

Appendix-C15.5-8

Materials for Stakeholder meeting

1st Stakeholder meeting

(Power plant)

12th November, 2012

মাতারবাড়ি ২x৬০০ মেঃওঃ কয়লাভিত্তিক তাপ বিদ্যুৎ
কেন্দ্র ও আনুষঙ্গিক সুবিধাদি নির্মাণ প্রকল্প



কোল পাওয়ার জেনারেশন কোঃ বাংলাদেশ লিঃ
(সিপিজিসিবিএল)

1

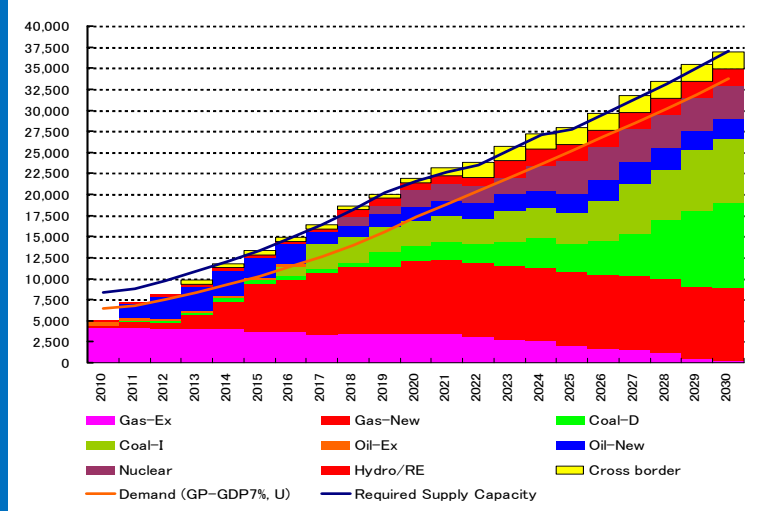
১৬-কহোল্ডার সভা, নভেম্বর ২০১২

উদ্দেশ্য

প্রকল্প সংশ্লিষ্ট স্থানীয় জনগণ ও
অন্যান্য ১৬-কহোল্ডারদের মনোভাব
সম্পর্কে আলোচনা করা

2

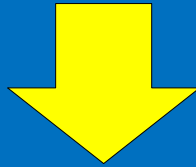
প্রকল্পের পটভূমি ও প্রয়োজনীয়তা



- ক্রমবর্ধমান বিদ্যুতের চাহিদা পূরণের জন্য অনেক বড় বড় বিদ্যুৎ কেন্দ্র স্থাপন দরকার

প্রকল্পের পটভূমি ও প্রয়োজনীয়তা

- দেশীয় কয়লা উত্তোলন (আপাতত) স্থগিত ঘোষণা



- আমদানিকৃত কয়লা ভিত্তিক বিদ্যুৎ কেন্দ্র উন্নয়ন

সমীক্ষার উদ্দেশ্য

প্রস্তাবিত প্রকল্পের বাস্তবায়নের জন্য কারিগরি, পরিবেশ, ইকোনমিক ও আর্থিক দিক বিবেচনা পূর্বক সম্ভাব্যতা বিশ্লেষণ

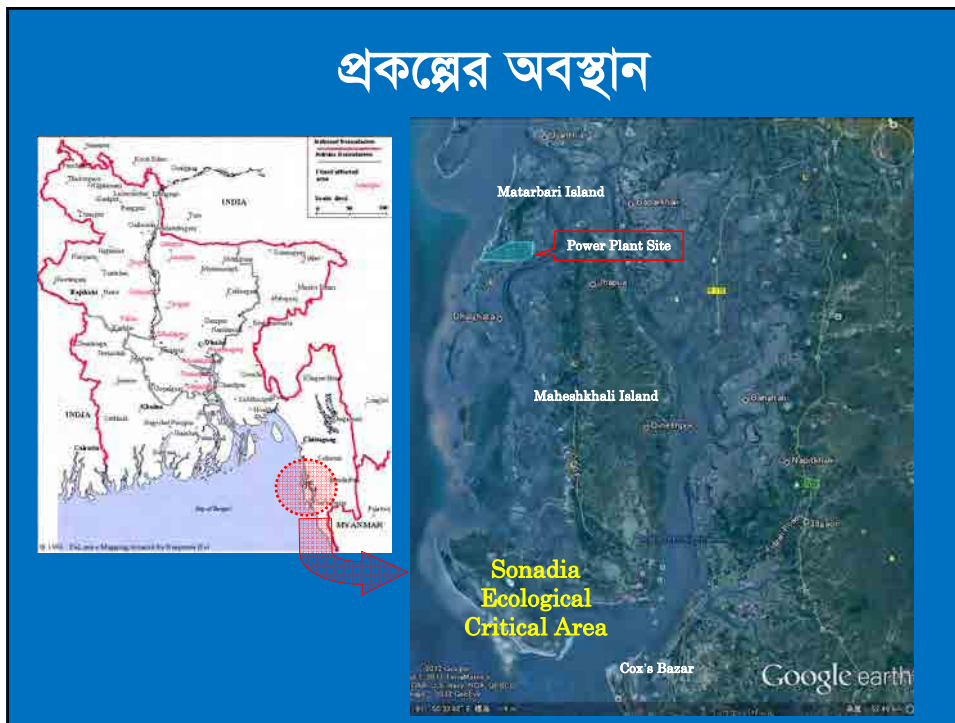


চট্টগ্রাম অঞ্চলে কয়লাভিত্তিক বিদ্যুৎ কেন্দ্র
/ সঞ্চালন লাইন নির্মাণ

প্রকল্পের পরিধি

- ২X৬০০মেঃওঃ কয়লাভিত্তিক বিদ্যুৎ কেন্দ্র
- কয়লা কেন্দ্র
- ছাই এর পুকুর
- কয়লা খালাশ বন্দর
- নৌচলাচল চ্যানেল
- বন্দর সুবিধা (৮০,০০০টঃ ভেসেলের জন্য)
- ব্রেক ওয়াটার (যদি প্রয়োজন হয়)
- আনোয়ারা গ্রীড উপকেন্দ্র পর্যন্ত ৪০০কেভি সঞ্চালন লাইন নির্মাণ

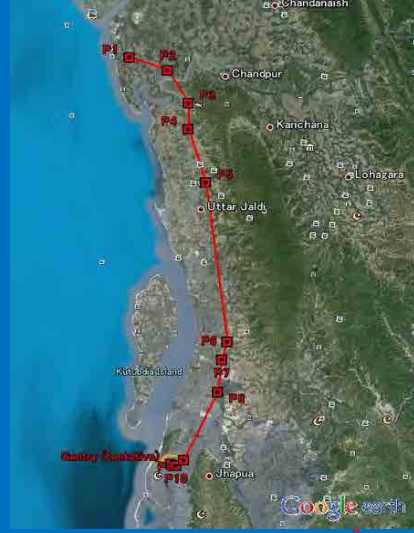
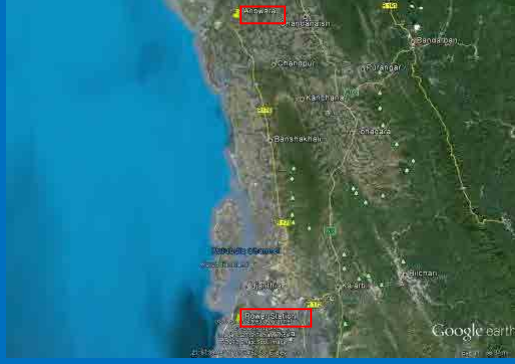
প্রকল্পের অবস্থান



প্রস্তাবিত নূতন বিদ্যুৎ কেন্দ্রের লে-আউট



বিদ্যুৎ কেন্দ্র হতে আনোয়ারা পর্যন্ত প্রস্তাবিত সঞ্চালণ লাইন রুট

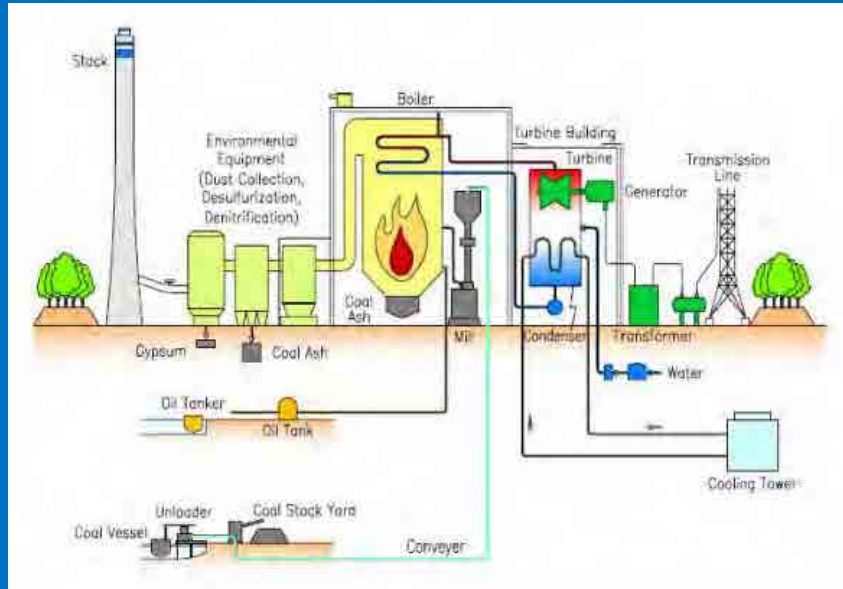


কয়লা ভিত্তিক তাপ বিদ্যুৎ কেন্দ্রের প্রধান প্রধান অংশ

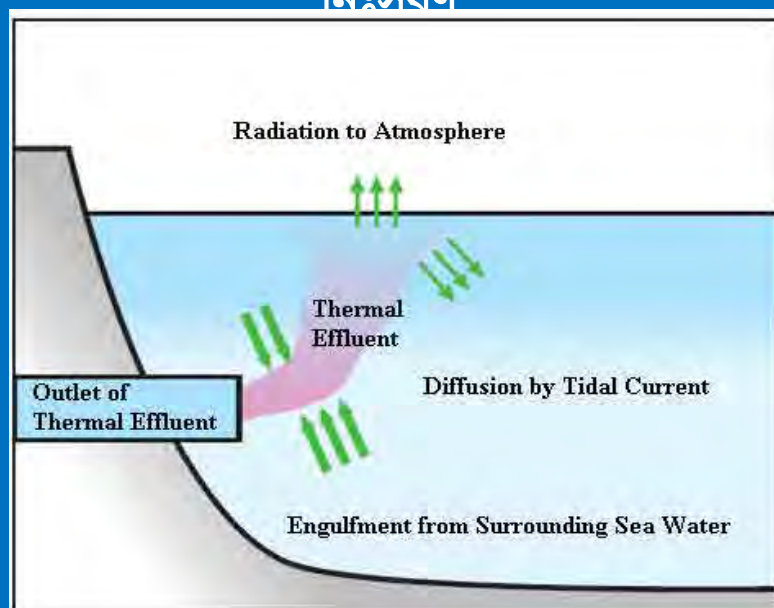


10

কয়লা ভিত্তিক তাপ বিদ্যুৎ কেন্দ্রের খসড়া চিত্র

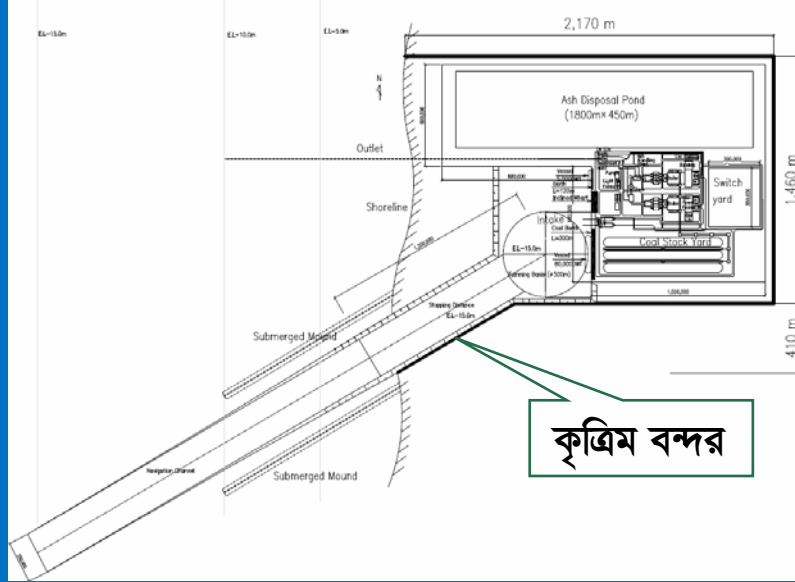


পানির অভ্যন্তরে উষ্ণতা বণ্টন এবং তাপ নিঃসরণ



12

কৃত্রিম বন্দর সুবিধার প্লান



13

প্রধান সম্ভাব" প্রভাব ও
এর প্রতিকার সমূহ

14

আইটেম	প্রভাব	প্রতিকার
বায়ুদূষণ	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে নির্গত গ্যাস ও ধূলাবাণি বৃদ্ধি। বিদ্যুৎ কেন্দ্র চলন্ত অবস্থায় বায়ু দূষণ। 	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে বায়ুদূষণ প্রতিরোধের ব্যবস্থা গ্রহণ। দূষণনিরোধক সুবিধা স্থাপনের মাধ্যমে নির্গত গ্যাসের মান নিয়ন্ত্রণ। সিমুলেশন মডেল ব্যবহার করে বায়ুমন্ডলে নির্গত গ্যাসের মাত্রা বের করে বায়ুগুণের মান নিশ্চিত করণ।
পানিদূষণ	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে ডিপোজিট বা কোটিং মেটারিয়েল নির্গমন বা প্রবাহের ফলে পানিদূষণ। তাপীয় বর্জ্য নিঃসরণের ফলে পানির তাপমাত্রা বৃদ্ধি। 	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে পানিদূষণ প্রতিরোধের ব্যবস্থা গ্রহণ। সিমুলেশন মডেল ব্যবহার করে তাপীয় বর্জ্যের নিঃসরণ মাত্রা বের করে নিঃসরণের পরিসর নিশ্চিত করণ। গৃহস্থালী ও অন্যান্য কাজে ব্যবহৃত পানির জন্য দূষিত পানি শোধনিকরণ সুবিধা স্থাপনের মাধ্যমে দূষিত পানির নির্গমন মান নিয়ন্ত্রণ।
কঠিন বর্জ্য	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে বৃহৎ পরিমাণ ডিপোজিট ও দূষিত বস্ত্ত তৈরী। বিদ্যুৎ কেন্দ্র চলন্ত অবস্থায় প্রতিদিন প্রচুর পরিমাণ ফ্লাই ও বটম ছাই তৈরী। 	<ul style="list-style-type: none"> নির্মাণকালীন ও চলন্ত অবস্থায় শিল্প ও গৃহস্থালী বর্জ্যের জন্য ডিসপোজাল প্ল্যান প্রনয়ণ করা।

আইটেম	প্রভাব	প্রতিকার
শব্দ / কম্পন	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে/ বিদ্যুৎ কেন্দ্র চলন্ত অবস্থায় শব্দ / কম্পন তৈরী। 	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে/ বিদ্যুৎ কেন্দ্র চলন্ত অবস্থায় শব্দ / কম্পন প্রতিরোধের ব্যবস্থা গ্রহণ। সিমুলেশন মডেল ব্যবহার করে শব্দের মাত্রা নির্ণয় করে শব্দের মান নিশ্চিত করণ।
সামুদ্রিক ও পার্শ্বিক জীববৈচিত্র্য	<ul style="list-style-type: none"> ভূমি ব্যবহার পরিবর্তন, পরিবেশ দূষণ ও নেভিগেশন চ্যানেল নির্মাণের কারণে বাহ্যিক অবস্থার পরিবর্তনের ফলে জীববৈচিত্র্যের উপর সম্ভাব্য প্রভাব। 	<ul style="list-style-type: none"> জীববৈচিত্র্য রক্ষার্থে গুরুত্বপূর্ণ বাসস্থান (ম্যানগ্রোভ, করাল রীফ ও মাডফ্লাট) সমূহের উপর সম্ভাব্য প্রভাবের মাত্রা নির্ধারণ এবং তাৎপর্যপূর্ণ প্রভাবের ক্ষেত্রে যথাযথ প্রতিরোধের ব্যবস্থা গ্রহণ।
বিপন্ন প্রজাতি	<ul style="list-style-type: none"> প্রকল্প এলাকা সংলগ্ন পরিবেশগতভাবে সংকটাপন্ন এলাকায় কিছু বিপন্ন প্রজাতি দেখা যায়। বিদ্যুৎ কেন্দ্র নির্মাণের ফলে জীববৈচিত্র্যের উপর প্রভাব পড়ার কারণে এ সকল বিপন্ন প্রজাতির উপর প্রভাব পড়তে পারে। 	<ul style="list-style-type: none"> বিপন্ন প্রজাতি সমূহের উপর সম্ভাব্য প্রভাবের মাত্রা নির্ধারণ এবং তাৎপর্যপূর্ণ প্রভাবের ক্ষেত্রে যথাযথ প্রতিরোধের ব্যবস্থা গ্রহণ।
জোরপূর্বক বাসিন্দা পুনর্বাসন	<ul style="list-style-type: none"> প্রকল্প এলাকায় বসবাসকারী লোকজনদের পুনর্বাসন করতে হবে। কয়লাভিত্তিক বিদ্যুৎ কেন্দ্রের ছাই পুত্র ও কয়লা রাখার স্থানের জন্য বহু ভূমি দরকার। তাই ভূমি অধিগ্রহণের ফলে ক্ষতিগ্রস্ত লোকজনদের ক্ষতিপূরণ ও সহযোগিতা প্রদান করতে হবে। 	<ul style="list-style-type: none"> যথাযথ ভূমি অধিগ্রহণ ও পুনর্বাসন প্ল্যান প্রনয়ণ।

