate with the DOE to implement necessary procedures.

Table A25-3 Categorization of subprojects under the Environmental Conservation Rules 1997

Type of work	Category	Action to be taken	Responsible Agency
Component 1			
• Upgrading and rehabilitation of UZR	Orange B	IEE	LGED
• Upgrading and rehabilitation of UNR	Orange B	IEE	
• Construction of bridges (over 100 m)	Red	EIA, IEE	
• Construction of bridges (below 100 m)	Orange B	IEE	
• Construction of culverts	N/A	-	
• Improvement of Growth Centers and rural markets	N/A, but may be categorized as Orange B depending on the construction works	IEE if required	
• Improvement of *ghats*	N/A	-	
Subcomponent 2-1			
• Improvement and rehabilitation of Pourashava roads	Orange B	IEE	Concerned Pourashavas
• Construction of bridges (below 100 m)	Orange B	IEE	
• Construction of slaughterhouses	N/A	-	
• Rehabilitation and expansion of water distribution networks	Red	EIA, IEE	
• Construction of tubewells	N/A	-	
• Construction of public and community toilets	Orange B	IEE	
• Construction of solid waste management facilities	Red	EIA, IEE	
• Installation of streetlights	N/A	-	
• Repair, rehabilitation, and expansion of drains	N/A	-	
• Improvement of municipal markets	N/A, but may be categorized as Orange B depending on the construction works	IEE if required	
• Construction of bus and truck terminals			
• Establishment of parking areas			

Source: Environmental Conservation Rules of 1997
Note: N/A = Not applicable

3.3 Subprojects to be noticed

Some subprojects of the NRRDLGIP are classified under Red category in accordance with the ECR. For these subprojects, due attention should be paid to ensure that IEE and EIA are conducted properly without any delay to obtain ECCs from the DOE. Red category subprojects of the NRRDLGIP are described below.

(1) Component 1

Subprojects which involve the construction of bridges over 100 m are classified under Red Category under the ECR. The LGED inventory of UZR and UNR provides the information of bridges over 100 m. In addition, the bridges over 80 m should be also paid attention to ensure that the bridges over 100 m are identified in advance, considering the lessons learned from a similar project and a finding by the Survey Team indicated in the following:

- After the start of the South-Western Bangladesh Rural Development Project (SWBRDP), it was revealed that the lengths of some selected bridges were much longer than the spans of gaps recorded in the LGED road inventory.
- A field investigation by the Survey Team revealed that the estimated spans between abutments on both sides of riverbank in sample roads were longer than the spans of gaps recorded in the

LGED road inventory.

The locations and numbers of bridges over 100 m are provided in Annex 19 of the Final Report of the Preparatory Survey on the NRRDLGIP.

(2) Component 2

The subprojects which contain the rehabilitation and expansion of water distribution networks and construction of solid waste management facilities are categorized as Red category under the ECR. However, since subprojects in Subcomponent 2-1 will be selected through participatory process at the implementation phase of the Project, the locations and numbers of these subprojects cannot be identified at the Preparatory Survey stage.

3.4 Selection of subprojects and detailed design

During the preparatory survey phase, the status of subproject selection varies between Component 1 and Component 2. A description of the status and actions to be taken during the implementation stage is provided below.

a) Component 1

Most subprojects under Component 1 have been specified in the Preparatory Survey. These include UZRs and UNRs, Growth Center Markets, and rural markets. However, detailed engineering designs for these subprojects have not yet been determined. These designs will be determined by the PMO, with the assistance of DSM consultants, after the commencement of the NRRDLGIP.

After the determination of the detailed designs, the LGED, with the assistance of DSM consultants, need to conduct EIAs and/or IEEs based on the categories of the subprojects under the ECR. At the very beginning of the process of EIA and/or IEE preparation, the LGED should consult with the DOE about required procedures.

b) Component 2

With respect to Component 2, type, quantity, and locations of subprojects have not been specified during the Preparatory Survey. This is because they are planned to be selected by concerned Pourashavas through the participatory processes during the implementation stage. In this regard, the selection criteria of subprojects under Subcomponent 2-1 have been developed during the Preparatory Survey. Thus, all selected subprojects shall meet these criteria under the NRRDLGIP.

After the selection of subprojects, detail designs of subprojects will be determined by the PIO of each concerned Pourashava with the assistance of DSM consultants. The PIO is responsible for collection of environmental and social measures, and conduct of IEEs and/or EIAs, as needed. The Regional Environment Expert (REE) will support the PIO in the conduct of required environmental and social measures.

If any Red or Orange B category subprojects are selected, each concerned Pourashava need to conduct EIAs and/or IEEs. The LGED should provide sufficient assistance to these Pourashavas because the current capacities of Pourashavas are not considered enough to conduct of IEEs and/or EIAs. Consultations with the DOE should be held at the earlier stage to confirm necessary procedures.

4 Policy for environmental and social considerations under the NRRDLGIP

The NRRDLGIP will adopt the following policies with respect to environmental and social considerations, taking into account the requirements of national laws and regulations, JICA Guidelines, and characteristics of the NRRDLGIP. The executing agency shall comply with the following policies.

(1) Analysis of alternative options

Alternative options shall be analyzed and considered prior to determination of the detailed design of each subproject. Alternatives to the alignment of roads, and location or layout of infrastructures should be considered to avoid or minimize adverse impacts. Environmental and social aspects as well as technical and financial aspects should be taken into account in the process of alternative analysis.

(2) Scope of impacts to be assessed

Impacts on natural, physical, and social environment shall be assessed to examine the comprehensive impacts each subproject may exert on the environment and society. Impacts to be assessed include, but are not limited to, air quality, water quality, soil erosion, noise and vibration, wastes, offensive odors, bottom sediments, protected areas, ecosystems, regional hydrology and drainage, involuntary resettlement and land acquisition, living and livelihood, cultural heritage, landscape, ethnic minorities and indigenous peoples, and safety and health. Subproject-specific impacts shall be also assessed depending on the characteristics of each subproject site.

(3) Compliance with national laws and policies, and the JICA Guidelines

The executing agency shall comply with both the national laws and policies, and the JICA Guidelines. Firstly, the executing agency needs to obtain an ECC for each subproject. If any subproject, after the detailed designs are determined, is confirmed to be classified under the Orange B or Red category per the ECR, then the executing agency shall conduct IEEs, or EIAs and IEEs, respectively.

Second, if any subproject is expected to cause involuntary resettlement and/or land acquisition, necessary actions should be taken as per the draft RPF prepared under the Preparatory Survey. In particular, gaps between the JICA Guidelines and the ARIPO shall be sufficiently filled up.

(4) Information disclosure, consultation, and participation

The NRRDLGIP will disclose subproject information to a wide range of stakeholders, and consult with these stakeholders. A series of consultation meetings with stakeholders should be held during the process of design, implementation, operation, and maintenance of subprojects. This aims to incorporate their perceptions into the subproject plans, and eventually to minimize or mitigate adverse impacts of the subprojects.

For subprojects with larger environmental and social impacts, such as those that cause involuntary resettlement, and those that involve the construction of large bridges, sufficient consultations with local stakeholders shall be conducted at the earlier stage where an alternative analysis on subproject plans will be carried out.

All information shall be presented in local languages comprehensible to local stakeholders. For illiterate people, suitable other communication methods such as briefings, discussions, meetings, and radio or television broadcasts should be employed.

As part of the mechanisms to be used to solicit the perceptions of local stakeholders, a grievance

redress mechanism shall be established at the LGED Upazila offices or at the PIU of each concerned Pourashava to receive and address the grievances of local stakeholders about environmental and social issues. The focal persons at the ground level will be appointed, and local stakeholders will be appropriately informed of the grievance redress mechanism.

(5) Land acquisition and involuntary resettlement

Some subprojects under the NRRDLGIP may involve small-scale involuntary resettlement and land acquisition. Resettlement and land acquisition could cause significant impacts on the livelihoods of PAPs. Thus, the NRRDLGIP shall pay significant attention to these impacts.

If any subproject is confirmed to involve involuntary resettlement, necessary actions, such as compensation for the loss of land and other assets, and restoration and rehabilitation assistance, shall be undertaken by the executing agency in accordance with the draft RPF. As described earlier, many gaps exist between the ARIPO and the JICA Guidelines. These gaps should be appropriately addressed during the subproject planning and implementation process.

It is especially important to note that, under the NRRDLGIP, the lack of legal titles for affected assets will not affect PAPs' eligibility to receive entitlements. In addition, restoration and rehabilitation assistance should be provided to PAPs, even though the ARIPO contains no provisions for this type of assistance. Additional detailed policies of the NRRDLGIP for land acquisition and resettlement are included in the RPF.

(6) Special considerations for vulnerable groups

The NRRDLGIP will provide special attention to vulnerable groups so that subprojects will not significantly affect their livelihoods. Vulnerable groups include female-headed households, households below the poverty line, elderly-headed households, the landless, and indigenous people.

Vulnerable groups within and near the vicinity of subproject sites shall be identified prior to the detailed design phase. Following identification, close consultations should be conducted to learn about their needs for livelihood assistance. The executing agency should provide special assistance, such as income generating programs, depending on their assistance needs and the extent of adverse impacts.

(7) Implementation and monitoring

Organizational and administrative arrangements related to environmental and social considerations shall be established to implement necessary measures for environmental and social considerations prior to the commencement of the detailed planning of subprojects. This will include the provision of adequate human resources and budget.

Adequate budgetary support should be fully committed by the government, and made available to cover the costs for environmental assessments such as IEEs and EIAs, implementation of mitigation measures, and related environmental and social monitoring.

Appropriate reporting, monitoring, and evaluation mechanisms with respect to environmental and social considerations will be established and implemented as part of the project management system of the NRRDLGIP.

5 Environmental management system

An environmental management system will be established under the NRRDLGIP to ensure that

necessary environmental and social measures are properly conducted for each subproject. More specifically, the environmental management system shall address the following issues.

1) Identification of potential environmental and social impacts that may be caused by subprojects
2) Elaboration and implementation of mitigation measures against negative impacts
3) Clarification of environmental and social monitoring systems
4) Establishment of institutional mechanisms

5.1 Identification of potential impacts and elaboration of mitigation measures

With respect to the identification of potential impacts that may be caused by subprojects, field examinations shall be undertaken by DSM consultants for each subproject during the detailed design phase. During field examinations, potential environmental and social impacts shall be screened, and impacts which need to be further examined or addressed during the implementation phase shall be identified.

During the field surveys, the following environmental and social impacts need to be examined (Table A25-4). The sample format for the identification is given in Attachment 1. Impacts to be examined under the NRRDLGIP have been identified through the semi-IEE study, sample IEE and EIA studies, and literature reviews on past similar projects.

Table A25-4 Impacts to be examined in the screening process

Pollution	Natural environment	Social environment
• Air quality and dust • Water quality • Noise and vibration • Wastes • Offensive odor • Bottom sediments	• Ecosystem • Regional hydrology and drainage • Soil erosion	• Land acquisition and involuntary resettlement • Living and livelihood • Cultural heritage • Ethnic minorities and indigenous peoples • Safety and health

Source: Survey Team

Any adverse impacts identified in the screening process shall be properly addressed under the NRRDLGIP. Necessary mitigation measures against such impacts shall be elaborated and implemented. Descriptions of possible impacts and general mitigation measures are described in the following section.

In addition to the screening, subprojects classified under Red or Orange B categories under the ECR shall be identified. As described earlier, IEEs and EIAs need to be conducted for Red category subprojects, whilst IEEs shall be conducted for Orange B category subprojects. Therefore, the executing agency needs to consult with the DOE about required procedures. When IEEs and/or EIAs are required, draft IEE and EIA reports prepared in the Preparatory Survey can be used for reference.

DSM consultants, especially the Environment Specialist or Regional Environment Experts, will assist executing agencies in the conduct of the process described above.

5.1.1 Potential impacts and mitigation measures for subprojects

This section describes general potential impacts and necessary mitigation measures for subprojects to be implemented under the NRRDLGIP. These impacts and mitigation measures can be referred in identifying potential impacts and elaborating mitigation measures for each subproject at the implementation phase.

However, it is important to note that the impacts listed in this section do not necessarily cover all possible impacts that might be caused by individual subprojects. The same applies to mitigation measures. These factors will vary depending on the natural and socioeconomic conditions of each subproject site. Therefore, it is necessary to pay sufficient attention to these other impacts, and take into account subproject-specific conditions when identifying potential impacts.

(1) Air quality and dust

a) Impact

[General] During the construction phase, heavy machinery and construction vehicles may emit negligible amounts of air pollutants. Construction work, such as earth moving, may cause dust pollution. Local residents in the vicinity of work sites may be temporarily disturbed by these conditions. However, overall adverse impacts are expected to remain low for all types of subprojects because these impacts are unlikely to occur on a large scale.

[Road improvement] Regarding air pollution from motor vehicles in the operational phase, there is generally no risk of pollution. This is because the current traffic volume of motor vehicles on UZRs, UNRs, and Pourashava roads is light to cause air pollution. It is expected that traffic volume will not increase significantly after the improvements.

[Bridge construction] Subprojects may cause low levels of air pollution depending on the socioeconomic conditions of the surrounding areas of the construction site. This is because large bridge construction will exert significant social and economic impacts, and thus there is a possibility of traffic volume increase after the construction. However, the prediction of the extent of traffic volume increase after bridge construction will be more difficult and complicated in comparison to cases of the existing road improvement. It is therefore necessary to monitor the air quality periodically.

[Bus and truck terminal construction] Localized air pollution may occur because a number of motor vehicles may accumulate at bus and truck terminals.

b) Mitigation measures

- Water should be sprayed on construction sites to minimize dust effects.
- Nearby residents should be informed of construction work schedules.
- With respect to large-scale bridges, air quality near subproject sites should be monitored periodically.
- Development of bus and truck terminals should be located at a sufficient distance from populated residential areas. Furthermore, the idling of buses and trucks should be minimized.

(2) Water quality

a) Impact

[General] Some negative impacts on water quality may be caused associated with construction works. This type of risk will increase if construction work is conducted during the rainy season. Construction materials, such as bituminous materials and other petro-chemicals, may also cause water pollution if chemicals spills occur.

[Road improvement] Road improvement works, such as earthmoving works associated with road surface grading and embankment rehabilitation, may cause soil runoff during the construction phase,

which will eventually cause water quality degradation of roadside water bodies such as rivers and canals.

[Bridge construction] Bridge construction works will include dredging activities and the construction of main bridge over water body and approach roads along water bodies, and thus may cause impact on the quality of surface water.

[Construction of slaughterhouse] The operation of slaughterhouses may cause surface and groundwater pollution, since carcasses and blood will be generated from the slaughterhouses. However, the overall impact will be small or remain local, since slaughterhouses to be constructed under the NRRDLGIP will not be large-scale ones, and thus the amount of carcasses and blood is anticipated to be small.

[Construction of community and public toilets] Community and public toilets will ameliorate conditions in the surrounding environment and improve hygienic conditions in residential areas and public spaces such as markets and bus terminals. However, community toilets may cause groundwater pollution if excrement in the pits soaks into the ground. Similarly, public toilets may cause groundwater pollution if disposal of excrement is improperly executed. Proper execution requires the development of sewerage systems, septic tanks, and/or soak wells. Thus, the overall impact will be positive if appropriate measures are undertaken to avoid the aforementioned groundwater pollution.

[Construction of waste management facilities] In general, construction of landfills for waste disposal will improve hygienic conditions in residential and other areas in Pourashavas. However, this type of construction may cause surface and groundwater pollution caused by leachate from wastes that contain hazardous substances and organic matters.

b) Mitigation measures

- Soil erosion shall be prevented by implementing the measures described in the soil erosion section below.
- Construction materials, such as bituminous materials and other petro-chemicals, shall be treated carefully to prevent spills.
- With respect to large-scale bridge construction, surface water quality shall be monitored periodically during construction and post-construction phases.
- With respect to slaughterhouses, sufficient water supply systems, drains, septic tanks, soak wells, and waste storage facilities should be installed to gather and properly treat carcasses and blood.
- With respect to community and public toilets, appropriate facilities such as septic tanks and soak wells, shall be installed to avoid groundwater pollution. Regular maintenance of these toilets should be ensured by the executing agency.
- With respect to waste disposal landfills, the construction of sanitary landfills that include proper drains, sedimentation ponds, and water treatment facilities is strongly recommended to prevent water pollution. Waste acceptance criteria should be clearly defined to avoid hazardous waste. When an ordinary landfill is constructed, careful considerations shall be made in site selection. Important aspects to be considered include, but are not limited to 1) avoidance of floodplains and wetlands; 2) avoidance of areas where groundwater level is high; 3) avoidance of areas in the vicinity of residential areas; and 4) setting of buffer zones within 500 m of each site.

(3) Noise and vibration

a) Impact

[General] During the construction phase of all types of subprojects, noise and vibration caused by heavy machinery and construction vehicles may temporarily disturb nearby residents. However, the impacts are limited.

[Road improvement] During the operational phase, no significant noise and vibration are anticipated because traffic volume of motor vehicles on the UZRs, UNRs, and Pourashava roads is expected to be light.

[Bridge construction] A certain level of noise may be anticipated at the operational phase, depending on the socioeconomic conditions of the surrounding areas of the construction site. As written in the section of air pollution, large bridge construction may lead to traffic volume increase, but the prediction of the extent of traffic volume increase is difficult and complicated. It is therefore necessary to monitor noise levels periodically.

[Bus and truck terminal construction] It is possible that a number of motor vehicles will accumulate at bus and truck terminals. This type of situation will disturb nearby residents' livelihoods.

b) Mitigation measures

- Construction works shall be restricted to daytime hours to avoid and mitigate disturbance to local residents' lives.
- Nearby residents should be informed of construction work schedules.
- With respect to large-scale bridges, noise levels near subproject sites should be monitored periodically.
- Bus and truck terminals should be located at sufficient distances from populated residential areas. Construction of sound insulation walls may be needed at some sites.

(4) Offensive odors

a) Impact

[Construction of slaughterhouse] The operation of slaughterhouses may cause offensive odors because carcasses and other waste are generated by slaughterhouses. However, overall impacts will be small or remain local because slaughterhouses to be constructed under the NRRDLGIP will not be large. Thus, the amount of carcasses and other wastes is anticipated to be small.

[Construction of community and public toilets] Community and public toilets will ameliorate hygienic conditions in the surrounding environment, and eventually contribute to the reduction of offensive odors. However, the risk of offensive odors is possible if proper maintenance of these toilets does not occur.

[Construction of waste management facilities] During the operational phase, offensive odors may be emitted by waste disposal sites.

b) Mitigation measures

- With respect to slaughterhouses, proper treatment and disposal of carcasses and other waste is essential. Sufficient water supply systems, drains, septic tanks, soak wells, and waste storage

facilities shall be installed to allow proper accumulation and treatment of carcasses and other waste.

- With respect to community and public toilets, appropriate facilities, such as septic tanks and soak wells shall be installed to prevent offensive odors. Regular maintenance of these toilets shall be ensured by the executing agency.
- With respect to waste disposal landfills, the construction of sanitary landfills that include proper drains, sedimentation ponds, and water treatment facilities is strongly recommended to prevent water pollution. If an ordinary landfill is constructed, it shall be located outside areas near the vicinity of residential areas. A buffer zone shall be set within 500 m of each site.

(5) Bottom sediments

a) Impact

[General] During construction works, there is a risk of contamination of bottom sediments by accidental spills of construction materials such as bituminous materials and other petro-chemicals. These spills will be particularly significant if subprojects are conducted along or nearby water bodies.

[Bridge construction] Bridge construction will involve dredging activities and the construction of main bridge over water body and approach roads along water bodies. Therefore, this type of construction carries the additional risk of spills of construction materials into the water body.

b) Mitigation measures

- Construction materials, such as bituminous materials and other petro-chemicals shall be treated carefully to prevent spills.
- With respect to large-scale bridge construction, bottom sediment samples taken from areas that surround subproject sites should be tested and recorded to monitor the impact of subprojects on bottom sediments.

(6) Waste

a) Impact

[General] Civil works of all types of subprojects may generate a certain amount of wastes such as unused construction materials during the construction phase. Such wastes may negatively affect the surrounding environment if they are left at the construction sites.

[Market improvement] Generally, market improvement will exert positive effects on waste issues in markets. However, negative impacts may also be anticipated if garbage bins and disposal sites are improperly operated and maintained. The field survey revealed that few of the unimproved Growth Center Markets have garbage bins or waste disposal sites. Waste is often dumped into nearby water bodies or internal drains. This causes water quality degradation and congestion problems. In addition, even in the Growth Center Markets improved under similar past project, installed garbage bins were not regularly cleaned.

[Construction of slaughterhouse, public toilet, and bus and truck terminal] Construction or development of other urban infrastructures, and, in particular, slaughterhouses, public toilets, and bus and truck terminals, are expected to increase the amount of waste generated. Thus, a risk of adverse impacts on the surrounding environment will occur if waste is not disposed of properly or if waste is left at these infrastructure facilities.

b) Mitigation measures

- Contractors should clean up construction waste and unused materials on a regular basis during construction work. All types of waste should be cleared and removed after the completion of construction work. Therefore, it will be necessary to incorporate an article that concerns appropriate disposal of waste into contracts with contractors.
- With respect to market improvement, garbage bins and waste disposal sites shall be installed at suitable locations in each market. Waste generated in markets shall be disposed of in garbage bins and at waste disposal sites. Composting of waste is an option that should be considered. Maintenance of garbage bins and waste disposal sites shall be ensured by the Market Management Committees (MMCs).
- With respect to construction of slaughterhouses, public toilets, and bus and truck terminals, generated waste should be properly treated and disposed of in accordance with national regulations. This should be the responsibility of the Health Division of each Pourashava.

(7) Ecosystem

a) Impact

[General] Construction work will inevitably involve removal of trees and vegetation. Widening of roads, rehabilitation of road embankments, and construction of bus and truck terminals and waste management facilities will require certain scales of vegetation clearance. The scale of tree and vegetation clearance will depend on the size and characteristics of the land at each site.

On the other hand, the possibility of negative effects on primeval forests or valuable ecosystems remains very low because all subprojects will be implemented either on existing road alignments or structures, or in urban areas.

[Ghat improvement] Ghat improvement proposed in the *haor* area in the Mymensingh area may, to some extent, disturb wetland ecosystems. However, no ecologically critical areas have been designated based on the ECR in the *haor* area. An Important Bird Area[1] (i.e., Madhupur National Park), is located in the *haor* area. However, no subprojects will be located within or in the vicinity of the National Park. Therefore, the extent of impacts of ghat improvement on wetland ecosystems is considered low.

b) Mitigation measures

- When determining detailed designs of subprojects, efforts should be made to conserve as many trees and other vegetation as possible.
- The existence/nonexistence of valuable ecosystems shall be confirmed prior to the detailed design phase. If these ecosystems are identified, then it will be necessary to avoid them.
- Re-vegetation and replanting of trees shall be conducted if any construction work involves tree and vegetation clearance.
- With respect to ghat improvement, vegetation clearance should be minimized. Construction work shall be strictly restricted to the dry season.

[1] The Important Bird Areas are designated and published by the BirdLife International, an international NGO.

(8) Regional hydrology and drainage

a) Impact

[Road improvement] Storage of soil, sand, and construction materials alongside roads during construction work may temporarily impede natural drainage. This typically may occur if construction work is conducted during the rainy season. An increase in embankment heights of currently submersible roads may also affect regional hydrology.

The field survey confirmed that some drainage facilities of existing roads do not currently function at an adequate level because they are inadequate in number and capacity. Drainage congestion problems also cause embankment erosion or soil runoff because of the increased pressure of flood water on embankments. However, planned civil work is expected to contribute to the improvement of these types of drainage problems by the provision of additional cross-drainage capacities. Therefore, the impacts on regional hydrology are considered positive overall.

[Bridge construction] Bridge construction work will include dredging activities, construction of main bridges over water bodies, and construction of approach roads alongside water bodies. This type of construction will exert temporary influences on the regional hydrology mainly during civil work.

[Market improvement] Current poor conditions of market drainage systems are expected to be improved under the NRRDLGIP. However, the field survey performed during the Preparatory Survey revealed that drainage systems in these markets improved by similar past projects sometimes malfunction because of congestion caused by dumped garbage. Therefore, an effective maintenance system shall be established and implemented to prevent the occurrence of localized drainage problems.