আইটেম	প্রভাব	প্রতিকার
অসহায় গ্রুপের উপর চাপ	<ul style="list-style-type: none"> বাসস্থান পুনর্বাসন, কর্মসংস্থান ও জীবিকার কারণে অসহায় গ্রুপের উপর চাপ তৈরী সন্ধান। 	<ul style="list-style-type: none"> জীবিকা পুনরুদ্ধার প্যানেল প্রণয়ন করা।
অসম সুবিধা/ক্ষতির সৃষ্টি	<ul style="list-style-type: none"> স্থায়ী বিদ্যুৎ সরবরাহ স্থানীয় অর্থনীতির উন্নয়ন ঘটাবে। কিন্তু প্রকল্প এলাকায় সরাসরি সুবিধা পাবে না। ফলে অসম সুবিধা/ক্ষতি তৈরী হবে। তবে নির্মাণ শ্রমিক / পরিচালনা স্টাফদের কর্মসংস্থান তৈরী হবে এবং বিদ্যুৎ কেন্দ্রকে ঘিরে ব্যবসায়িক সুবিধা বৃদ্ধি পাবে। 	<ul style="list-style-type: none"> যথাযথ ভূমি অধিগ্রহণ ও পুনর্বাসন প্যানেল প্রণয়ন। ক্ষতিগ্রস্ত লোকদের জন্য কর্মসংস্থান প্যানেল প্রণয়ন।
পানির ব্যবহার ও অধিকার	<ul style="list-style-type: none"> বিদ্যুৎ কেন্দ্রের কুলিং পানির চাহিদার জন্য পানির ব্যবহার ও অধিকারের উপর প্রভাব ফেলতে পারে। পরিবেশ দূষণ ও বাহ্যিক অবস্থার পরিবর্তনের জন্য মৎস চাষে প্রভাব ফেলতে পারে। 	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে পানিদূষণ প্রতিরোধের ব্যবস্থা গ্রহণ। সিমুলেশন মডেল ব্যবহার করে তাপীয় বর্জ্যের নিঃসরণ মাত্রা বের করে নিঃসরণের পরিসর নিশ্চিত করণ। গৃহস্থালী ও অন্যান্য কাজে ব্যবহৃত পানির জন্য দূষিত পানি শোধনিকরণ সুবিধা স্থাপনের মাধ্যমে দূষিত পানির নির্গমন মান নিয়ন্ত্রণ।

17

“ইআইএ” :- আড়ির প্রধান বিষয়সমূহ

- পরিবেশ জরিপ
বায়ুগুণ, শব্দ, পানির গুণ, ভূগর্ভস্থ পানি।
- সামাজিক জরিপ
- সিমুলেশন মডেল দ্বারা ভবিষ্যদ্বাণী।
- পরিবেশগত প্রভাব নির্ণয়।
- পরিবেশ ব"বস্থাপনা প্লান প্রণয়ন - প্রতিকার ব"বস্থা, উন্নয়ন ব"বস্থা, প্রতিপূরণ ব"বস্থা এবং পর্যবেক্ষণ প্লান।

18

প্রাকৃতিক ও সামাজিক পরিবেশের মাঠ পর্যায়ে জরিপের আইটেমসমূহ

19

মাঠ জরিপের আইটেম (১) (প্রাকৃতিক পরিবেশ)

- ১। ভূমি
টপোগ্রাফি, সমুদ্রের তলদেশ টপোগ্রাফি
- ২। ভূকম্পন মাত্রা
- ৩। সামুদ্রিক পরিবেশ
স্রোত, জোয়ারের লেভেল, ঢেউ, পানির গুন, তলদেশের পলি
- ৪। ভূপৃষ্ঠ ও ভূগর্ভস্থ পানির গুন
- ৫। বায়ুমন্ডল
আবহাওয়া, বায়ুগুন
- ৬। শব্দ ও কম্পন
- ৭। প্রাণী ও উদ্ভিদ
 - ক) সামুদ্রিকঃ
কোরাল, ম্যাক্রো বেঙ্গোস, ফাইটোপ্লাংকটন, জুপ্লাংকটন, মাছ ও জলজ জীব
 - খ) প্রাণী/উদ্ভিদঃ
প্রাণী ও উদ্ভিদ, স্তন্যপায়ী, পাখি, সরিসৃপ ও উভচর, পোকামাকড়
 - গ) মূল্যবান ও বিরল প্রজাতি
স্পুনবিল্ড স্যান্ড পাইপার, স্পটেড গ্রীনশ্যাঙ্ক, গ্রেট নট ও অন্যান্য অতিথি পাখি,
সামুদ্রিক কচ্ছপ, ডলফিন

20





23

মাঠ জরিপের আইটেম (২) (সামাজিক পরিবেশ)

১। স্থানীয় বসতি

- ক) আর্থ-সামাজিক, আদমশুমারী, সম্পদ/ভূমি, জীবন ও জীবিকা জরিপ
 - খ) পুনর্বাসন খরচ
 - গ) জীবিকা পুনর্বাসন প X তির চাহিদা
- ২। ভূমি বহর ও ট্রাফিক
 - ভূমি বহর, সমুদ্র ট্রাফিক, ভূমি ট্রাফিক
- ৩। সামাজিক অবকাঠামো
 - পয়ঃবহন, জনসংখ্যা ও ডেমোগ্রাফি, শিক্ষা, সরকারী অবকাঠামো, কর্মসংস্থান, আয় এবং ব্যয়
- ৪। অন্যান্য
 - দর্শনীয় স্থান, সাংস্কৃতিক বৈশিষ্ট্য, সংখ্যালঘু

24



সিডিউল

পরবর্তী :- কহোল্ডার সভা

- তারিখ : এপ্রিল ২০১৩
- স্থান :
- বিষয় : খসড়া “ইআইএ” উপস্থাপনা ও আলোচনা

cÖ- 'wZg~jK Rwic wmwWDj

Year	2012					
Month	7	8	9	10	11	12
Milestone		PS Site selection	T/L route selection		1st SHM 1st Con.	
Stage of the Study	1st Survey	1.5th Survey		2nd Survey		
	第1次国内作				第2次国内作業	
Reports	Ic/R	P/R				

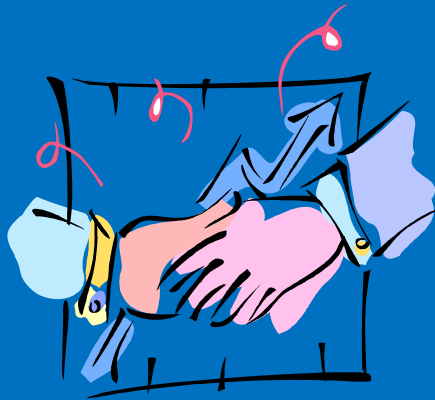
Year	2013					
Month	1	2	3	4	5	6
Milestone		2nd SHM 2nd Con.		3rd Con.		
Stage of the Study		3d Survey		4th Survey		
	第3次国					
Reports	I/R			Df/R		F/R

(Legend)

Ic/R: Inception Report
 P/R: Progress Report
 I/R: Interim Report
 Df/R: Draft Final Report
 F/R: Final Report

SHM: Stake Holder Meeting
 Con.: Consultation, Interview, Focus
 Group Discussion

27



উপস্থিত সকলকে ধন"বাদ

28

1st Stakeholder meeting

(Transmission line)

19th November, 2012

মাতারবাড়ি - আনোয়ারা ৪০০ কেভি সঞ্চালন
লাইন নির্মাণ



পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ
লিমিটেড (পিজিসিবি)

1

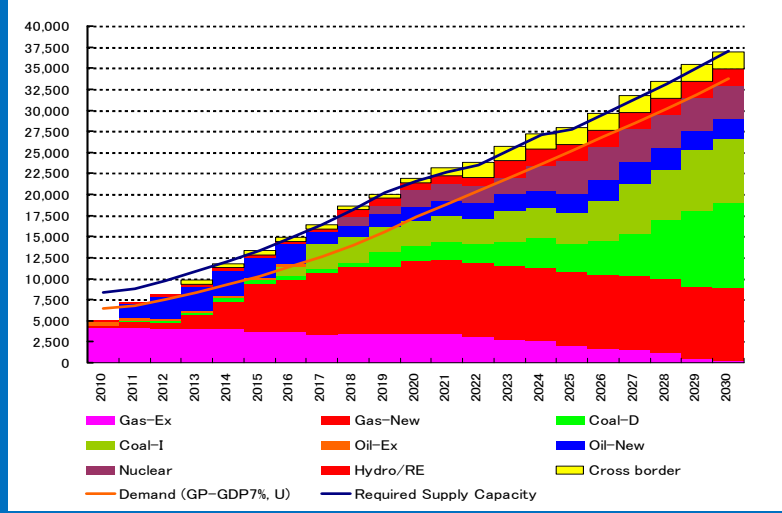
১: কহোল্ডার সভা, নভেম্বর ২০১২

উদ্দেশ্য

প্রকল্প সংশ্লিষ্ট স্থানীয় জনগণ ও অন্যান্য
কহোল্ডারদের মনোভাব সম্পর্কে আলোচনা করা

2

প্রকল্পের পটভূমি ও প্রয়োজনীয়তা



➤ ক্রমবর্ধমান বিদ্যুতের চাহিদা পূরণের জন্য অনেক বড় বড় বিদ্যুৎ কেন্দ্র স্থাপন দরকার

সমীক্ষার উদ্দেশ্য

প্রস্তাবিত প্রকল্পের বাস্তবায়নের জন্য কারিগরি, পরিবেশ, ইকোনমিক ও আর্থিক দিক বিবেচনা পূর্বক সম্ভাব্যতা বিশ্লেষণ



নূতন কয়লাভিত্তিক বিদ্যুৎ কেন্দ্র এবং সংগলন লাইন নির্মাণ

নূতন বিদ্যুৎ কেন্দ্রের অবস্থান



কয়লা ভিত্তিক তাপ বিদ্যুৎ কেন্দ্রের প্রধান প্রধান অংশ

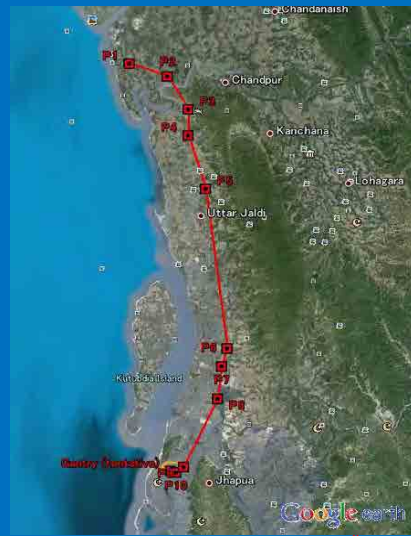
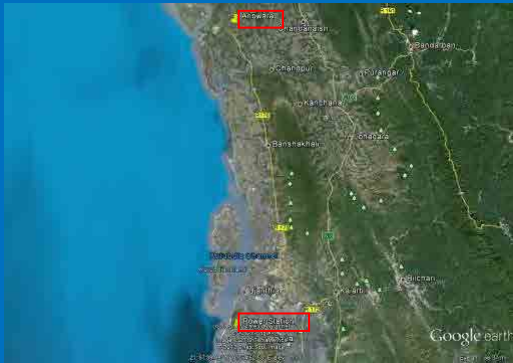


প্রকল্পের পরিধি

- নূতন বিদ্যুৎ কেন্দ্র হতে আনোয়ারা গ্রীড উপকেন্দ্র পর্যন্ত ৪০০কেভি সম্মিলন লাইন নির্মাণ

7

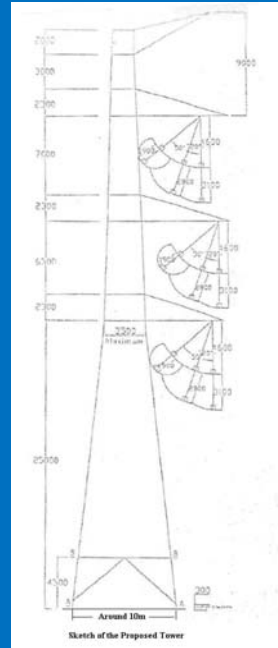
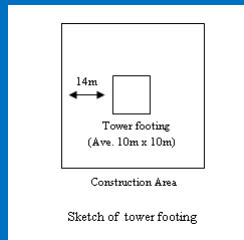
নূতন বিদ্যুৎ কেন্দ্র হতে আনোয়ারা পর্যন্ত প্রস্তাবিত সম্মিলন লাইন রুট



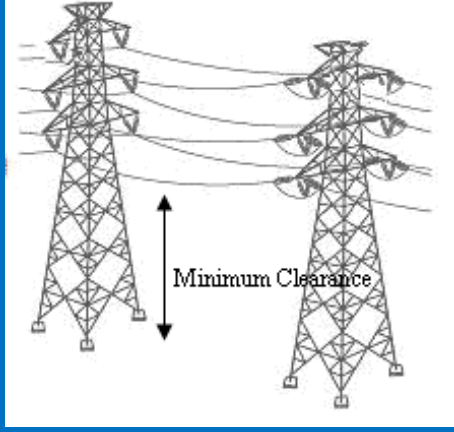
সঞ্চালন লাইন রুট এর বিবরণ

জেলা	উপজেলা	ইউনিয়ন	গ্রাম/মৌজা
করুবাজার	মহেশখালি	মাতারবাড়ী	রাজঘাট
করুবাজার	পেকুয়া	বড়বাকিয়া	বোধমমাঝিগুন †
চট্টগ্রাম	বাঁশখালি	চম্বল	শেখেরখিল
চট্টগ্রাম	বাঁশখালি	কাটারিয়া	পূর্ব কাটারিয়া
চট্টগ্রাম	আনোয়ারা	বরমছড়া	বরমছড়া

সঞ্চালন লাইনের টাওয়ারের পাদদেশ এবং প্রস্তাবিত টাওয়ার এর বিবরণ



নূনতম নিরাপদ দূরত্বের বিবরণ



বিবরণ	নিরাপদ দূরত্ব (মিঃ)
গাউন্ড	১১.০
সড়ক	১৪.০
দালান, অবকাঠামো ইত্যাদি	৭.০
গাছ*	৫.৫
বোপ	৫.৫
রেলপথ	১৮.০
নদী পারাপার	২২.০

* উপরোক্ত নিরাপদ দূরত্ব সঞ্চালন লাইনের নীচে এবং লাইন সঞ্চালন গাছের গোঁড়ে প্রযোজ্য। উল্লম্ব তলে ঝুলন্ত তার সহ লাইনের দিকে পড়ন্ত গাছের গোঁড়েও প্রযোজ্য।

11

প্রধান সম্ভাব্য প্রভাব ও এর প্রতিকার সমূহ

12

আইটেম	প্রভাব	প্রতিকার
বায়ুদূষণ	<ul style="list-style-type: none"> ভূমি উন্ময়ন ও অন্যান্য নির্মাণ কাজের জন্য ধূলাবালির উৎপত্তি, যদিও ক্ষণস্থায়ী। নির্মাণকালীন সময়ে ভারী যন্ত্রপাতি ও ট্রাক চলাচলের জন্য বায়ু দূষণকারী পদার্থের (যেমন সরু, নরু ও অন্যান্য) উৎপত্তি। ইহা কেবল সন্নিহিত এলাকাতেই সীমাবদ্ধ। 	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে বায়ুদূষণ প্রতিরোধের ব্যবস্থা গ্রহণ।
পানিদূষণ	<ul style="list-style-type: none"> বাঁধ এবং ঢালের অনাবৃত মাটি সরে যেতে পারে এবং নিকটস্থ নদীর তটটিতে পানি দূষণ ঘটতে পারে। 	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে পানিদূষণ প্রতিরোধের ব্যবস্থা গ্রহণ। চালুকালীন সময়ে মাটি যাতে সরে না যায়, তার প্রতিরোধ ব্যবস্থা গ্রহণ।
শব্দ ও কম্পন	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে ভারী যন্ত্রপাতি ও ট্রাক চলাচলের কারণে শব্দ দূষণ। 	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে শব্দ / কম্পন প্রতিরোধের ব্যবস্থা গ্রহণ।

১১

আইটেম	প্রভাব	প্রতিকার
ভূগোল / ভূতত্ত্ব	<ul style="list-style-type: none"> প্রভাব এমুহুর্তে অজানা। (আরও সাইট সার্ভে করে প্রভাব নির্ধারণ করা হবে)। 	<ul style="list-style-type: none"> নির্মাণের আগ মুহুর্তে টাওয়ারের স্থান নির্ণয়ের জন্য ভূতাত্ত্বিক জরিপ করা।
পার্শ্ববর্তী জীববৈচিত্র্য	<ul style="list-style-type: none"> জীববৈচিত্র্যের হুমকিপূর্ণ সংকটাপন্ন এলাকার উপর দিয়ে সঞ্চালন লাইন যাওয়ার সম্ভাবনা এবং নির্মাণ কাজের জন্য বায়ুদূষণ ও শব্দদূষণ হতে পারে। 	<ul style="list-style-type: none"> জীববৈচিত্র্যের জন্য গুরুত্বপূর্ণ আবাসস্থলের উপর প্রভাবের মাত্রা নির্ধারণ এবং তাৎপর্যপূর্ণ প্রভাবের ক্ষেত্রে যথাযথ প্রতিরোধের ব্যবস্থা গ্রহণ। সঞ্চালন লাইন সংলগ্ন আবাসস্থলে বিপন্ন প্রজাতির উপর প্রভাবের মাত্রা নির্ধারণ এবং বিপন্ন প্রজাতির উপর তাৎপর্যপূর্ণ প্রভাবের ক্ষেত্রে যথাযথ প্রতিরোধের ব্যবস্থা গ্রহণ। সঞ্চালন লাইন রুট সংলগ্ন বড় পাখীর বাসস্থান প্রভাবিত হলে তা সুরক্ষার ব্যবস্থা গ্রহণ।

১২

আইটেম	প্রভাব	প্রতিকার
পানির ব্যবহার ও অধিকার	<ul style="list-style-type: none"> বাঁধ এবং ঢালের অনাবৃত মাটি সরে যেতে পারে এবং নিকটস্থ নদীর ভাটিতে পানি দূষণ এবং পানির ব্যবহারে পরিবর্তন ঘটতে পারে। 	<ul style="list-style-type: none"> নির্মাণকালীন সময়ে পানিদূষণ প্রতিরোধের ব্যবস্থা গ্রহন। চালুকালীন সময়ে মাটি যাতে সরে না যায়, তার প্রতিরোধ ব্যবস্থা গ্রহন।
জমি ব্যবহারের ক্ষতিপূরণ	<ul style="list-style-type: none"> নির্মাণকালে নির্মাণ এলাকার মধ্যে থাকা। লাইনের নিরাপদ দূরত্বের মধ্যে অবস্থিত বৃক্ষ কর্তণ ও স্থাপনা অপসারণ। 	<ul style="list-style-type: none"> যথাযথ ক্ষতিপূরণ প্ল্যান প্রনয়ণ।
ইলেক্ট্রো-ম্যাগনেটিক ফিল্ড	<ul style="list-style-type: none"> মানব স্বাস্থ্যের উপর ইলেক্ট্রো-ম্যাগনেটিক ফিল্ড এর কুপ্রভাব। 	<ul style="list-style-type: none"> সন্নিহিত বাসস্থানের উপর ইলেক্ট্রো-ম্যাগনেটিক ফিল্ড এর কুপ্রভাব যাতে না পড়ে তা বিবেচনা করে টাওয়ার ডিজাইন করা।

15

“ইআইএ” :- “ডি”র প্রধান বিষয়সমূহ

- পরিবেশ জরিপ
বায়ুগুন, শব্দ, পানির গুন, ভূগর্ভস্থ পানি।
- সামাজিক জরিপ।
- সিমুলেশন মডেল দ্বারা ভবিষ্যদ্বাণী।
- পরিবেশগত প্রভাব নির্ণয়।
- পরিবেশ বহুস্থাপনা প্লান প্রনয়ণ- প্রতিকার বহুস্থাপনা, উন্নয়ণ বহুস্থাপনা, ক্ষতিপূরণ বহুস্থাপনা এবং পর্যবেক্ষণ প্লান

16

প্রাকৃতিক ও সামাজিক পরিবেশের মাঠ পর্যায়ে জরিপের আইটেমসমূহ (সঞ্চালন লাইন)

17

মাঠ জরিপের আইটেম (১) (প্রাকৃতিক পরিবেশ)

- ১। ভূমি
টপোগ্রাফি, ভূগোল ও ভূতত্ত্ব
- ২। প্রাণী ও উদ্ভিদ
 - ক) বন প্রাণী/উদ্ভিদ :
প্রাণী ও উদ্ভিদ, স্তন্যপায়ী, পাখি, সরিসৃপ ও উভচর,
পোকামাকড়।
 - খ) মূল্যবান ও বিরল প্রজাতি।
 - গ) পরিবেশগতভাবে সংকটাপন্ন এলাকা ও সংরক্ষিত
এলাকা।

18



পোকামাকড় সংগ্রহ



পাখি পর্যবেক্ষণ

19

মাঠ জরিপের আইটেম (২) (সামাজিক পরিবেশ)

- ১। স্থানীয় বসতি
 - ক) আর্থ-সামাজিক, আদমশুমারী, সম্পদ/ভূমি, জীবন ও জীবিকা জরিপ
 - খ) পুনর্বাসন খরচ
 - গ) জীবিকা পুনর্বাসন প X তির চাহিদা
- ২। ভূমি ব্যবহার ও ট্রাফিক
 - ভূমি ব্যবহার, সমুদ্র ট্রাফিক, ভূমি ট্রাফিক
- ৩। সামাজিক অবকাঠামো
 - পয়ঃব্যবস্থা, জনসংখ্যা ও ডেমোগ্রাফি, শিক্ষা, সরকারী অবকাঠামো, কর্মসংস্থান, আয় এবং ব্যয়
- ৪। অন্যান্য
 - দর্শনীয় স্থান, সাংস্কৃতিক বৈশিষ্ট্য, সংখ্যালঘু

20



Interview



Focus Group Discussion



Stakeholder Meeting



Stakeholder Meeting

সিডিউল

২য় ংকহোল্ডার সভা

- তারিখঃ এপ্রিল ২০১৩
- স্থানঃ
- বিষয়ঃ খসড়া “ইআইএ” উপস্থাপনা ও আলোচনা

প্রস্তুতিমূলক জরিপ সিডিউল

Year	2012					
Month	7	8	9	10	11	12
Milestone		PS Site selection	T/L route selection		1st SHM 1st Con.	
Stage of the Study	1st Survey 第1次国内作	1.5th Survey		2nd Survey		第2次国内作業
Reports	Ic/R	P/R				

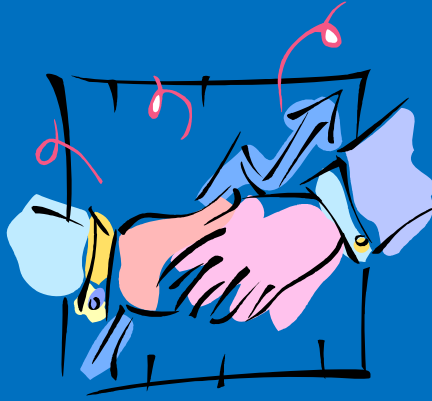
Year	2013					
Month	1	2	3	4	5	6
Milestone		2nd SHM 2nd Con.		3rd Con.		
Stage of the Study		3d Survey		4th Survey		
Reports	I/R			Df/R		F/R

(Legend)

Ic/R: Inception Report
P/R: Progress Report
I/R: Interim Report
Df/R: Draft Final Report
F/R: Final Report

SHM: Stake Holder Meeting
Con.: Consultation, Interview, Focus Group Discussion

23



উপস্থিত সকলকে ধন্যবাদ

24

2nd Stakeholder meeting

(Power plant)

16th April, 2013

মাতারবাড়ি ২x৬০০ মেঃওঃ কয়লাভিত্তিক তাপ বিদ্যুৎ
কেন্দ্র ও আনুষঙ্গিক সুবিধাদি নির্মাণ প্রকল্প

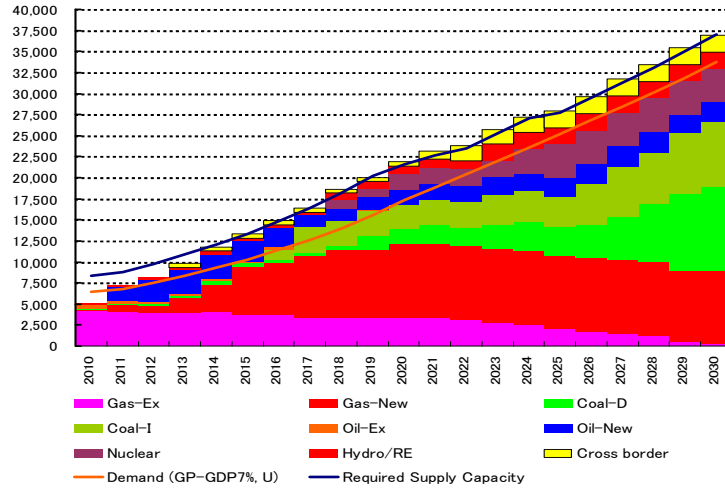


এপ্রিল, ২০১৩

কোল পাওয়ার জেনারেশন কোঃ বাংলাদেশ লিঃ
(সিপিজিসিবিএল)

1

প্রকল্পের পটভূমি ও প্রয়োজনীয়তা

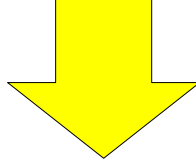


➤ ক্রমবর্ধমান বিদ্যুতের চাহিদা পূরণের জন্য অনেক
বড় বড় বিদ্যুৎ কেন্দ্র স্থাপন দরকার

2

প্রকল্পের পটভূমি ও প্রয়োজনীয়তা

- দেশীয় কয়লা উত্তোলন (আপাতত) স্থগিত ঘোষণা

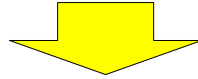


- আমদানিকৃত কয়লা ভিত্তিক বিদ্যুৎ কেন্দ্র নির্মাণে উৎসাহিত করা

3

সমীক্ষার উদ্দেশ্য

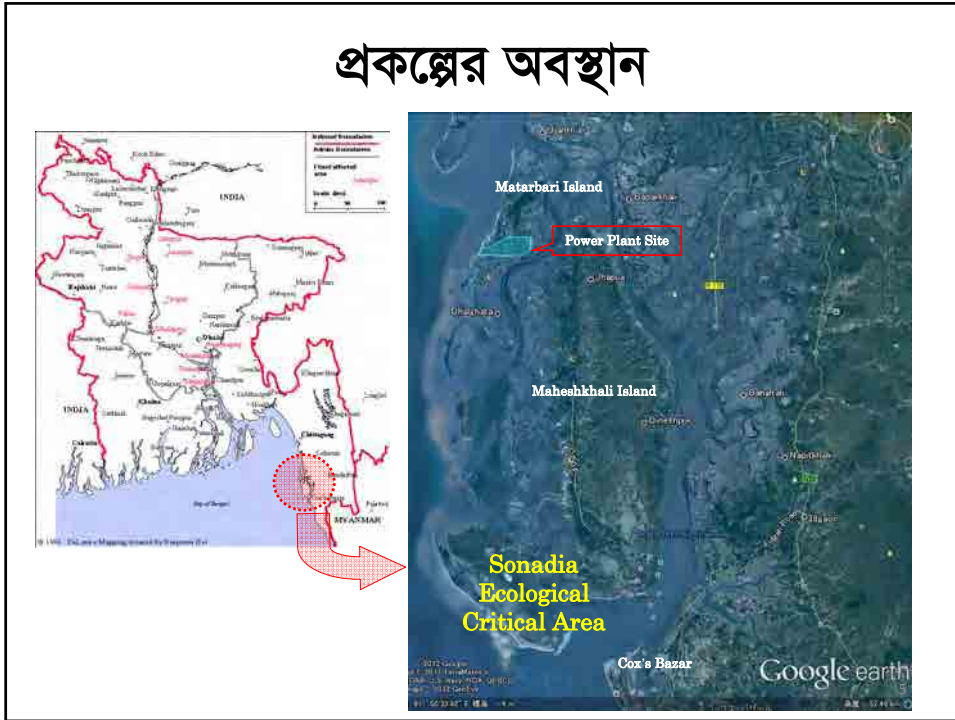
প্রস্তাবিত প্রকল্প বাস্তবায়নের জন্য কারিগরি, পরিবেশ, ইকোনমিক ও আর্থিক দিক বিবেচনা পূর্বক সম্ভাব্যতা বিশ্লেষণ



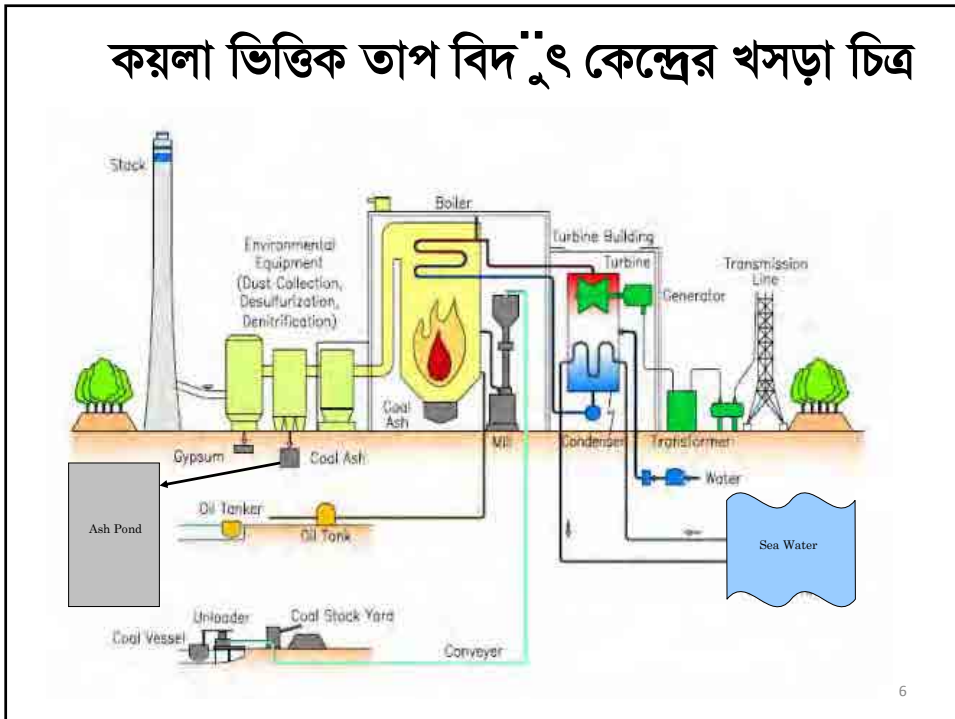
মাতারবাড়ি কয়লাভিত্তিক বিদ্যুৎ কেন্দ্র /
সঞ্চালন লাইন নির্মাণ

4

প্রকল্পের অবস্থান



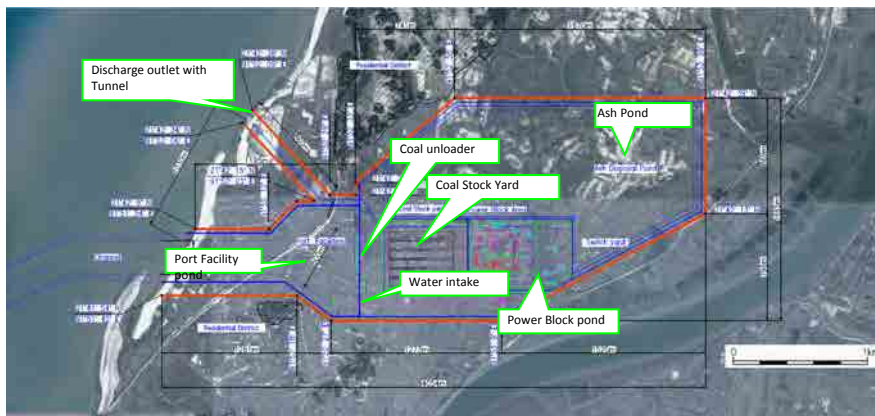
কয়লা ভিত্তিক তাপ বিদ্যুৎ কেন্দ্রের খসড়া চিত্র



বিদ্যুৎ কেন্দ্রের প্রধান প্রধান অংশ



নূতন বিদ্যুৎ কেন্দ্রের লে-আউট

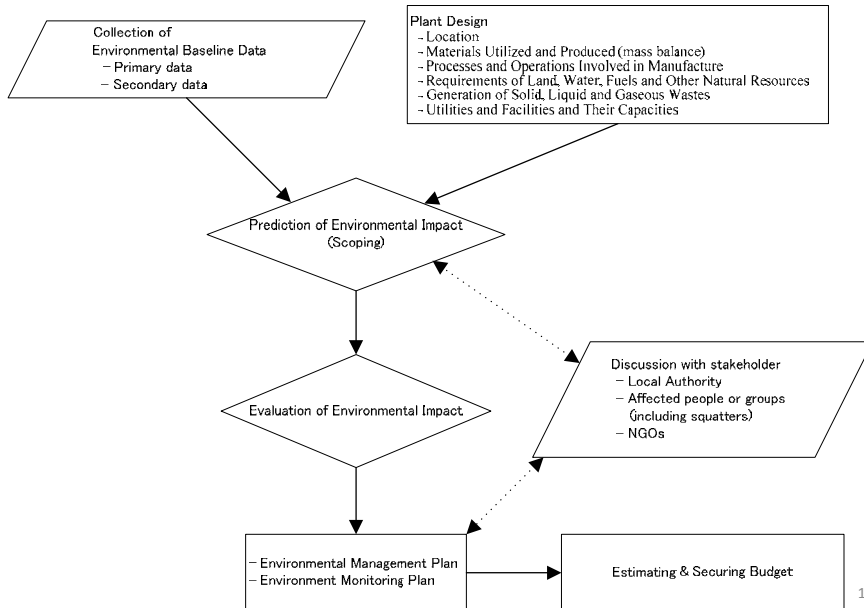


পরিবেশগত প্রভাব নিরূপন (ইআইএ) এর প্রয়োজনীয় নীতিমালা

- নিখরিত ইন্ডাস্ট্রিজের জন পরিবেশ অধিদপ্তরের নীতিমালা (ডিওই-১৯৯৭); ও
- পরিবেশ ও সামাজিক বিষয় বিবেচনার জন জাইকার নীতিমালা (২০১০)

13

“ইআইএ” এর প X তি



14

পরিবেশগত ব"বস্থাপনা পরিকল্পনা

- পরিবেশগত ব"বস্থাপনা পরিকল্পনা নির্মাণ/পরিচালন কালে বাস্তবায়িত করা হবে যাতে দূষণ মাত্রা ÷ "ভার্ড মানের নীচে থাকে এবং কোন াতিকর প্রভাব না ফেলে।
- প্রতিকার ব"বস্থা বাস্তবায়নের জন" দায়িত্বশীল সংগঠন গঠন করতে হবে।
- পরিবেশ পর্যবে"ণ নির্মাণ/পরিচালন কালে যথাযথভাবে সম্পাদন করা।
- সিপিজিসিবিএল ও ঠিকাদার প্রতিষ্ঠান প্রকল্পে গৃহীত কার্যক্রম ও প্রতিকার ব"বস্থাসমূহের বিষয় ও সিডিউল সম্পর্কে প্রকল্প সংলগ্ন এলাকার বাসিন্দাদের ধারণা প্রদান করবে। প্রয়োজনে স্থানীয় জনগনের মতামত গ্রহন করে যথোপযুক্ত প্রতিকার ব"বস্থা প্রনয়ণ করবে।

15

প্রধান প্রধান প্রতিকার ব"বস্থাসমূহ (নির্মাণকালীন)

- বিদ"ুৎ কেন্দ্র

আইটেম	প্রতিকার ব্যবস্থা
বায়ুর গুণ	<ul style="list-style-type: none"> • বিশেষতঃ শুষ্ক মৌসুমে প্রকল্পের প্রবেশ সড়ক (এক্সেস সড়ক) ও প্রকল্প এলাকায় পানি ছিটানো। • মাটি বহনকালে ট্রাকের উপর ঢাকনা ব্যবহার করা। • সকল নির্মাণ যন্ত্রপাতি ও ভেহিকেল নির্দিষ্ট সময় পর মেরামত ও সংরক্ষণ করা।
পানির গুণ, পানির ব্যবহার/ অধিকার এর প্রতিবন্ধকতা	<ul style="list-style-type: none"> • প্রকল্প এলাকার চারদিকে চ্যানেল, গর্ত ও অস্থায়ী পুকুর খনন করা। • শ্রমিকদের জন্য বর্জ্য পানি শোধন ব্যবস্থা, যেমন সেপটিক ট্যাংক স্থাপন করা। • তেল ও রাসায়নিক দ্রব্য সঠিক গুদাম ও যথাযথ পদ্ধতিতে সংরক্ষণ করা।
বর্জ্য	<ul style="list-style-type: none"> • আলাদাভাবে বর্জ্য সংগ্রহ এবং পুনঃশোধন ও ব্যবহার করতে উৎসাহিত করা। • পুনঃশোধন অযোগ্য বর্জ্য নিম্নমানুসারে সঠিকভাবে পরিত্যাগ করা।

16

আইটেম	প্রতিকার ব্যবস্থা
শব্দ/কম্পন	<ul style="list-style-type: none"> বিশেষতঃ পাইলিং কাজ দিনের বেলা সম্পাদন করা। যতদূর সম্ভব কম শব্দ/কম্পন সৃষ্টিকারী ইকুইপম্যান্ট ব্যবহার করা। নির্মাণ মালামাল ও ইকুইপম্যান্ট জাহাজে পরিবহন করা। বিশেষতঃ আবাসিক এলাকায় ট্রাকের গতি সীমাবদ্ধ রাখা।
জীবজগৎ	<p><বিপন্ন প্রজাতি></p> <ul style="list-style-type: none"> শ্রমিকদের দ্বারা প্রতিবন্ধকতা প্রদান, হয়রানি ও শিকার নিষিদ্ধ করা। প্রয়োজনে নিকটবর্তী স্থানে প্রতিস্থাপন করা। <p><সামুদ্রিক কচ্ছপের ডিম পাড়া></p> <ul style="list-style-type: none"> ডিম পাড়ার সময় অপ্রয়োজনীয় লাইট বন্ধ রাখা। অল্পসংখ্যক লাইট / কম ওয়াটেজ সম্পন্ন লাইট ব্যবহার করা।