[Urban drainage improvement] Rehabilitation and construction of urban drainage systems will improve drainage conditions in Pourashavas. However, the field survey revealed that some drainage systems did not function well because of the lack of sufficient slope to ensure water flow to outlets. Thus, they have congestion problems. Therefore, the overall impact will be positive if smooth water flow to outlets is properly considered in the detailed designs of drainage systems.

b) Mitigation measures

- With respect to road improvement, storage areas for soil and other construction materials should be carefully selected to avoid disturbance of natural drainage. Earthwork shall be restricted to the dry season. It is vital to install a sufficient number of functional culverts and other drainage facilities at appropriate locations. Culverts, bridges, and other structures should be carefully designed to ensure sufficient cross-drainage capacity.
- With respect to bridge construction, alternative drainage shall be ensured when civil work such as dredging and foundation construction is implemented.
- With respect to market improvement, an effective maintenance system shall be established and implemented. The budget for maintenance should be ensured by the MMCs.
- With respect to urban drainage improvement, engineering designs of drainage systems should consider topographic features in the target areas to ensure smooth water flow to outlets. The establishment of effective maintenance systems and their implementation should be ensured. The budget for maintenance should be secured by each concerned Pourashava.

(9) Soil erosion

a) Impact

[General] Construction works will have a risk of soil erosion, in particular if the works are undertaken on embankment of water bodies.

[Road improvement] Road improvement work that involves civil work, such as clearing, excavating, and other earthmoving activities, may cause soil erosion. Impacts may be significant if the works are conducted during the rainy season. Soil texture will also affect the stability of embankments.

Soil erosion and runoff will be particularly severe at the road sections along water bodies. However, planned road improvement aims to address erosion and runoff problems by compaction and protection of embankment soil, re-vegetation of embankments, installation of palasidings[2], placement of sand-filled bags, and installation of proper drainage facilities. Thus, the overall impacts are considered positive.

[Bridge construction] Bridge construction will involve dredging activities, construction of main bridges over bodies of water, and construction of approach roads along water bodies. These activities bear risks of soil erosion.

b) Mitigation measures

- Earthworks shall be restricted to the dry season.
- Vegetation clearance should be minimized at construction sites.
- Embankment soil should be properly tested and compacted to ensure stability. Grass turfing and tree planting on batter slopes should be undertaken to prevent soil erosion. In particular, road embankments adjacent to water bodies such as rivers and canals need to be properly compacted and covered by grass and trees.
- Protective measures, including installation of palasiding and placement of sand-filled bags, along with regular maintenance, shall be taken at sites identified as vulnerable to erosion.

(10) Land acquisition and involuntary resettlement

a) Impact

[Road improvement and bridge construction] Road improvement will inevitably require some amount of land acquisition. In particular, widening and realignment of roads and construction of bridge approach roads will require land acquisition. Field investigations revealed that several portions of sample roads required road widening or realignment, which would eventually require acquisition of private land. Furthermore, involuntary resettlement of less than 200 people may occur. However, involuntary resettlement of more than 200 people is excluded from the candidate list of subprojects based on one of the criteria for road selection.

Land acquisition and involuntary resettlement will also exert social and economic impacts on local people's livelihoods. These include loss of land, other assets, and other means of income generation. Impacts on vulnerable groups may become more significant.

[2] Palasiding consists of wooden boards, concrete, or other materials that will be installed on embankments to prevent soil erosion.

[Construction of bus and truck terminals, and waste management facilities] Construction of bus and truck terminals and waste management facilities may require small-scale land acquisition that may result in subsequent involuntary resettlement of less than 200 people. This may occur because one of the selection criteria for subprojects under Subcomponent 2-1 disqualifies any subprojects that will cause resettlement of more than 200 persons or will affect more than 10% of their productive assets. The impacts of land acquisition and involuntary resettlement on local people's livelihoods described above should also be given sufficient attention.

b) Mitigation measures

Mitigation measures shall be conducted in accordance with the RPF. Measures of particular importance are listed below.

- Detailed designs of subprojects shall consider the socioeconomic characteristics of lands adjacent to subproject sites. Priority should be given to the avoidance and minimization of land acquisition and involuntary resettlement.
- If land acquisition is unavoidable, prior consultation meetings should be held with PAPs. Agreements on land acquisition shall be obtained from PAPs.
- Reasonable compensation shall be paid to the PAPs.
- If involuntary resettlement is unavoidable, an ARAP shall be prepared. The draft ARAPs prepared during the Preparatory Survey can be used as reference materials.
- If the number of people to be resettled involuntarily is confirmed to exceed 200 based on field surveys and local consultations, then that subproject will be disqualified. It shall be excluded from the candidate list.

(11) Living and livelihood

a) Impact

[General] Some construction work may cause certain adverse impacts on local people's living and livelihood. Businesses located near construction sites may be disturbed. In addition, construction work may temporarily obstruct vehicle passage. On the other hand, the implementation of subprojects will also exert positive impacts such as the creation of temporary job opportunities.

[Road improvement] Road improvement will not cause significant adverse impacts on local living and livelihood. Furthermore, improved roads will increase local residents' accessibility to goods, other people, nearby markets, and bigger towns and cities. In turn, this will provide local people with long-term income-generating opportunities.

[Bridge construction] Workers involved in ferry and boat transportation and other ferry-related workers, including shopkeepers at ghats, may lose their means of livelihood.

[Market improvement] In general, market improvement will exert positive impacts on local peoples' living and livelihood. Yet, it may also cause certain adverse impacts. Market facilities to be improved will be selected in consultation with local stakeholders during the implementation phase. In some cases, the selected facilities may alter shopkeepers' business patterns in the market. This could result in adverse impacts on their income. For example, the field survey found that, in some unimproved Growth Center Markets, shopkeepers who conducted their businesses in closed-door sheds, such as grocery shops or repairing shops, expressed some concerns that, if open sheds were selected for construction, they might need to change their business patterns.

b) Mitigation measures

- Local residents' should be given advance notice of any construction work that may cause disturbances to local livelihood. Therefore, consultation meetings should be held prior to the commencement of construction work.
- If large-scale bridge construction is planned in areas where ferry services operate, the plans for bridge construction should be explained well in advance to ferry-related workers so that they can have sufficient time to find new means of income generation.
- With respect to market improvement, if improvement of selected facilities will exert adverse impacts on existing shopkeepers' incomes, then proper alternative business premises should be provided based on their willingness. Provision of livelihood restoration assistance such as training courses on how to start new businesses may be required.

(12) Cultural heritage

a) Impact

[General] It can be assumed that a number of cultural heritage sites and other culturally and religiously important sites, such as mosques, Hindu temples, and graveyards, are located within the target areas of the NRRDLGIP. These sites may be affected by subproject construction work, especially in rural areas.

b) Mitigation measures

- Culturally and religiously important sites shall be identified before the detailed design phase through field surveys and consultation meetings. Protection measures need to be incorporated into the detailed design. These measures should focus on avoiding disturbance of cultural and religious customs.
- Hours for construction works shall be decided to avoid any disturbance of culturally and religiously important sites.
- If any disturbance is anticipated, the agreement of local stakeholders should be obtained by consultation meetings held prior to construction work.

(13) Ethnic minorities and indigenous peoples

a) Impact

[General] Several indigenous groups are located within the target areas of the NRRDLGIP: the Rajbongshi and Santal in Dinajpur District, and the Mandi in Mymensingh District. During the current survey, locations of inhabitants who belong to these groups were not identified in the vicinity of subproject sites, but there remains a possibility that subprojects might disturb their lives and cultures.

b) Mitigation measures

- Existence/nonexistence of residences of indigenous peoples shall be confirmed through field surveys and local stakeholder consultations before the detailed design phase.
- If the residences of indigenous peoples are identified in the vicinity of subproject sites, consultation meetings shall be held. Agreements with them should be obtained prior to the commencement of civil work if any disturbance to their lives and cultures is anticipated.

(14) Safety and health

a) Impact

[General] Construction workers may be involved in accidents at work sites. In addition, a risk exists that infectious diseases, such as HIV/AIDS, could spread because of the inflow of construction workers.

[Road improvement] Road safety problems at work sites might be significant unless proper measures, such as placement of signs, guards, and speed breakers are properly undertaken. The field survey conducted during the Preparatory Survey revealed that some sample roads had one or more sharp curves. Children use these roads to commute to school. Situations such as those noted above may result in traffic accidents if no proper measures are taken.

[Market improvement] The lack of safe water supply facilities may have severe implications for human health. The field survey revealed that most Growth Center Markets had water supply facilities. However, the number of facilities was inadequate. Some of these facilities were inoperative. This situation may cause adverse impacts on human health unless proper measures are taken.

[Urban drainage improvement] The improvement of urban drainage systems will reduce poor drainage that can cause risks such as offensive odors and the transmission of diseases. However, the field survey revealed that one urban drainage system upgraded by a similar past project was currently blocked. Offensive odors emanated from the stagnant water. This stagnant water may serve as a source for mosquito breeding. Mosquitoes may transmit infectious diseases such as dengue fever. Thus, adverse impacts will occur if proper measures are not taken.

b) Mitigation measures

- Safety education for accident prevention shall be provided to construction workers, maintenance and management staff, and other relevant persons. Basic information on infectious diseases, including HIV/AIDS, shall be provided to construction workers. This is particularly important for sites where construction workers will be brought in from other areas.
- With respect to road improvement, potential safety hazards shall be explained to construction workers prior to the commencement of work. Warning signs, guards and speed breakers to prevent traffic accidents need to be placed, in particular at sharp curves and shool commuting roads, well in advance of construction sites.
- With respect to market improvement, an adequate numbers of tubewells and other water facilities shall be installed. Regular maintenance, including water quality inspection, shall be properly conducted.
- With respect to urban drainage improvement, regular maintenance shall be properly conducted. In addition, it may be effective to inform local residents of the risk of infectious diseases, including dengue fever, so they can reduce their risks by ensuring proper maintenance of nearby drainage systems on their own.

5.1.2 Considerations for climate change

Bangladesh is one of the most vulnerable countries in the world to climate risks (World Bank 2010). It is anticipated that climate change will cause increases in the frequency and intensity of floods and storm surges. To address these climate change impacts, the GOB endorsed the Climate Change Strategy and Action Plan (CCSAP) in 2009. The CCSAP is based on the following six themes: 1) food security, social protection and health; 2) comprehensive disaster management; 3) infrastructure; 4)

research and knowledge management; 5) mitigation and low carbon development; and 6) capacity building and institutional strengthening.

Under the NRRDLGIP, the theme of infrastructure of the CCSAP should be taken into account particularly. Specifically, the following issues should be considered to the extent possible in designing infrastructures.

1) Adaptation against floods, including securing sufficient heights of road embankments and bridges, and installation of additional cross-drainage facilities for roads.
2) Improvement of urban drainage, including upgrading, rehabilitation, and expansion of drainage systems.

5.2 Environmental and social monitoring system

5.2.1 Concept of environmental and social monitoring

Based on the key environmental and social impacts identified and mitigation measures recommended in the previous steps, a monitoring system shall be clarified for each subproject site. Environmental monitoring consists of the following five parts:

- Verification of compliance with the mitigation measures proposed during individual examinations of subproject sites, as well as during IEEs and/or EIAs.
- Verification of compliance with compensation and resettlement measures proposed in ARAPs and the RPF.
- Monitoring of the effectiveness and adequacy of the proposed mitigation measures.
- Additional measures if the proposed measures are found to be inadequate
- Necessary measures if unexpected problems emerge

Key environmental impacts that require monitoring at subproject sites shall be identified based on the natural and socioeconomic characteristics of each project site.

5.2.2 Potential monitoring items for subprojects

Possible items to be monitored for each individual subproject under the NRRDLGIP are provided for reference in Table A25-5. However, it is important to remember that other items may require monitoring depending on the types and specific characteristics of each subproject. Similarly, some items may not require monitoring. The executing agency should identify subproject-specific items that require monitoring based on anticipated impacts prior to commencement of civil work.

Sample monitoring formats are provided in Attachment 2.

Table A25-5 Environmental and social monitoring items for the NRRDLGIP

Phase	Key impact	Monitoring item
Pre-construction	Environmental clearance	• Verify compliance with the conditions attached to the ECC by DOE
	Land acquisition and resettlement	• Check whether land acquisition and resettlement are required in accordance with the RPF • Check whether land acquisition procedure is properly undertaken in accordance with the RPF • Check whether compensations are completed in accordance with the ARAPs

Phase	Key impact	Monitoring item
	Subproject selection	• Check whether selected subprojects meet all the selection criteria (Subcomponent 2-1)
Construction	Air quality and dust	• Confirm whether measures to minimize dust such as spraying water are properly undertaken • Confirm the change in air quality in the vicinity of construction site of subprojects that may cause significant air pollution
	Water quality	• Check whether earthworks are undertaken in the dry season • Check whether bituminous materials and other construction materials are treated properly • Check whether wastes which may cause water pollution are properly collected, stored, and disposed of • Check whether maintenance system for toilets or other facilities which may cause water pollution are properly established • Confirm the change in water quality in the vicinity of construction site of subprojects that may cause significant water pollution (e.g., large bridge construction)
	Noise and vibration	• Check whether construction works are conducted during daytime hours • Check whether local residents are informed of the schedule of works • Check whether bus and truck terminals are developed sufficiently far from populated residential area • Confirm the change in noise level in the vicinity of construction site of subprojects that may cause significant noise
	Offensive odor	• Check whether wastes which may emit offensive odor are properly collected, stored, and disposed of • Check whether maintenance system for toilets or other facilities which may emit offensive odor are properly established
	Bottom sediments	• Check whether bituminous materials and other construction materials are treated properly • Confirm the change in substances contained in the bottom sediments in the vicinity of construction site for subprojects that may cause significant sediment contamination (e.g., large bridge construction)
	Wastes	• Check whether construction sites are cleaned by contractors • Check whether facilities such as garbage bins and waste disposal sites are installed properly • Check whether wastes are treated and disposed of properly by responsible entities
	Ecosystem	• Check whether subprojects cause large-scale vegetation clearance • Check whether conservation measures are properly undertaken • Check whether construction works are undertaken in the dry season in haor area
	Regional hydrology and Drainage	• Check whether earthworks are undertaken in the dry season • Check whether construction materials are properly stored to avoid disturbance of local hydrology • Check whether the capacity of drainage facilities is adequate • Check whether alternative drainage is provided when dredging works are implemented • Check whether the improved drainage is maintained on a regular basis
	Soil erosion	• Check whether earthworks are undertaken in the dry season • Check whether soil protection measures, e.g., such as soil compaction and minimization of vegetation clearance, are properly undertaken • Check whether regular maintenance of the protection measures is undertaken

Phase	Key impact	Monitoring item
	Land acquisition and involuntary resettlement	• Check whether the ARAP is properly implemented, focusing on compensation, restoration and rehabilitation assistance, and special attention to vulnerable persons • Confirm the perceptions of PAPs on the NRRDLGIP, including grievances or any other request
	Living and livelihoods	• Check whether there are people who may lose income sources, such as workers on ferries near ghat and shopkeepers who need to change their business patterns in market • Check whether such people are informed well in advance • Check whether consultations with such people are sufficiently held
	Cultural heritage	• Check existence or nonexistence of cultural heritage in the vicinity of subproject sites • Check whether consultations with local stakeholders are sufficiently held • Check whether agreement of local stakeholders is obtained if any disturbance is inevitable.
	Ethnic minorities and indigenous peoples	• Check existence or nonexistence of residences of ethnic minorities and indigenous peoples • Check whether consultations with such peoples are sufficiently held • Check whether agreement of such peoples is obtained if any disturbance is inevitable.
	Safety and health	• Check whether potential safety hazards and health issues are explained to construction workers • Check adequate equipment to prevent accidents is provided to construction workers
Operation and maintenance	Environmental Monitoring	• Undertake a periodic environmental monitoring on air quality, water quality, noise level, sediments, or other parameters for subprojects where required • If any of the monitoring results of the above parameters exceed environmental quality standards or baseline data, continue the monitoring on the parameter(s)
	Regional hydrology and drainage	• Check whether regional hydrology is disturbed by the subproject • Check whether the capacity of drainage facilities is adequate
	Soil erosion	• Check the conditions of embankment to evaluate adequacy of soil protection measures
	Living and livelihoods	• Confirm the perceptions of PAPs on the NRRDLGIP
	Land acquisition and resettlement	• Confirm the perceptions of PAPs on the NRRDLGIP • Check whether PAPs have any complaints
	Safety/health	• Check whether safety measures such as the installation of a sufficient number of warning signs are undertaken • Confirm the perceptions of local residents
	Operation and maintenance	• Check whether improved or constructed facilities are properly maintained on a regular basis

Source: Survey Team

6 Consultation, information disclosure, and grievance redress mechanism

6.1 Public Consultation

The executing agency shall conduct public consultations for each subproject. The purpose of these consultations is to identify the present status of each subproject site, to identify the perceptions of local

stakeholders, and to reflect them in the design, implementation, and operation and maintenance of each subproject. These meetings will enable the entire NRRDLGIP to function more appropriately with respect to environmental and social considerations. They will eventually contribute to minimization of adverse impacts and maximization of the benefits of the NRRDLGIP.

The consultations will primarily be conducted in the form of focus group discussions (FGDs) with local stakeholders. They will be held at least twice during the detailed design and construction phases. Individual interviews with key informants and public consultation meetings will also be conducted as appropriate. If subprojects are found to cause significant impacts, such as impacts on local people's livelihoods or indigenous people's livelihoods and traditions, then more intensive consultations shall be held.

Consultations should be conducted in an atmosphere free of intimidation or coercion. In addition, the executing agency shall ensure that all consultations are gender-inclusive and responsive, and that vulnerable people are given sufficient attention.

6.2 Grievance Redress Mechanism

The executing agency shall establish a mechanism to address local people's grievances with respect to environmental- and social-related issues, and to seek for the resolution. The grievance redress mechanism should address grievances promptly. It shall employ an understandable and transparent process that allows special considerations for vulnerable groups such as women, children, the elderly, the poor, and minority groups at no costs and without retribution. The mechanism should not impede access to the country's judicial or administrative remedies. Local stakeholders shall be appropriately informed about the operations of the mechanism.

In the NRRDLGIP, grievances shall first be brought to the LGED Upazila offices or to PIUs at Pourashavas. The focal persons who will receive grievances shall be appointed. These appointments shall be disclosed to the public. PAPs will be informed about the existence and operation of the grievance redress mechanism on occasions such as public consultations.

With respect to Component 1, grievances lodged at the LGED Upazila offices shall first be addressed by the Upazila Engineers with support provided by DSM consultants at the Regional level. Grievances that cannot be resolved by the LGED Upazila offices shall be brought to the LGED District offices. District XENs, with support by DSM consultants at the Regional level, will address those unresolved grievances. Grievances not redressed by the District XENs will be brought to the PMO. The PMO must address them with support provided by DSM consultants in the PMO.

With respect to Subcomponent 2-1, grievances brought to the PIU shall be addressed by Pourashava Engineers, with support provided by Regional DSM consultants. Grievances not resolved by the PIU shall be brought to the PMO. The PMO must address them with support provided by DSM consultants in the PMO.

With respect to both Component 1 and Subcomponent 2-1, grievances not redressed by the PMO shall be sent to and addressed by the Inter-ministerial Steering Committee (ISC). Further grievances will be referred to the appropriate courts of law.

Generally, grievances lodged at the ground level will be brought to the upper level on a quarterly basis. They will be included in project quarterly reports. However, particularly important grievances should be immediately transferred to the upper levels when they cannot be resolved at the current level.

In addition to the grievance redress mechanism described above, another grievance redress mechanism will be established to handle grievances particularly related to land acquisition or resettlement. Details

of this mechanism are presented in the draft RPF.

6.3 Information Disclosure

Information that contains details of subprojects shall be disclosed to local stakeholders prior to consultations. This information shall include the location of each subproject site, the type of construction work to be performed, possible environmental and social impacts of each subproject, and mitigation measures.

The information should be disclosed at convenient locations, such as the District, Upazila, and Pourashava offices, or at main villages or other convenient places located near each subproject site so that local stakeholders can easily access the information. All information shall be provided in a local language that is comprehensible to local stakeholders. For illiterate people, other, suitable communication methods such as briefings, discussions, meetings, and radio and television broadcasts should be employed.

In addition, when IEEs, EIAs, or ARAPs have been prepared, summaries of IEEs and/or EIAs and ARAPs shall be prepared for distribution to PAPs and other stakeholders. The full documents shall be made available on request. The status of disclosures will be reported to JICA.

7 Institutional arrangement

The LGED and Pourashavas, as the executing agencies, are responsible for the environmental and social considerations. However, few members within the LGED have sufficient capacity to handle environmental and social considerations. Furthermore, there is no section or posts in charge of environmental and social issues in Pourashavas. Therefore, the PMO shall establish an internal section for environmental and social considerations to ensure that proper environmental and social measures are undertaken. Consultants with expertise in environmental and social considerations, as members of DSM consultants, will be assigned to the internal section.

Due to the difference in institutional arrangements between Components 1 and 2, the entities to be involved and their responsibilities also differ, thus two sets of environmental and social sections are proposed to be established.

Table A25-6 Responsibilities of relevant entities for Component 1

Responsibility	Pre Construc-tion	Construc-tion	Operation
LGED District Offices			
District Executive Engineers (XENs)			
• Responsible for identification of potential impacts and elaboration of mitigation measures	X		
• Responsible for conducting environmental and social monitoring activities	X	X	X
• Supervise and assist UE in supervising contractors		X	X
• Receive complaints transferred from UE and send it to PMO		X	X
Project Management Office (PMO)			
Assistant engineer in charge of environmental and social monitoring			
• Supervise overall activities for identification of potential impacts and elaboration of mitigation measures	X		
• Supervise overall activities for environmental and social monitoring	X	X	X
• Supervise DSM consultants in elaborating an environmental and social monitoring plan	X		
• Supervise and assist DSM consultants in conducting activities for identification of impacts, elaboration of mitigation measures, and environmental and social monitoring	X	X	X
DSM consultants (Environmental Specialist, and Rehabilitation and Resettlement Specialist)			
• Assist the PMO in supervising overall activities for identification of impacts, elaboration of mitigation measures, and of environmental and social monitoring activities	X	X	X
• Assist District XENs and Regional DSM consultants in conducting activities for identification of impacts, elaboration of mitigation measures, and monitoring	X	X	X
• Elaborate an environmental and social monitoring plan	X		
LGED Regional Offices			
Regional Deputy Project Director/Regional Executive Engineer (XEN)			
• Supervise the monitoring activities of the District XENs	X	X	X
DSM consultants (Regional Environmental Experts and Regional Rehabilitation & Resettlement Experts)			
• Assist District XENs in conducting activities for identification of impacts, elaboration of mitigation measures, and monitoring	X	X	X
LGED Upazila Offices			
Upazila Engineers (UEs)			
• Supervise contractors to ensure compliance with IEE and/or EIA and ARAP		X	X
• Assist District XENs and DSM consultants in conducting activities for identification of impacts, elaboration of mitigation measures, and monitoring, especially in conducting sample field survey	X	X	X
• Receive complaints from local residents about environmental and social issues regarding the Project and send them to District XENs		X	X

[Legend] DSM: Design, Supervision, and Monitoring, ES: Environmental Specialist, PMO: Project Management Unit, RRS: Rehabilitation and Resettlement Specialist, UE: Upazila Engineer, XEN: Executive Engineer

Table A25-6 the responsibilities of relevant entities at respective phases of subprojects in Component 1. District Executive Engineers (XENs) of LGED District Offices bear the responsibility for environmental and social issues. The DSM consultant team, especially, the Environmental Specialists (ES) and Rehabilitation and Resettlement Specialists (RRS) to be assigned in the PMO, will assist the District XENs. Regional Deputy Project Director (RDPD) or XEN at the LGED Regional Offices will

supervise the activities of the District XENs such as identification of potential impacts, elaboration of mitigation measures, and monitoring. District level and Upazila level engineers will need to assist the Regional Environmental Expert (REE) and Rehabilitation and Resettlement Expert (RRRE) of DSM consultants to be assigned at the Regional level in conducting the field surveys. Upazila Engineers shall also be responsible for the supervision of contractors to ensure the compliance with the Environmental Framework, RPF, IEE and/or EIA, and ARAP. Complaints from local residents should also be received by Upazila Engineers and transferred to the PMO via District XENs. The PMO, under the assistance of an ES and a RRS shall be responsible for supervising overall activities related to environmental and social issues.