17

আইটেম	প্রতিকার ব্যবস্থা
ভূমি অধিগ্রহণ / কর্মসংস্থান ও জীবিকার উপায় হারানো	<ul style="list-style-type: none"> যথাযথ ভূমি অধিগ্রহণ এবং পুনর্বাসন পরিকল্পনা প্রনয়ন করা। সংশ্লিষ্ট আইন ও বিধি মেনে ভূমি অধিগ্রহণ করা। স্থানান্তরিত লোকজনের স্থানান্তর খরচ প্রদান করা। যতদূর সম্ভব স্থানীয় লোকজনের বিশেষত যারা লবন চাষ, চিংড়ী চাষ এবং মাছ ধরার জায়গা হারাবেন, তাদের কর্মসংস্থানের ব্যবস্থা করা। স্থানীয় লোকজনের প্রদত্ত সেবা (যেমন কাপড় ধোয়া বা খাবার সরবরাহ) এবং স্থানীয় লোকজন দ্বারা তৈরী দ্রব্যাদি ব্যবহার করা।
বিদ্যমান সামাজিক অবকাঠামো এবং সেবা / দুর্ঘটনা	<ul style="list-style-type: none"> সংশ্লিষ্ট কর্তৃপক্ষের সঙ্গে আলোচনা করে নির্মাণ সামগ্রী বহনকারী জাহাজের সিডিউল প্রনয়ন করা। নির্মাণ এলাকার চারদিকে চিহ্নিত বয়া স্থাপন। স্থানীয় জেলেদের জাহাজের সিডিউল জানানো। ট্রাফিক বিধি মেনে চলা, ট্রাফিক চিহ্ন স্থাপন করা, নিরাপদ গাড়ী চালানো শেখা। ভেহিকেলের নিরাপদ পরিচালনার উপর প্রশিক্ষণ প্রদান। বাস ব্যবহার করে ভেহিকেলের সংখ্যা কমানো। সংশ্লিষ্ট কর্তৃপক্ষের সঙ্গে আলোচনা করে বাসের সিডিউল প্রনয়ন করা। চারদিকের গ্রামে বাসের সিডিউল জানানো।

18

- বন্দর সুবিধা

আইটেম	প্রতিকার ব্যবস্থা
পানির গুণ, পানির ব্যবহার/ অধিকার এর প্রতিবন্ধকতা	<ul style="list-style-type: none">● সমুদ্র এলাকায় পাম্প ড্রেজার অথবা গ্রাব ড্রেজার দিয়ে ড্রেজিং করা এবং দূষন রোধকল্পে ফিল্টা বসানো।● পাশের জমি থেকে পতিত ঘোলা পানি, যেমন বৃষ্টির পানি, খিতানো পদ্ধতিতে পরিশোধন করে বন্দরের খননকৃত অংশে ছেড়ে দেওয়া।

19

যে সমস্ত গ্রাম ঐতিহাসিক হবে

যে সমস্ত গ্রামের জমি অধিগ্রহণ করা হবে :

- সাইরের ডেল (মাতারবাড়ী ইউনিয়ন)
- উত্তর মল্লিগোনা (ধলঘাটা ইউনিয়ন)
- নাসির মোহাম্মদ ৯ দ ডেল (ধলঘাটা ইউনিয়ন)

গ্রামবাসীরা কিভাবে ঐতিহ্য হবেন ?

- ভূমি হারানো
৪৫৫ হে±র জমি স্থায়ীভাবে অধিগ্রহণ করা হবে।
- আয়ের উৎস (জীবিকার উপায়) হারানো
প্রকল্প এলাকায় লবন চাষ, চিংড়ী চাষ, মাছধরা ও সংশ্লিষ্ট ব"বসাজনিত জীবিকা স্থায়ীভাবে হারিয়ে যাবে।
- প্রকল্প এলাকার সম্পদ অথবা সম্পদে প্রবেশাধিকার হারাতে।
- যারা প্রকল্প এলাকায় থাকে তারা আশ্রয়স্থল হারাতে।

21

ঐতিপূরণ

- সংশ্লিষ্ট জেলা প্রশাসকের দপ্তর ভূমি অধিগ্রহণের জন" প্রয়োজনীয় ব"বস্থা গ্রহণ করবেন।
- ভূমি অধিগ্রহণ আইনের ধারা-৩ মোতাবেক জেলা প্রশাসকের দপ্তর মত-বিনিময়ের ব"বস্থা করবেন।
- যদি জাইকা প্রকল্পে অর্থায়নের সি Xান্ত গ্রহণ করে, তবে
 - আন্তর্জাতিকভাবে স্বীকৃত শর্তানুসারে অতিরিক্ত ঐতিপূরণের ব"বস্থা গ্রহণ করা হবে।
 - জীবিকা পুনর Xারের কার্যক্রম অন্তর্ভুক্ত করা হবে।
 - প্রতিস্থাপন খরচের উপর ভিত্তি করে জমি এবং সম্পদের মূল" নির্ণয় করা হবে।

22

জীবিকা পুনরুৎপাদন কার্যক্রম

বর্তমান অবস্থা	কু-প্রভাব	কার্যক্রম
<input type="checkbox"/> প্রায় ৮০% বাড়ীর প্রধান অশিক্ষিত অথবা কেবল নাম লিখতে পারে। <input type="checkbox"/> কেবলমাত্র ৪৩% ক্ষতিগ্রস্ত জনগণ শিক্ষিত।	<input type="checkbox"/> চাকুরী পাওয়া কঠিন। <input type="checkbox"/> সীমিত তথ্য জানার অধিকার।	<input type="checkbox"/> বিদ্যুৎ কেন্দ্র কর্তৃপক্ষ স্থানীয় ছেলেমেয়েদের শ্রেণীশিক্ষার ব্যবস্থা করবে।
<input type="checkbox"/> অননুভূত কর্মদক্ষতা। <input type="checkbox"/> মহিলারা ঘরে অবস্থান করে। <input type="checkbox"/> কর্মসংস্থানের সীমিত সুযোগ।	<input type="checkbox"/> ভাল চাকুরী পাওয়া কঠিন। <input type="checkbox"/> বেতনও কম। <input type="checkbox"/> কর্মহীনতার উচ্চ হার। <input type="checkbox"/> দৈনিক শ্রম। <input type="checkbox"/> ছেলেমেয়েরা স্কুল পরিত্যাগ করে।	<input type="checkbox"/> বিদ্যুৎ কেন্দ্র কর্তৃপক্ষ দক্ষতা বাড়ানোর প্রশিক্ষণ প্রদান করবে। <input type="checkbox"/> বিদ্যুৎ কেন্দ্র কর্তৃপক্ষ বিদ্যুৎ কেন্দ্র ও সংশ্লিষ্ট সুবিধা সমূহে চাকুরী প্রদান করবে।

23

এলাকা উন্নয়নের কার্যক্রম

বর্তমান অবস্থা	কু-প্রভাব	কার্যক্রম
<input type="checkbox"/> সকল ক্ষতিগ্রস্ত বাড়ী নলকূপের পানির উপর নির্ভরশীল। <input type="checkbox"/> ৩৮% কাঁচা পায়খানা ব্যবহার করে অথবা কোন টয়লেট সুবিধা ব্যবহার করে না।	<input type="checkbox"/> নিরাপদ খাবার পানির অভাব। <input type="checkbox"/> অস্বাস্থ্যকর পরিবেশ। <input type="checkbox"/> সংক্রামক রোগের প্রাদুর্ভাব।	<input type="checkbox"/> পানি ও পরিষ্কারের ব্যবস্থা উন্নয়ন সরকারের বিবেচনামত।
<input type="checkbox"/> ৯৫% ক্ষতিগ্রস্ত লোকজন বিদ্যুৎহীন। <input type="checkbox"/> তারা রান্নার জন্য জ্বালানি কাঠ ও আলোর জন্য কেরোসিন ব্যবহার করে। <input type="checkbox"/> কোন সড়ক বাতি নেই।	<input type="checkbox"/> কাজ করা এবং বাড়িতে পড়াশুনা করা কঠিন। <input type="checkbox"/> অস্বাস্থ্যকর খাবার। <input type="checkbox"/> রাত্রি অনিরাপদ।	<input type="checkbox"/> পল্লী বিদ্যুৎতায়ন ব্যবস্থা উন্নয়ন সরকারের বিবেচনামত।

24

এলাকা উন্নয়নের কার্যক্রম (ক্রমশঃ)

বর্তমান অবস্থা	কু-প্রভাব	কার্যক্রম
<input type="checkbox"/> গ্রাম পর্যায়ে সীমিত চিকিৎসা সুবিধা <input type="checkbox"/> গ্রামবাসীরা স্থানীয় বাজার ও শহরে হাতুড়ে চিকিৎসকের শরণাপন্ন হন। <input type="checkbox"/> জটিল ক্ষেত্রে তারা চকরিয়া উপজেলায় বেসরকারী চিকিৎসকের শরণাপন্ন হন।	<input type="checkbox"/> চিকিৎসার মান খারাপ। <input type="checkbox"/> অস্বাস্থ্যকর অবস্থা। <input type="checkbox"/> পুষ্টি জ্ঞানের অভাব।	<input type="checkbox"/> চিকিৎসা সুবিধার সংখ্যা বৃদ্ধি স্থানীয় সরকারের বিবেচনাধীন। <input type="checkbox"/> বিদ্যৎ কেন্দ্র কতৃপক্ষ স্থানীয় বাসিন্দাদের চিকিৎসা সেবা প্রদান করবে।
<input type="checkbox"/> বরফ তৈরীর সুবিধা অত্যন্ত নাজুক। <input type="checkbox"/> মাছ চাষের দক্ষতা অত্যন্ত খারাপ।	<input type="checkbox"/> মাছ ও চিংড়ির মান খারাপ। <input type="checkbox"/> দামও কম।	<input type="checkbox"/> বরফ তৈরীর কমিউনিটি সুবিধা

25

প্রাতিষ্ঠানিক ব"বস্থা

- সিপিজিসিবিএল বাস্তবায়নকারী সংস্থা।
- কব্জাজার জেলা প্রশাসকের দপ্তর "প্রতিগ্রন্থ জনগনকে প্রতিপূরণের পরামর্শ প্রদানের জন" নিকটবর্তী সংস্থা হিসাবে কাজ করবে।
- স্থানান্তর প্রক্রিয়া নির্মাণ কাজের পূর্বে বাস্তবায়ন করা হবে।

26

অভিযোগ প্রতিকার প X তি (নির্মাণকালীন সময়ে)

- প্রকল্প এলাকায় নিম্নলিখিত উদ্দেশ্যে একটি “অভিযোগ প্রতিকার কমিটি” গঠন করা হবে :
 - শ্রমিক লোকজনদের সহজ প্রবেশাধিকার ।
 - অতি দ্রুত তাঁদের উদ্বেগ ও অভিযোগের প্রতিকার করা ।
- “অভিযোগ প্রতিকার কমিটি” নিম্নবর্ণিত প্রতিনিধিদের সমন্বয়ে গঠিত :
সিপিজিসিবিএল, প্রকল্প ঠাফ, স্থানীয় এনজিও, শ্রমিক জনগনের প্রতিনিধি, ইউনিয়ন পরিষদের চেয়ারম্যান সহ স্থানীয় গনমানব বর্জিবর্গ এবং আইন উপদেষ্টা ।

27

প্রধান প্রধান প্রতিকার ব বস্থাসমূহ (পরিচালনকালীন) - বিদ্যুৎ কেন্দ্র

আইটেম	প্রতিকার ব্যবস্থা
বায়ুর গুন	<ul style="list-style-type: none"> • বস্তুকণার নির্গমন কমানোর জন্য ইলেক্ট্রোস্ট্যাটিক প্রেসিপিটের (৯৯.৮% দক্ষ) স্থাপন করা হবে। • নল (নাইট্রোজেন অক্সাইড) নির্গমন কমানোর জন্য ফায়ারিং সিস্টেমে কম দহনযুক্ত প্রযুক্তি ব্যবহার করা হবে। • সল (সালফার অক্সাইড) নির্গমন কমানোর জন্য সামুদ্রিক পানির এফজিডি (ফ্লু গ্যাস ডিসচার্জ) ইকুইপম্যান্ট (৭০% দক্ষ) স্থাপন করা হবে। • স্ট্যাক (চিমনি) এর উচ্চতা ২৭৫মিঃ করা হবে। • ছাই পুকুর ও কয়লা গুদামের উপরিভাগ পানি দিয়ে ভিজিয়ে রাখা হবে যাতে বায়ু প্রবাহে কয়লা/কয়লা-চূর্ণ উড়ে যেতে না পারে।

28

বিদ্যুৎ কেন্দ্র হতে গ্যাস নির্গমনকালে দূষনকারীর ঘনত্ব

নির্গত দূষনকারীর ঘনত্ব বাংলাদেশের নির্গমন মানদণ্ড এবং আইএফসি নীতিমালায় বর্ণিত মানদণ্ড এর নীচে রাখা হবে।

Item	Unit	Proposed Concentration	Emission Standards of Bangladesh	IFC Guidelines (Thermal power plants; 2008)
SOx	µg/m ³	820	-	850
NOx	µg/m ³	460	600	510
PM	µg/m ³	50	500	50

29

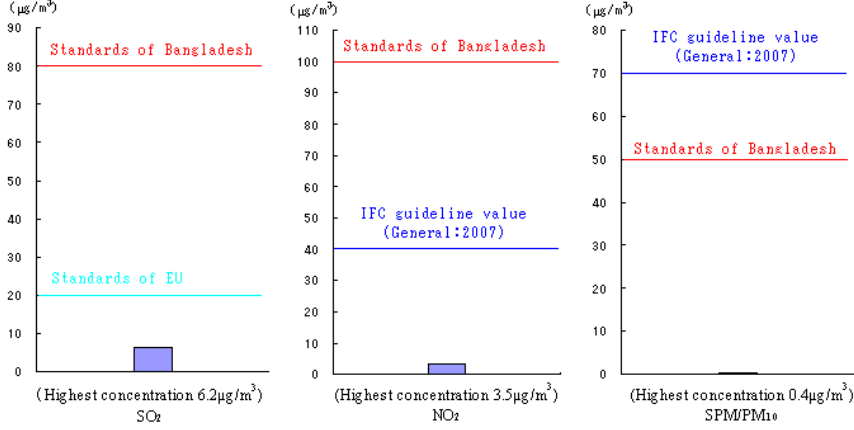
পরিবেশগত ষ্ট্যান্ডার্ড

- বায়বীয় দূষণ থেকে জনসাধারণকে রক্ষা করার জন্য পরিবেশগত ষ্ট্যান্ডার্ড মেনে চলা।
- বিশ্ব স্বাস্থ্য সংস্থা, বিশ্ব ব্যাংক, ইউরোপীয় ইউনিয়ন, জাইকা এবং বাংলাদেশ সরকারের নিজস্ব বায়বীয় দূষনকারী পদার্থের (যেমন সন্নি, নন্নি, বস্তুকণা) জন্য পরিবেশগত ষ্ট্যান্ডার্ড আছে।

30

সিমুলেশন দ্বারা নির্ণিত সম্ভাব্য বায়ুদূষণ

প্রতিকার ব্যবস্থা গ্রহণের ফলে সম্ভাব্য বায়ুদূষণের মাত্রা বাংলাদেশের বায়ুদূষণ স্ট্যান্ডার্ড ও আন্তর্জাতিক স্ট্যান্ডার্ড এর তুলনায় অনেক কম।



Predicted yearly averaged concentration and Air quality standards

31

আইটেম	প্রতিকার ব্যবস্থা
পানির গুণ	<ul style="list-style-type: none"> বর্জ্য পানি পরিশোধন ব্যবস্থা (ওয়েস্ট ওয়াটার ট্রিটম্যান্ট সিস্টেম) যা নিরপেক্ষ, স্থিতি ও তেল আলাদা করনের মাধ্যমে বাংলাদেশের স্ট্যান্ডার্ড এবং আইএফসি নীতিমালা মেনে বর্জ্য পানি পরিশোধন করা হবে।

- <তাপীয় বর্জ>
- তাপীয় বর্জ ৪০° সেঃ তাপমাত্রা এর নীচে সমুদ্রে ছাড়া হবে।
- তাপীয় বর্জ দ্রুত স্রোতের কারণে সমুদ্রের পানির সাথে মিশে যাওয়ায় পানির তাপমাত্রা ৩°সেঃ পর্যন্ত বাড়তে পারে।
- বর্জ পানি ছাড়ার পয়েন্ট থেকে ২০০মিঃ পর্যন্ত পানির তাপমাত্রা ২°সেঃ পর্যন্ত বাড়তে পারে।

32

আইটেম	প্রতিকার ব্যবস্থা
শব্দ/কম্পন	<ul style="list-style-type: none"> ইকুইপম্যান্ট সংরক্ষণ করা। কম শব্দ/কম্পন সৃষ্টিকারী ইকুইপম্যান্ট স্থাপন করা। কম্পন কমানোর জন্য যথোপযুক্ত ভিত্তির উপর ইকুইপম্যান্ট বসানো। শব্দ কমানোর জন্য ইকুইপম্যান্ট এর যথোপযুক্ত ঢাকনা ব্যবহার করা।

বিদ্যুৎ কেন্দ্র পরিচালনার সময় নিকটবর্তী আবাসিক এলাকায় বিদ্যুৎ কেন্দ্র থেকে উৎপাদিত শব্দের মাত্রা ৩০.২ - ৪১.২ ডিবি(এ) যা বাংলাদেশের আবাসিক এলাকার জন্য নির্ধারিত স্ট্যান্ডার্ড মাত্রার নীচে।

	Predicted Level (dB(A))	DOE Standard (dB(A))
Boundary (Industrial)	10.6 – 43.3	Day 70 Night 70
Residential	30.2 - 41.2	Day 55 Night 40

33

আইটেম	প্রতিকার ব্যবস্থা
জীবজগৎ	<p><বিপন্ন প্রজাতি></p> <ul style="list-style-type: none"> শ্রমিকদের দ্বারা প্রতিবন্ধকতা প্রদান, হয়রানি ও শিকার নিষিদ্ধ করা। <p><সামুদ্রিক কচ্ছপের ডিম পাড়া></p> <ul style="list-style-type: none"> ডিম পাড়ার সময় অপ্রয়োজনীয় লাইট বন্ধ রাখা। অল্পসংখ্যক লাইট / কম ওয়াটেজ সম্পন্ন লাইট ব্যবহার করা।
কর্মসংস্থান ও জীবিকার উপায় হারানো	<ul style="list-style-type: none"> যতদূর সম্ভব স্থানীয় লোকজনদের কর্মসংস্থানের ব্যবস্থা করা। স্থানীয় লোকজনদের প্রদত্ত সেবাসমূহ (যেমন কাপড় ধোয়া (লন্ড্রি) বা খাবার সরবরাহ প্রভৃতি) এবং স্থানীয় লোকজন দ্বারা তৈরী দ্রব্যাদি ব্যবহার করা।
বিদ্যমান সামাজিক অবকাঠামো এবং সেবা	<ul style="list-style-type: none"> বাস ব্যবহার করে শ্রমিকদের রাস্তায় চলাচলের সংখ্যা কমানো। সংযোগ সড়ক, স্থানীয় সড়ক ও বিদ্যুৎ কেন্দ্রের চারপাশে সড়ক নির্মাণ। এ সড়কসমূহ বর্ষাকালেও ব্যবহার করা যেতে পারে। বাস ব্যবহার করে যান চলাচলের সংখ্যা কমানো। নূতন সেবাসমূহ যেমন, স্কুল, স্বাস্থ্যকেন্দ্র প্রভৃতি প্রয়োজনমত স্থানীয় জনসাধারণের জন্য উন্মুক্ত করা।