Table A25-7 Responsibilities of relevant entities for Component 2

Responsibility	Pre Construc-tion	Construc-tion	Operation
Project Implementation Units (PIUs) for Component 2			
Pourashava Engineers			
• Responsible for identification of potential impacts and elaboration of mitigation measures	X		
• Responsible for conducting environmental and social monitoring activities	X	X	X
• Receive complaints from local residents about environmental and social issues regarding the Project and send them to PMO		X	X
Project Management Office (PMO)			
Assistant engineer in charge of environmental and social monitoring			
• Supervise overall activities for identification of potential impacts and elaboration of mitigation measures	X		
• Supervise overall activities for environmental and social monitoring	X	X	X
• Supervise DSM consultants in elaborating an environmental and social monitoring plan	X		
• Supervise and assist DSM consultants in the identification of impacts, elaboration of mitigation measures, and environmental and social monitoring	X	X	X
DSM consultants (Environmental Specialist and Resettlement & Rehabilitation Specialist)			
• Assist the PMO in supervising overall environmental and social monitoring activities	X	X	X
• Assist PIUs and Regional DSM consultants in conducting activities for identification of impacts, elaboration of mitigation measures, and monitoring	X	X	X
• Elaborate an environmental and social monitoring plan	X		
LGED Regional Offices			
DSM consultants (Regional Environmental Experts and Regional Rehabilitation & Resettlement Experts)			
• Assist PIU-C2 in conducting activities for identification of impacts, elaboration of mitigation measures, and monitoring	X	X	X

[Legend] DSM: Design, Supervision, and Monitoring, PIU: Project Implementation Unit, PMO: Project Management Office

Table A25-7 presents the responsibilities of relevant entities at respective phases in Component 2. The PIUs of Pourashavas bear the responsibility for environmental and social issues. The DSM consultants, i.e., REEs and RRREs will assist the PIUs in conducting the field surveys. The PMO, under the assistance of the ES and RRS in the PMO, shall also be responsible for supervising overall activities related to environmental and social issues. The PIUs of Pourashavas shall also be responsible for the supervision of contractors to ensure compliance with the Environmental Framework, RPF, IEE and/or EIA, and ARAP. Complaints from local residents should also be received by Engineers of PIUs and transferred to the PMO.

In each quarter, the concerned District XENs and the PIUs of Pourashavas shall conduct monitoring and fill in the prescribed monitoring form. The District XENs will submit it to the Regional Deputy Project Directors, who will subsequently submit it to the PMO. The PIUs will directly submit it to the PMO.

8 Staffing requirements and budgeting

Environmental assessment and related monitoring and supervision tasks will be carried out by the DSM consultants, including the ES and RRS to be assigned to the PMO, and REE and RRREs to be assigned to the Supervision and Monitoring Offices (SMO). Specifically, they will be in charge of 1) verifying the compliance with the proposed mitigation measures, and compensation and resettlement measures proposed in the relevant documents such as the Environmental Framework and RPF, 2) monitoring of the effectiveness and adequacy of these measures, 3) taking additional measures if necessary, and 4) taking necessary measures if unexpected problems emerge. The responsibilities of the ES and REEs are described in this section. The responsibilities of the RRS and RRREs are presented in the draft RPF.

With respect to Component 1, the ES and REEs will work in close collaboration and coordination with the following three institutions:

1) The DOE.
2) LGED staff including the District XENs, Regional XENs, and Upazila Engineers.
3) The PMO, including the Assistant Engineer of LGED headquarters.

Collaboration and coordination with the DOE shall be ensured to remain updated on all environmental assessment requirements, and to receive their advice on compliance with those requirements. Close collaboration with the LGED staff at the Regional, District, and Upazila levels shall be ensured to conduct adequately and efficiently environmental monitoring at subproject sites. Furthermore, these entities will advise project-related LGED staff and DSM consultants in the PMO on subproject-specific environmental and social matters.

With respect to Component 2, the ES will work in close collaboration and coordination with the following three institutions:

1) The DOE;
2) PIUs of concerned Pourashava; and
3) The PMO, including the Assistant Engineer of LGED headquarters.

Collaboration and coordination with the DOE shall occur for the same purposes listed for Component 1. The REEs will primarily be in charge of environmental monitoring activities on subproject sites with the assistance of ES in the PMO. Their collaboration with the PIUs of the Pourashavas shall be ensured to allow adequate and efficient conduct of environmental monitoring at subproject sites in the Pourashavas. They will also provide advice to project-related LGED staff and consultants on environmental and social matters.

In addition to the above, consultants and surveyors involved in the implementation and documentation of IEEs and EIAs shall be assigned as required. The number of consultants and surveyors that shall be assigned depends on the number of subprojects that require IEEs and/or EIAs. The executing agency shall consult with the DOE on specific approaches required to cover all target subprojects. In this draft Environmental Framework, required costs have been estimated based on available information on the subprojects collected during the Preparatory Survey phase. For IEE studies, IEE consultants and

surveyors will form IEE study teams. Similarly, for EIA studies, EIA consultants and surveyors will form EIA study teams. Additional surveyors or consultants may be added depending on the technical characteristics of each subproject.

8.1 Draft TOR for IEE and EIA consultants

The draft TOR for IEE and/or EIA consultants and surveyors, including hydrologists and sociologists, is summarized below.

(1) EIA consultant

The EIA consultant will perform the following tasks under the supervision and guidance of ES and the Regional ES:

Task 1: Consult with the DOE about the approach of EIA
The consultant shall consult with the DOE about the specific approach to cover all subprojects for which EIAs are required in the NRRDLGIP. Importantly, it shall be confirmed whether individual EIA studies are required for each Red category subproject under the ECR, or whether an EIA study may cover a group of subprojects.

Task 2: Conduct EIA
The consultant shall conduct EIA studies for Red category subprojects, and prepare EIA reports in accordance with the Environmental Framework and ECR. The subprojects for which EIAs are required will be instructed by the PMO at the beginning stage of detailed design phase.

Task 3: Consult with Department of Environment about EIA
The consultant shall consult with the DOE about the contents of the draft EIA reports to obtain initial comments on the draft. In response to the comments, the consultant shall revise the draft EIA report in consultation with the PMO.

Task 4: Provide guidance to the surveyors and supervise their work
The consultant shall lead the EIA study team. The consultant shall provide technical guidance to the Surveyors (Hydrology and Sociology) on their surveys, and supervise their works.

(2) IEE consultant

The EIA consultant will perform the following tasks under the supervision and guidance of ES and the Regional ES:

Task 1: Consult with the DOE about the approach of IEE
The consultant shall consult with the DOE about specific approaches that may be used to cover all subprojects that require IEEs in the NRRDLGIP. Importantly, it shall be confirmed whether individual IEE studies are required for each Orange-B category subproject under the ECR, or whether an IEE study may cover a group of subprojects.

Task 2: Conduct IEE
The consultant shall conduct IEE studies for Orange-B category subprojects, and prepare IEE reports in accordance with this Environmental Framework. Subproject for which IEEs are required will be instructed by the PMO at the beginning stage of the detailed design phase.

Task 3: Consult with Department of Environment about IEE
The consultant shall consult with the DOE about the contents of the draft IEE reports to obtain initial comments on e draft. In response to the comments, the consultant shall revise the draft IEE reports in

consultation with the PMO.

Task 4: Provide guidance to the surveyors and supervise their work
The consultant shall lead the IEE study team. The consultant shall provide technical guidance to the Surveyors (Hydrology and Sociology) on their surveys, and supervise their work.

(3) Environmental Survey 1 (Hydrology)

The surveyor for hydrology will perform the following tasks under the supervision and guidance of ES and RREs:

Task 1: Conduct hydrological survey for EIA and/or IEE
The consultant shall conduct a hydrological survey for each subproject site under the supervision of the EIA or IEE consultant. The survey shall cover 1) Hydrological conditions of the subproject site, 2) Impacts of the subproject in the context of hydrology, 3) Mitigation measures against expected impacts in the context of hydrology, 4) Environmental management plans in the context of hydrology, 5) Environmental monitoring plans in the context of hydrology, and 6) Other items designated by the EIA Consultant.

(4) Environmental Survey 2 (Sociology)

Task 1: Conduct social survey for EIA and/or IEE
The consultant shall conduct a social impact survey on each subproject site under the supervision of the EIA or IEE consultant. The survey shall cover 1) Local social situations at the subproject site, 2) Impacts of subprojects on the social situations, 3) Mitigation measures against expected social impacts, 4) Management plans for identified social issues, 5) Monitoring plans for identified social issues, and 6) Other items designated by the EIA Consultant.

8.2 Cost estimates for environmental and social considerations

The cost estimates related to environmental assessments for all subprojects, and IEEs and/or EIAs for some target subprojects are presented in Table A25-8.

Table A25-8 Estimated costs for the assignment of environmental staff

Post	Cost (BDT)
IEE and EIA	
・ Consultant	5,062,500
・ Surveyor	5,700,000
・ Laboratory analysis	1,000,000
・ Car and necessary equipments	2,100,000

Note: Cost for the DSM consultants, including the ES and REE, are not included in the figures

Attachment 1 Sample format for screening of subprojects

Impacts	Overall rating of impacts			
	Construction phase		Operation phase	
	Positive	Negative	Positive	Negative
Pollution				
Air quality and dust				
Water quality				
Noise and vibration				
Bottom sediments				
Wastes				
Natural environment				
Protected areas				
Ecosystem				
Regional hydrology and drainage				
Soil erosion				
Topography and geology				
Social environment				
Living and livelihood				
Cultural heritage				
Landscape				
Ethnic minorities and indigenous peoples				
Resettlement				
Land acquisition				
Safety and health				

Note: The extent of impacts is rated by “Medium”, “Low”, and “Nil”, which indicate medium impacts, low impacts, and no or negligible impacts, respectively.

Attachment 2 Sample format for environmental and social monitoring

1. Responses/actions to comments and guidance from government authorities and the public

Comments and guidance from government authorities and the public need to be considered in environmental and social monitoring. For example, the conditions attached to ECC by the DOE may include monitoring of items which are not specified in this sample format. Those items shall be added to the below table, and monitored accordingly.

Monitoring item	Monitoring results during report period
e.g.) Conditions attached to ECC by the DOE	

2. Pollution control

If any subproject is found to cause significant adverse impacts on any environmental items, those items shall be measured periodically to prevent environmental pollution. Under the NRRDLGIP, the possible parameters to be measured include but are not limited to air quality, surface and groundwater quality, noise level, and bottom sediments quality. Where required, other parameters need to be added to the monitoring items considering the specific characteristics of each subproject site. Frequency of monitoring will be also determined based on the site-specific characteristics.

a) Air quality

Item	Unit	Measured value (mean)	Measured value (max.)	Country's standards	Referred international standards	Measurement point	Frequency
PM2.5	mg/m^3						
PM10	mg/m^3						
SPM	mg/m^3						
CO	mg/m^3						
NO	mg/m^3						
NO_2	mg/m^3						
SOx	mg/m^3						
Pb	ng/m^3						

b)Surface and groundwater quality

Item	Unit	Measured value (mean)	Measured value (max)	Country's standards	Referred international standards	Measurement point	Frequency
DO	mg/l						
BOD	mg/l						
COD	mg/l						
pH							
EC	µs/cm						
TSS	mg/l						
TDS	mg/l						
Turbidity	JTU						

c) Noise level

Item	Unit	Measured value (mean)	Measured value (max.)	Country's standards	Referred international standards	Measurement point	Frequency
Noise level	dBA						

d) Bottom sediments

Item	Unit	Measured value (mean)	Measured value (max.)	Country's standards	Referred international standards	Measurement point	Frequency
Zn	mg/kg						
As	mg/kg						
Hg	mg/kg						
Mn	mg/kg						
Cd	mg/kg						

3. Monitoring items to be checked under the NRRDLGIP

Specific monitoring items will be determined from the below list for each subproject, considering the site-specific characteristics.

Environmental Impact/ Issue	Monitoring item	Monitoring results	Remarks
Pre-construction phase			
Environmental clearance	• Are the conditions attached to the ECC by DOE complied with?	・ Yes/ No	
Land acquisition	• Has the scale of land acquisition confirmed?	・ Yes / No ・ Area to be acquired (appx. _____ ha)	
	• Is the required land acquisition complied with the RPF?	・ Yes/ No	
	• Have compensations been completed in accordance with the RPF or ARAPs?	・ Yes / No ・ Completion date: DD/MM/YY	
Subproject selection	• Do the selected subprojects meet all the selection criteria? (Subcomponent 2-1)	・ Yes / No	
Construction phase			
Air quality	• Are measures to minimize dust such as spraying water properly undertaken?	・ Yes / No	
	• Is the change in air quality in the vicinity of the proposed subproject sites confirmed? If yes, results of measurements need to be provided using the table presented in "2. Pollution control" in this sample format.	・ Yes/ No ・ Measurement date DD/MM/YY	
Water quality	• Are earthworks undertaken in the dry season?	・ Yes/ No	
	• Were bituminous materials and other construction materials spilled into the nearby water bodies?	・ Yes/ No	
	• Are construction wastes and unused materials collected, stored, and disposed of?	・ Yes/ No	
	• Are maintenance systems for toilets or other facilities which may cause water pollution properly established?	・ Yes/ No	

Environmental Impact/ Issue	Monitoring item	Monitoring results	Remarks
	• Is the change in water quality in the vicinity of the proposed subproject sites confirmed? If yes, results of measurements need to be provided using the table presented in "2. Pollution control" in this sample format.	· Yes/ No · Measurement date DD/MM/YY	
Noise and vibration	• Are construction works conducted during daytime hours?	· Yes/ No	
	• Are local residents informed of the work schedule?	· Yes/ No · Date: DD/MM/YY	
	• Are bus and truck terminals developed sufficiently far from populated residential area?	· Yes/ No · Distance: appx. ____km	
	• Is the change in noise level in the vicinity of the proposed subproject sites confirmed? Is the change in noise level in the vicinity of the proposed subproject sites confirmed? If yes, results of measurements need to be provided using the table presented in "2. Pollution control" in this sample format.	· Yes/ No · Measurement date DD/MM/YY	
Offensive odor	• Are wastes which may emit offensive odor properly collected, stored and disposed of?	· Yes/ No	
	• Are maintenance systems for toilets or other facilities which may emit offensive odor properly established?	· Yes/ No · Date: DD/MM/YY	
Bottom sediment	• Are bituminous materials and other construction materials treated properly?	· Yes/ No	
	• Is the change in substances contained in the bottom sediments in the vicinity of the proposed subproject sites confirmed? Is the change in water quality in the vicinity of the proposed subproject sites confirmed? If yes, results of measurements need to be provided using the table presented in "2. Pollution control" in this sample format.	· Yes/ No · Measurement date DD/MM/YY	
Wastes	• Are construction sites cleaned by contractors?	· Yes/ No	
	• Are facilities such as garbage bins and waste disposal sites are installed at suitable locations?	· Yes/ No	
	• Are wastes treated and disposed of in accordance with the national regulation by responsible entities?	· Yes/ No	
Ecosystem	• Are subprojects expected to cause large-scale vegetation clearance?	· Yes/ No · Estimated area of vegetation clearance: _____ha	
	• Are conservation measures, such as minimization of vegetation clearance and re-vegetation, properly undertaken?	· Yes/ No	
	• Are construction works undertaken in the dry season in haor area?	· Yes/ No	
Regional hydrology and drainage	• Are earthworks undertaken in the dry season?	· Yes/ No	
	• Are construction materials properly stored to avoid disturbance of local hydrology?	· Yes/ No	
	• Is the capacity of drainage facilities adequate?	· Yes/ No	
	• Is alternative drainage provided when dredging works are implemented?	· Yes/ No	
	• Is the improved drainage maintained on a regular basis?	· Yes/ No	
Soil erosion	• Are earthworks undertaken in the dry season?	· Yes/ No	
	• Are soil protection measures, e.g., such as soil compaction and minimization of vegetation clearance, properly undertaken?	· Yes/ No	
	• Is regular maintenance of the protection measures undertaken?	· Yes/ No	

Environmental Impact/ Issue	Monitoring item	Monitoring results	Remarks
Land acquisition	• Has the land acquisition process been properly implemented, focusing on compensation, restoration and rehabilitation assistance, and special attention to vulnerable groups?	· Yes/ No · Completion date of compensation: DD/MM/YY · Completion date of restoration and rehabilitation assistance: DD/MM/YY	
	• Has the perceptions of PAPs on the NRRDLGIP, including grievances or any other request, been confirmed? If yes, summary of their perceptions needs to be submitted in a separate attachment.	· Yes/ No · Date of confirmation: DD/MM/YY	
Living and livelihoods	• Are there people who may lose income sources, such as workers on ferries near ghat and shopkeepers who need to change their business patterns in market?	· Yes/ No · Estimated number of affected people: _____ people	
	• Are such people informed well in advance?	· Yes/ No · Date of notification: DD/MM/YY	
	• Have consultations with such people been sufficiently held? If yes, summary of the consultations needs to be submitted in a separate attachment.	· Yes/ No · Date of consultation: DD/MM/YY	
Cultural heritage	• Does any cultural heritage exist in the vicinity of subproject sites? If yes, the list of heritages needs to be submitted in a separate attachment.	· Yes/ No · Name of the heritage: _____	
	• Have consultations with local stakeholders been sufficiently held? If yes, summary of the consultations needs to be submitted in a separate attachment.	· Yes/ No · Date of consultation: DD/MM/YY	
	• Has agreement of local stakeholders been obtained if any disturbance is inevitable?	· Yes/ No · Date of obtainment: DD/MM/YY	
Ethnic minorities and indigenous peoples	• Does any residence of ethnic minorities and indigenous peoples exist?	· Yes/ No · Estimated number of affected people: _____ people	
	• Have consultations with such peoples been sufficiently held? If yes, summary of the consultations needs to be submitted in a separate attachment.	· Yes/ No · Date of consultation: DD/MM/YY	
	• Has agreement of such peoples been obtained if any disturbance is inevitable?	· Yes/ No · Date of obtainment: DD/MM/YY	
Safety and health	• Has potential safety hazards and health issues been explained to construction workers?	· Yes/ No · Date: DD/MM/YY	
	• Is adequate equipment to prevent accidents provided to construction workers?	· Yes/ No	
Unexpected impacts	• Have impacts which had not been expected been caused by the construction works?	· Yes/ No	
Post-construction phase			
Environmental monitoring	• Has a periodic environmental monitoring on air quality, water quality, noise level, bottom sediments, or other parameters if any, been undertaken six months after the completion of civil work? If yes, results of measurements need to be provided using the tables presented in "2. Pollution control" in this sample format.	· Yes/ No · Measurement date DD/MM/YY	

Environmental Impact/ Issue	Monitoring item	Monitoring results	Remarks
	• Are there any of the monitoring results of the above parameters exceeding environmental quality standards or baseline data?	· Yes/ No · Parameters exceeding standards _____	
Soil erosion	• Are the conditions of embankment checked to evaluate adequacy of soil protection measures?	· Yes/ No	
Regional hydrology and drainage	• Is regional hydrology disturbed by the subproject?	· Yes/ No	
	• Is the capacity of drainage facilities adequate?	· Yes/ No	
Land acquisition and involuntary resettlement	• Is the ARAP properly implemented, focusing on compensation, restoration and rehabilitation assistance, and special attention to vulnerable persons?	· Yes/ No · Completion date of compensation: DD/MM/YY · Completion date of restoration and rehabilitation assistance: DD/MM/YY	
	• Are the perceptions of PAPs on the NRRDLGIP, including grievances or any other request confirmed?	· Yes/ No	
Living and livelihoods	• Are the perceptions of PAPs on the NRRDLGIP confirmed? If yes, summary of their perceptions needs to be submitted in a separate attachment.	· Yes/ No · Date: DD/MM/YY	
Safety and health	• Are safety measures such as the installation of a sufficient number of warning signs undertaken?	· Yes/ No	
	• Are the perceptions of local residents confirmed? If yes, summary of their perceptions needs to be submitted in a separate attachment.	· Yes/ No · Date: DD/MM/YY · Method: _____	
Operation and maintenance	• Are improved or constructed facilities properly maintained on a regular basis?	· Yes/ No	
Other (if any)			

Annex 26

Draft Resettlement Policy Framework

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1 Introduction

1.1 Objectives of the Resettlement Policy Framework

This draft Resettlement Policy Framework (RPF) aims to provide the basic concept of land acquisition and involuntary resettlement, and to describe items to be surveyed, procedures, and methodologies to meet the requirements of both national laws and policies, and the JICA Guidelines for Environmental and Social Considerations 2010 (hereinafter the "JICA Guidelines"). This document was prepared based on the findings of the field works conducted for two sample subprojects under the Survey, and on the literature survey of the past similar projects. This RPF will serve as a guiding material for the executing agency, i.e., LGED for Component 1, and Pourashavas for Component 2, in preparing and implementing Abbreviated Resettlement Action Plans (ARAPs) for subprojects that would cause involuntary resettlement in the implementation phase of the Northern Region Rural Development and Local Governance Improvement Project (NRRDLGIP).

1.2 Definition of relevant terms

The following definitions will be applied for this RPF.

- **Project Affected Persons (PAPs)** includes any persons, households, communities, firms, or private or public institutions who would have their;

  - Standard of living adversely affected;
  - Right, title, or interest in any house, land or any other assets adversely affected; or
  - Business, occupation, places of work or residence adversely affected, with or without displacement.

  If any adverse impact on a household is anticipated, PAP in that case covers all members of the affected household if they reside underneath one roof and operate as a single economic unit. Therefore, in the context of the RPF and ARAP, PAPs are considered as members of certain affected households.

- **Household** is a group of persons who live together and take their meals from a common/one kitchen.

- **Replacement cost** means an amount needed to replace an asset at current market value including depreciation and overhead expenses of the transaction, registration stamp duty and registration charges for such replacements. These include: 1) agricultural land based on its productive potential; 2) residential land based on current market value; 3) structures based on current market price of building materials and labor including transaction costs; 4) trees, crops and plants on current market value; and 5) shops and commercial assets based on market value of similar location attribute.

- **Cut-off date** is the date of commencement of the census of PAPs within the sites of a target subproject. This is the date beyond which any person whose land is occupied for the use of the Project will not be eligible for compensation.

- **Involuntary resettlement** means the involuntary taking of land resulting in direct or indirect economic and social impacts caused by: 1) loss of benefits from use of such land; 2) relocation or loss of shelter; 3) loss of assets or access to assets; or 4) loss of income sources or means of livelihood, whether or not the PAP has moved to another location.

- **Land acquisition** means the taking of land by government or other public bodies for the purpose of a public project. This includes the acquisition of land or assets for which the owner enjoys uncontested customary rights.

- **Restoration and rehabilitation assistance** means the provision of development assistance in addition to compensation, such as land preparation, credit facilities, training, or job opportunities. These assistances are provided to restore the living standards, income earning capacity and production levels of PAPs to the pre-project level at least.

- **Abbreviated Resettlement Action Plan (ARAP)** must be prepared when small-scale involuntary resettlement (i.e., fewer than 200 people are resettled) is required. It illustrates the number of PAPs, affected land and other assets including their values, and identification of entitled people, compensation, restoration and rehabilitation assistance, and monitoring, and budget. The purpose of ARAP is to facilitate entire process of land acquisition and assistance to PAPs in line with the ARIPO and the JICA Guidelines.

- **Vulnerable groups** include: 1) female-headed households; 2) households below the poverty line; 3) those less able to care for themselves (e.g., children, the elderly and the disabled); 4) the landless; 5) indigenous peoples; and 6) other groups not protected by national compensation law.

- **Squatters** are people who occupy or possess an asset without legal title.

- **Encroachers** are the land owners who have illegally extended their land holdings or structures into the neighboring public land.

1.3 Project description

The NRRDLGIP will cover eight Districts of the Rangpur Division and six Districts in the northern area of the Dhaka Division. The NRRDLGIP largely consists of two main components. Component 1 will develop basic rural infrastructures. Component 2 is further divided into two subcomponents. Subcomponent 2-1 will improve basic infrastructure and service delivery of Pourashavas, and Subcomponent 2-2 will enhance local governance and capacity development of Pourashavas. Component 1 and Subcomponent 2-1 will involve physical infrastructure work which may cause adverse environmental and social impacts in the Project area.

Component 1 will include the following infrastructure development: 1) upgrading of Upazila roads (UZR) and Union roads (UNR) including bridges and culverts; 2) rehabilitation of UZR; 3) improvement of Growth Centers and rural markets; and 4) improvement of ghats.

Subprojects under Subcomponent 2-1 will not be determined at the preparatory survey phase. They will be selected through participatory approaches in the implementation phase of the Project. The eligible types of infrastructure works under the subcomponent may include: 1) improvement and rehabilitation of Pourashava roads, bridges, and culverts; 2) repair, rehabilitation, and expansion of drains; 3) improvement of municipal markets; 4) construction of slaughter houses; 5) rehabilitation and expansion of water distribution network and tubewells; 6) construction of public and community toilets; 7) construction of solid waste management facilities; 8) construction of bus and truck terminals; 9) installation of streetlights; 10) establishment of parking areas; and 11) basic infrastructures for the poor.

2 Identification of land acquisition and resettlement under the Project

2.1 Necessity of land acquisition and resettlement

Land acquisition
Although the upgrading of UZRs and UNRs and the rehabilitation of UZRs under Component 1 will be basically on the existing road alignments, a small amount of land from private ownership will be required for the following cases: 1) widening of roads to meet LGED standards; 2) realignment of roads to ease curve radii; 3) increase in the embankment height of roads; and 4) construction of approach roads for large-scale bridges. Since Growth Centers and rural markets are normally located on Government's land, no land acquisition is anticipated. Occurrence of land acquisition and its scale shall be identified after the determination of detailed design of each subproject.

Regarding Subcomponent 2-1, land acquisition will be required for the following cases: 1) widening of Pourashava roads; 2) construction of bus and truck terminals; and 3) construction of waste management facilities. Since subprojects under Subcomponent 2-1 will be selected after the commencement of the NRRDLGIP, the necessity of land acquisition for each subproject will be confirmed during the selection process.

Resettlement
Subprojects requiring large-scale involuntary resettlement of more than 200 people will be excluded by the exclusion criterion for subproject selection of the Project. Therefore, under the NRRDLGIP, only small-scale involuntary resettlement, i.e., that of fewer than 200 PAPs, is expected for both Component 1 and Subcomponent 2-1.

Regarding Component 1, the roads that are expected to require large-scale involuntary resettlement have been excluded, based on the information gathered from concerned Upazila Engineers at the preparatory survey phase. It is, however, necessary to confirm, at the beginning of the detailed design of subprojects, whether involuntary resettlement would occur and how many people would be affected. This is because the information from the Upazila Engineers appears incomplete in some cases, and there seem to be additional roads that would cause large-scale involuntary resettlement for the following reasons:

1) In the past rural infrastructure projects of the LGED, involuntary resettlement occurred along many roads, though such resettlement was not anticipated at the project preparation stage. In the NRRDLGIP, it is therefore assumed that there still remains possibility of involuntary resettlement for the roads other than those excluded based on the information from Upazila Engineers.
2) Even for roads for which resettlement was indicated by Upazila Engineers, the information was not obtained through detailed surveys. There still remains uncertainty as to whether the number of people to be resettled exceeds 200. Thus, if some UZRs or UNRs are found to cause resettlement of more than 200 people at the implementation phase, these roads shall be excluded.

Similar to Component 1, small-scale involuntary resettlement is anticipated in Subcomponent 2-1. Subprojects under Subcomponent 2-1 are not determined at the preparatory survey phase, and will be selected in a participatory manner after the commencement of the NRRDLGIP. Thus, whether involuntary resettlement will occur and how many people will be affected shall be confirmed during the subproject selection process.

2.2 Scope of land acquisition and resettlement

The NRRDLGIP will require small-scale land acquisition and involuntary resettlement as described in the previous section. However, it is not possible to precisely estimate the scale of land acquisition and involuntary resettlement at the preparatory survey phase due to the following reasons:

1) More than 100 roads will be targeted under the NRRDLGIP, but it is impossible to conduct thorough surveys for all the target roads at the preparatory survey phase. Therefore, the precise proportion of public land and private land is still unknown.
2) Some private lands may be acquired through voluntary donations. However, at the preparatory survey phase, it is unclear how many hectares of area will be voluntarily donated.
3) The detailed designs of roads and other infrastructures have not been determined yet at the preparatory survey phase, and thus the area of land to be acquired and the number of PAPs to be relocated are not determined as well.

In the preparatory survey, two UZR subprojects, one in Bhaluka Upazila in Mymensingh area and another in Birampur Upazila in Rangpur Division, were sampled and surveyed. Based on the sample survey, 70 PAPs for Bhaluka and 101 PAPs for Birampur were identified. No temporary impacts were anticipated. The anticipated impacts for the sample subprojects are summarized in Table A26-1.

Table A26-1 Summary of resettlement impacts anticipated from sample subprojects

Types of Impacts	Unit	Bhaluka	Birampur
Temporary impacts:		0	0
Permanent impacts:			
Land (Government land)	Decimal	9.5	0
Land (Private land)	Decimal	0	8.9
Residence	No.	0	15
Other structures	No.	0	0
Business shop	No.	16	7
Common properties	No.	1	0
Number of affected households	No.	16	23
Number of PAPs	No.	70	101
Vulnerable PAPs	No.	5	1
Average monthly income of PAPs	BDT	8,663.5	11,717.5
Primary source of income		Small business	Agriculture and small business

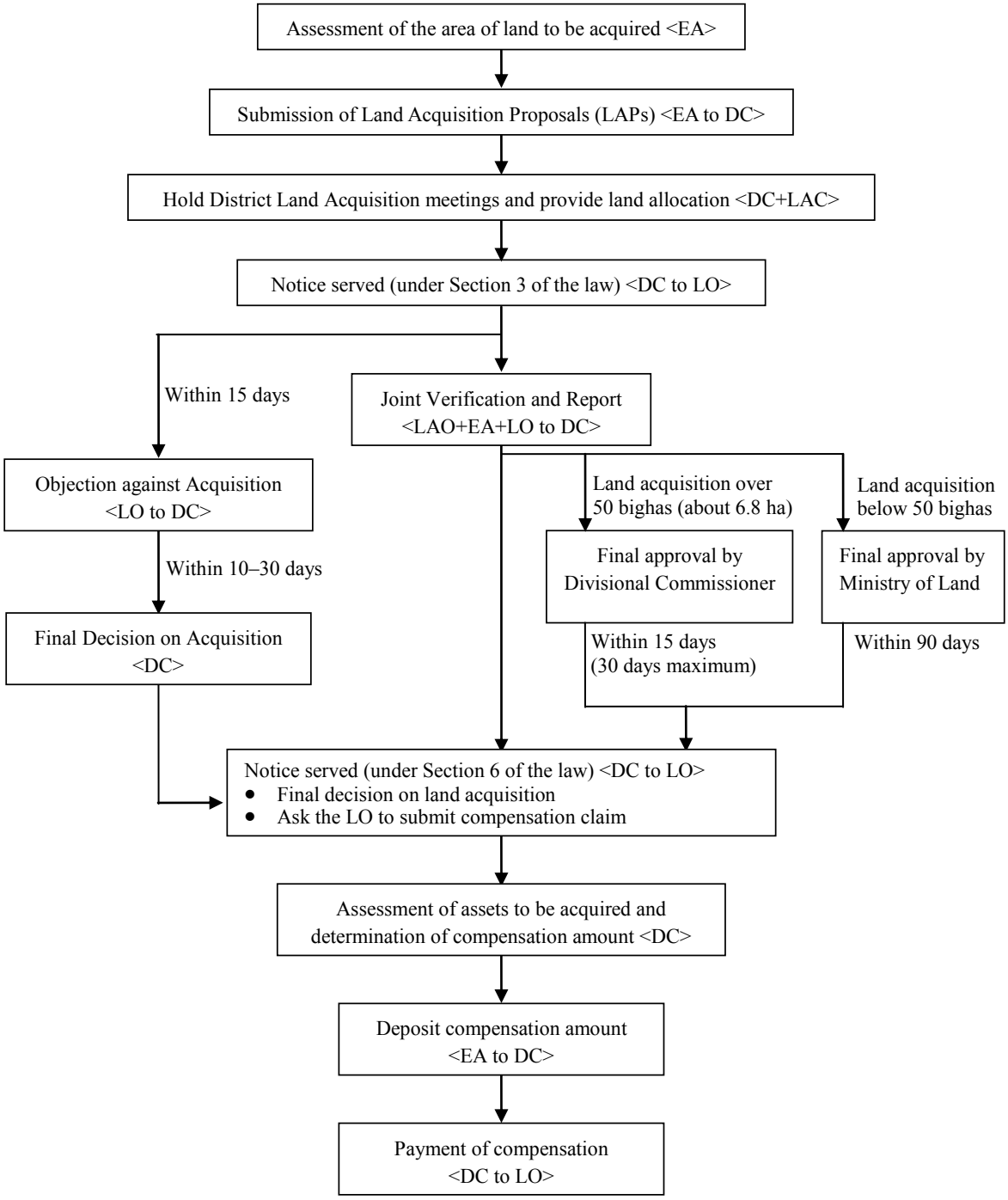
Source: Survey Team

As per the JICA Guidelines, any subproject causing involuntary resettlement of less than 200 people is required to prepare an ARAP. Thus, two separate draft ARAPs have been prepared for the above two sample subprojects. These draft ARAPs will serve as an example used by the executing agency in preparing and implementing ARAPs at the implementation phase.

3 Applicable laws and policies

3.1 Acquisition and Requisition of Immovable Property Ordinance, 1982

The Acquisition and Requisition of the Immovable Property Ordinance (ARIPO) 1982 and the subsequent amendments made during 1993 and 1994 constitute the legal framework that governs all cases of land acquisition in Bangladesh. The Acquisition and Requisition of Immovable Property Rules 1982 were issued under Section 46 of the ARIPO stipulating that the government is empowered to make rules for carrying out the purposes of the ARIPO. The ARIPO presents the procedural details required for land acquisition as presented in Figure A26-1.



Source: Land Administration Manual (2003)
Legend: EA = Executing Agency, DC= Deputy Commissioner, LAC = Land Acquisition Committee, LO = Land Owner, LAO = Land Acquisition Official

Figure A26-1 Procedures of land acquisition

Land acquisition below 50 *bigha* (about 6.7 hectare) is handled by Division Commissioner, and that of over 50 *bigha* by the Ministry of Land. Regardless of the size of land to be acquired, it is Deputy Commissioner (DC) who determines market price of the assets based on the approved procedure, and pays one hundred and fifty percent of the assessed value as compensation. Section 10A inserted by the amendment in 1994 made provisions for payment of crop compensation to tenant cultivators.

However, the ARIPO does not cover project-affected persons (PAPs) without titles of ownership record. For example, informal settlers or squatters, occupiers, and informal tenants and lease-holders without legal documents will not be compensated under the ARIPO. Also, it does not ensure replacement value of the property acquired.

In addition, the ARIPO has no provision related to involuntary resettlement and the restoration and rehabilitation assistance to PAPs. For instance, provision of the expenses necessary for relocation and re-establishment of communities at resettlement sites are not prescribed in the ARIPO. However, these are the requirements of international donor agencies including JICA. Thus it is necessary to supplement the gaps.

3.2 JICA Guidelines for Environmental and Social Considerations

To ensure the environmental and social sustainability of its assisted projects, JICA has formulated the Guidelines for Environmental and Social Considerations (hereafter "JICA Guidelines") in April 2010. The objectives of the JICA Guidelines are to: 1) encourage the executing agency to have appropriate considerations for environmental and social impacts; and 2) ensure that JICA's support for, and examination of, environmental and social considerations are conducted accordingly. The JICA Guidelines specify requirements that all executing agencies of JICA-funded projects must meet. The key requirements related to land acquisition and resettlement are summarized below:

1) Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives.
2) When involuntary resettlement is unavoidable, effective measures to minimize the impact and to compensate for losses should be taken.
3) People who are forced to be resettled and whose means of livelihood are hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities, and production levels to pre-project levels.
4) Compensation must be based on the full replacement cost if at all possible.
5) Compensation and other kinds of assistance must be provided prior to displacement.
6) For projects that entail large-scale involuntary resettlement, i.e., that involves more than 200 PAPs, resettlement action plans must be prepared and made available to the public. It is desirable that the resettlement action plan include elements laid out in the World Bank Safeguard Policy, OP 4.12, Annex A.
7) The resettlement policy framework will be prepared for the sector loan project, where details of subprojects will not be determined at the project preparation stage. The framework will cover the following: 1) subproject specific resettlement plan; 2) compensation, and restoration and rehabilitation assistance; 3) institutional framework for implementation; 4) monitoring and evaluation mechanism; 5) timeframe for implementation; and 6) detailed financial plan including budget.
8) In preparing a resettlement action plan, consultations must be held with the affected people and their communities based on sufficient information made available to them in advance. When consultations are held, explanations must be given in a form, manner, and language that are understandable to the affected people.
9) Appropriate participation of affected people must be promoted in planning, implementation, and monitoring of the resettlement action plans.
10) Appropriate and accessible grievance mechanisms must be established for the affected

people and their communities.

The above principles are complemented by the World Bank OP 4.12, since the JICA Guideline states that "JICA confirms that projects do not deviate significantly from the World Bank's Safeguard Policies." Additional key principles based on the World Bank OP 4.12 are as follows.

11) Affected people are to be identified and recorded as early as possible in order to establish their eligibility through an initial baseline survey (including population census that serves as an eligibility cut-off date, asset inventory, and socioeconomic survey), preferably at the subproject identification stage, to prevent a subsequent influx of encroachers of others who wish to take advance of such benefits.
12) Eligibility of benefits includes the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who do not have formal legal rights to land at the time of census but have a claim to such land or assets, and the PAPs who have no recognizable legal right to the land they are occupying.
13) Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based.
14) Support for the transition period (between displacement and livelihood restoration) should be provided.
15) Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, landless, elderly, women and children, and ethnic minorities.
16) For subprojects that entail land acquisition or involuntary resettlement of fewer than 200 people, ARAP is to be prepared.

3.3 Consistency with the JICA Guidelines for Environmental and Social Considerations

Many gaps between the requirements of JICA Guidelines and the provisions of the ARIPO have been identified. Such gaps are listed in Table A26-2.

Seven key insufficiencies of the ARIPO are identified as follows: 1) avoidance and minimization of involuntary resettlement; 2) restoration of livelihood of PAPs; 3) compensation based on replacement cost; 4) public consultation and information disclosure in preparing resettlement action plans; 5) grievance mechanism and participation of PAPs in planning, implementation, and monitoring of resettlement action plans; 6) eligibility of PAPs without legal rights to land; and 7) special assistance to vulnerable groups. These issues are not sufficiently addressed in the ARIPO.

To bridge these gaps, the LGED and Pourashavas need to take appropriate measures in accordance with the JICA Guidelines as presented in Table A26-2.

3.4 Policy of the NRRDLGIP on land acquisition and resettlement

The NRRDLGIP will adopt the following land acquisition and resettlement policies regarding involuntary resettlement and land acquisition caused by subprojects, taking into account the requirements of the JICA Guidelines, and the characteristics of the NRRDLGIP. The executing agency shall ensure that the following policies are complied with[1].

[1] For the NRRDLGIP, the executing agency for Component 1 is the Project Management Office (PMO) in the LGED headquarters, and that for Subcomponent 2-1 is the Project Implementing Units (PIUs) in Pourashavas.

Table A26-2 Comparison between relevant laws of GOB and JICA Guidelines

Requirements by JICA Guidelines	ARIPO and other relevant policies	Gap	Gap bridging measures to be taken in the Project
Avoidance of involuntary resettlement and loss of means of livelihood (when feasible)	The ARIPO has no provisions regarding involuntary resettlement.	Avoidance of involuntary resettlement and loss of means of livelihood is not provided in legal instrument of Bangladesh or the LGED Guidelines.	Involuntary resettlement and loss of means of livelihood will be avoided as much as possible in accordance with the JICA Guidelines.
Minimization of impact (when population displacement is unavoidable)	The ARIPO has no provisions regarding involuntary resettlement.	Minimizing adverse impacts is not provided in legal instruments of Bangladesh or the LGED Guidelines.	Impacts of involuntary resettlement will be minimized in accordance with the JICA Guidelines, and excluded in the process of subproject selection.
Restoration of livelihoods of PAPs to pre-project level at least.	The ARIPO has no provisions regarding livelihood restoration.	Restoration of livelihoods and standards of living of the PAPs is not provided in legal instruments of Bangladesh or the LGED Guidelines.	Measures to restore livelihoods and standards of living of the PAPs will be taken based on their needs in accordance with the JICA Guidelines.
Compensation based on the full replacement cost (as much as possible)	The ARIPO provides that market value of the property at the date of public notice of acquisition is considered in determining compensation amount (ARIPO §8).	Compensation based on the full replacement cost is not provided in legal instruments of Bangladesh or the LGED Guidelines. Market value calculated under the ARIPO does not consider depreciation and deduction for taxes and/or costs of transaction.	Compensation amount will be determined based on full replacement cost in accordance with the JICA Guidelines.
Consultation with the PAPs and disclosure of information in preparing resettlement action plan	The ARIPO provides that the DC shall publish a notice at convenient places near the property proposed for acquisition (ARIPO §3).	Although the ARIPO provides indirect public consultation, it does not provide disclosure of detailed information such as the purpose of land acquisition and compensation as well as entitlements of and special assistance to PAPs.	Public consultation will be ensured through stakeholder meetings, and information will be made available during preparation and implementation of ARAP in accordance with the JICA Guidelines.
Grievance mechanism and participation of PAPs in planning, implementation, and monitoring of ARAPs	The ARIPO provides the occupant of the land to raise their objections to be filed to DC within 15 days after the public notice of acquisition (ARIPO §4).	The ARIPO provides a limited grievance mechanism where landowners can raise objections against acquisition. However, there is no provision of promoting participation of PAPs in planning, implementation, and monitoring of ARAPs.	Grievance Redress committees will be formed through participatory appraisal with all stakeholders. Besides, proper stakeholder consultations will be ensured in planning, implementation, and monitoring of ARAPs in accordance with the JICA Guidelines.
Eligibility of benefits for PAPs with formal or informal legal rights to land	The ARIPO does not cover PAPs without titles of ownership record for compensation.	While the JICA Guidelines provide eligibility of PAPs without titles of ownership record, the ARIPO does not.	The PAPs without titles of ownership record who indeed require assistance will be carefully screened out in social survey, and entitlement will be delivered to them in accordance with the JICA Guidelines.
Special assistance to vulnerable groups	The ARIPO has no provision for particular assistance to vulnerable groups.	While the JICA Guidelines provide particular assistance to vulnerable groups, the ARIPO does not.	Vulnerable groups will be identified in social survey, and provided with special assistance in accordance with the JICA Guidelines.

Source: Survey Team
Note: "§" indicates provision of the ECR and ARIPO. (e.g., ECR §3 indicates Rule 3, and ARIPO §5 indicates Section 5.

(1) Necessity of involuntary resettlement

1-1) Involuntary resettlement and loss of livelihood means should be avoided to the extent possible by taking into account alternative locations and designs.
1-2) Where involuntary resettlement is unavoidable, the impacts should be minimized by adjusting and modifying the detailed design of subprojects as much as possible.
1-3) Subprojects requiring involuntary resettlement of more than 200 people will be excluded from the NRRDLGIP. If small-scale involuntary resettlement of fewer than 200 people occurs, the ARAP shall be prepared by the executing agency in accordance with this RPF.
1-4) If voluntary donation of small strips of land is anticipated, the non-objection certificate shall be obtained from the concerned PAPs. Voluntary donation shall not affect the living standards of the PAPs, thus if an owner donates sizable parts of his/her land for instance, such donation shall be deemed to negatively affect the owner's living standards. In addition, donations from vulnerable people shall be prohibited.

(2) Eligibility of PAPs

2-1) Where involuntary resettlement is unavoidable, all PAPs losing their assets and livelihoods should be fully compensated and assisted so that they can improve, or restore their living standard to the pre-project level at least.
2-2) PAPs to be provided with compensation and restoration and rehabilitation assistance shall include the following person or household adversely affected by the subproject implementation temporarily or permanently:
- Those whose standard of living are adversely affected;
- Those whose right, title or interest in any house, land and asset (including premises, agricultural and grazing land, commercial properties, tenancy, annual or perennial crops, trees, or any other fixed or moveable assets) are acquired or affected;
- Those whose income earning opportunities, business, occupation, place of work or residence, or habitat are adversely affected temporarily or permanently;
- Those whose social and cultural activities and relationships are affected; or
- Those who suffer from any other losses that may be identified during the process of resettlement planning.

2-3) All affected persons will be eligible for compensation and restoration and rehabilitation assistance, irrespective of tenure status, social or economic status, and any such factors that may result in any discrimination. Lack of legal rights to the assets to be adversely affected, and tenure status and social or economic status will not bar the PAPs from entitlements to such compensation and restoration and rehabilitation assistance.
2-4) All PAPs residing, working, running business and/or cultivating land within the subproject affected areas as of the cut-off date are entitled to compensation for their affected assets, and restoration and rehabilitation assistance.
2-5) If PAPs lose only part of their assets and the remaining portion will be inadequate to sustain their current living standard, compensation and restoration and rehabilitation assistance should cover the whole assets. The minimum size of remaining land and structures will be agreed with the PAPs during the preparation of ARAPs.
2-6) People temporarily affected are considered as PAPs. Temporary land acquisition and resettlement shall be compensated.
2-7) The cut-off-date of eligibility refers to the date prior to which the occupation or use of the assets in subproject area makes the residents or users eligible to be categorized as PAPs and be entitled to compensation and restoration and rehabilitation assistance under the NRRDLGIP. In the NRRDLGIP, cut-off dates will be the beginning date of the PAP census. This date should be disclosed to each affected subproject area by the executing agency. The establishment of the eligibility cut-off date is intended to prevent the influx of ineligible

non-residents who might take advantage of entitlements of NRRDLGIP.

(3) Compensation, and restoration and rehabilitation assistance

3-1) Payment of compensation for affected land and other assets will be based on the principle of full replacement cost. The full replacement cost is the amount which is necessary to replace an affected asset without depreciation and without deduction for taxes and/or costs of transaction. It should be calculated before the occurrence of the resettlement.
3-2) Restoration and rehabilitation assistance will be provided not only for immediate loss, but also for a transition period needed to restore livelihood of PAPs. Such assistance could take the form of short-term jobs, subsistence support, salary maintenance, or other similar arrangements, and the forms will be determined based on the socioeconomic conditions of PAPs.
3-3) Relocation and land acquisition shall not occur before the provision of compensation and other assistance. Sufficient civil infrastructure must be provided in resettlement site prior to relocation. Acquisition of assets, payment of compensation, and the resettlement will be completed prior to any construction activities. Restoration and rehabilitation assistance activities for PAPs must also be in place but not necessarily completed prior to construction activities, as they may be ongoing activities even after the commencement of the construction activities.
3-4) Provision of land-based compensation shall be prioritized wherever possible, especially for PAPs who depends on agricultural activities. Such compensation may include the provision of replacement land, securing of tenure, upgrading of livelihoods of people without legal titles. If replacement land is not available, cash compensation will be taken into account, together with other assistance including skill development and training, wage employment, and other restoration and rehabilitation assistance. Solely cash compensation will be avoided as this may not address losses that are not easily quantified, such as access to services and common rights.
3-5) The replacement lands should be within the immediate vicinity of the affected lands wherever possible, and be of comparable productive capacity and potentials. If such lands are not available there, sites where social disruption of PAPs can be minimized should be selected. Such lands shall have access to services and facilities similar to those available in the lands to be affected.
3-6) If a host community will be affected by the development of a resettlement site, such host community shall be involved in the preparation process of ARAPs. Adverse impacts of resettlement on such host communities shall be minimized.

(4) Consultation and participation

4-1) In preparation of the ARAP, consultations should be held with PAPs. PAPs should be involved in the process of preparing and implementing the ARAP.
4-2) The ARAP shall be disclosed for PAPs and other stakeholders for the reference. The ARAP shall be translated into the local language, i.e., Bengali, and explained in the language.
4-3) PAPs and their communities will be consulted about the subprojects, the rights and options available to them, and proposed mitigation measures for adverse effects. They will also be involved in the decision making process concerning their resettlement to the extent possible.