34

আইটেম	প্রতিকার ব্যবস্থা
দুর্ঘটনা	<ul style="list-style-type: none"> • ট্রাফিক বিধি মেনে চলা, ট্রাফিক চিহ্ন স্থাপন করা, নিরাপদ গাড়ী চালানো শেখা। • ভেহিকেলের নিরাপদ পরিচালনার উপর প্রশিক্ষণ প্রদান। • চারদিকের গ্রামে বাসের সিডিউল জানানো। • অগ্নি-নির্বাপন ব্যবস্থা বসানো।

35

- বন্দর সুবিধা

আইটেম	প্রতিকার ব্যবস্থা
বায়ুর গুণ	<ul style="list-style-type: none"> • কনভেয়ারের মাধ্যমে কয়লা গুদামে কয়লা পরিবহনের সময় আচ্ছাদন ব্যবহার করা হবে। • কয়লা গুদামের উপরিভাগ পানি দিয়ে ভিজিয়ে রাখা হবে যাতে বায়ু প্রবাহে কয়লা/কয়লা-চূর্ণ উড়ে যেতে না পারে। • মারপল ৭৩/৭৮ ট্রিটি মেনে জাহাজ ভাড়া করা।
পানির গুণ, পানির ব্যবহার/ অধিকার এর প্রতিবন্ধকতা	<ul style="list-style-type: none"> • এমন সব ড্রেজিং পদ্ধতি বা ইকুইপম্যান্ট ব্যবহার করা যা পানিকে কম ঘোলাটে করবে। • তেল প্রতিবন্ধক (ওয়েল ফেঞ্চ) স্থাপন করা। • দূষিত পদার্থ জমানো নিষিদ্ধ করা। • মারপল ৭৩/৭৮ ট্রিটি মেনে জাহাজ ভাড়া করা।
বিদ্যমান সামাজিক অবকাঠামো এবং সেবার উপর উপদ্রব/ দুর্ঘটনা	<ul style="list-style-type: none"> • সংশ্লিষ্ট কর্তৃপক্ষের সঙ্গে আলোচনা করে জলপথ নির্ধারণ করা। • নির্মাণ এলাকার চারদিকে চিহ্নিত বয়া স্থাপন। • নৌ-চলাচল চ্যানেলে বয়া স্থাপন। • সংশ্লিষ্ট কর্তৃপক্ষের সঙ্গে আলোচনা করে জাহাজের সিডিউল প্রনয়ন করা। • স্থানীয় জেলেদের জাহাজের সিডিউল জানানো।

36

পরিবেশ পর্যবেক্ষণ পরিকল্পনা (নির্মাণকালীন)

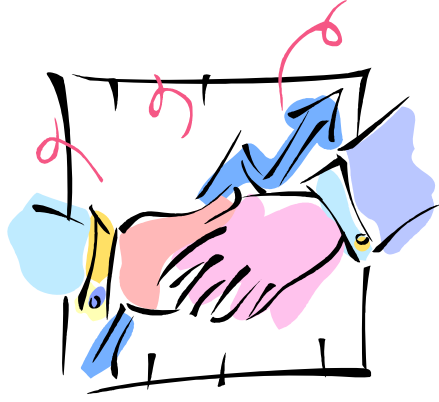
	প্রধান আইটেম	প্যারামিটার	স্থান	পর্যবেক্ষণের হার
বিন্দু কেন্দ্র	বায়ুর গুণ	পিএম ১০	আবাসিক এলাকা	ত্রৈমাসিক
	পানির গুণ	পিএইচ, বড, এসএস, তেল প্রভৃতি	ড্রেনের মুখ, ভূপৃষ্ঠস্থ পানি, ভূগর্ভস্থ পানি, সমুদ্রের পানি	ত্রৈমাসিক
		শব্দ	শব্দের মাত্রা	আবাসিক এলাকার সীমানা
	জীবজগৎ	বিপন্ন প্রজাতি	নির্মাণ এলাকা	পাখি - মাইগ্রেশন মৌসুমে সপ্তাহে একবার; অন্যান্য- শুষ্ক / বর্ষা মৌসুমে
			প্রকল্পের সামনের সৈকতে	ডিম পাড়ার মৌসুমে তিন দিন পর পর।
সামুদ্রিক কচ্ছপ		নির্মাণ এলাকার সমুদ্র অঞ্চলে।	শুষ্ক / বর্ষা মৌসুমে	
বন্দর সুবিধা	পানির গুণ	এস এস	সমুদ্রের পানি	ত্রৈমাসিক

37

পরিবেশ পর্যবেক্ষণ পরিকল্পনা (পরিচালনকালীন)

	প্রধান আইটেম	প্যারামিটার	স্থান	পর্যবেক্ষণের হার
বিন্দু কেন্দ্র	বায়ুর গুণ	এসও২, এনও২, পিএম	গ্যাস ডাষ্টি	অবিরাম
		এসও২, এনও২, পিএম	আবাসিক এলাকা	ত্রৈমাসিক
	পানির গুণ	পিএইচ, ডিও, এসএস, তেল, সিওডি, হেভি মেটাল প্রভৃতি	ড্রেনের মুখ	ত্রৈমাসিক
		পানির তাপমাত্রা পিএইচ, ডিও, এসএস, তেল, সিওডি, হেভি মেটাল প্রভৃতি	সমুদ্র	ত্রৈমাসিক
	শব্দ	শব্দের মাত্রা	আবাসিক এলাকার সীমানা	ত্রৈমাসিক
	জীবজগৎ	বিপন্ন প্রজাতি	ছাই ফেলার পুকুর	পাখি - মাইগ্রেশন মৌসুমে সপ্তাহে একবার; অন্যান্য- শুষ্ক / বর্ষা মৌসুমে
			প্রকল্পের সামনের সৈকতে	ডিম পাড়ার মৌসুমে তিন দিন পর পর।
সামুদ্রিক কচ্ছপ		প্রকল্প এলাকার সমুদ্র অঞ্চলে।	শুষ্ক / বর্ষা মৌসুমে	
বন্দর সুবিধা	পানির গুণ	এস এস	সমুদ্র	ড্রেজিং কার্যক্রম চলাকালে

38



উপস্থিত সকলকে ধন্যবাদ

2nd Stakeholder meeting
(Transmission line)
15th April, 2013

মাতারবাড়ি-আনোয়ারা ৪০০কেভি সঞ্চালন লাইন নির্মাণ

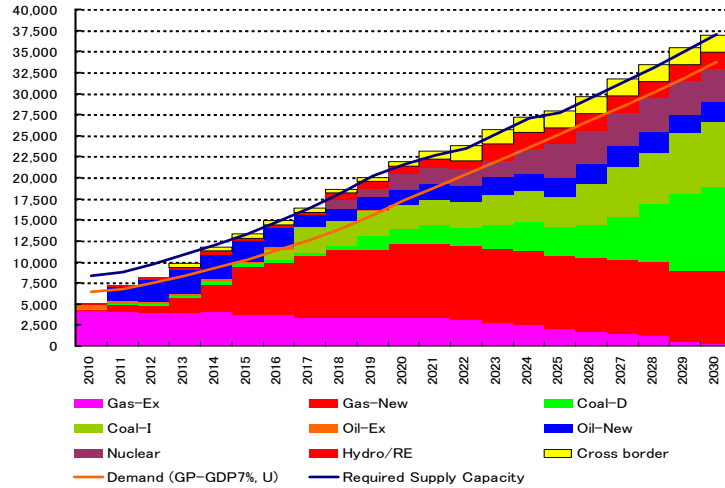


এপ্রিল, ২০১৩

পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিমিটেড
(পিজিসিবি)

1

প্রকল্পের পটভূমি ও প্রয়োজনীয়তা

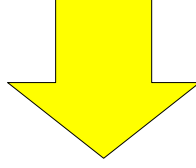


➤ ক্রমবর্ধমান বিদ্যুতের চাহিদা পূরণের জন্য অনেক
বড় বড় বিদ্যুৎ কেন্দ্র স্থাপন দরকার

2

প্রকল্পের পটভূমি ও প্রয়োজনীয়তা

- দেশীয় কয়লা উত্তোলন (আপাতত) স্থগিত ঘোষণা

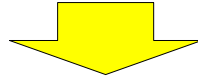


- আমদানিকৃত কয়লা ভিত্তিক বিদ্যুৎ কেন্দ্র নির্মাণে উৎসাহিত করা

3

সমীক্ষার উদ্দেশ্য

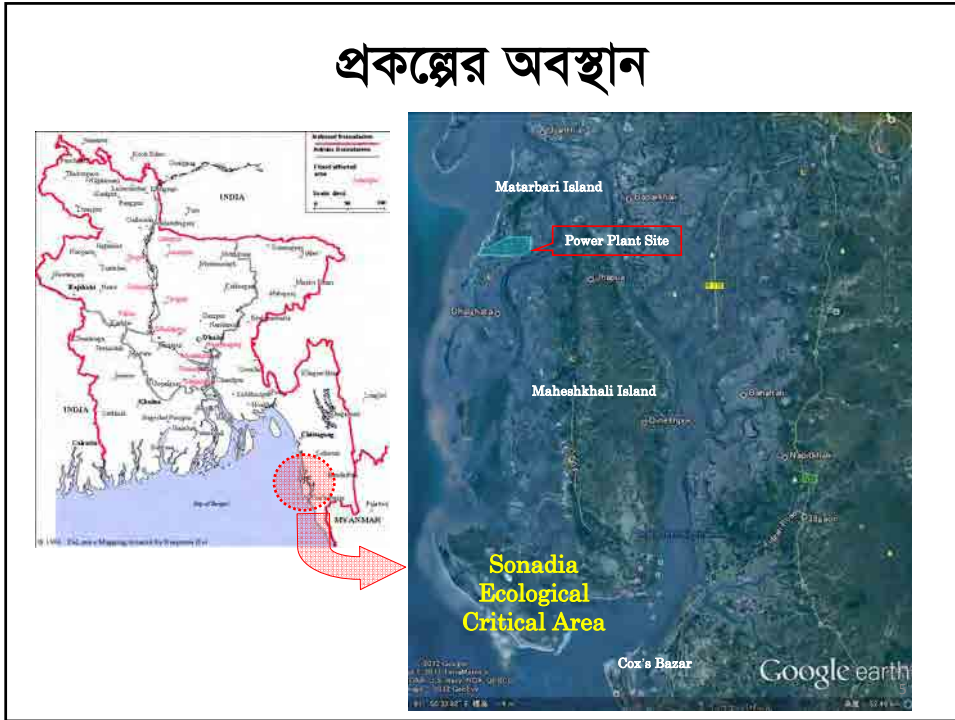
প্রস্তাবিত প্রকল্প বাস্তবায়নের জন্য কারিগরি, পরিবেশ, ইকোনমিক ও আর্থিক দিক বিবেচনা পূর্বক সম্ভাব্যতা বিশ্লেষণ



মাতারবাড়ি কয়লাভিত্তিক বিদ্যুৎ কেন্দ্র /
সঞ্চালন লাইন নির্মাণ

4

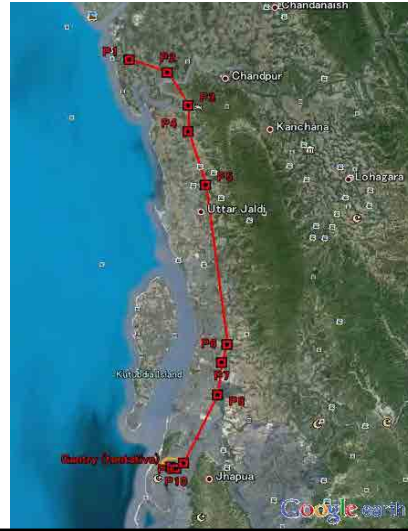
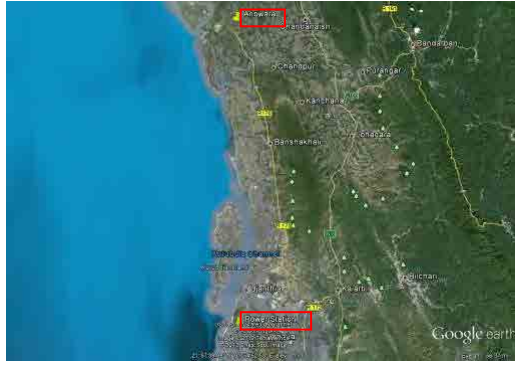
প্রকল্পের অবস্থান



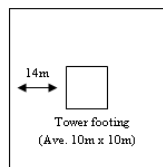
বিদ্যুৎ কেন্দ্রের প্রধান প্রধান অংশ



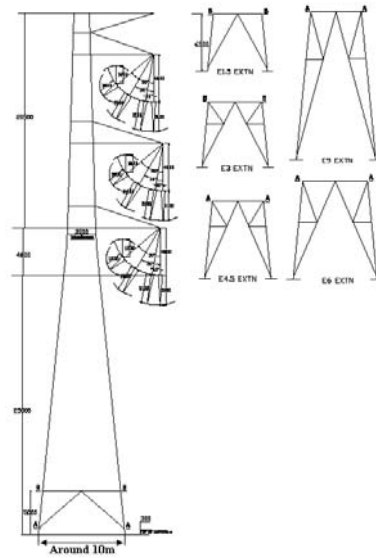
বিদ্যুৎ কেন্দ্র হতে আনোয়ারা পর্যন্ত ৪০০কেভি সঞ্চালন লাইনের রুট



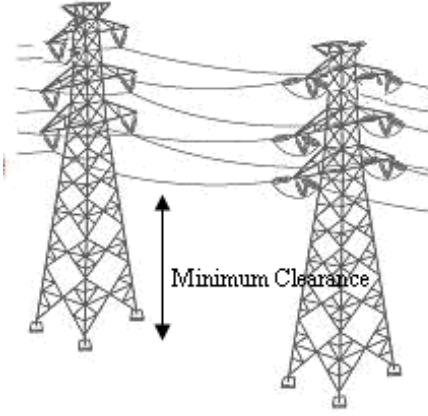
টাওয়ারের পাদদেশ ও প্রস্তাবিত টাওয়ারের বিবরণ



Sketch of tower footing



নূনতম নিরাপদ দূরত্বের বিবরণ



বিবরণ	নিরাপদ দূরত্ব (মিঃ)
গাউন্ড	১১.০
সড়ক	১৪.০
দালান, অবকাঠামো ইত্যাদি	৭.০
গাছ*	৫.৫
বোপ	৫.৫
রেলপথ	১৮.০
নদী পারাপার	২২.০

* উপরোক্ত নিরাপদ দূরত্ব সঞ্চালন লাইনের নীচে এবং লাইন সংলগ্ন গাছের গোঁড়ে প্রযোজ্য। উল্লম্ব তলে ঝুলন্ত তার সহ লাইনের দিকে পড়ন্ত গাছের গোঁড়েও প্রযোজ্য।

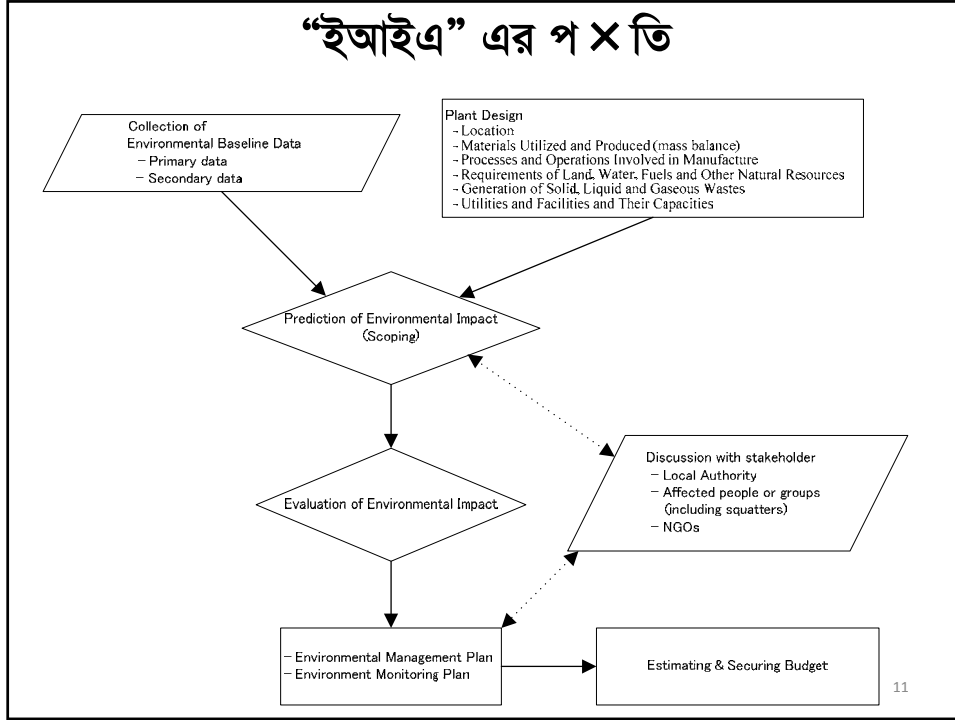
9

পরিবেশগত প্রভাব নিরূপন (ইআইএ) এর প্রয়োজনীয় নীতিমালা

- নিরীক্ষিত ইন্ডাস্ট্রিজের জন পরিবেশ অধিদপ্তরের নীতিমালা (ডিওই-১৯৯৭); ও
- পরিবেশ ও সামাজিক বিষয় বিবেচনার জন জাইকার নীতিমালা (২০১০)

10

“ইআইএ” এর প X তি



পরিবেশগত ব"বস্থাপনা পরিকল্পনা

- পরিবেশগত ব"বস্থাপনা পরিকল্পনা নির্মাণ/পরিচালন কালে বাস্তবায়িত করা হবে যাতে দূষণ মাত্রা ষ্টিমার্ভ মানের নীচে থাকে এবং কোন াতিকর প্রভাব না ফেলে।
- প্রতিকার ব"বস্থা বাস্তবায়নের জন" দায়িত্বশীল সংগঠন গঠন করতে হবে।
- পরিবেশ পর্যবেীণ নির্মাণ/পরিচালন কালে যথাযথভাবে সম্পাদন করা।
- পিজিসিবি ও ঠিকাদার প্রতিষ্ঠান প্রকল্পে গৃহীত কার্যক্রম ও প্রতিকার ব"বস্থাসমূহের বিষয় ও সিডিউল সম্পর্কে প্রকল্প সংলগ্ন এলাকার বাসিন্দাদের ধারণা প্রদান করবে। প্রয়োজনে স্থানীয় জনগনের মতামত গ্রহন করে যথোপযুক্ত প্রতিকার ব"বস্থা প্রনয়ণ করবে।