(5) Special attention to the vulnerable groups

5-1) The ARAP must consider the needs of those vulnerable to the adverse impacts of involuntary resettlement. Vulnerable groups will include women, the poor, children, the elderly, the disabled, the landless, indigenous peoples, and other groups. The ARAP should ensure that they are well considered in the process of resettlement planning. Special assistance should be

provided to help them improve their socioeconomic status.

(6) Implementation and monitoring

6-1) Organizational and administrative arrangement for the effective preparation and implementation of the ARAP should be established prior to the commencement of the process. This will include the provision of adequate human resources for supervision, consultation, and monitoring of land acquisition, involuntary resettlement, and restoration and rehabilitation assistance activities.
6-2) Adequate budgetary support should be fully committed by the government, and made available to cover the costs of land acquisition and resettlement, including compensation and restoration and rehabilitation assistance, within the agreed implementation period.
6-3) Appropriate reporting, monitoring, and evaluation mechanisms regarding land acquisition and resettlement will be established and implemented as part of the Project management system. An external monitoring group will be formed under the NRRDLGIP, and will evaluate the resettlement and land acquisition process.

3.5 Project affected persons

3.5.1 Eligibility criteria

PAPs eligible to receive compensation and assistance to restore livelihood under the NRRDLGIP are individuals, households, communities, and private and public entities, regardless of the possession of legal title, who are residing, working or cultivating lands and other assets that are acquired for subprojects as of the cut-off date. Furthermore, those who may be affected due to temporary land acquisition and resettlement are also eligible for compensation for disruptions in their livelihood activities.

A detailed inventory of PAPs and scope of impacts will be prepared during the detailed design phase of subprojects, and finalized after the subproject sites and detailed designs are determined.

3.5.2 Categories of PAPs and types of losses

The PAPs under the NRRDLGIP are listed below.

- Persons whose land is being used for agricultural, residential, or commercial purposes and is in part or in total affected (temporarily or permanently)
- Persons whose structure is being used for residential, commercial, or worship purposes in part or in total affected (temporarily or permanently)
- Persons whose assets, other than land or structure, are partly or fully affected (temporarily or permanently)
- Persons whose business or source of income is in part or in total affected (temporarily or permanently)
- Persons whose annual or perennial crops and/or trees are affected
- Persons whose access to common property resources is affected (temporarily or permanently)
- Persons affected who belong to socially and economically vulnerable groups

3.6 Entitlement matrix

Based on the ARIPO and the JICA Guidelines, the entitlement matrix for the NRRDLGIP is prepared. Table A26-3 shows the details of possible losses of PAPs and their entitlements and compensations for such losses.

Table A26-3 Entitlement matrix for the NRRDLGIP

No	Type of loss	Entitled Persons	Entitlement/ Compensation policy	Implementation issues/ Guidelines	Responsible organization
Loss of land					
1	Loss of agricultural land, pond, ditches, orchards and other lands or water bodies for production	- Legal owner of land	- Provision of replacement land with equal productive capacity satisfactory to PAPs - Cash compensation equivalent to replacement cost, and additional grant to cover the market value of land at market price - Refund of registration cost incurred for replacement land purchase at the replacement value* - Additional compensation and assistance for the vulnerable households (see No. 9)	a) Assessment of type, quantity and quality of land or water body by JVT b) Assessment of replacement value of lands or water bodies by PVAT c) Updating of titles of the PAPs d) Refund of all taxes, registration costs, and other fees if land or water body is purchased within one year from the date of receiving full compensation for land e) Explanation to PAPs about their entitlements and procedures f) Identification of vulnerable households	a) DC, JVT b) EA, PVAT c) DC, EA, JVT d) EA e) EA f) EA
2	Loss of homestead, residential or commercial plots	- Legal owner of land	- Provision of replacement land with equal productive capacity satisfactory to PAPs - Cash compensation equivalent to replacement cost, and additional grant to cover the market value of land at market price - Provision of all taxes, registration costs, and other fees incurred for replacement land purchase at the replacement value - Additional compensation and assistance for the vulnerable households (see No. 9)	a) Assessment of type, quantity and quality of land by JVT b) Assessment of replacement value of lands by PVAT c) Updating of titles of the PAPs d) Refund of all taxes, registration costs, and other fees if land is purchased within one year from the date of receiving full compensation for land e) Explanation to PAPs about their entitlements and procedures f) Identification of vulnerable households	a) DC, JVT b) EA, PVAT c) DC, EA, JVT d) EA e) EA f) EA
Loss of crops and trees					
3	Loss of perennial and seasonal crops, trees, or fish stocks	- Person with legal ownership of the land - Socially recognized owner - Unauthorized occupant of trees or fishes	- For seasonal crops, 60 days advance notice to harvest them. If harvest is not possible, cash compensation for crops (or share of crops) equivalent to prevailing market price - For perennial crops and fruit bearing trees, cash compensation based on annual net product market value multiplied by remaining productive years - For non-fruit trees for timber, cash compensation equivalent to prevailing market price of timber - For fish stocks, cash compensation equivalent to prevailing market price of fish	a) Formulation of work schedule to allow PAPs to harvest seasonal crops b) Identification of ownership of perennial and seasonal crops, trees, or fish by JVT c) Assessment of type, size, and quantity of trees, crops, or fish by JVT d) Determination of values of trees, crops or fish through market surveys by PVAT	a) EA b) EA, JVT c) EA, JVT d) EA, PVAT, Departments of Agriculture, Forest, and Fishery

No	Type of loss	Entitled Persons	Entitlement/ Compensation policy	Implementation issues/ Guidelines	Responsible organization
Loss of structure					
4	Loss of residential or commercial structure by owners	- Legal titleholder, owner of the structure	- Cash compensation equivalent to replacement value of the whole or part of structure - Right to salvaged materials from structure for free - Provision of all taxes, registration costs, and other fees incurred for replacement structure - Transfer and subsistence allowance of BDT 4,000 - Additional compensation and assistance for the vulnerable households (see No. 9)	a) Identification of ownership of structure by JVT b) Assessment of type, size, and quantity of structure by JVT c) Determination of values of structure through market surveys by PVAT d) Identification of vulnerable households	a) EA, JVT b) EA, JVT c) EA, DC, PVAT d) EA
5	Loss of residential or commercial structure by squatters and unauthorized occupants	- Squatters, informal settlers, and other unauthorized occupants	- Cash compensation equivalent to replacement value of the whole or part of structure - Right to salvaged materials from structure for free - Provision of all taxes, registration costs, and other fees incurred for replacement structure - Transfer and subsistence allowance of BDT 4,000 - Additional compensation and assistance for the vulnerable households (see No. 9)	a) Identification of ownership of structure by JVT b) Assessment of type, size, and quantity of structure by JVT c) Determination of values of structure through market surveys by PVAT d) Identification of vulnerable households	a) EA, JVT b) EA, JVT c) EA, DC, PVAT d) EA
Loss of livelihood					
6	Loss or decrease of business or rental income	- Proprietor of business - Owner of commercial structure	- Cash compensation equivalent to three month-net income from business or rental	a) Identification of proprietor or owner of commercial structure by JVT b) Assessment of business or rental income by JVT	a) EA, JVT b) EA, DC, JVT
7	Loss of income and work days due to displacement	- Household head or employees identified	- Cash compensation for lost income based on three months lost income or minimum wage rates - Additional compensation and assistance for the vulnerable households (see No. 9)	a) Identification of proprietor or owner of commercial structure by JVT b) Assessment of business or rental income by JVT c) Identification of vulnerable households	a) EA, JVT b) EA, DC, JVT c) EA
8	Relocation of community structure	- Community representative	- Compensation to reconstruct or relocate community structure	a) Identification of community structure by JVT b) Assessment of community structure by JVT	a) EA, JVT b) EA, DC, JVT
Impacts on vulnerable PAPs					
9	Impacts on vulnerable households	- Vulnerable households, including informal settler, squatters, women headed household	- Additional allowance equivalent to BDT 3,000 for loss of land or structure - Prioritized employment under the NRRDLGIP	a) Identification of vulnerable households	a) EA

No	Type of loss	Entitled Persons	Entitlement/ Compensation policy	Implementation issues/ Guidelines	Responsible organization
Temporary loss					
10	Temporary loss of access to cultivable land by owner cultivator. tenant/ sharecropper	- Legal owner of land - Tenant, sharecropper, and lessee - unauthorized occupant such as squatter and encroacher	- 60-day advance notice - Provision of cash compensation equivalent to expected income earned from land during the duration of access loss - Additional compensation and assistance for the vulnerable households (see No. 9)	a) Identification of owner or other stakeholders by JVT b) Assessment of net income earned from land during the duration of access loss by JVT c) Identification of vulnerable households	a) EA, JVT b) EA, DC, JVT c) EA
11	Temporary loss of access to residential houses/ commercial structures by owners, rented or leased	- Legal owner of land - Tenant, sharecropper, and lessee - unauthorized occupant such as squatter and encroacher	- 60-day advance notice - Provision of land rental value during the duration of access loss - Restoration and enhancement of affected land, structures and other assets. - Additional compensation and assistance for the vulnerable households (see No. 9)	a) Identification of owner or other stakeholders by JVT b) Assessment of rental value of structure with equal livelihood level by JVT c) Identification of vulnerable households	a) EA, JVT b) EA, DC, JVT c) EA
Any other loss not identified					
12	Unforeseen impact		- Documentation of unforeseen impacts, and elaboration of mitigation measures in accordance with this RPF.	a) Identification of unforeseen impacts through periodical monitoring	a) EA

Legend: EA=Executing agency, DC=Deputy Commissioner, JVT=Joint Verification Team, PAP=Project affected person, PVAT=Property Valuation Advisory Team
Note: * Registration cost is usually about 10% of the sale value for the rural area

4 Surveys and documentation

The executing agencies are the LGED for Component 1 and Pourashavas for Subcomponent 2-1. If any subprojects are confirmed to cause land acquisition and involuntary resettlement after the determination of detailed designs, the executing agencies shall conduct various surveys to prepare the ARAPs. In case of Subcomponent 2-1, Pourashavas will need intensive supports by the LGED, considering the limited capacities of Pourashavas. Necessary actions to be taken by the executing agencies are described below.

4.1 Preliminary screening

The initial step of a resettlement planning during the subproject preparation phases is to carry out a preliminary screening survey to identify the occurrence of land acquisition and involuntary resettlement, and their scale associated with individual subprojects (or group of subprojects). The information collected during the screening survey will be used for identifying the possible scale of impacts. Based on the survey result, necessary level and depth of subsequent field surveys will be determined.

If the screening survey indicates that any subproject will cause land acquisition or involuntary resettlement, further field surveys and consultations with key stakeholders will be necessary. A standard checklist form for the preliminary screening survey is included in Attachment 1.

4.2 Necessary surveys

The executing agency, with the help of the Design, Supervision and Monitoring (DSM) consultants,

especially the Rehabilitation and Resettlement Specialist (RRS) and Regional Rehabilitation and Resettlement Expert (RRRE), needs to carry out necessary surveys if land acquisition and involuntary resettlement are found to be necessary during the preliminary screening survey. For the NRRDLGIP, four types of surveys will be needed: 1) a PAP census; 2) a socioeconomic survey; 3) a survey for inventory of losses; and 4) a market price survey. A sample format for these surveys is presented in Attachment 2.

Prior to undertaking the surveys, the executing agency needs to prepare for the dissemination of subproject information, including subproject types, result of the preliminary screening survey, contents and implementation schedule of a census and other surveys, and other background information to key stakeholders.

4.2.1 PAP census

The executing agency will conduct a PAP census to identify the demographic characteristics of PAPs. The PAP census shall cover 100% of affected households and entities, and should identify and record all PAPs. The census will identify details of PAPs, assets to be affected and their values, and main sources of livelihoods. The result will be the basis to prepare an inventory of losses for each PAP.

Furthermore, the executing agency needs to identify individuals and groups who may be differentially or disproportionately affected by the subproject because of their vulnerable status. Where such individuals and groups are identified, the executing agency needs to propose and implement targeted measures so that adverse impacts do not fall disproportionately on them, and they are not disadvantaged in relation to sharing the benefits and opportunities resulting from the development. The following criteria will be adopted by the executing agency for the screening or identification of vulnerable households who are entitled to receive special assistance from the NRRDLGIP.

1) Household headed by women
- Widowed, divorced or separated as confirmed by neighbors and village chairman
- Carrying the whole responsibility of raising her family
- With household members below 18 years of age

2) Household headed by the elderly
- With age of 65 years old and above, regardless of gender and marital status as confirmed by neighbors and village chairman
- Carrying the whole responsibility of raising the family
- Not receiving regular support from children and/or relatives
- With household members below 18 years of age

3) Poor Household
- With monthly income below BDT 5,000
- Carrying the whole responsibility of raising the family as confirmed by neighbors and village chairman
- With household members below 18 years of age

4) Household headed by indigenous person
- Indigenous person or ethnic minority confirmed by neighbors and village chairman
- Carrying the whole responsibility of raising the family
- With household members below 18 years of age

4.2.2 Socioeconomic survey

A detailed socioeconomic survey shall be carried out by the executing agency for at least 20% of the affected households identified in the census. This survey will establish baseline information on major economic activities, detailed livelihood sources and incomes, possessed assets, and other socioeconomic indicators in the subproject affected area.

Based on the result, the executing agency will prepare an ARAP. In addition, support for restoration and rehabilitation of livelihoods will be determined, and incorporated into the ARAP.

4.2.3 Inventory of losses

After the determination of the engineering design of each subproject, an inventory of losses will be prepared to ascertain the types of affected assets and their values. The inventory will also be used for determining necessary restoration and rehabilitation assistance measures. More specifically, this inventory of losses will include all types of losses incurred by PAPs such as 1) area of land to be acquired, 2) type and area of affected structures (houses, shops, fences, sheds, toilets, wells, etc.), 3) area of crop production, 4) number of affected trees by type, 5) loss of income or livelihood, 6) loss of employment, and 7) loss of access to common property resources, if any. Vulnerability status of each PAP should also be described where appropriate.

4.2.4 Market price survey

To determine the replacement cost or current market prices of the affected properties, the executing agency shall conduct a market price survey. The coverage of affected properties and the methodology of obtaining their market prices are stated below.

- **Lands:** It will include all kinds of lands, such as agricultural, homestead, commercial, orchard, garden, water bodies, and fallow. The replacement cost will be obtained through a combination of surveys: 1) a random sampling of 5 to 10 landowners in and adjacent to the subproject site; 2) if available, hearing from recent buyers' and sellers of similar lands in the similar local areas; 3) some deed writers at the land registration offices, who recently handled transactions in those or adjacent local areas; and 4) interviews with school or madrasha teachers, Imams of mosques, local elites including retired government officials, and Union Parishad's Chairman and members.
- **Houses and other built structures:** Compensation price of houses and other built structures will be determined based on the current market prices of the different kinds of building materials in the local markets.
- **Trees:** Compensation will be determined by surveying the current prices of different varieties of trees in the local markets. These prices will also apply for the timber, but the compensation for the perennial fruits will be determined differently.
- **Fruits and other seasonal and perennial crops:** Compensation will be determined by surveying current prices in the local markets. For the seasonal crops, compensation will be paid for only one crop, and that for the perennial crops will be paid for three crops, i.e., three times the value assessed by the Joint Verification Team.
- **Unforeseen losses:** Compensation for any unforeseen losses will be determined by using methods that will be considered most appropriate.

These above surveys to determine the current market prices will begin as soon as the land acquisition requirements are identified in subproject areas. Reports on the current market prices of the different asset categories will be prepared by subprojects or other logical spatial units.

4.3 Database

All information collected through the above surveys will be entered onto a computer database by the RRS or RRRE of DSM consultants. This database will form the basis of information for preparation and implementation of the ARAP. The dataset of the basic information will also facilitate the effective and efficient monitoring of compensation and other assistance activities.

4.4 Preparation of Abbreviated Resettlement Action Plans

Based on the results of the above surveys, the executing agency, with the assistance of RRS and RRRE of DSM consultants, shall prepare an ARAP for subprojects which will cause land acquisition and involuntary resettlement. The contents to be covered by the ARAP are listed as follows:

- PAP census and their socioeconomic information
- Inventory of losses
- Valuation of lost assets at market value
- Description of compensation and restoration and rehabilitation assistance
- Entitlements for the compensation and assistance under the NRRDLGIP
- Consultation with PAPs
- Grievance redress mechanism
- Monitoring and evaluation
- Institutional and implementation arrangements
- Implementation schedule
- Budget

Under the preparatory survey, the draft ARAPs have been formulated for two sampled UZRs, i.e., UZRs in Bhaluka Upazila in Mymensingh area and in Birampur Upazila in Rangpur Division. These will serve as reference materials for the subsequent preparation of ARAPs during the implementation phase.

5 Land acquisition, resettlement, compensation, and restoration and rehabilitation assistance

The NRRDLGIP will basically follow the legal procedures for land acquisition stipulated in the ARIPO. However, since there are many gaps between the ARIPO and the JICA Guidelines, additional issues, including but not limited to compensation at full replacement cost, inclusion of PAPs without titles in eligible persons, restoration and rehabilitation assistance, and public consultations and participation, need to be addressed in accordance with the policy presented in Section 3.4.

If involuntary resettlement occurs, the executing agency is required to prepare an ARAP. The ARAP will be formulated based on the census and other relevant surveys. After the finalization of the ARAP, resettlement activities will be implemented in accordance with the ARAP by the executing agency with assistance from DSM consultants and implementing NGOs (INGOs). Compensations for PAPs shall be paid and restoration and rehabilitation assistance needs to be provided prior to the resettlement activities.

The implementation steps of the ARAPs will include: 1) identification of cut-off date; 2) verification of rights to concerned assets; 3) determination of unit prices; 4) compensation, and restoration and rehabilitation assistance; and 5) implementation of land acquisition and resettlement activities. Details of each step under the NRRDLGIP are described below.

5.1 Identification of cut-off date

At the very beginning of the process of resettlement and land acquisition, all PAPs will be properly identified and recorded based on the census and socioeconomic surveys. The cut-off date is defined in Section 1.2 of this RPF.

The cut-off date is the beginning date of the PAP census in each subproject site. Subproject-specific cut-off date shall be specified for each subproject, and must be informed in advance of the commencement of resettlement and land acquisition activities.

5.2 Verification of rights to concerned assets

The executing agency, with assistance from the RRREs and implementing NGOs (INGOs), needs to verify the rights of PAPs who claim the compensation and other entitlements of affected land and assets. The verification will be undertaken based on the result of the census survey. With or without legal titles over the lands and affected assets will not affect the eligibility of the PAPs.

The detailed information on affected lands and other assets will be surveyed. The boundaries of land to be affected will be properly determined, and the area of affected lands will be measured. Such information will be utilized for the calculation of compensation amount.

5.3 Determination of unit prices

For the purpose of determining the unit prices for calculating the replacement costs, the executing agency will verify the prevailing market unit prices of lands and other assets to be affected. The unit prices of affected lands and other assets will be assessed by the market price survey described in Section 4.2.

5.4 Compensation, and restoration and rehabilitation assistance

Compensation amount will be calculated by multiplying the unit prices by actual size or number of affected properties, such as the size of affected lands or lost assets, numbers of replacement construction materials, number of trees, income lost days, and volume of crops. The basis for the unit prices will be disclosed to PAPs in the consultation about the compensation amount.

Contents of restoration and rehabilitation assistance will be determined based on the results of relevant surveys. Based on the socioeconomic data gained from the surveys, the executing agency will classify the income sources of the PAPs to be affected. Each type of livelihood has different approaches of intervention in restoring adversely affected incomes of PAPs. If they depend on agriculture, the first priority is to provide them with replacement land. If they are involved in micro business, they will receive cash compensation equivalent to three months of lost incomes or minimum wage rates for employees of micro business. In addition, a detailed plan and scoping for the income generation program will be designed by DSM consultants and INGOs. The executing agency shall commit for adequate budgetary support. Moreover, it will advise civil work contractors to give preference for employment to any members of the PAPs' households during the construction of subprojects.

5.5 Land acquisition and resettlement

Land acquisition and resettlement can be initiated after confirming all the necessary compensations are paid and restoration and rehabilitation assistance is provided. The restoration and rehabilitation assistance will continue to be provided after the commencement of the construction activities.

For PAPs dependent on agriculture, provision of alternative land should be prioritized. The other PAPs

are also qualified to receive alternative lands as compensation. The executing agency will allocate lands for the PAPs within their jurisdictions to the extent possible. The alternative lands should be close to the affected lands wherever possible, and have the same or more productivity. The place to which PAPs will relocate shall be conducive to social rehabilitation, accessible to social services and drinking water, and with space for sanitary latrines in accordance with the ARAP. The timing of resettlement will be made convenient to PAPs.

6 Consultation, participation, and disclosure

6.1 Public consultation

The executing agency, in the process of preparation and implementation of ARAPs, shall consult with PAPs and other stakeholders for each subproject that will cause land acquisition and involuntary resettlement. The consultation aims to identify the present status of subproject sites and the perceptions of PAPs and other stakeholders, and incorporate them into an ARAP. This will enable the Project to formulate a more appropriate ARAP, and eventually contribute to reducing the risk of social conflicts which may be caused by subproject implementation.

The consultation will be held mainly in the form of focus group discussions with PAPs and other stakeholders. Individual interviews with PAPs and key informants and public consultation meetings will also be held where appropriate. The consultation shall be undertaken in an atmosphere free of intimidation or coercion. It shall also be gender inclusive and responsive. In holding consultation meetings, the executing agency shall pay due attention to vulnerable groups.

Prior to the consultation, relevant and adequate information shall be disclosed timely in a manner that is understandable and readily accessible to the PAPs.

6.2 Information disclosure

Information on details of subprojects shall be disclosed to the PAPs and other stakeholders prior to the consultation. Such information needs to include the location of subproject site, type of construction work, possible impacts of land acquisition and resettlement, and procedures for compensation and restoration and rehabilitation assistance.

Such information should be disclosed at the convenient places such as the District, Upazila, and Pourashava offices so that PAPs and other stakeholders can easily access the information. All information needs to be presented in a local language which is understandable to PAPs. For illiterate people, suitable other communication methods such as briefing them, holding discussions and meetings, broadcasting in the radio/television etc. will be used.

If there is no impact and thus no ARAP is prepared, the executing agency will disclose the information on subprojects at the main villages, or other convenient places nearby the subproject sites.

The ARAP should be made available to the PAPs and other stakeholders. It shall be disclosed at the convenient place for PAPs, i.e., the District, Upazila, and Pourashava offices. A summary of the ARAP will be prepared for the distribution to PAPs and other stakeholders. The status of disclosure will be reported to JICA.

6.3 Identification of stakeholders of the Project

It should be ensured that a wide range of stakeholders are informed of details of subprojects and possible adverse impacts related to land acquisition and involuntary resettlement. Timing, frequencies,

and topics will be different from stakeholders to stakeholders according to their degree of involvement, positions, and responsibilities.

The most salient stakeholders are the PAPs identified under the NRRDLGIP, including land owners and occupants to be affected by land acquisition and involuntary resettlement. Lack of legal rights to the affected assets does not hinder the entitlement under the NRRDLGIP. Communities and local business entities, including shopkeepers, fishermen, boatmen, and businessmen are also important stakeholders who should be closely consulted. During the preparation of ARAPs, views of these stakeholders shall be incorporated properly.

Other stakeholders include Departments of Forest, Agriculture, and Public Works and other government agencies, and relevant Upazilas, and Unions. JICA is also a key organization to ensure appropriate procedures. The executing agency needs to communicate with them to complete land acquisition and resettlement smoothly.

Contractors, sub-contractors and suppliers during the construction period will be also informed of the contents of ARAPs prior to the commencement of their works. INGOs, which will directly contact with PAPs at the grassroots level, are also important stakeholders since they will directly contact with PAPs.

6.4 Process of consultation and responsible entity

The details on the process of consultation and disclosure and the responsible entities at each phase are described in Table A26-4.

Table A26-4 Process of consultation and disclosure, and responsible entity at each stage

Phase	Consultation and disclosure	Detailed action	Responsible Entity
Detailed design phase	- Information disclosure on details of subprojects, and preliminary screening of land acquisition and resettlement - Consultation with potential PAPs and local stakeholders	- Leaflets containing information on the NRRDLGIP and subprojects will be prepared and distributed to potential PAPs and local stakeholders. - Consultation with PAPs will be held. Public notice will be posted on convenient places and newspapers. - PAPs will be informed of preliminary possibility of land acquisition and resettlement, and the tentative alignment and location of subprojects.	EA, RRS, RRRE, INGO
ARAP preparation phase	- Consultation with PAPs and other stakeholders	- Further consultations will be held with PAPs about entitlements, procedures, schedule, and any other issues raised by the PAPs. - Summary ARAP will be made available to all PAPs at the convenient place and in local language.	EA, RRS, RRRE, INGO
	- Disclosure of final entitlement packages and of draft ARAP	- Draft ARAP will be explained to all PAPs in local language. - Feedback from PAPs and other stakeholders will be sought and incorporated into the draft ARAP.	EA, RRS, RRRE, INGO
	- Finalization of ARAP	- ARAP will be elaborated by EA. - ARAP will be approved by JICA (prior to award of contract). - Final ARAP will be disclosed to PAPs and other stakeholders.	EA, RRS, RRRE
ARAP implement-ation phase	- Consultation with PAPs during ARAP implementation	- Consultations will be held with PAPs on entitlements and any other issues raised by the PAPs.	EA, RRS, RRRE, INGO

Legend: EA=Executing Agency, RRRE=Regional Rehabilitation and Resettlement Expert, RRS=Rehabilitation and Resettlement Specialist, INGO=Implementing NGO

7 Grievance redress mechanism

7.1 General

During the ARAP implementation process, the executing agency shall establish a Grievance Redress Mechanism (GRM) to receive PAPs' grievances about the implementation of ARAPs under the NRRDLGIP. The GRM is intended to seek resolutions of the grievances promptly without resorting to expensive and time-consuming legal procedures. This will enable PAPs to receive compensation and other entitlements in a short time. However, it should be noted that the GRM shall not impede access of PAPs to the existing judicial or administrative remedies. PAPs shall be informed properly that they have a right to raise grievances against adverse impacts under the GRM.

7.2 Grievance Redress Committee

Under the GRM, a grievance redress committee (GRC) shall be established for each or group of subproject that requires land acquisition and resettlement. The GRC receives all the grievances related to land acquisition and resettlement impacts such as right of ownership, entitlement to compensation and other assistance, and any other issues raised by the PAPs. The GRC for a subproject shall comprise the following members:

For Component 1:

- Upazila Engineer, LGED - Convener
- INGO - Member Secretary
- Union Parishad (UP) Chairman or his/her designated UP member - Member
- Female UP member - Member
- One representative from PAPs - Member

For Subcomponent 2-1:

- Representative from PIU - Convener
- INGO - Member Secretary
- Pourashava Mayor or his/her designated Councilor - Member
- Female Pourashava Councilor - Member
- One representative from PAPs - Member

7.3 Procedure

Grievances of PAPs will first be brought to the RRRE or INGO. If grievance is lodged only in verbal form, the RRRE or INGO shall write it down at no cost. Grievances not redressed by RRRE and INGO shall be brought to the GRC. The GRC will meet every month, and determine the responses to individual grievances within 15 days upon the date of receipt.

If PAPs are not satisfied with the decision of the GRC, they can attend the next meeting to appeal for the reconsideration of the GRC decision. Grievances not redressed by the GRC will be sent to and addressed by the Inter-ministerial Steering Committee (ISC). If they are related to land acquisition, Deputy Commissioner (DC) will address them. Further grievances will be referred by PAPs to the appropriate courts of law. All grievances received shall be recorded, and the record shall include contact details of complainant, the date of receipt of grievance, nature of grievance, agreed corrective actions and the date when the actions were effected, and final outcome. All expenses incurred in arranging grievance negotiations and meetings of GRC as well as logistics required, shall be arranged by LGED.

Table A26-5 Procedures for grievance redress

	Concerning Land	Concerning structures and other assets
Step 1	PAP lodges a grievance to RRRE/INGO, who resolve it within 15 days upon the receipt.	
	If no resolution is reached, then…	
Step 2	PAP lodges the grievance to GRC for resolution within 15 days. PAP can appeal in the next GRC if not satisfied with the decision of GRC.	
	If no resolution is reached, then…	
Step 3	PMO, PIU and/or GRC assists the PAP in lodging the grievance to ISC or DC. DC appoints an arbitrator under Section 27 of the ARIPO.	PMO, PIU, and /or GRC guide the PAP in lodging the grievance to the District Court.
Step 4	Arbitrator hears the grievances and renders decision within 30 days upon appointment. If the PAP is not satisfied with the decision of arbitrator, DC forms an Arbitration Appellate Tribunal.	The District Court will assess the merit of grievance and schedule the hearing. The decision of the District Court is final and binding.
Step 5	Arbitration Appellate Tribunal hears and assesses the merit of grievance. The decision is final and binding.	Not applicable.

Note: ARIPO: Acquisition and Requisition of Immovable Property Ordinance 1982; DC: Deputy Commissioner; GRC: Grievance Redress Committee; INGO: Implementing Non-Government Organization; ISC: Inter-ministerial Steering Committee; PIU: Project Implementing Unit; PMO: Project Management Office; PAP: Project-affected Persons; RRRE: Regional Rehabilitation and Resettlement Expert

8 Monitoring and reporting

8.1 Monitoring system

Under the NRRDLGIP, a monitoring system needs to be established to ensure the effective and efficient implementation of land acquisition and resettlement. More specifically, the objectives of the monitoring are to: 1) check if compensation, restoration and rehabilitation assistance, and other entitlements are sufficiently provided; 2) see if the standards of living of PAPs are restored or improved; 3) ascertain whether land acquisition and resettlement are implemented as per the schedule; and 4) identify problems and resolve them.

The two-tiers of monitoring mechanism will be established under the NRRDLGIP. The first tier of the monitoring mechanism is at the field level. The Executive Engineers (XEN) at the LGED District Offices and PIUs at concerned Pourashavas are responsible for the field-level monitoring. Field-level data and information will be collected by them, and the RRRE and INGOs will help them to collect necessary data and information.

The second tier of the monitoring mechanism will be established at the Project Management Office (PMO) at the LGED headquarters. The PMO, under the assistance of a RRS at the PMO, will be in charge of overall monitoring and will check the compliance of field-level activities with this RPF and other relevant laws and guidelines. The PMO is also responsible for the reporting to JICA on the progress of land acquisition and involuntary resettlement.

In addition, an external independent monitoring will be conducted to see the social impacts of subprojects, in particular whether entitlements are timely and sufficiently provided. This external monitoring will contribute to increase in the objectiveness and transparency of the monitoring and evaluation. For this purpose, an independent external monitoring agency (EMA) with experience in resettlement and rehabilitation and restoration assistance will be engaged.

8.2 Monitoring at the LGED District Offices and Pourashavas

The LGED District Office for Component 1 and PIUs at concerned Pourashavas for Subcomponent 2-1 will monitor the implementation status of land acquisition and resettlement activities. The RRRE and INGOs will help them for the monitoring.

The INGO, with guidance from the RRRE, will collect information on the progress of the ARAP. The progress of each activity listed in the ARAP will be checked by interviews and consultations with PAPs, sample on-site investigations, and other appropriate means. The collected information will be consolidated in a quarterly progress report by the LGED District Offices or PIUs, and then the report will be submitted to the PMO. The report will contain the following: 1) accomplishments to-date; 2) objectives attained and not attained during the period of subprojects; 3) problems and challenges regarding land acquisition and resettlement; and 4) proposed countermeasures for the next quarter. Such information shall be described in a quantitative way as much as possible. The monitoring report will be integrated by the PMO into the progress reports of the NRRDLGIP to be submitted to JICA.

The indicators to be covered by the monitoring activities at the LGED District Offices and PIUs of Pourashavas are listed in Table A26-6.

Table A26-6 Monitoring indicators

Monitoring Issues	Monitoring Indicators
Budget and timeframe	- Have all land acquisition and resettlement staff been appointed and mobilized for field and office work on schedule? - Have capacity building and training activities been completed on schedule? - Are resettlement implementation activities being achieved against agreed implementation plan? - Are funds for land acquisition and resettlement being allocated to the executing agency on time? - Have funds been disbursed according to ARAP? - Has the land made encumbrance free and handed over to the contractor in time for subproject implementation?
Delivery of PAP entitlements	- Have all PAPs received entitlements according to numbers and categories of loss set out in the entitlement matrix? - How many affected households relocated and built their new structure at new location? - Are activities related to income and livelihood restoration being implemented as planned? - Have affected businesses received entitlements? - Have the squatters and encroachers displaced due to the subproject been compensated? - Have the community structures (e.g., mosque, community organization) been compensated for and rebuilt at new site? - Have all processes been documented?
Consultations, grievances, and special issues	- Have resettlement information brochures/leaflets been prepared and distributed? - Have consultations taken place as scheduled, including meetings, groups, and community activities? - Have any PAPs used the grievance redress procedures? - What grievances were raised? - What were the outcomes? - Have conflicts been resolved? - Have grievances and resolutions been documented? - Have any cases been taken to court?

Monitoring Issues	Monitoring Indicators
Benefit monitoring	- What changes have occurred in patterns of occupation compared to the pre-project situation? - What changes have occurred in income and expenditure patterns compared to pre-project situation? - Have PAPs income kept pace with these changes? - What changes have occurred for vulnerable groups?

Source: Modified and adapted from ADB (2005). *Resettlement Planning Document: Second Rural Infrastructure Improvement Project*.

8.3 Monitoring by the PMO

The PMO is responsible for the overall monitoring on the progress of land acquisition and involuntary resettlement activities. It will verify the monitoring activities by the LGED District Offices and PIUs at concerned Pourashavas.

The PMO will basically check the compliance with the ARAP and other relevant laws and guidelines. In particular, under such monitoring the PMO shall assess: 1) subproject compensation and entitlement policies; 2) adequacy of organizational mechanism for implementing the ARAP; 3) restoration and rehabilitation assistance to PAPs; 4) complaints and grievances; and 5) provisions for adequate budgetary support by the LGED or concerned Pourashavas for implementing the ARAP. In the context of 3) above, the RRS at the PMO will assess whether PAPs have been received sufficient compensation and other entitlements, and whether they have reestablished their structures and livelihoods. The restoration of their incomes up to the pre-project levels will be focused in particular. The RRS will also appraise the accounting documents which record the payments of compensation to PAPs by the LGED or concerned Pourashavas.

8.4 External Monitoring

The external monitoring, which will be conducted by the External Monitoring Agency (EMA), will focus on social impacts of subprojects on PAPs, and status of entitlement provision to PAPs. The EMA will be recruited from an independent consult, academic research institution, or NGO which has enough experience in monitoring on land acquisition and involuntary resettlement.

The timing of the external monitoring are proposed as post-subproject phase, since the expected scale of land acquisition and resettlement are considered small. Such monitoring should be conducted six month-after the completion of land acquisition or resettlement.

Through consultations with the PAPs and on-site investigations, the EMA will assess the socioeconomic conditions of the PAPs, and aftermath impacts. Perceptions of the PAPs on their received entitlements are also confirmed. Baseline information on PAPs' income and livelihood level will be properly referred in the post-subproject monitoring. Based on the monitoring, lessons learned from the land acquisition and resettlement activities will be derived, and they will provide important feedback for future subprojects involving land acquisition and resettlement.

The RRS and the PMO shall provide necessary assistance, including the provision of field data and information and arrangement of field surveys, to the EMA.

8.5 Reporting Requirements

The Project Director (PD) will periodically prepare and send status reports to JICA on ARAP implementation by incorporating them in the Quarterly Project Progress Reports. A sample monitoring report format is given in Attachment 3. All relevant documents listed below shall be submitted,

together with the Reports, by the PMO to JICA.

- A draft ARAP approved by the LGED before subproject appraisal
- The final ARAP approved by the LGED after the PAP census has been completed
- An updated ARAP if updated during subproject implementation phase
- Monitoring reports on land acquisition and resettlement

The RRS at the PMO will assist the PD in periodic reviews and supervision during the implementation stage. The RRS will assess the quarterly progress reports, which will be submitted by the LGED District Office through the LGED Regional offices, or by the PIUs at Pourashavas, and check the progress of all activities related to land acquisition and resettlement. The RRS will report the assessment results to the PD, and recommend necessary actions as appropriate.

The EMA is responsible for the post-subproject monitoring, and will elaborate a monitoring report. The report shall be submitted to both the PMO and JICA directly.

9 Institutional arrangements and implementation mechanism

9.1 Entities responsible for resettlement and land acquisition

For the effective and efficient implementation of the ARAP, it is critical to institute a firm implementation arrangement within the Project. The executing agencies responsible for land acquisition and involuntary resettlement under the NRRDLGIP are the LGED and target Pourashavas. More specifically, the LGED District Office for Component 1 and PIUs at Pourashavas for Subcomponent 2-1 are primarily responsible for the implementation of activities related to land acquisition and involuntary resettlement. They need to take necessary actions, including constituting various organizations and mobilizing INGOs.

Relevant entities in relation to the preparation, implementation, and monitoring of the ARAP are presented below.

(1) LGED

The LGED is primarily responsible for overall activities related to involuntary resettlement and land acquisition for both Component 1 and Subcomponent 2-1. The PMO will be established within the LGED headquarters for the implementation of the overall Project activities, and the PMO needs to perform primary responsibilities for activities related to the involuntary resettlement and land acquisition. It will recruit the DSM consultant team, especially the Rehabilitation and Resettlement Specialists. INGOs will be also recruited for the implementation of activities on the ground, especially household surveys and consultations with PAPs. The DSM consultant will assist the PMO in overseeing the activities of INGOs.

For Component 1, the PMO will have supervisory roles, whilst the District-level XEN will be responsible for the actual implementation of resettlement and land acquisition activities. The PMO will recruit a RRS at the PMO, and three RRRE who will assist the District XENs in preparing and implementing the ARAPs.

The XENs at the District offices, with assistance of the RRS, RRRE, and INGOs, will implement the necessary actions. They will include disclosure of subproject information, detailed surveys on PAPs and other stakeholders, and consultation with PAPs, preparation and implementation of ARAPs. The monitoring reports on the progress of resettlement and land acquisition activities need to be elaborated by the District XENs, and be submitted to the LGED Regional offices, which will subsequently submit

it to the PMO. The reports will then be submitted to JICA for its approval.

The Upazila Engineers (UE) of each Upazila will also support the XENs, the RRREs and INGOs in conducting detailed surveys and providing other field-level assistance.

In terms of Subcomponent 2-1, the PMO will supervise all the activities by the PIUs at Pourashava. It shall, through the RRREs, collect relevant information and assess the progress of activities related to involuntary resettlement and land acquisition. It will assess the ARAPs submitted by concerned Pourashavas. After the approval, the PMO will submit it to JICA for its approval.

(2) Pourashavas

Pourashavas are responsible for the implementation of subprojects under Subcomponent 2-1. For the purpose of the subproject implementation, the Project Implementation Unit (PIU) will be formed in each Pourashava, and the PIU will have responsibilities for the implementation of resettlement and land acquisition activities, including the preparation of the ARAPs. The DSM consultants, in particular the RRREs, will assist PIUs in preparing and implementing the ARAPs, and the INGOs will engage in field-level activities.

The PIU, with assistance of the RRRE and INGOs, will disclose relevant information to and hold consultation meetings with PAPs and other stakeholders. It will conduct necessary surveys to identify socioeconomic conditions of PAPs, and make inventory of losses, and determine unit prices for calculating compensation and entitlements. Based on the survey results and consultations, it will elaborate the draft ARAPs. Further consultations will be held to finalize the ARAPs. After the finalization of the ARAP, the PIU shall submit it to the PMO for its approval.

The PIU is also responsible for the implementation of the ARAPs. It needs to secure the budget for the implementation of the ARAPs, and interact with PAPs in terms of prior notification, compensation, and grievances. It shall also perform the monitoring on the progress of the related activities, and will elaborate a report on a quarterly basis.

(3) DSM Consultants

The DSM Consultants will be recruited by the PMO to provide assistance to the PMO and PIUs. They include a RRS at the PMO, and three RRREs at the Regional level. The RRREs will be based in the Supervision and Monitoring Office (SMO), but will be in charge of land acquisition and resettlement issues of both Component 1 and Subcomponent 2-1. The RRREs shall support the PMO to ensure that all subprojects comply with the requirements of the JICA Guidelines in terms of involuntary resettlement and land acquisition. They are responsible for regular reviewing and updating of the RPF, assisting LGED District Offices and PIUs in the preparation and implementation of the ARAPs, and monitoring on activities related to involuntary resettlement and land acquisition.

(4) Implementing Non-Government Organization

The Implementing Non-Government Organizations (NGOs) with guidance and supervision of the RRS and RRRE will engage in the preparation and implementation of the ARAPs. The INGOs will work at the level of grassroots as a catalyst to interact with PAPs. They should have enough capacity to identify problems or complaints at the grassroots level, and assess the needs of PAPs for the restoration of income and livelihoods.

The roles of the INGOs are basically to assist the executing agency at the field level in accordance with the guidance from RRREs. The INGOs will assist in: 1) disclosure of subproject information; 2) public consultation meetings; 3) socioeconomic surveys on PAPs including those on the inventory of

losses and replacement cost; 4) consultation with PAPs and other stakeholders; 5) processing the collected data for the preparation of ARAPs; 6) implementation of ARAPs including payment of compensation and entitlements, and restoration and rehabilitation assistance; and 7) monitoring on the implementation of the ARAPs. The sample questionnaires to be used in the surveys are attached as Attachment 2.

(5) Deputy Commissioners

The office of Deputy Commissioner (DC) will be responsible for land acquisition, in particular the assessment of affected assets under the ARIPO. It will appoint representatives as member of the Joint Verification Team (JVT) and Property Valuation Advisory Team (PVAT) for quantifying losses and determining valuation of affected properties. The LGED, RRS, RRREs and INGOs shall liaise with concerned DC offices to take necessary procedures.

(6) Relevant organizations for implementation of ARAP

The executing agency shall constitute several committees or organizations for the implementation of the ARAPs. They include Joint Verification Team (JVT), Property Valuation Advisory Team (PVAT), and Grievance Redress Committee (GRC).

a) Joint Verification Team

The Joint Verification Team (JVT) will be formed in each District. The major responsibility of the JVT is to review the field data collected by the INGO together with the DCs' assessment on the loss of physical assets. The JVT will scrutinize the list of PAPs and affected assets, and verify and finalize the list through conducting joint verification activities. The entitlements of PAPs will be determined by using the assessment result of the JVT as one of the important determinants. The JVT will be a three-member body and be comprised as follows:

- District XEN or representative from PIU: Convener
- Representative of DC office: Member
- INGO: Member Secretary

b) Property Valuation Advisory Team

A Property Valuation Advisory Team (PVAT) will be formed in each District. The PVAT will determine the market price and replacement cost of lands or other affected properties. Based on the assessment of the PVAT, the compensation amount will be finalized. The PVAT will be comprised as follows:

- District XEN or representative from PIU: Convener
- Representative of DC office: Member
- INGO: Member Secretary

c) Grievance Redress Committee

The Grievance Redress Committee will be formed for each subproject. Representatives of PAPs will be involved in the GRCs to review and resolve disputes related to compensation and other resettlement entitlements. Details of the GRC are presented in Section 7.2.

9.2. Roles and responsibilities of relevant entities

Details on activities and responsibilities of relevant entities described above related to ARAP activities are presented in Table A26-7.

Table A26-7 Institutional roles and responsibilities

Activity	Implementing/ Responsible entity	
	Component 1	Subcomponent 2
1. Detailed design phase		
Recruitment of RRS and RRREs	PMO	PMO
Recruitment and mobilization of INGO	PMO, RRS	PMO, RRS
Information disclosure on details of subprojects	D-XEN, RRS, RRRE, INGO	PIU, RRS, RRRE, INGO
Preliminary screening of land acquisition and resettlement	D-XEN, UE, RRRE, INGO	PIU, RRRE, INGO
Consultation with potential PAPs and local stakeholders	D-XEN, UE, RRRE, INGO	PIU, RRRE, INGO
2. ARAP preparation phase		
PAP census and socioeconomic survey	D-XEN, UE, RRRE, INGO	PIU, RRRE, INGO
Preparation of inventory of losses	D-XEN, UE, RRRE, INGO	PIU, RRRE, INGO
Market price survey	D-XEN, UE, RRRE, INGO	PIU, RRRE, INGO
Consultation with PAPs and other stakeholders	D-XEN, UE, RRRE, INGO	PIU, RRRE, INGO
Preparation of draft ARAP	D-XEN, RRS, RRRE	PIU, RRS, RRRE
Disclosure of final entitlement packages and of draft ARAP	D-XEN, RRS, RRRE, INGO	PIU, RRS, RRRE, INGO
Finalization of ARAP and its submission to JICA	PMO, D-XEN, RRS, RRRE	PMO, PIU, RRS, RRRE
3. ARAP implementation phase		
Budget allocation and approval	PMO, RRS	PMO, RRS
Disbursement of funds	PMO	PMO
Payment of compensation to PAPs for land and other properties	D-XEN, RRS, RRRE, INGO	PIU, RRS, RRRE, INGO
Commencement of restoration and rehabilitation assistance	D-XEN, RRRE, INGO	PIU, RRS, RRRE, INGO
Advance notice to PAPs on schedule of clearing of land and resettlement	D-XEN, RRRE, DC, INGO	PIU, RRS, RRRE, DC, INGO
Clearance of lands, and resettlement	DC, D-XEN, RRRE, INGO	DC, PIU, RRRE, INGO
Monitoring of implementation status of ARAP	D-XEN, RRS, RRRE, INGO, EMA	PIU, RRS, RRRE, INGO, EMA
Overall monitoring of progress of land acquisition and resettlement activities	PMO, RRS	PMO, RRS
Resolution of grievances of PAPs	GRC, RRS, RRRE, INGO	GRC, RRS, RRRE, INGO
Preparation of quarterly monitoring report	D-XEN, RRS, RRRE	PIU, RRS, RRRE
Submission of monitoring report to JICA	PMO	PMO

Legend: ARAP: Abbreviated Resettlement Action Plan; DC: Deputy Commissioner; D-XEN: District Executive Engineer; EMA: External Monitoring Agency; GRC: Grievance Redress Committee; INGO: Implementing Non-Government Organization; PAP: Project affected person; PIU: Project Implementing Unit; PMO: Project management Office; RRS: Rehabilitation and Resettlement Specialist; UE: Upazila Engineer

9.3 Implementation Schedule

For each subproject or group of subprojects involving involuntary resettlement of less than 200 PAPs under the Project, an ARAP shall be prepared and implemented. Each ARAP will have a separate time bound implementation schedule for a particular subproject or group of subprojects. The standard implementation schedule of an ARAP is presented in Table A26-8.

Table A26-8 Implementation schedule of Abbreviated Resettlement Action Plan

No	Land Acquisition and Resettlement Activities	Start Date	Complet-ion Date	Duration (days)
1	Hiring, mobilization and deployment of INGO	1st of Month 1	30th of Month 1	30
2	Information campaign on a subproject and possible resettlement	1st of Month 2	30th of Month 8	240
3	Consultation and focus group discussion	1st of Month 2	30th of Month 8	240
4	Organization of internal monitoring team	1st of Month 1	15th of Month 1	15
5	Formation of GRC and other committees and teams	15th of Month 2	30th of Month 2	15
6	Preliminary screening survey based on detailed design of subproject	1st of Month 2	7th of Month 2	7
7	Implementation of a census survey, socioeconomic survey, and other surveys	15th of Month 2	15th of Month 3	30
8	Identification of entitled PAPs	15th of Month 2	15th of Month 3	30
9	Data processing, fixation of property value, and determination of individual entitlements	1st of Month 3	30th of Month 3	30
10	Agreement of entitlements with PAPs, and preparation of land acquisition documents, and an ARAP if necessary.	1st of Month 3	30th of Month 3	30
11	Preparation and submission of land acquisition and/or resettlement budget	15th of Month 3	15th of Month 4	30
12	Approval of land acquisition and/or resettlement budget by the LGED	15th of Month 4	30th of Month 4	15
13	Release of funds for compensation, and payment of compensation to PAPs, and provision of restoration and rehabilitation assistance	1st of Month 5	30th of Month 8	120
14	Documentation and resolution of grievances from PAPs	1st of Month 2	30th of Month 8	240
15	Consultation with PAPs on schedule of clearing lands, or relocation if necessary	1st of Month 5	30th of Month 5	30
16	Clearing of lands, or relocation if necessary	15th of Month 5	30th of Month 5	105
17	Training and income generation programs if necessary	1st of Month 5	30th of Month 8	120
18	Elaboration and submission of the completion report by INGO to the PMO	1st of Month 9	15th of Month 9	15
19	Award of civil work contract to subproject contractor, and the mobilization of the contractor	15th of Month 9	-	-
20	Post-resettlement and acquisition monitoring on the impacts of subprojects, and adequacy of the compensation and other entitlements	180 days after the 30th of Month 8		

Source: Survey team

It is expected to take about nine months to complete the ARAP preparation and implementation, except for the external monitoring. This duration may vary depending on the individual situations of subprojects.