প্রধান প্রধান প্রতিকার ব"বস্থাসমূহ (নির্মাণকালীন)

আইটেম	প্রতিকার ব্যবস্থা
বায়ুর গুণ	<ul style="list-style-type: none"> বিশেষতঃ শুষ্ক মৌসুমে প্রকল্পের প্রবেশ সড়ক (এক্সেস সড়ক) ও প্রকল্প এলাকায় পানি ছিটানো। সকল নির্মাণ যন্ত্রপাতি ও ভেহিকেল নির্দিষ্ট সময় পর মেরামত ও সংরক্ষণ করা।
পানির গুণ/ টপোগ্রাফি/ জিওলজি	<ul style="list-style-type: none"> সঞ্চালন লাইনের রুট খাড়া ঢাল সম্পন্ন এলাকা পরিহার করে নির্ধারণ করা হয়েছে। নির্মাণ এলাকায় জরিপ করে ঢালে প্রয়োজনমত কঙ্কিট স্থাপন করে ঢাল থেকে মাটি অপসারণ বন্ধ করা।
শব্দ/কম্পন	<ul style="list-style-type: none"> বিশেষতঃ পাইলিং কাজ দিনের বেলা সম্পাদন করা। যতদূর সম্ভব কম শব্দ/কম্পন সৃষ্টিকারী ইকুইপম্যান্ট ব্যবহার করা।

13

আইটেম	প্রতিকার ব্যবস্থা
জীবজগৎ	<ul style="list-style-type: none"> টাওয়ার নির্মাণ এলাকায় স্থানীয় জাতের গাছ লাগিয়ে পুনরায় সবুজায়ন করা।
ভূমি অধিগ্রহণ/ কর্মসংস্থান ও জীবিকার উপায় হারানো	<ul style="list-style-type: none"> টাওয়ার যতদূর সম্ভব বসতিহীন এলাকার উপর দিয়ে নির্মাণ করা হবে। সংশ্লিষ্ট আইন ও বিধি মেনে ভূমি অধিগ্রহণ করা। স্থানীয় লোকজনদের প্রদত্ত সেবাসমূহ (যেমন কাপড় ধোয়া (লন্ড্রি) বা খাবার সরবরাহ প্রভৃতি) এবং স্থানীয় লোকজন দ্বারা তৈরী দ্রব্যাদি ব্যবহার করা।
দুর্ঘটনা	<ul style="list-style-type: none"> সঞ্চালন লাইনের রুট খাড়া ঢাল সম্পন্ন এলাকা পরিহার করে নির্ধারণ করা হয়েছে। নির্মাণ এলাকায় জরিপ করে ঢালে প্রয়োজনমত কঙ্কিট স্থাপন করে ঢাল থেকে মাটি অপসারণ বন্ধ করা।

14

প্রধান প্রধান প্রতিকার ব"বস্থাসমূহ (পরিচালনকালিন)

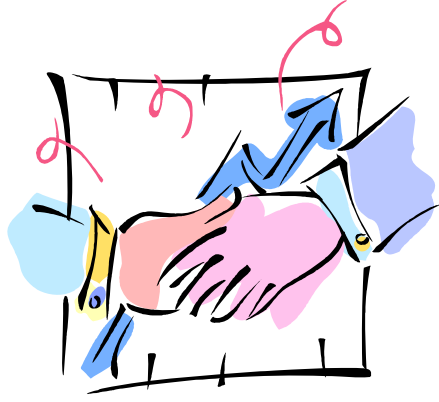
আইটেম	প্রতিকার ব্যবস্থা
পানির গুন/ টপোগ্রাফি/ জিওলজি	<ul style="list-style-type: none"> নির্মাণ এলাকায় জরিপ করে ঢালে প্রয়োজনমত কঙ্কট স্থাপন করে ঢাল থেকে মাটি অপসারণ বন্ধ করা।
জীবজগৎ	<ul style="list-style-type: none"> সঞ্চালন লাইনের সংগে পাখির ধাক্কা পরিহার করার জন্য প্রয়োজনীয় লাইট ও চিহ্ন স্থাপন করা।
দুর্ঘটনা	<ul style="list-style-type: none"> ট্রাফিক বিধি মেনে চলা, ট্রাফিক চিহ্ন স্থাপন করা, নিরাপদ গাড়ী চালানো শেখা। ভেহিকেলের নিরাপদ পরিচালনার উপর প্রশিক্ষণ প্রদান।

15

পরিবেশ পর্যবেক্ষণ পরিকল্পনা

	প্রধান আইটেম	প্যারামিটার	স্থান	পর্যবেক্ষণের হার
জীবজগৎ	নির্মাণকালিন	বিপন্ন প্রজাতি	নদীর কাছে	মাইগ্রেশন মৌসুমে সপ্তাহে একবার
		অন্যান্য	নদীর কাছে	বছরে দুইবার
	পরিচালনকালিন	সঞ্চালন লাইনের সংগে পাখির ধাক্কা	নদীর কাছে	মাইগ্রেশন মৌসুমে সপ্তাহে একবার

16



উপস্থিত সকলকে ধন"বাদ

1st Stakeholder meeting

(Access Road)

21st March, 2013

স্টেকহোল্ডার মিটিং

প্রকল্পের বর্ণনা

সংযোগ সড়ক উন্নয়ন প্রকল্পটির চারটি অংশ রয়েছে ৪

- বর্তমান রাস্তার উন্নয়ন
- রাস্তার প্রশস্তকরণ
- নতুন রাস্তা নির্মাণ এবং
- নতুন সেতু ও কালভার্ট নির্মাণ

এছাড়াও নতুন রাস্তা, সেতু ও কালভার্ট নির্মাণের স্থান নির্ধারণ এবং উপজেলা প্রশাসনের স্টেকহোল্ডার মিটিং এর প্রথম অসোলোয়াম করবে।

Stakeholder Meeting (SRM)

PROJECT DESCRIPTION

The Access Road Project has four Components. The components are:

- Road Improvement
- Road Widening
- New Road Construction and
- New Bridge & Culvert Construction

Today's Stakeholder Meetings (SRM) Main Focus is only on the New Road and Bridge Construction of the Project Area

স্টেকহোল্ডার মিটিং

প্রকল্পের বর্ণনা (চলমান)

প্রকল্পের এলাকা/অবস্থান ৪

ইউনিয়ন	উপজেলা	জেলা
কল্যাণচর	মহেশখালি	কক্সবাজার
মাতারবাড়ি		

ইউনিয়নগুলি যাকার থেকে মহেশখালি জেলা, কক্সবাজার দ্বারা রাস্তাগুলি পর্যন্ত।

Stakeholder Meeting (SRM)

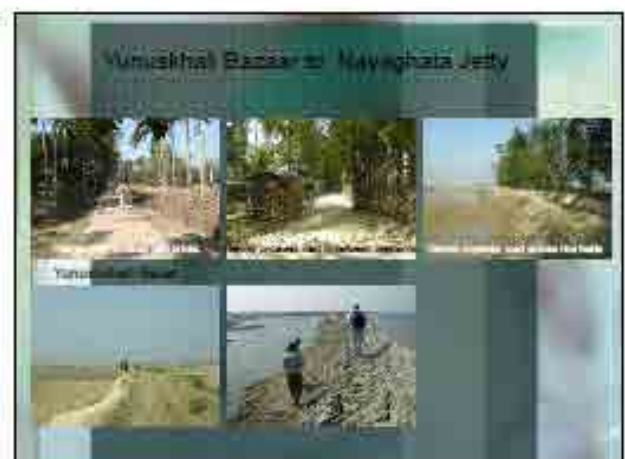
PROJECT DESCRIPTION (Contd.)

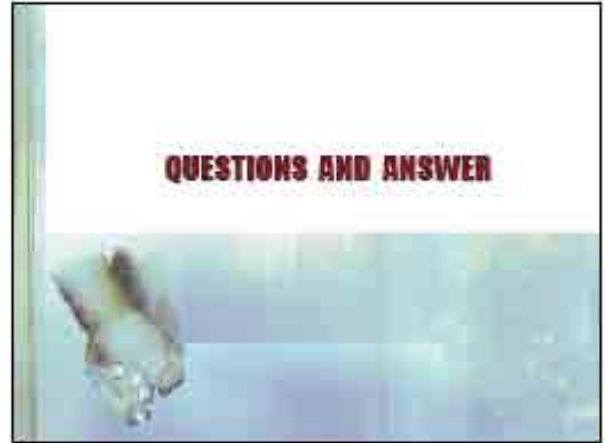
Location of the Project:

Union	Upazila	District
Kalamarchara	Moheshkhali	Cox's Bazar
Matarbari		

(Kalamarchara Bazar is Faragatbar via Shegahat Jcty) Kalamarchara







2nd Stakeholder meeting

(Access Road)

1st August, 2013



A. PROJECT DESCRIPTION

i. Project Location:

The Access road project is located in Chakaria, Pekua and Maheshkhali Upazila of Cox's Bazar District.



i. Project Location (contd):

Today's Second Stakeholder Meetings (SHM-2) hub is the New Road and Bridge Construction (i.e. Yunuskhali Bazar to Rangakhali) of the Project Area.

New Road and Bridge Location Details:

Mouza	Union	Upazila	District
Yunuskhali	Kalarmarchara	Moheshkhali	Cox's Bazar
Uttarnalbila			
Matarbari	Matarbari		

ii. Alternate Route Analysis



iii. Selected Route Details (Yunuskhali Bazar to Power Plant Site)

The selected route has four section

- > Existing Village Road ([Existing Village Road.jpg](#))
- > Kuhelia River ([Kuhelia River.jpg](#))
- > Existing WDB Embankment ([WDB Embankment.jpg](#))
- > Private Land ([Private Land.jpg](#))

Selected Route Alignment



iv. Project Component:

The Access Road Project has four Components.

The components are:

- Road Improvement
- Road Widening
- New Road Construction and
- New Bridge, Sluice Gate, Regulator, Causeway, Culvert etc. Construction

Project Component in Kalamarchara Side:

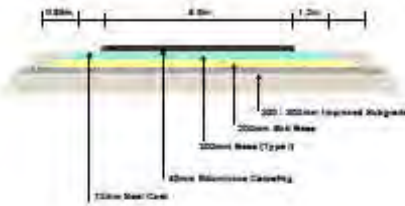


Project Component in Matarbari Side:



X-Section of Access Road

Item	Description
Road Design	
Cross Width	7.80 m
Carriageway Width	5.50 m
Shoulder	1.15 m (Hard), 1.25 m, Soft (0.30 m x 2)
Surge Load in the Channel Area	1.25 m (1.4 feet) from Mean Sea Level (MSL)
Crest Level of Road on embankment	4.51 m from MSL (IPW standard)
Maximum Vehicle	Medium Truck (Category 2 in IPW guidelines)



Bridge Design:

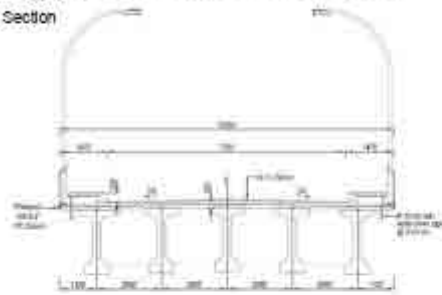
Item	Description
Type	Pre-cast Concrete Girder
Length	640 m
Total Width	10.25 m
Carriageway Width	7.50 m (Double lanes)
Foot path	1.475 m x 2
Span Length	40.0 m
Crest Level	10 m from Mean Sea Level
Navigational Clearance	5.0 m from Highest High Tide Level

Bridge Design:

(i) Longitudinal Section



(ii) Cross Section



B. Social and Environmental Consideration

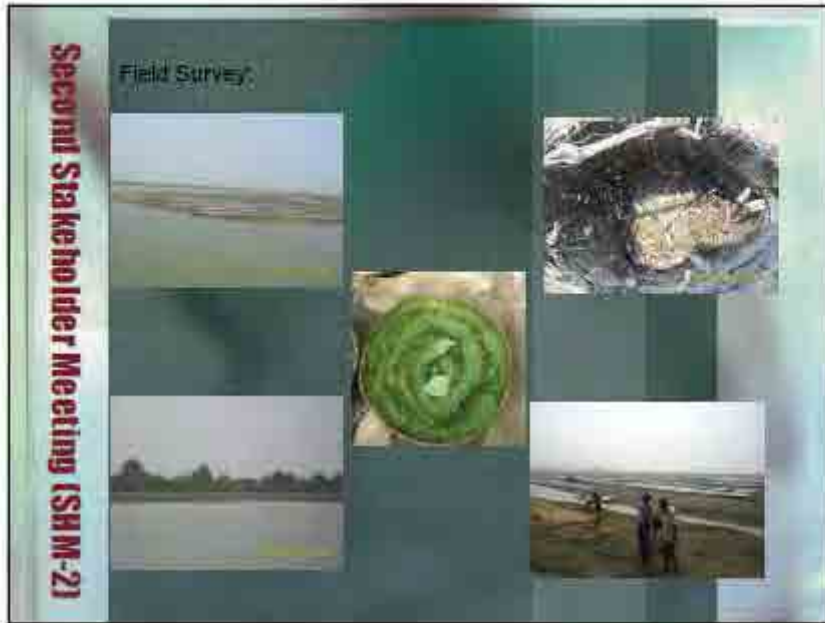
Focus Group Discussion:

|| Kalamarchara || Dhalghata || Matartun



Field Survey:







Thanks to All

Appendix-C15.5-9

Minutes of Stakeholder meeting

1st Stakeholder meeting

(Power plant)

12th November, 2012

Preparatory Survey on Chittagong Coal Fired Power Plant Project

Construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar **Minutes of 1st Stakeholder Meeting (Power Plant)**

Venue : Yunus Khali Govt. Primary School, Kalarmarchhara,
Moheshkhali :

Date : November 12,, 2012

Time : 10:00 AM to 2:00 PM

Participants : List of Participants is enclosed.

The meeting was presided over by Managing Director of Coal Power Generation Company Bangladesh Ltd. (CPGCBL). Chairman welcomed all participants. He thanked Japan International cooperation Agency (JICA) for their cooperation to conduct the feasibility study for construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar. He also thanked the JICA Study team for carrying out the study. He requested all participants to give their valuable comments on implementation of the project.

Team Leader of JICA Study Team and BPDB officer also spoke on the occasion followed by the power point presentation on the feasibility study for construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar presented by Engineers Associates Limited (EAL).

After presentation, the following discussions were held:

1. One of the participants from Unuskhali, Kalarmarchhora, Moheshkhali wanted to know the exact requirement of land for the power project in Matarbari and Dhalghata union. Secondly, salt and shrimp cultivation are done in Matarbari area, which meets the requirement of salt and shrimp throughout the country. He wanted to know whether the power plant will affect the salt and shrimp cultivation. In reply, Superintendent Engineer of BPDB informed that about 1000 acres of

land will be required for the plant. No adverse effect will take place on shrimp and salt cultivation in the surrounding area of the plant as the latest ultra super critical (USC) technology will be applied in the plant to make it environment friendly.

2. A business man and local politician thanked JICA for their great initiative. He also thanked Japan government for their friendly attitude towards Bangladesh. People of Materbari are very proud and happy about it. He requested the authority to ensure maximum protection for the nature and environment so that salt, shrimp and battle leaf cultivation are not affected. Moreover, he wanted to know whether this plant will affect the human being by any means. In reply, Superintendent Engineer of BPDB informed that this power plant will be constructed using the most advanced technology. So, human being will not be affected.
3. A business man and local politician raised that they will lose their livelihood if the 1000 acres of land of Matarbari is acquired for the project. So, he requested the project authority to provide employment to the local people in the project. In reply, Superintendent Engineer of BPDB assured that priority will be given to the local people for employment in the project. Moreover, JICA Study Team is working on it to develop a rehabilitation plan as well. So, there are no worries for the local people in this regard.
4. UP member , Kalarmarchhora. is very hopeful that the present shortage of power supply will be improved to some extent if this power plant is implemented. So, he is very much eager to know when this power plant will start functioning. In reply, Superintendent Engineer of BPDB informed that feasibility study is being now carried out. This will be completed by June 2013. If the project is found viable, JICA will give a primary report to the Government of Japan. After that the Government of Bangladesh will execute a loan agreement with the Government of Bangladesh, which may take another one year at least. Then EPC contractors will be engaged to construct the plant. This may take few years

to complete the construction and then the plant will be commissioned. So, it is a long process.

5. School teacher, Matarbari reminded that few months ago in Japan due to an earthquake there was a huge damage to nuclear power plant, which causes pollution to the atmosphere. So, he wanted to know any consequences if this project in Matarbari faces the similar natural disaster in future.

Secondly, he wanted to know the amount of vibration and sound caused by this power plant.

Thirdly, he is very annoyed with the fly ash which may cause respiratory problems to the people in the surrounding area of the project.

In reply, Superintendent Engineer of BPDB informed that the proposed power plant is not nuclear power plant. It is a coal based power plant and well protected. So, it will not be affected by any natural disaster unless it is devastating.

As this is a high tech power plant, there would not be much of sound outside power plant.

In this power plant no fly ash will be produced as ultra super critical technology will be applied. Flue gas will contain only 0.02% ash and moreover the flue gas will be discharged to the atmosphere through a stack of about 275m high. So it will not affect the human being around the power plant

6. Businessman, Sariat Dail, Matarbari thinks that the power plant to be established in Matarbari is not only a pride to matarbari but Cox's Bazar also. The people of Matarbari are very happy but the communication system in Matarbari with other parts of Bangladesh is very bad. So, he hoped that the authority will construct road also apart from the power plant. In reply, Superintendent Engineer of BPDB informed that there is a plan also to construct a road in Matarbari which will be extended to Chittagong-Cox's bazar highway.
7. Businessman, Matarbari, a local resident of Matarbari is in favour of the construction of power plant in Matarbari. He also informed that people of

Matarbari are very optimistic to see this project being implemented. However, he raised some points to take into consideration for wellbeing of the people of Matarbari.

The points are as follows:

- a. Priority will be given to the local people for employment in the project.
- b. All roads, school, college, madrashas, health centers, bazars and fisheries ghats etc. shall be developed. All roads of Matarbari island and roads along the east and west side of the island shall be made pucca.
- c. The protective dams along the west coast of Matarbari island shall be made very strong and permanent to save the island from cyclone, tidal waves and erosion.
- d. The compensation for land shall be provided three times of registered rate.
- e. Proper compensation shall be provided to the affected fishermen, salt farmers and others. They shall be rehabilitated with appropriate employment opportunities.
- f. Road to Chittagong from Matarbari shall be improved.
- g. The electricity shall be supplied to Matarbari area at reduced rate (tariff).
- h. The plant must be environment friendly so that the environment is not affected.