10 Budget and financing

Necessary budget for each ARAP is to be estimated by the PMO with assistance of DMS consultants. The budget shall include: 1) cost for the acquisition of land and other assets, relocation of PAPs, and the restoration and rehabilitation assistance; 2) administrative costs to take necessary procedures; 3)

cost for the ARAP implementation including disclosure and stakeholder consultations and recruitment of INGOs; 4) training costs for the officials of executing agencies and PAPs; and 5) monitoring and evaluation costs including the recruitment of the EMA. These are considered an integral component of the Project costs, and the executing agencies will be responsible for the timely allocation of the funds to implement the ARAPs.

It is not practical to accurately estimate land acquisition and resettlement costs for the whole Project at the preparatory survey phase, because detailed designs of subprojects have not been determined yet. In this preparatory survey, therefore, total budget for land acquisition and involuntary resettlement was estimated based on the experiences of past similar projects and sample field observations. The summary cost is indicated in Table A26-9.

Table A26-9 Provisional cost estimate for land acquisition and resettlement

(Unit: BDT million)

Type of subprojects	Estimated Cost
Component 1	
UZRs (including bridge/culvert)	298.83
UNRs(including bridge/culvert)	148.60
Component 2	
Pourashava roads	24.90
Waste management facility	10.60
Bus/truck terminal	20.38
Procurement of services	
INGO	51.48
EMA	13.14
Total	567.93

Legend: UZR=Upazila road; UNR=Union road; INGO=Implementing non-government organization; EMA=External monitoring agency
Source: Survey team

All costs associated with land acquisition and involuntary resettlement will be funded by the government of Bangladesh. The actual cost needs to be monitored and revised as per the progress of the Project activities.

Attachment 1 Checklist for preliminary screening survey

1. Land Acquisition

Probable effects	Yes	No	Unclear	Remarks
1 Will there be any land acquisition?				
2 Is the site for land acquisition identified?				
3 Is the ownership status and current usage of the land to be acquired identified?				
4 Will the subproject be implemented within an existing Right of Way (ROW)?				
5 Will there be loss of shelter and residential land due to land acquisition?				
6 Will there be loss of agricultural and other productive assets due to land acquisition?				
7 Will there be losses of crops, trees, and fixed assets due to land acquisition?				
8 Will there be loss of businesses or enterprises due to land acquisition?				
9 Will there be loss of income sources and means of livelihoods due to land acquisition?				

2. Restrictions on land use or on access to land

Probable effects	Yes	No	Unclear	Remarks
10 Will people lose access to natural resources, communal facilities and services?				
11 If land use is changed, will it have an adverse impact on social and economic activities?				
12 Will access to land and resources owned communally or by the state be restricted?				

3. Quantification of private land required to be acquired

13 Is there any preliminary estimate of the land likely to be acquired by the Project? [ ] Yes [ ] No If yes, approximately how much? _____decimal

4. Information on resettlement

14 Is there any estimate of the number of persons likely to be resettled due to the Project? [ ] Yes [ ] No If yes, approximately how many? _____ persons		
15 How many of them belong to the following groups?	Female-headed households	approx._____ persons
	Households below the poverty line * Income less than Tk. 5,000/household/ month	approx._____ persons
	Children, the elderly and the disabled	approx._____ persons
	Landless people	approx._____ persons
	Indigenous people	approx._____ persons
	Other groups not protected by the national compensation law	approx._____ persons

Attachment 2 Sample format of census and socioeconomic survey questionnaire

Northern Region Rural Development and Local Governance Improvement Project in Bangladesh (NRRDLGIP)
Census and Socioeconomic Survey Questionnaire for the Affected Households
(PATT-1: Census Questionnaire)

I. General

i. Questionnaire No.: ..... ii. Road Subproject Name: .....

iii. Name of Likely Affected Household Head: .....

iv. Father's Name: .....

v. Village: ..... vi. Union: .....

vii. Upazilla: ..... viii. District: .....

ix. Ethnic Group: 1. Bengali 2. (Specify) ..... 3. (Specify) .....

x. Details of Family Members of affected household: (please fill appropriate code)

Sl. No.	Name of family member	Age (in years)	Sex	Marital Status	Education	Occupation

Codes: Sex: 1.Male 2.Female
Marital Status: 1. Married, 2. Unmarried, 3. Widow/Widower, 4. Separated, 5. Others
Education: 1.Illiterate, 2.Can sign only, 3. Can read and write, 4. Primary, 5. Below SSC, 6. HSC, 7. Graduate, 8. Above
Occupation: 1. Service (private/Government/NGO), 2. Business, 3 Day Labor, 4. Fisherman/Pisciculture, 5. Boatman, 6. Motor Driver, 7. Carpenter, 8. Mason, 9 Electrician/mechanics, 10. Housewife, 11. Unemployed, 12. Student, 13. Old, 14 Disabled, 15 Others (specify) .....

II. Details of Affected Land

2. Ownership of the Land: 1. Private 2. Government 3. Religious 4. Community 5. Others

3. Use of Land:
1. Cultivation 2. Orchard 3. Residential 4. Commercial

5. Pond/ditch without shrimp/fish farming 6. Pond/ditch under shrimp/fish farming
7. No use/ barren 8. Others (specify) .....

4. Affected area of the land plot (in decimal): .....

5. Total area of the affected land plot (in decimal): .....

6. Value of the affected land (per hectare):
1. Market Rate (if known) (Tk.).....2. Government Rate (if known) (Tk.).....

7. Status of affected land under possession

1. Titleholder (Private Owner) 2. Rentee 3. Lease holder 4. Encroacher 5. Squatter

8. If you are not the titleholder, please specify the following:
1. Name of the Owner: …….....
2. Father's Name: .....
3. Full Address: .....

9. If your land is required for the road, which process would you suggest to give up your land for the road development?
i) Voluntary donation
ii) Negotiation for payment with the LGED through acquisition process

10. Will any employee/labor be permanently affected in connection with this land?
1. Yes 2. No

i) If Yes, then how many will be affected? ……..

11. Number of trees within the affected area:

SL No.	Name of trees	Type of Tree	Description of trees						Estimated annual value of only fruits trees (Tk.)
			Large		Medium		Small		
			No.	Estimated value	No.	Estimated value	No.	Estimated value	

Type Code: 1. Fruit bearing 2. Timber 3. Firewood

III. Details of Structures

12. Is there any structure (building) in the affected land? 1. Yes 2. No

13. If yes in Q 12,
a) Area of the affected structure (Square Meter).....
b) Length (Meter) .....….. c) Width (Meter) .....

14. a) Area of the total structure (Square Meter) .....
b) Length (Meter) .....….. c) Width (Meter) .....

15. Scale of Impact (considering total area of structure)
1) 25% 2) 50% 3) 75% 4) 100%

16. Type of construction materials used for the structure
1. Temporary (buildings with mud/brick/wood made walls, thatched/tin roof)
2. Semi-Permanent (buildings, with tiled roof and normal cement wall & floor)
3. Permanent (with RCC, Single/ Double storey building)

17. Market Value of the Structure (Tk.).....

18. Use of the Structure (select appropriate code from below)
1. Residential 2. Commercial 3. Residential & commercial. 4. School
5. Community center/club 6. Religious (Mosque/temple/Girja) 7. Government office
8. Others (e.g., Boundary Wall, Cattle Shed, Well/Tube Well, Latrine, farm house etc.) (specify)…….

19. Status of the Respondents regarding Structure
1. Legal Titleholder 2. Renter 3. Lease holder 4. Encroacher 5. Squatter

If not legal owner, mention name of the Owner: .....
Father's Name: .....

20. Is there any tenant of the Structure?

1. Yes (Specify number) ..... 2. No

21. Is any employee/ wage earner associated with commercial structure
i) 1. Yes 2. No
ii) If Yes, How many? Male: ..... Female: .....

IV. Resettlement & Rehabilitation

22. Vulnerability Status of the Household:
i) Is it a woman-headed household? 1. Yes 2. No
ii) Is it headed by physically/mentally challenged person? 1. Yes 2. No
Note: Refer to the definition of vulnerable groups described in the Resettlement Policy Framework.

23. Average monthly income of the family (Tk.): .....

24. Average monthly expenditure of the affected family (Tk.): .....

25. Resettlement/ Relocation Option
1. Self Relocation through purchasing new land 2. Relocation on residual land
3. Project Assisted Resettlement

26. Compensation Option for Land loser
1. Land for land loss 2. Cash for Land loss

27. Compensation Options for Structure Loser
1. House/Shop for House/ Shop Loss 2. Cash for House/ Shop Loss

28. Income Restoration Assistance (the most preferred option)
    1. Employment opportunities in construction work
    2. Assistance/loan from other ongoing development scheme
    3. Vocational training
    4. Others (specify .....)

29. How would you like to spend the compensation money?
    1. To buy land 2. To shift a house 3. To build a house
    4. To get training for taking a new occupation 5. To get a job 6. To invest in business
    7. To market produce 8. To invest for self-employment
    9. To adjust a loan 10. Other (Please specify)

1st	2nd	3rd

* Planning according to preference

30. What are the available sources/opportunities for employment in your locality?
    i)
    ii)
    iii)

31. Do you think that you or your family members need training to develop skills for taking up a new occupation? Yes/ No

    If the answer is yes, please specify the name(s) or type(s) of training essential for you or your family members:
    i)
    ii)
    iii)

(Name of the Investigator) ..... Date: .....

(Signature of the Investigator)

PART-2: Socioeconomic Survey of the Affected Households

1. Household Information

1.1. Name of the Head of the Household: .....

1.2. Household Composition (Population):

Sl. No.	Category	Male	Female	Total
1	Small Children (Below 5 Years)			
2	Aged between 6 to 15 Years			
3	Aged between 16 to 60 Years			
4	Aged above 60 Years			
5	**Total**			

1.3. Settlement Type: 1. Rural 2. Semi-Urban 3. Urban

1.4. Ethnicity: i) Bengali ii) Tribal (Specify) .....

2. Economic Activity of Households

2.1. What are the economic activities of the household? (Please tick all that apply)

Sl. No.	Type of Activities	Main	Allied/secondary
1	Agriculture		
2	Share cropping		
3	Working for other farmers		
4	Agriculture day labor		
5	Non-agriculture day labor		
6	Rickshaw/van puller		
7	Motor driver		
8	Mason		
9	Carpenter		
10	Mechanics/electrician		
11	Fishing		
12	Teacher		
13	Business/shop keeping		
14	Service for Government and NGO		
15	Others (Specify)		

3. Total Landholding of Household

(in hectare)

Cultivable	Residential	Water bodies/ Non-Cultivable	Total Land Area

4. Major Crop Produce in the Previous Year

Sl. No.	Type of Crops	Area under each crop (Decimal)	How many times/ seasons per Year	Total Yield (kg)	Price per kg (Tk.)
1	Rice				
2	Wheat				
3	Pulses				
4	Oil seeds				
5	Potato				
6	Vegetables				
7	Others				

5. Annual & Monthly Income of the Household

Sl. No.	Source	Monthly income (Tk.)	Annual Income (Tk.)
1	Agriculture		
2	Service		
3	Business		
4	Labor		
5	Fishery (pisciculture/shrimp farming)		
6	Professional		
7	Remittance		
8	Any other (specify)		
	Total		

6. Consumption Pattern

Kindly indicate the consumption/expenditure on different items in the previous year.

Sl. No.	Particulars / Source	Expenditure (Tk.)	
		Monthly	Annual
1	Food		
2	Transportation		
3	Clothing		
4	Health		
5	Education		
6	Communication		
7	Social functions		
8	Agriculture inputs (such as seeds, hiring of farmhands)		
9	Consumption of fuel for household		
10	Fuel/ Electric Bill		
11	Others Specify.....		
	Total (1-11)		

7. Possession of Asset

In the table below, please specify the type and quantity of assets possessed by the household.

Sl. No.	Item	Quantity
1	Radio	
2	Bicycle	
3	Television	
4	L.P.G connection/ Gas cylinder	
5	Computer	
6	Refrigerator	
7	Washing machine	
8	Motor cycle/Scooter/Auto rickshaw	
9	Car	
10	Rickshaw/Van	
11	Power tiller	
12	Boat/trawler	
13	Phone/mobile	
14	Solar panels	
15	Cow/bullock	
16	Goat/sheep	
17	Poultry	
18	Any other (specify.....)	

8. Indebtedness

8.1. Do you have any debt or loan? 1. Yes 2. No

8.2. If yes, please indicate your borrowings in the previous year. (Tk.)

Sl. No.	Source	Total Amount taken	Total Amount returned	Balance	Interest Rate (%)
1	Bank				
2	NGO				
3	Relative/Friend				
4	Private money lender				
5	Other				
Total					

9. Coverage under Government/Other Development Schemes

9.1. Did you derive any benefit from any project or scheme? 1. Yes 2. No

9.2. If 'Yes', kindly give us the following details

Source	Name of scheme	**Type of help:** 1. Loan; 2. Training; 3. Employment, 4. Grant; 5. Health care; 6. Others
Government		
NGO		
Funding agency		
Other		

9.3. If "1 Loan", kindly indicate the amount: .....

9.4. If "2 Training", kindly indicate the type of training: .....

9.5. After using this project or scheme, did your annual income increase? 1 Yes 2 No

9.6. If "Yes", how much? .....

9.7. If "No", why? .....

10. Health Status

10.1. Please provide information on major illnesses of family members in the previous year.

No. of Cases/ Persons	**Type of disease/ illness***	**Treatment Taken****	**Did you take treatment in time** 1-yes, 2- No	**Any difficulties to access to clinic/health center due to:** 1. Long distance 2. Bad road condition

* 1. Waterborne diseases (Diarrhea, dysentery, cold/cold fever etc) 2. Typhoid 3. Cardinal 4. Rheumatic fever 5. Others (specify) .....
** 1. Allopathic 2. Homeopathic 3. Herbal 4. Traditional 5. No treatment

11. Status of Women

11.1. Kindly indicate the type(s) of economic and non-economic activities that the female members of your family are engaged in.

Sl. No.	**Economic/Non-economic Activities**	**Yes/No**	**If yes, no. of women engaged in it**
1	Cultivation/crop processing		
2	Allied activities (dairy, poultry, sheep rearing, etc.)		
3	Trade and business		
4	Agricultural labor		
5	Non agricultural labor		
6	Handicrafts/sewing		
7	Service for Government or NGO		
8	Others (Specify):		

11.2. Does your female member have any involvement in decision making on household matters?
1. Yes 2. No

11.3. If "Yes", please choose "1" (=Yes) or "2" (=No) on the following matters.

Sl. No.	**Matter**	**1 Yes, 2 No**
1	Financial matter	
2	Education of child	
3	Health care of child	
4	Purchase of assets	
5	Day-to-day activities	
6	Social functions and marriages	

Sl. No.	Matter	1 Yes, 2 No
7	Business investment	
8	Others	

12. Do any female member of your household take part in a social or community organization, or a Local Government body?

1. Yes 2. No

12.1. If "Yes", specify: Name of organization: ..... Position: .....

13. Amenities

13.1. Source of Drinking Water:
1. Piped-water supply 2. HTW 3. Shallow TW 4. Deep TW 5. Well
6. River/canal/pond 7. Rain harvesting 8. Bottled water 9. Others

13.2. Type of Toilet:
1. Sanitary 2. Open/hang 3. No toilet

13.3. Fuel for cooking:
1. Electricity 2. Wood 3. Gas 4. Diesel/Kerosene 5. Solar

13.4. Sources of lighting:
1. Electricity 2. Diesel/Kerosene 3. Solar 4. Others (specify) .....

14. Housing Structure/ Building Information

14.1. Use of Structure
1. Area of Residential house .....square meter.

14.2. Type of Construction materials used
1. Mud, thatched and tin 2. Thatched, wood and tally/tin 3. Tin and bricks
4. Brick/Cemented 5. Others .....

15. Transport Usage

15.1. Is your house immediately connected to a road?
1. Yes 2. No

15.2. If Yes, to which road?
1. Village Road 2. Union Road 3. District road 4. National Highway

15.3. Distance to the road in meters: .....

15.4. How is the condition of the connected road?
1. Good 2. Average 3. Poor 4. Very Poor

15.5. How often do you use the road for production/business activities? .....

15.6. Have you heard about this road development project?
1. Yes 2. No

15.7. If yes, what do you think of/expect from the project?
1. Saving travel time 2. Saving fuel/repair/travel cost 3. Any other (specify) .....

15.8. Will you be willing to contribute/participate (i.e., land, money, toll /tax, physical labor) if road development is undertaken?
1. Yes 2. No

(Name of the Investigator) ..... Date: .....

(Signature of the Investigator)

Attachment 3 Sample format for monitoring report

1. Progress of land acquisition and involuntary resettlement

Resettlement activities	Planned total	Unit	Progress in quantity			Progress in %		Expected date of completion	Responsible organization
			During the quarter	Till the last quarter	Up to the quarter	Till the last quarter	Up to the quarter		
Preparation of ARAP									
Employment of consultants		Man-month							LGED
Implementation of census and socioeconomic survey									LGED, Pourashavas
Approval of ARAP			Date of approval: DD/MM/YY						LGED
Finalization of PAPs list		No. of PAPs							LGED, Pourashavas
Progress of compensation payment									LGED, Pourashavas
Site 1		No. of PAHs							
Site 2		No. of PAHs							
Site 3		No. of PAHs							
Site 4		No. of PAHs							
Progress of land acquisition									DC, LGED, Pourashavas
Site 1		ha							
Site 2		ha							
Site 3		ha							
Site 4		ha							
Progress of asset replacement									LGED, Pourashavas
Site 1		No. of PAHs							
Site 2		No. of PAHs							
Site 3		No. of PAHs							
Site 4		No. of PAHs							
Progress of resettlement of PAPs									LGED, Pourashavas
Site 1		No. of PAHs							
Site 2		No. of PAHs							
Site 3		No. of PAHs							
Site 4		No. of PAHs							

2. Public consultation

No	Date	Place	Contents of the consultation
1			
2			
3			

3. Monitoring on specific actions

Activities	Progress	Remarks
1. Pre-construction monitoring		
a) Have all land acquisition and resettlement staff been appointed and mobilized for field and office work on schedule?	Yes/ No Date of appointment:	
b) Have resettlement information brochures/leaflets been prepared and distributed?	Yes/ No Date of distribution	
c) Are resettlement implementation activities being achieved against the agreed implementation plan?	Yes/ No	
d) Are funds for land acquisition and resettlement being allocated to the executing agency on time?	Yes/ No	
e) Have funds been disbursed according to ARAP?	Yes/ No	
f) Have consultations taken place as scheduled, including meetings, groups, and community activities?	Yes/ No Date of consultation:	
g) How many affected households relocated and built their new structure at new location?	Number of affected households:	
h) Has the land made encumbrance free and handed over to the contractor in time for subproject implementation?		
i) Have all PAPs received entitlements according to numbers and categories of loss set out in the entitlement matrix?		
j) Are activities related to income and livelihood restoration being implemented as planned?		
k) Have affected businesses received entitlements?		
l) Have all the squatters and encroachers displaced due to the subproject been compensated?		
m) Have the community structures (e.g., Mosque, community organization) been compensated for and rebuilt at new sites?		
n) Have all processes been documented?		
2. Post acquisition/ resettlement monitoring: grievance redress		
a) Have any PAPs used the grievance redress procedures? How many?		
b) What grievances were raised? (Attach the summaries of grievances.)		
c) What were the outcomes? (Attach the summaries of the outcomes.)		
d) Have conflicts been resolved? (Attach the summaries of resolution. If unresolved, explain the details.)		
e) Have grievances and resolutions been documented?		
f) Have any cases been taken to court? (Attach the summaries of the cases)		
3. Post acquisition/ resettlement monitoring: assistance to PAPs		
a) Have capacity building and training activities been completed on schedule?		
b) What changes have occurred in patterns of occupation compared to the pre-project situation?		
c) What changes have occurred in income and expenditure patterns compared to the pre-project situation?		
d) Have PAPs income kept pace with these changes?		
e) What changes have occurred for vulnerable groups?		

Note 1: In the case of subproject at Bhaluka Upazila and Birampur Upazila, the draft ARAPs for these subprojects need to be updated as per the changes in subproject designs and site conditions.

Note 2: Relevant documents such as the inventory of loss of assets and record of consultation meetings shall be submitted together.