In reply, MD, CPGC and SE, BPDB assured them to take the above points into consideration. Both of them emphasized that the plant will be constructed using the latest technology, which has very negligible impacts on the environment. So, there is nothing to worry in this regard. They also mentioned that there are some points subject to government policy. These points will be raised to government level for consideration.

Finally, MD, CPGC thanked all participants for giving their valuable comments and assured the people to take all points raised by them into consideration for implementation of the power plant project in Matarbari.

Then he concluded the stakeholder meeting giving thanks to all participants.

Feasibility Study of 2X600 MW Coal Fired Power Plant Development Project at Matarbari, Cox's Bazar
1st Stakeholder Meeting (Power Plant)

Venue : Yunus Khali Govt. Primary School, Kalar Mar Chhara, Maheskhali, Cox's Bazar,

Date : November 12, 2012

Time : 10:30 AM to 2:30 PM

Attendance Sheet

Sl. No.	Name of Participant	Designation & Organization	Contact Phone No.	Signature
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Feasibility Study of 2X600 MW Coal Fired Power Plant Development Project at Matarbari, Cox's Bazar
1st Stakeholder Meeting (Power Plant)

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1st Stakeholder meeting

(Transmission line)

19th November, 2012

Preparatory Survey on Chittagong Coal Fired Power Plant Project

Construction of 400kV Transmission line from Matarbari to Anowara **Minutes of 1st Stakeholder Meeting (Transmission Line)**

Venue : Upazila Parishad Auditorium, Chokoria Upazila, Cox's Bazar
Date : November 19,, 2012
Time : 10:00 AM to 2:00 PM
Participants : List of Participants is enclosed.

The meeting was presided over by Mayor, Chokoria Municipality. The welcome speech was given by Manager, Power Grid Company of Bangladesh (PGCB), who welcomed all participants. He thanked Japan International cooperation Agency (JICA) for their cooperation to conduct the feasibility study for construction of 400kV Transmission line from Matarbari to Anowara and 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar. He also thanked the JICA Study team for carrying out the study. He requested all participants to give their valuable comments on implementation of the project.

Environmental Expert of JICA Study Team, Vice Chairman, Chokoria Upazila and Woman Vice Chairman, Chokoria Upazila also spoke on the occasion followed by the power point presentation on the feasibility study for construction of 400kV Transmission Line from Matarbari to Anowara by Engineers Associates Limited (EAL).

After presentation, the following discussions were held:

1. One of the participants from Barunchhara, Anowara wanted to know whether any fence will be erected around the tower or not. In reply, PGCB officer told that no fencing will be erected around the tower. But anti-climbing device will be put

at the bottom the tower with danger plate so that the people cannot climb up the tower.

The participant also wanted to know whether the owner of the land to be used for tower erection can use it or not. In reply, PGCB officer told that as per present rules of Bangladesh Government, no land will be acquired for tower erection. So, the owner of the land will have the right to cultivate crops in the land. But no big trees will be allowed to grow in order to maintain minimum clearance with transmission line.

2. One of the participants from Bashkhali wanted to know whether the land will be acquired for tower erection and any value of the land will be paid. In reply, PGCB officer informed that there is no Government rules to acquire the land for tower at this moment. So, there is no question of payment of any value for the land. However, compensation will be provided for the damaged crops or trees during construction. The compensated price is normally 1.5 times the rate fixed by the department of agriculture or forest.
3. One of the participants from Marayati Union asked how much land will be required for each tower. In reply, PGCB officer told that the tower has four legs 10m apart (i.e. 100m²). The land will be occupied during the construction period of about 5-6 months to erect the tower. After erection of tower, the land can be used for cultivation.
4. One of the participants (NGO) informed that it was reported in the newspaper that there will be adverse environmental impacts if the power plant is constructed at Anowara, Chittagong. He wanted to know that the proposed power plant at Matarbari will have the same impacts in Matarbari area also. In reply, local associate of JICA Study Team informed that the JICA Study Team is carrying out the social and environmental survey to assess the impacts. He also mentioned that ultra super critical technology will be used in this power plant to avoid environment pollution. So, this power plant will be environment friendly. No adverse impacts will be produced. Above all, roads in Matarbari area will be

developed, employment opportunities will be created and economic activities will be enhanced if the power plant is constructed in Matarbari. So, this project is very useful to Matarbari and Bangladesh as well.

Finally, Mayor, Chokoria Municipality and president of the meeting thanked JICA and Study Team as well to conduct the feasibility study for construction of 2x600MW coal fired power plant at Matarbari and 400kV transmission line from Matarbari to Anowara. He hoped that this project will contribute a lot in solving power supply problems in Bangladesh. So, he assured their full cooperation to JICA and Study Team in implementing this project successfully.

Apart from this, Mayor requested JICA to come forward to finance Chokoraia Municipality through the Bangladesh Government to solve water supply problem, garbage disposal problem and drainage problem of the municipality.

Then he concluded the stakeholder meeting giving thanks to all participants.

Feasibility Study of 2X600 MW Coal Fired Power Plant Development Project at Matarbari, Cox's Bazar
1st Stakeholder Meeting (Transmission Line)

Venue : Chakoria Upazila Office Auditorium, Cox's Bazar

Date : November 19, 2012

Time : 10:30 AM to 2:30 PM

Attendance Sheet

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Feasibility Study of 2X600 MW Coal Fired Power Plant Development Project at Matarbari, Cox's Bazar
1st Stakeholder Meeting (Transmission Line)

Venue : Chakoria Upazila Office Auditorium, Cox's Bazar

Date : November 19, 2012

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2nd Stakeholder meeting

(Power plant)

16th April, 2013

**Preparatory Study on Chittagong area Coal Fired Thermal Power Plant
Development Project**

Minutes of 2nd Stakeholder Meeting (Power Plant)

Venue : Moheshkhali Upazila Parishad Auditorium, Cox's Bazar

Date : 16/04/2013

Time : 11:30 AM

Participants : List of Participants is enclosed in **Annex-1**

Photographs : Some pictures taken during the meeting are given in **Annex-2**.

The meeting was presided over by Upazila Nirbahi Officer (UNO) of Moheshkhali Upazila. Managing Director of Coal Power Generation Company Bangladesh Limited (CPGCBL) welcomed all participants. He thanked Japan International cooperation Agency (JICA) for their cooperation to conduct the feasibility study for construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar. He also thanked the JICA Study team for carrying out the study. He requested all participants to give their valuable comments on implementation of the project.

Then Team Leader of JICA Study Team spoke on the occasion followed by the power point presentation on the feasibility study for construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar presented by Engineers Associates Limited (EAL).

After presentation, the following discussions were held in the question & Answer session:

1. **One of the participants from Majidia Alim Madrasa, Matarbari** raised that the first stake holder meeting was held back in November at Matarbari. In that meeting it was decided to hold the second stake holder meeting at Shariar Dail. But the second stakeholder meeting was being held at Moheshkhali Upazila Complex blaming that Shariar dail is not safe place. So, he became very upset and felt

insulted. Apart from this, he raised that nothing has been specifically mentioned about the female workers in regard to the employment of local people. So, he requested to hold another stakeholder meeting at Matarbari site in the future to enable more local people to participate in the meeting. He mentioned that he would be in favour of establishing power plant at Matarbari if the local people are in favour of the power plant at Matarbari.

In reply, **Managing Director of CPGCBL** said that there are not enough people moving at night causing Matarbari site an unsafe place at night. However, he thinks that next stakeholder meeting would be held at Matarbari. In regard to the employment of female workers, he mentioned that there will be no discrimination with female workers. Workers of all genders will have equal opportunity.

2. One of the participants raised whether JICA has decided to finance this project or not. He asked how the compensation will be provided to the affected people. He also requested to hold another stakeholder meeting at Matarbari site.

In reply, **Managing Director of CPGCBL** mentioned that JICA will take the decision for funding this project based on the discussions of these meetings and also from the results of social and environmental studies. JICA has not yet taken any decision. But, it is understood that JICA is interested to finance this project. Normal compensation will be provided to the affected people as per Government law. However, additional compensation may be provided to the affected people as per JICA's guidelines if the project is financed by JICA. He also assured to hold another stakeholder meeting at Matarbari if possible.

3. **Upazilla Women Vice Chairman** also reiterated that no power plant shall be constructed unless the local people are fully motivated in terms of their compensation, equal rights for both genders and assurance of no negative impacts on environment. So, she requested to hold a meeting at a much larger scale at Matarbari and Dholghata and gather the opinions of the people living in these areas.

In reply, **Managing Director of CPGCBL** told that it is not possible to take opinions from each and every people. The outcome of any stakeholder meeting is

disseminated to concerned people to develop awareness among them. He also assured that people of both genders will enjoy equal opportunity in terms of employment and compensation etc.

4. **Upazilla Freedom Fighter Commander**, Moheshkhali, Cox's Bazar was very overwhelmed with the decision of the Bangladesh Government for the establishment of this power plant at Matarbari by the end of the year of 2021. He welcomed this project on behalf of local people and also welcome the organizations associated with this project. He would also like to add that the main vision after the independence was urbanization of villages. For this foreign aid is required for rapid urbanization. However, he mentioned that the local workers, both men and women will take part equally for this project. He also demanded that electricity must be provided to the people of Moheshkhali on priority basis if the power plant is established.

In reply, **Managing Director of CPGCBL** told that the local workers will be always privileged to work first. But, since this project is very big, workers from outside also have to be employed even after employing all the local workers. The main purpose of this power plant is to quench the necessity of electricity for the people; certainly the local people will get their necessary supply of electricity.

5. **One of the participants from Dhalghata** mentioned that the embankment is very necessary to protect the proposed power plant from cyclonic storms and tidal surge. He understood that the existing embankment will be further developed to protect the power plant. Dhalghata union may be protected from the cyclonic storms and tidal surge if the embankment is further extended up to Dhalghata. So, he requested to develop the existing embankment along Dhalghata Union.

In reply, **Managing Director of CPGCBL** assured to develop the existing embankment to protect the power plant and Dhalghata union as well.

6. **Teacher and Journalist** was very optimistic to see this power plant being implemented very soon for development of Dhalghata union. So, he requested to start construction work before the forthcoming rainy season.

In reply, **Managing Director of CPGCBL** informed that the project is a large one. So, it is not possible to start construction of this project so early. If JICA finds that this project is feasible, a loan agreement will be signed between JICA and GOB by March, 2014. Then consultants will be employed for this project. EPC Contractor will be engaged subsequently. It will take 6 months for design of the plant. Then construction may be started by the year of 2016-2017 and the plant will be commissioned in 2022-2013.

7. **One of the participants from Kalarmar Chora Union, Leader of Krishok League and Businessman** mentioned that If a power plant is established at the boundary of Matarbari and Dholghata unions, surrounding areas e.g Kalarmar Chora union will also be affected as effluents and other chemicals will be discharged within a three mile radius from the power plant. It was learnt that smog due to flue gas will cover up the sky around a radius of 3 mile and the sun won't be visible for at least 4 hours starting from the morning sunrise. The people of Moheshkhali rely highly on the sun since they are farmers of shrimp, betel leaves and salt. As a result, they will lose their source of income. So, he requested to use such technology that will not affect the project site and the surroundings as well.

In reply, **Managing Director of CPGCBL** told that there won't be any smog to block sunshine. Similar coal based power plant is now in operation at Boropukuria in Dinajpur, where no smog is produced. He invited the interested people to see the situation in Boropukuria for themselves.

8. **A political leader and teacher**, one of the participants asked why imported coal will be used for this proposed power plant in spite of the availability of domestic coal..

In reply, **Managing Director of CPGCBL** informed that there is a huge reserve of coal at the northern region of Bangladesh. But, due to lack of coal policy, extraction of domestic coal is stopped. In addition, coal need to be transported to the project site. In order to generate 1200 MW electricity, 10,000 metric tone of coal will be required each day. It is quite difficult to transport this huge amount of coal from Dinajpur to the project site by poor roads and highways. So, it will be best to import

coal from other countries.

9. **Member: Dholghata Union Parishad** informed that there are at least one thousand families in total at Matarbari and Dholghata union, whose land will be acquired for the project. Moreover they will also lose their means of livelihood. It was found in other project that the affected people don't get proper compensation for land and proper resettlement. So, he urged JICA to take necessary steps for proper compensation to the affected people and their proper resettlement with adequate means of livelihood.

In reply, **Managing Director of CPGCBL** informed that only twenty one houses will be affected. He mentioned that the proposed site has been selected in the area where very few houses will be affected. The affected people will be properly resettled and as far as their income is concerned, they will be supervised in finding their means of livelihood before/ after their resettlement.

10. **Secretary, Moheshkhali, Press club** mentioned that it is necessary to construct new power plants for development of Bangladesh. A land of 455hactare will be required for this proposed power plant. Most of the cases it was found that compensation for the land goes to the wrong hands. So, he wanted proper compensation to the actual owners of the lands. He also wanted proper resettlement of the people who will lose their houses. He wanted the equal opportunity for both male and female workers at the project site.

In reply, **Managing Director of CPGCBL** informed that only the affected people will be compensated, and they will get it easily. The equality of male and female workers at the power plant site will be taken care.

At the end of question & answer session, **Chairman, Kalarmar Chora UP** spoke on the occasion. He gave greetings to all the people present at the meeting. There are many arguments and counter-arguments regarding the coal based power plant. The people of Moheshkhali are dependent on three very important things- fish, salt and water. If these three things are protected, there is no problem in establishing the power plant. He welcomed JICA study team members and requested them to keep in mind that there is

no air pollution. Three unions over here will be affected the most. The local people and the environment will be highly affected. If the water temperature increases by a small margin of 2%, there will be negative impact on the fishes. So, he wanted assurance that the people of these 3 particular unions (Matarbari, Dhalghata & Kalar Marchora) won't be victims of any health related **hazards**.

Then **Chairman Matarbari Union** spoke on the occasion. He raised few issues about the construction power plant at Matarbari. The lands which are required for the establishment of the power plant in Matarbari, the owners of these particular lands and the affected people due to this project, were not called on the stakeholder meeting. Only few of the people were called. If a power plant is established in Matarbari, then opinions of all the people living on this area have to be taken. If only the people are in favour of this project, only then a power plant can be established on this area. So, for the people of Matarbari and Dholghata, two stakeholders meeting have to be held on these two particular areas in a much larger scale and all of their opinions have to be taken, these steps are highly encouraged for JICA. If the above steps are followed accordingly, only then the establishment of this power plant is welcomed by him.

Then **Upazila Chairman of Moheshkhali Upazila** spoke on the occasion. He is also in favour of the project in Matarbari area if the plant is environment friendly.

Then **Chairman, Dholghata Union** told that if a coal based power plant is established in Dholghata Union, then the people of this area will be deprived from the daily source of income. So, few alternative ways of income have to be introduced to these people. They have to be rehabilitated in a proper way. He requested JICA to pay a closer attention on the negative environmental impacts that are likely to occur in this area due to the establishment of this power plant. Each and every year, the people of Dholghata union suffer from floods. There is an embankment, but it is not enough to protect the people from the flood. So by taking this information into account, he requested JICA to build a state of the art embankment for the people of Dholghata Union and also for the proposed power plant.

Finally, **UNO Moheshkhali** gave greetings to all the people present in the meeting..

Matarbari and Dholghata need some development. These areas are always a hot spot for natural disasters. As a result, if a power plant is established here, the government has to take proper initiatives to protect this power plant as well. One of them would be to build an embankment and protect the people of this area first; this is nothing but a matter of common sense. He wanted these much needed developments.

And one or two speeches here today have been really great. He demanded to show the videos of other coal based power plants in the next meeting. To conclude, He would like to thank the people who are an integral part of their respected lands; managed their times and came here to be a part of this important meeting.

Then the meeting was concluded with thanks to all present in the meeting.

Annex-1

**Preparatory Study on Chittagong area Coal Fired Thermal Power Plant
Development Project
2nd Stakeholder Meeting (Power Plant)
Attendance Sheet**

Venue : Moheshkhali Upazila Parishad Auditorium, Cox'x Bazar
Date : 16/04/2013
Time : 10:30 AM

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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project

(2nd Stakeholder Meeting (Power Plant))

Attendance Sheet

Venue : Moheshkhali Upazila Parishad Auditorium, Cox's Bazar

Date : 16/04/2013

Time : 10:30 AM

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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project

(2nd Stakeholder Meeting (Power Plant))

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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project

(2nd Stakeholder Meeting (Power Plant))

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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project

(2nd Stakeholder Meeting (Power Plant))

Attendance Sheet

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**Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Power Plant))**

Attendance Sheet

Venue : Moheshkhali Upazila Parishad Auditorium, Cox's Bazar

Date : 16/04/2013

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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project

(2nd Stakeholder Meeting (Power Plant))

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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Power Plant))

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**Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Power Plant))**

Attendance Sheet

Venue : Moheshkhali Upazila Parishad Auditorium, Cox's Bazar

Date : 16/04/2013

Time : 10:30 AM

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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Power Plant))
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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Power Plant))

Attendance Sheet

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**Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Power Plant))**

Attendance Sheet

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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project

(2nd Stakeholder Meeting (Power Plant))

Attendance Sheet

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2nd Stakeholder meeting

(Transmission line)

15th April, 2013

**Preparatory Study on Chittagong area Coal Fired Thermal Power Plant
Development Project**

Minutes of 2nd Stakeholder Meeting (Transmission Line)

Venue : Chokoria Upazila Parishad Auditorium, Cox's Bazar

Date : 15/04/2013

Time : 11:00 AM

The list of the members attended the Stakeholders Meeting is enclosed herewith. A total 80 numbers Stakeholders were presented in the meeting.

General Manager of Power Grid Co. Ltd. of Bangladesh (PGCB) presided over the meeting. Welcoming the stakeholders and others presented in the meeting, General Manager of PGCB requested them to make their queries / suggestions / observations regarding the proposed transmission line.

General Manager of PGCB replied to the queries and observations raised by the members / stakeholders.

Local associates of JICA Study Team anchored the activities of the meeting.

Local associates of JICA Study Team requested Chairman of 6 No. Uzantia Union Parishad to deliver his speech on this proposed power point presentation on the proposed transmission line to be built.

Chairman of 6 No. Uzantia Union Parishad thanked everybody present in the meeting and told that this project is very important, because electricity is very essential for this area. He added that the proposed transmission line of this power plant will go through Pekua, Banskhali and Anwara upazilas including his union Uzantia. The Chairman also stated that road communication facilities are very poor and as such there is shortage of electricity in their area. Shortage of power will be removed and poor roads communication facilities of this area will be developed if this power plant project is implemented. He mentioned that the general public of these areas think that environment will be affected and environmental pollution will be occurred if this project is implemented. The Chairman opined that Department of Environment will approve the

project when environmental pollution created by the project is taken care off. The Chairmen told that the project consultants / the study team carried out survey and various types of investigations to select the route of the proposed transmission line over Matarbari, Pekua, Banshkhali and Anowara Upazilas and he hoped that the route of transmission line over the above Upazilas will remain unchanged. He requested everybody present in the meeting to give their opinions by supporting to implement this project in these areas. He thanked everybody and concluded his speech.