4. Preparation of resettlement sites (where necessary)

No.	Explanation of the site (e.g. Area, no. of resettled PAHs etc)	Status (Completion date/ not completed yet)	Details (e.g. Site selection, identification of candidate sites, discussion with the PAPs, development of the site etc.)	Expected date of completion
1				
2				
3				

Annex 27
Environmental checklist

List of tables

Table A27-1 Environmental checklist for the NRRDLGIP

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/IEE reports been already prepared in official process? (b) Have EIA/IEE reports been approved by authorities of the host country's government (i.e., the Department of Environment)? (c) Have EIA/IEE reports been unconditionally approved? If conditions are imposed on the approval of EIA/IEE reports, are the conditions satisfied? (d) Have an Environmental Clearance Certificate under the Environmental Conservation Rules 1997 officially obtained? (e) 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 (b) N (c) N (d) N (e) N	(a)(b)(c)(d) EIA/IEE reports have not been prepared yet due to the following reasons: 1) Detailed designs of subproject under Component 1 have not been determined at the preparatory survey phase; and 2) Subprojects under Subcomponent 2-1 are not selected at the preparatory survey phase. The LGED will complete EIA/IEE process for subprojects that EIA/IEE are mandatory, and obtain the Environmental Clearance Certificate under the Environmental Conservation Rules 1997 prior to the commencement of the subprojects. A draft EIA and IEE report for a sample subproject of bridge over 100 m were prepared in the preparatory survey. (e) Subprojects that will require other environmental permits have not been identified at present.
	(2) Explanation to the 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) N (b) N	(a)(b) The contents and potential impacts have not been fully explained and disclosed to the public yet since subprojects and their detailed designs are not determined yet.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) Alternatives were examined during the preparatory survey from the following viewpoints: 1) comparison among subprojects; 2) engineering design of each subproject; and 3) zero option. It was concluded that the proposed project plan of the NRRDLGIP can be justified.
2 Pollution Control	(1) Air Quality	(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? (b) Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	(a) Y (b) N	(a) The air quality of subproject site is not expected to exceed the ambient air quality standards of Bangladesh, since the traffic volume on target roads is too small to cause air pollution. (b) No subprojects are expected to make worse air quality since they are basically located in rural areas where no or few big industries are located.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Water Quality	(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? (b) Is there a possibility that surface runoff from roads will contaminate water sources such as groundwater? (c) Do effluents from various infrastructure facilities 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?	(a) Y (b) N (c) Y	(a) Soil runoff from the bare lands will be minimized by measures such as the compaction of road side. (b) There is no risk of the contamination of water sources because surface runoff from roads will contain little pollutants. (c) Effluents may be discharged from Growth Center Markets and other markets, bus and truck terminals, waste bins and disposal facilities, and public and community toilets. However, prevention measures will be proposed in individual IEE and EIA and will be undertaken so that the effluents will not affect the water quality of nearby areas. In addition, compliance with the environmental regulations is one of the criteria for the subproject selection.
	(3) Wastes	(a) Are wastes generated from the infrastructure facilities properly treated and disposed of in accordance with the country's regulations?	(a) Y	(a) Infrastructure facilities such as Growth Center Markets and other public markets, bus and truck terminals will discharge some amount of wastes, but they are properly treated and disposed of.
	(4) Soil Contamination	(a) Are adequate measures taken to prevent contamination of soil and groundwater by the effluents or leachates from the infrastructure facilities and the ancillary facilities?	(a) Y	(a) As described in "(2) Water Quality", adequate measures will be taken.
	(5) Noise and Vibration	(a) Do noise and vibrations comply with the country's standards?	(a) Y	(a) Noise and vibrations are not expected to exceed the standards since traffic volume of Upazila and Union roads is not so heavy.
	(6) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a) N	(a) Subsidence is not expected because no subproject involves the extraction of groundwater.
	(7) Odor	(a) Are there any odor sources? Are adequate odor control measures taken?	(a) Y	(a) Infrastructure facilities such as public and community toilets, and garbage bins and disposal facilities may cause odor. However, adequate measures such as adoption of sanitary latrines and compliance with relevant regulations will be undertaken.
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) N	(a) In the Project area, there are six national parks, but no subprojects will be located in and adjacent to the national parks because one of the criteria will exclude such subprojects.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(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) If the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environments? (g) Is there a possibility that changes in localized micro-meteorological conditions, such as solar radiation, temperature, and humidity due to a large-scale timber harvesting will affect the surrounding vegetation?	(a) N (b) N (c) N (d) N	(a)(b) No subprojects will be located in the vicinity of ecologically valuable sites and protected habitats of endangered species because such subprojects will be excluded by one of the selection criteria. (c) No significant ecological impacts are anticipated. (d) There is no or very minor risk of impacts on wildlife and livestock because subprojects will be implemented only on existing roads and markets, and in urban areas. (e) No subprojects will cause significant impacts on natural environment and ecosystems. (f) No subprojects will be located at undeveloped areas. (g) No subprojects will involve any large-scale timber harvesting.
	(3) Hydrology	(a) Is there a possibility that hydrologic changes due to the project will adversely affect surface water and groundwater flows?	(a) N	(a) The Project will not cause massive hydrologic changes, and thus no adverse impacts on surface water and ground water flows are expected.
	(4) Topography and Geology	(a) Is there a possibility the project will cause large-scale alteration of the topographic features and geologic structures in the project site and surrounding areas? (b) 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? (c) 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? (d) 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) Y (c) Y (d) Y	(a) No subprojects will cause large-scale alteration of the topographic features and geologic structures. (b) The slope of embankment is planned to be adequately compacted to prevent slope failures. Thus, no significant landslide and slope failures are anticipated. (c) There is a certain possibility of small-scale slope failures caused by civil works. Therefore preventive measures against slope failures will be undertaken. (d) There is a certain possibility of soil runoff from cut and fill areas. Therefore preventive measures will be undertaken.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(1) Resettlement and land acquisition	(a) Is involuntary resettlement or land acquisition caused by project implementation? If they are caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and assistance related to resettlement and land acquisition given to affected people prior to the resettlement? (c) Is the resettlement or land acquisition plan, including compensation with full replacement costs, restoration of livelihoods and living standards, developed based on socioeconomic studies on resettlement and land acquisition? (d) Are the compensations going to be paid prior to the resettlement and land acquisition? (e) Is the compensation policies prepared in document? (f) Does the resettlement or land acquisition 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 the resettlement and land acquisition? (h) Is the organizational framework established to properly implement resettlement and land acquisition? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement and land acquisition? (j) Is the grievance redress mechanism established?	(a) Y (b) Y (c) Y (d) Y (e) Y (f) Y (g) Y (h) Y (i) Y (j) Y	(a) Small-scale involuntary resettlement, i.e., that of fewer than 200 PAPs, will be required for some subprojects. Land acquisition is also anticipated for some subprojects. Efforts to avoid and minimize the impacts will be made in accordance with the draft Resettlement Policy Framework (RPF). (b) Adequate explanation, compensation and other assistance will be provided prior to the resettlement or land acquisition in accordance with the draft RPF. (c) An abbreviated resettlement action plan (ARAP) will be formulated. (d) Compensations will be paid prior to the resettlement and land acquisition in accordance with the draft RPF. (e) Compensation policies will be presented in the ARAP. (f) The ARAPs will pay special attention to vulnerable groups in accordance with the draft RPF. (g) Agreements with the affected people will be obtained prior to the resettlement and land acquisition. (h) The organizational structures will be established. The capacity of the executing agencies will be supported by the Resettlement Specialist to be recruited under the Project. The budget will be secured in accordance with the draft RPF. (i) Monitoring plans will be included in the ARAPs. (j) The grievance redress mechanism will be established.
	(2) Living and Livelihood	(a) 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? (b) Is there any possibility that diseases, including infectious 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? (c) 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)? (d) Is there any possibility that roads will impede the movement of inhabitants? (e) Is there any possibility that structures associated with roads (such as bridges) will cause a sun shading and radio interference?	(a) Y (b) Y (c) Y (d) N (e) N	(a) Workers for ferry and boats, and shopkeepers at ferry ghats may lose their income sources if bridges are newly constructed. Adequate measures such as earlier information disclosure will be undertaken. (b) There is a certain risk of health problems, thus measures such as safety and health education to construction workers will be undertaken. (c) Road safety problems could be caused, thus adequate road safety measures, including the installation of warning signs, guards, and speed breakers, will be undertaken. (d) There is no risk of the impediment of local people's movement. (e) There is no possibility of a sun shading and radio interference since large-scale structures are not planned.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(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) Y	(a) There may be some culturally and religiously important sites in the vicinity of subproject sites. If such sites are found, adequate measures, such as avoiding disturbance of those sites, will be undertaken.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) The project will not adversely affect the local landscape because subprojects will be implemented only on existing roads and markets, and in urban areas.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) Y (b) Y	(a) Special attention to ethnic minorities and indigenous peoples will be given. (b) All rights of ethnic minorities and indigenous peoples will be respected if they are identified in subproject sites.
	(6) Working Conditions	(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? (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? (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? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) Y (b) Y (c) Y (d) Y	(a) The LGED and Pourashavas will comply with any laws and ordinances regarding working conditions of Bangladesh. (b) Construction workers will be provided with necessary safety equipment. (c) Construction workers will be provided with safety and health educations. (d) Security guards will be educated not to violate safety of local residents.
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Y (b) Y (c) Y	(a)(b)(c) Adequate measures will be undertaken to mitigate environmental and social impacts in accordance with the draft Environmental Framework (EF) and RPF.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (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?	(a) Y (b) - (c) Y (d) Y	(a) The LGED will develop and implement environmental and social monitoring plan in accordance with the draft EF and RPF. (b) Monitoring items, methods, and frequencies will be determined in accordance with the draft EF and RPF. (c) The LGED will establish the adequate monitoring framework in accordance with the draft EF and RPF. (d) Format and frequency of monitoring reports will be determined in accordance with the draft EF and RPF.

[Legend] ARAP: Abbreviated Resettlement Action Plan, EF: Environmental Framework, LGED: Local Government Engineering Division, RPF: Resettlement Policy Framework

1) Regarding the term “Country’s Standards” mentioned in the above table, if environmental standards in the country where the project is located diverge significantly from international standards, then appropriate environmental considerations must be made. In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

Annex 28
Operation and maintenance of rural transport and trading infrastructure

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1 Core rural road network

As set out in the Rural Roads Master Plan (LGED, 2005), the LGED assumes direct responsibility for the maintenance of what we have defined as the "core" rural road network, i.e., Upazila Roads (UZR) and Union Roads (UNR). To fulfill this responsibility, the LGED utilizes the annual GOB revenue budget allocation for rural road maintenance, complemented by maintenance financing included in foreign-financed rural infrastructure projects. The core network comprises 82,571 km of rural roads, as presented in Table A28-1.

Table A28-1 Core rural road network

Road type	Total number	Total length (km)	Developed length (km)				Earthen length (km)
			Bitumen	Concrete	Brick	Total	
Upazila road	4,494	37,819	26,783	471	2,481	29,735	8,085
Union road	7,974	44,752	17,238	504	4,276	22,018	22,733
Total core road	**12,468**	**82,571**	**44,021**	**975**	**6,757**	**51,753**	**30,818**

Source: LGED, RMRSU

There are nearly 117,000 cross-drainage structures (bridges and culverts) on these roads, totaling 675,141 m span, as set out in Table A28-2.

Table A28-2 Existing cross-drainage structures on core rural roads

Road type	Already developed	
	Total number	Total span (m)
Upazila Road	57,858	369,650
Union Road	58,917	305,491
Total core road	**116,775**	**675,141**

Source: LGED, RMRSU

2 Other rural roads

The LGED is responsible for the development of Village Roads types A and B, but maintenance responsibility is delegated to the Local Government Institutions (LGI). The Village Road network comprises 215,774 km of roads as presented in Table A28-3.

Table A28-3 Village road network

Road type	Total number	Total length (km)	Developed length (km)				Earthen length (km)
			Bitumen	Concrete	Brick	Total	
Village road-A	35,572	109,622	13,486	508	6,956	20,950	88,672
Village road-B	56,974	106,152	3,995	286	3,465	7,746	98,405
Total village road	**92,546**	**215,774**	**17,481**	**794**	**10,421**	**28,696**	**187,077**

Source: LGED, RMRSU

There are over 112,000 cross-drainage structures (bridges and culverts) on these village roads, totaling 479,265 m span, as set out in Table A28-4.

Table A28-4 Existing cross-drainage structures village roads

Road type	Already developed	
	Total number	Total span (m)
Village road-A	71,090	324,148
Village road-B	41,480	155,117
Total village road	**112,570**	**479,265**

Source: LGED, RMRSU

The maintenance of village roads, and some earthen UNR, is carried out by the Upazila Parishads (UZP) and Union Parishads (UP). These LGIs, however, receive technical assistance from the LGED in preparation of designs and estimates for the maintenance schemes. The LGED Upazila Engineers also provide overall supervision of the works.

Various sources of funds are used for maintenance of village roads which, as the data show, are largely earthen. The GOB Rural Employment Road Maintenance Program (RERMP) provides substantial resources for routine maintenance of earthen roads (including some earthen UNR), providing employment for the rural poor, particularly destitute women and landless workers. Additional government funds are provided to the UZP and UP through their Annual Development Program (ADP) allocations. In addition, there are annual block grant allocations to UPs from the World Bank-supported and Local Government Division (LGD)-executed Second Local Governance Support Program (LGSP-II) from 2011 to 2016. The UPs may use part of these block grant funds for village road maintenance.

Maintenance of village roads remains problematic. Further support is needed to develop management and implementation capacity, and to increase local revenue generation, particularly at the UP level.

3 Growth Centers and rural markets

Bangladesh has thousands of rural markets known as hat-bazaar. Data from the LGED's Upazila-based GIS system gives a figure of 17,121 while a survey commissioned by the Department of Agricultural Marketing (DAM) in 2000 recorded 16,476. Of these, 2,100 are designated by the Planning Commission as Growth Centers.

The improvement of Growth Center and rural market facilities to provide an efficient and hygienic trading environment is the responsibility of the LGED, through various foreign- and GOB-financed rural infrastructure projects. However, the responsibilities for operation and maintenance of these markets are divided among the lessee, the Market Management Committee (MMC), and the Upazila Market Management Committee (UMMC) as stipulated in the "Guideline on Government Hat/Bazaar Management, Lease Procedures and Distribution of Income" (LGD, 2011a).

(1) Roles and responsibilities of the lessee

The relevant roles and responsibilities of the hat-bazaar lessee are as follows:

- The lessee shall carry out regular day-to-day cleaning of hat-bazaar.
- The lessee shall erect a signboard showing the approved schedule of toll rates at a public place in the market.
- If the lessee breaches any part of the lease conditions, his lease agreement will be null and void. In such case, his deposited lease money shall be forfeited and arrangements will be made to lease out the market again.

(2) Market Management Committee

To review all activities including day-to-day operation, maintenance and development of the market, a MMC shall be formed at each hat-bazaar with the following members.

1.	Union Parishad Chairman	Chairperson
2.	UP Member from the concerned ward	Member
3.	Reserved UP Women Member of the concerned ward	Member
4.	Union Land Officer/Land Assistant Officer	Member
5.	One selected/nominated representative from women shopkeepers (as applicable)	Member
6.	Community Organizer of Upazila Engineer's office	Member
7.	Two representatives selected/nominated by temporary vendors	Member
8.	One representative selected/nominated by local rickshaw/van drivers	Member
9.	One representative nominated by bus/truck owners association (as applicable)	Member
10.	One representative selected by the hat-bazaar permanent shopkeepers	Member secretary

The lessee must not be a member of the MMC.

The relevant functions of the MMC are as follows:

- Prepare annual development plans for overall development and maintenance of the hat-bazaar.
- Submit a project proposal to the UMMC for improvement and maintenance of the hat-bazaar.
- Supervise toll collection and all other activities on tolls, and ensure that the toll rate signboard is erected.
- Ensure that the hat-bazaar and its water supply and sanitation systems are cleaned and maintained properly.

The MMC shall meet at least once a month. Necessary recommendations on all issues including hat-bazaar operation, toll collection, maintenance and improvement shall be made and submitted to the UMMC.

(3) Upazila Market Management Committee

To supervise activities of all MMCs, provide instructions and advice, and ensure improvement and maintenance of each hat-bazaar, a UMMC at the Upazila level shall be formed with the following members:

1.	Upazila Nirbahi Officer	Chairperson
2.	A government officer at the Upazila level (nominated by the Deputy Commissioner)	Member
3.	LGED Upazila Engineer	Member
4.	Union Parishad Chairman	Member
5.	An elite person at the Upazila level (nominated by the Upazila Parishad Chairman)	Member
6.	Two representatives from the Member Secretaries of all MMCs under the Upazila (nominated by Upazila Parishad)	Member
7.	Assistant Commissioner (Land)	Member-secretary

The relevant functions of the UMMC are as follows:

- Ensure that all markets in the Upazila are properly managed, operated and maintained.
- Review and approve the development and maintenance plans and proposals prepared by the MMCs.
- Submit development and maintenance plans and proposals to the Upazila Parishad for

approval.
- Observe that the responsibilities assigned to the MMCs are properly performed and ensure that regular meetings of all MMCs are held.
- Inform the Deputy Commissioner of the activities of the MMCs and the UMMC on a regular basis and work as per directions from him.

(4) Financing of market operation and maintenance

The UZP is responsible for the annual leasing of all rural markets within its jurisdiction, as stipulated in the 2011 market leasing policy.

15% of the lease value of each market shall be allocated to the maintenance of the market, in accordance with the decisions made by the UMMC. For markets improved by the LGED, the allocation to market maintenance may be increased from 15% to 25% of the annual lease value, as per conditions of the agreement between the GOB and the development partner(s).

In addition, 10% of the annual lease money from all markets shall be deposited into the Upazila Development Fund for maintenance and development of the markets within the Upazila.

4 Rural ghats

Improved ghats are often constructed adjacent to a Growth Center or rural market as part of the market improvement scheme. The operation and maintenance of such ghats then falls under the responsibility of the MMC and the market lessee. Other ghats improved by the LGED may be leased out by the Upazila Nirbahi Officer (UNO) on the same basis as leasing of markets.

5 Role of civil society

In order to involve civil society in operation and maintenance of rural transport infrastructure, the circular/instruction letter issued by the LGD in 2000 establishes the District Road Users Committees (DRUC) and the Upazila Road Users Committees (URUC). The objective of forming DRUCs and URUCs is to secure proper utilization and maintenance of all UZR, UNR and village roads in the Districts and Upazilas concerned.

The 2000 circular requests DRUCs to hold meetings at least twice a year to discuss district-level issues related to road safety, traffic movement and management, and road development and maintenance. The LGED's roles defined in the circular are to consider the recommendations made by DRUCs and to execute follow-up activities if the LGED deems the recommendations appropriate under its jurisdiction. The URUCs are also requested to hold meetings to share and discuss Upazila- and Union-level road-related issues in order for the LGED to consider follow-up activities. The compositions of DRUCs and URUCs are presented in Table A28-5 and Table A28-6.

Road Operation and Maintenance Committees are sometimes voluntarily formed following the construction of a road and are composed of eight to ten beneficiaries, including the UP Chairperson. There is no official instruction to form Road Operation and Management Committees. Since the maintenance of UZR and UNR is the responsibility of the LGED, the functions of these committees are limited to reporting on, or complaining about, the damage and repair of roads to the UP Chairman or the Upazila Engineer.

Table A28-5 Composition of DRUC

1. Chairperson	Deputy Commissioner (DC)
2. Member Secretary	LGED Executive Engineer
3. Member	RHD Executive Engineer
4. Member	Police Superintendent
5. Member	Civil Surgeon
6. Member	Assistant Director, Bangladesh Road Transportation Association
7. Member	Chairperson, District Truck Owners' Association
8. Member	Chairperson, District Bus Owners' Association
9. Member	Chairperson, Bus and Truck Drivers' Association
10. Member	Chairperson, Rickshaw/Van Owners' Association
11. Member	Chairperson, Rickshaw/Van Drivers' Association
12. Member	Chairperson, Auto-rickshaw Owners' Association
13. Member	Chairperson, Auto-rickshaw Drivers' Association
14. Member	Chairperson, District Merchants' Association

Source: LGD (2000)

Table A28-6 Composition of URUC

1. Chairperson	UNO
2. Member Secretary	LGED Upazila Engineer
3. Member	Officer-in-charge, Police
4. Member	Concerned UP Chairperson
5. Member	Upazila representative from the Association of Industries and traders
6. Member	Upazila representative from the Association of Bus/Truck Owners
7. Member	Upazila representative from the Association of Bus/Truck Drivers
8. Member	Upazila representative from the Association of Rickshaw/Van Owners
9. Member	Upazila representative from the Association of Rickshaw/Van Drivers
10. Member	Upazila representative from the Association of Drivers
11. Member	Representative from a local NGO

Source: LGD (2000)

Annex 29
Risks and mitigation measures

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1 Risks and mitigation measures

There are risks and constraints that could emerge at the implementation stage of the Project. This section identifies potential risks and constraints of the Project, and proposes mitigation measures that could be taken by key agencies involved in the Project.

Risks and constraints	Proposed mitigation measures	Responsible agencies
Policy risks		
The adoption of draft Rural Road Maintenance Policy by GOB could be delayed.	The GOB will adopt Rural Road Maintenance Policy before the commencement of the Project.	MLGRD&C
The adoption of draft National Urban Sector Policy by GOB could be delayed.	The GOB will adopt National Urban Sector Policy before the commencement of the Project.	MLGRD&C
Commitment of target Pourashavas, particularly their mayors and council members, are critical to implementing Component 2.	LGED and target Pourashavas will sign MOUs to make clear the terms and conditions of cooperation and assistance under the Project.	LGED, Pourashava Parishads
Institutional arrangement risks		
Personnel change in key positions of the Project, particularly PD and DPDs, could cause disruption in project implementation.	LGED and JICA will sign an agreement on no replacement of identified positions, before the commencement of the Project.	LGED, JICA
Coordination between Project Management Office (PMO) and UMSU could be hampered due to cross-organizational nature of PMO within LGED.	The LGED will appoint a DPD for subcomponent 2-2, who is also Deputy Director of UMSU, and will work full time for the Project under the supervision of PD.	LGED
Coordination among PMO, NILG and DPHE could be ineffective and inefficient in implementing the Project due to organizational barriers among them.	The government would set up Inter-Agency Working Group (IAWG), and sign an MOU among LGED, NILG and DPHE about the terms and conditions of coordination before commencement of the Project.	LGED, NILG, DPHE
LGED has neither direct authority nor enforcement power over Pourashavas, except for providing technical assistance for Pourashavas. This could cause delays or no action on the side of Pourashavas in Component 2.	Target Pourashavas under the Project and LGED will sign MOUs on the terms and conditions of works under the Project.	LGED, Pourashava Parishads
Frequent changes or continued vacancy in key staff positions at Pourashavas could hamper project implementation.	The MOU between LGED and target Pourashavas will include a clause about the conditions of changes in key staff positions of Pourashavas.	LGED, Pourashava Parishads

Risks and constraints	Proposed mitigation measures	Responsible agencies
Infrastructure component risks (Component 1 and Subcomponent 2-1)		
Delays in resettlement and land acquisition could cause delays in the implementation of subprojects.	A Resettlement Policy Framework and two samples of draft Abbreviated Resettlement Action Plans, which have been prepared for two subprojects in Component 1, will facilitate smooth processing of resettlement and land acquisition of subprojects. The Project will exclude subprojects that involve more than 200 project affected persons as included in the selection criteria.	LGED
The infrastructure subprojects that involve bridges exceeding 100 m could cause adverse impacts on environment and delay in implementation.	The Environmental Framework, and draft IEE and draft EIA for a sample subproject that involves a bridge exceeding 100 m have been prepared under the preparatory survey. These will help mitigate adverse environmental impacts and reduce delay in implementation.	LGED
Pourashavas may not be interested in improving linkages with adjacent rural areas.	The Project will implement 'special allocation for rural-urban linkages', which will provide additional financial incentives for Pourashavas if they choose to implement subprojects in PDP that enhance connectivity of Pourashavas with adjacent rural areas.	LGED
LGED may not give adequate attention to operation and maintenance of the roads to be improved under the Project.	LGED will implement Operation and Maintenance Action Plan prepared under the Project, and will report the progress in the quarterly progress monitoring report to JICA.	LGED
Governance improvement and capacity development risks (Subcomponent 2-2)		
Pourashavas are reluctant to implement UGIAP in phase 1 because infrastructure investment starts from phase 2 under UGIIP-2.	Under the Project, 20% of infrastructure investment in Pourashava will be undertaken in phase 1 to provide sufficient incentives for Pourashavas to improve their governance and capacity from phase 1.	LGED, Pourashava Parishads
Weak capacity of Pourashavas could adversely affect project implementation in Component 2.	Adequate training will be provided to elected and technical officials in Pourashavas. In addition, key additional staff positions in PIUs will ensure implementation capacity of Pourashavas.	LGED, Pourashavas
Operation and maintenance (O&M) of infrastructure may not be given high priority in Pourashavas.	Preparation of O&M plan and allocation of required budget are included as one of the UGIAP activities, and thus Pourashavas are encouraged to prioritize O&M. The Project will provide capacity building on O&M for concerned officials of Pourashavas.	LGED, Pourashavas

Risks and constraints	Proposed mitigation measures	Responsible agencies
Financial management risks		
The Project may cause significant expenditure burden on operation and maintenance cost of Pourashavas due to large infrastructure investment.	The implementation of UGIAP will enhance revenue-raising capacities of Pourashavas, and prioritize expenditures in infrastructure investment under PDP. This will help create fiscal space for operation and maintenance cost of infrastructure facilities in Pourashavas.	LGED, Pourashavas
Pourashava residents may not be willing to pay for proper operation and maintenance of infrastructure facilities developed under the Project.	The implementation of UGIAP will improve service delivery of Pourashavas and the satisfaction levels of Pourashava residents as a result. This will enhance willingness of Pourashavas to pay proper operation and maintenance of infrastructure facilities.	LGED, Pourashavas
Pourashavas may not repay sub-lending of their revenue-raising subprojects.	Detailed financial analysis of sample Pourashavas has been conducted to set appropriate sub-lending conditions. This will mitigate the risk of non-repayment of sub-lending of Pourashavas.	LGED, Pourashavas
Social and environmental risks		
Poor and vulnerable groups may not be consulted properly in decision making.	The PDP process and TLCC/WLCC in Pourashavas will provide opportunities for poor and vulnerable groups to participate in the decision making process.	LGED, Pourashavas
Poverty alleviation of the poor may not be properly addressed.	The Project will: 1) involve destitute women in Labor Contracting Societies (LCS) for off-pavement road maintenance and tree plantation in Component 1; 2) encourage Pourashavas to prepare Poverty Reduction Action Plan and Gender Action Plan as part of PDP in Component 2; and 3) give high priority to subprojects in poor areas in both Components.	LGED, Pourashavas
Social and environmental risks may not be properly addressed in the Project implementation.	The preparatory survey has identified potential environmental and social impacts, and identified their mitigation measures. These are included in the Environmental Framework and the Resettlement Policy Framework. In addition, a draft EIA and a draft IEE have been prepared for LGED to use them as examples at the implementation stage of the project.	LGED