Then local associates of JICA Study Team requested Chairman, 5 No. Barunchara union parishad to speak something about this proposed transmission line project.

At the beginning, Chairman thanked everybody present in the meeting and told that the transmission line is very important, because electricity is very essential for us. He added that the development works of our country are facing obstruction due to inadequate supply of electricity. He stated that we are going backward in different fields including industry, agriculture for lack of electricity. He added, we observe that there is no interruption of electricity for single minute in developed countries. He thanked the authority for inviting them and allowing them to offer their opinions in the meeting. He also thanked the authority for considering the affect on environment as well as the welfare of local peoples in developing this project. He stated "as the people's representative" I want to tell that our areas (Chokoria, Pekua, Anowara, Banshkhali) are lagging behind in different aspects due to shortage of electricity. He informed the representatives of JICA that the remote areas of these unions are not yet electrified. He told that the peoples of his union, who are attending this meeting today have not yet got electricity connection and they are very much excited for getting electricity. He told that, they support for this proposed power plant and hoped that the peoples of those areas will not be deprived from electricity if the proposed transmission line is constructed. He worried that if the generated power / electricity from the proposed power plant are transferred to Dhaka or Chittagong they will be deprived. Finally he requested to the authority not to deprive them from electricity. He concluded by thanking everybody.

Then local associates of JICA Study Team requested Chairman, Baroshat Union, Anwara to speak something regarding this proposed project

Chairman thanked everybody presented in the meeting and told that the authority invited them in this meeting to get the opinions of the stakeholders. He added that they thanked the govt. for this proposed power plant in this area and expressed their stand in favor of this project. He also thanked the authority to invite them in this meeting. He informed that there is a power plant in Shikolbaha. The people surrounding that power

plant are never deprived from electricity. He wanted to tell that the peoples surrounding the proposed power plant to be constructed here also will not be deprived from electricity. He wanted to know, how much amount of taka will be compensated for those people, whose land will be acquired. As a representative of that area, he wanted to know that whether any affect on environment will be occurred for construction of this power plant and if occur, what are the preventions? He concluded his speech saying that the peoples of those areas, where the transmission line go through will get electricity or not and whether they will get any priority of works or not under this project?

Then local associates of JICA Study Team requested Member, Barobakia Union Parishad, Pekua to speak something regarding this proposed project

He thanked everybody present in the meeting and told that the authority has invited them to deliver their opinions on this proposed power plant. He informed that there is very much shortage of electricity in this area. He added that the authority and JICA Study Team are working for this power plant and they will co-operate with the team in all aspects. He concluded his speech by thanking everybody.

Thereafter local associates of JICA Study Team requested the present guests that anybody can make quarries / questions for further information about the transmission line.

In response, a lady (not mentioned her name) from the present stakeholders told that she has some questions. Her first question was, is there any provision for compensation of the land where transmission towers will be erected. Her second question was, at present there is 4 to 5 hours load shedding occurs in a day, whether the present electricity problem will be solved or not if this project is implemented.

In reply the questions regarding acquisition of land for construction of transmission line, General Manager of PGCB told that according to the present govt. law, there is no provision for acquisition of land to construct transmission line. In this connection he added that they avoid to take transmission line over household, mosque, school etc. and they try to construct it across the open land. However, during the construction time if any trees or crops are lost due to construction of transmission line, then compensation for this loss are made. Terms and conditions for compensation are prepared with the local Chairman and Members and payment is to be made accordingly. They try to pay more than the actual price. Again the told that payment will made according to govt.

rules and regulations. If the govt. change the present law of compensation for transmission line and tell them to acquire the land for transmission line tower, then they will acquire the land accordingly. In fact, it is controlled by the govt. and they follow the govt. instructions.

In reply the 2nd question, General Manager of PGCB told that you wanted to know another matter, i.e. whether any impact occurs on environment due to construction of transmission line. Regarding environment they will inform the Directorate of Environment to monitor it. Normally there is no affect occurs on environmental for construction of transmission line. General Manager of PGCB told that you have to co-operate for the greater interest. Electricity is very essential for us and it is needed for all works including agriculture, industries and household. It is very difficult to move without electricity.

General Manager of PGCB told that some loss of crops will occur during construction of tower, because workers will move, vehicles will be moved for transportation of line materials. You have to accept this loss for the interest of the people and the county. If the govt. changes the rules on acquiring land for transmission line, then they will take necessary actions so that the losers can get the compensation.

General Manager of PGCB informed that JICA will finance for this project. Rate of interest of JICA loan is very low. If the power plant is constructed at Matarbari, about 2000 peoples will get job during construction period. Also many bazaars will be developed surrounding the power plant and business and trading facilities will be expanded. If any industry is established at an area, that area will be developed automatically. General Manager of PGCB told that he is very happy, because the local peoples want that a power plant project will be established there. He added that they will try to construct the transmission line so that minimum loss is incurred and also they will try to complete the project as quick as possible and give the facilities all over.

Then Assistant Agriculture Extension Officer, Chokoria delivered his speech. He wanted to know, how much amount of money will be paid per sq. meter during land acquisition. Secondly, he wanted to know name of the Unions, over which the transmission line will be constructed?

General Manager of PGCB replied that the proposed transmission line will be constructed from Matarbari to Anwara via Pekua and Banskhali upazilas. The name of the unions over which the transmission line will be taken is not in our hand at this moment. Price of acquired land depends on govt. rules. Normally 1.5 times of actual price of land is paid against acquired land.

General Manager of PGCB added that at present there is no provision for acquiring land for construction of towers of transmission line. However, they can be compensated only for loss of crops and trees. But they are trying to acquire land and to pay for it. He told that land owner can cultivate for growing crops inside the land of tower footings.

Then Upazila Livestock Officer, Chokoria raised the following questions:

The land where the power plant will be constructed shall be acquired as per rules. But most of the people lead their lives by bringing up cattle. They may get the compensation against land. But it is observed that most of them cannot sustain their professions due to transfer to another place from their original living. He wanted to know whether any provisions have in the proposed project to make up the loss due to their professional loss. If there is no provision, then can it be added?

Both General Manager of PGCB and local associates of JICA Study Team addressed the present guests and told that today's program is concerned only to proposed transmission line from Matarbari to Anwara and not related to Power Plant. They informed that the questions related to Power Plant will be discussed and replied in tomorrow's meeting on Power Plant to be held at Maheskhali Upazilla Office.

Then one of the present stakeholders raised the following questions:

Land of their village which is selected for erection of proposed tower is meant for construction of house hold. They have no other alternative land for this household construction. In this situation what they will do.

In reply General Manager of PGCB told that the construction work will start after 1 to 2 years. If the land owner will construct the house before this period of time, then they will think the alternative way and if he does not construct the house before this period, then the plan will remain as it is. They will not resist him to work in this land. However, at the time of work, they will conduct survey and physically verify the situation and do the work accordingly.

Then one of the stakeholders raised the following questions:

His 1st question was what benefits they will get from this project. 2nd question was, do they get electricity connection to every household, if the project is implemented and his 3rd question was, since this is a long term project, what is the planning for employment of labor in this project? Whether the priority for employment of local people will be given and is there any specific percentage for employment of local people for this project?

In reply General Manager of PGCB told that the transmission line is 62 Km. long from Matarbari to Anwara. There will be a sub-zone office at Anwara. He informed that they will try to give priority to the affected people. There is no such allocated percentage of employment from the local people, but priority will be given. There will be no office establish in the middle of transmission line. Offices will be established at Matarbari and Anwara. But priority will be given to the local people.

Then one of the stakeholders made the following questions:

The land adjacent to Nabogram under Barbakia union of Pekua Upazila, that will be used for the transmission line whether any compensation will be given for the use of this land. His 2nd question was, whether any problems will be created for this transmission line?

General Manager of PGCB replied that he has already answered this question. Again he told that according to govt. present rules there is no such provision for making compensation of land for erection of transmission line towers.

One of the stakeholders from Barunchara Union raised the following questions

Her 1st question was, whether, there will be any affect on environment for the construction of towers? 2nd question was, about 2000 peoples of Barunchara Union are not getting electricity facility, whether those people will get electricity, if this line is constructed?

In replied General Manager of PGCB told that dust may fly in the air due to moving vehicle and people at the time of erection of transmission tower, otherwise there will be no affect on environment. He informed that after completion of this project electricity will be given to the people who are not getting electricity now.

In reply to the question regarding union, local associates of JICA Study Team informed the present guests that the name of the unions over which the major angle towers of the transmission line will be erected as per planning are mentioned below:

Starting from Anwara 1st tower will be erected in Baroshat union, 2nd & 3rd angle towers in Barunchara union, 4th & 5th towers in Katharia union, 6th & 7th towers in Barobakia union, 8th tower in Ujantia union and 9th & 10th towers in Matarbari union. The transmission line will go through over 4 thanas, namely Moheshkhali, Pekua, Banshkhali and Anwara.

One of the stakeholders raised the following questions:

He wanted to know whether the local people will get the electricity or not.

General Manager of PGCB replied that the demand of electricity will be met, if the proposed power plant will be constructed here. As mentioned earlier he told that there is shortage of power, but most of the people will get electricity, who are not getting it now.

Then Land owner, 5 No. Barunchara Union made the following questions:

He questioned that, you already informed that compensation will be given for the land inside the footings of towers as per present govt. rules. But the land could not be sold or transferred to anybody after erection of tower on it. Although the land owners will use it but cannot construct house on that land and they will face various problems. You have made the master plan for it. If you make the law and arrange to make payment at least the actual price of the land to the land owner, then the land owner will be benefited. He wanted to know whether they will recommend the above issue or not.

His 2nd question was, you have the big program to construct the tower line, whether any activities to be done at the end of land owners for this work?

General Manager of PGCB replied that payment can be made for the land. For this, we shall recommend to the ministry. We shall try our utmost to make payment even by modifying the present rules. He again told that priority will be given to the land looser for employment, but cannot be sure at this moment.

Addressing the present guest, local associates of JICA Study Team requested the present stakeholders to raise their hands in support of construction of this project. Everybody raised their hands in support on it.

Another person (Not mentioned name) pointed out the following issues:

He told that their heartiest demand is to get electricity in all un-electrified areas under all the unions of 4 Upazilas.

General Manager of PGCB replied that they will try to meet this demand.

In conclusion General Manager of PGCB told that they are delighted to know that the stakeholders (local people) are very much happy for this project. Then he declared the meeting closed.

**Preparatory Study on Chittagong area Coal Fired Thermal Power Plant
Development Project
2nd Stakeholder Meeting (Transmission Line)
Attendance Sheet**

Venue : Chokoria Upazila Parishad Auditorium, Cox's Bazar
Date : 15/04/2013
Time : 11:00 AM

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.
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Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.
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Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.
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**Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Transmission Line))**

Attendance Sheet

Venue : Chokoria Upazila Parishad Auditorium, Cox's Bazar

Date : 15/04/2013

Time : 11:00 AM

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.	Signature
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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Transmission Line))

Attendance Sheet

Venue : Chokoria Upazila Parishad Auditorium, Cox's Bazar

Date : 19/04/2013

Time : 11:00 AM

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.	Signature
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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Transmission Line))

Attendance Sheet

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.	Signature
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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project

(2nd Stakeholder Meeting (Transmission Line))

Attendance Sheet

Venue Chokoria Upazila Parishad Auditorium, Cox's Bazar

Date - 15/04/2013

Time 11:00 AM

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.	Signature
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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Transmission Line))

Attendance Sheet

Venue Chokoria Upazila Parishad Auditorium, Cox's Bazar

Date 15/04/2013

Time 11:00 AM

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.	Signature
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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Transmission Line))

Attendance Sheet

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.	Signature
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Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Transmission Line))

Attendance Sheet

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.	Signature
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**Preparatory Study on Chittagong Area Coal Fired Thermal Power Plant Development Project
(2nd Stakeholder Meeting (Transmission Line))**

Attendance Sheet

Sl. No.	Name of Participant	Organization & Designation	Contact Phone No.	Signature
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1st Stakeholder meeting

(Access road)

21st March, 2013

1st Stakeholder Meeting

a) Objective

The 1st Stakeholder Meeting (SHM) was aimed at hearing the opinions and/or comments of individuals and organizations regarding the project, and understanding the needs of local residents, as well as appropriately reflecting those needs into the relevant survey. The followings are the main objectives of the SHM:

- To disseminate the project outline and related activities to the project stakeholders
- To know the views of the stakeholders' about the project
- To identify the issues and remedies, if any, related to the proposed project during and after the implementation
- To know the project impacts (positive and negative) on the community
- To exchange views about the proposed project

b) Implementation Methodology

In accordance with JICA Guidelines for Environmental and Social Consideration, stakeholder meeting for the access road was held at the scoping stage of the feasibility study on the access road. The meeting was chaired by Upazilla Nirbahi Officer (UNO) and assisted by the JICA Study Team. The methodology of the meeting is shown in the following Table..

Methodology of 1st Stakeholder Meeting

Item	Description
Date	21st March, Thursday 2013
Time	11:00am – 1:30pm
Venue	Upazilla Parishad Conference Room
Targeted Stakeholders	Local Government Officers Community leaders Local NGOs Local Elite People Local affected residents
Notification Method	Notification over phone call was done to all key stakeholders prior to the meeting
Number of Participants	58 persons
Chairperson	Upazilla Nirbahi Officer (UNO)
Facilitator	Resettlement Specialist of JICA Study Team
Agenda	Registration Recitation of Quran Keep One Minute Silent for Respecting the Departed Soul of Honorable President of Bangladesh Welcome Speech Speech of Special Guests (4 persons) Presentation of the Project by JICA Study Team

Item	Description
	Question & Answer Session (Facilitated by Resettlement Specialist of JICA Study Team) Closing Speech and Thanks to all by the Chairman of the Meeting* Lunch

* (SHM program was shorten because of official leave declaration from 2.00pm local time for the three day mourning to the departed soul of Honorable President of Bangladesh)

(Source: JICA Syudy Team)

c) Results

At the meeting, a power-point presentation was given to the participants in their local language (Bengali), with a full explanation of the project work, to allow the audience to fully understand the project and contribute valuable comments. The main comments raised by the participants are as follows in the following Table.

Result of the 1st Stakeholder Meeting

Participants	Comments	Response
	Shared the nationwide necessity of electricity	(N/A)
	Road is indispensable for a nations development This access road will help the Moheshkhali people to reach Chittagong by 2 hour journey which may upgrade the economy of the Project area	(N/A)
	Electricity is our crying need at this moment in Moheshkhali as because the Moheshkhali people get only 2 hours electricity services in a day JICA expert must look into the anticipated problems that may arise during and after the construction of the access road project	- Environmental Management Plan and Environmental Monitoring Plan will be built, and implemented during and after construction.
	Thanks to JICA for taking initiatives of Road construction in the remote village areas like Matarbari, Moheshkhali. The specific proposals are; - Road from Rangakhali to Mohori Gona Ghat, Dhalghata through existing embankment - Connecting road from Rangakhali to west Matarbari existing embankment	- Proposed road is not scope of the access road, but it will be considered in future. - The access road will be connected to the circuit road of the power plant, and these roads will connect the east and west side of Matarbari Island completely.
	Local development depends on the good	

Participants	Comments	Response
	<p>communication systems</p> <p>Specific proposals and info:</p> <ul style="list-style-type: none"> - Most of the settlements are in and around the existing big Pond - Existing road widening will encroach many houses - Jetty at Bahonaghata (Nayaghata) which is maintained by local people shall be taken into consideration during and after the road construction of the project - Proposed road can be straight if it starts before the Yunuskhali Bazar point of Kalarmarchara Road i.e. at the causeway point 	<ul style="list-style-type: none"> - Proper measurement, for example guide walls will be considered. - Widening will be conducted carefully. - The function of Jetty will be carefully considered through public consultations. - The proposed road route will cause resettlement for several households.
	<p>Many private land owner will be affected by the Power Plant project</p> <p>The proposed road will not be helpful for the Matarbari people</p> <p>Road construction at the proposed location for the Matarbari is immaterial and for no use</p>	<ul style="list-style-type: none"> - Power plant issue - The access road will connect the east and west side of Matarbari Island, and benefit Matarbari people.
	<p>Road crossing through hilly areas should consider Mitigation Measures like retaining wall etc.</p> <p>Matarbari is a siltation prone area. Study on siltation of the Kohelia River should be taken into consideration so that bridge construction over the Kohelia River does not create any damage to the Bridge adjacent areas</p> <p>Mangrove forest should be considered carefully so that no damage is done during and after the development</p> <p>A full scale EIA shall be prepared for this project and with that the Environmental Clearance have to be collected from DOE before construction of this project</p>	<ul style="list-style-type: none"> - Drainage measurement will be considered. - Topographical and morphological study will be conducted. - The bridge alignment has been considered about the mangrove forest and sifted to north to avoid impact on it. - EIA study is conducted as 'Red Category' in Bangladeshi regulation.
	<p>I received mixed reactions from my local people on the issue of Access Road Construction</p> <p>I'm one of the affected persons who will lose around 30-40 Kani of land for the Power Plant construction</p> <p>If environmental deterioration does not prevail due to road construction then I have no objection as I'm not a scientist to assess the affects</p> <p>This road construction is only for the Power Plants use not for the local development</p> <p>The bridge construction is no more useful for the local people as because an existing bridge is now workable and still doing well for us</p> <p>A leaflet was distributed among you for sharing the bad effects of the power plant at</p>	<ul style="list-style-type: none"> - It will be considered on environmental and social impact on road construction and operation. - This access road including road and bridge will benefit people not only Matarbari but also Dhalghata and Kalarmachara. - As the leaflet was not specified on the Matarbari site and

Participants	Comments	Response
	<p>Matarbari and my people like to know from this meeting about the environmental effect of the construction of the Power Plant and Its access road.</p> <p>If the power plant is not environmentally viable then the access road may not be acceptable to us.</p>	<p>included some misunderstanding, proper explanation will be done.</p> <p><i>*The explanation was done in the second SHM for the power plant.</i></p>
	<p>For this access road development work; Initial Environmental Examination (IEE) will be done.</p> <p>Environmental Impact Assessment (EIA) will be done following the IEE.</p> <p>Advantages, disadvantages of local people during construction and maintenance of roads shall be noted in EIA study and for that the Environmental Management Plan (EMP) will be prepared.</p> <p>At the end, the environmental clearance of DOE will be taken, complying with the DOE procedures for starting the construction work in the project site.</p>	
	<p>More fruitful discussion was possible to do as maximum participants from different corners of the project assembled here to place their views. But sorry for wrapping this program before our schedule due to the declaration of three days national mourning for the death of Mr. Zillur Rahman, Honorable President, GOB.</p> <p>Electricity is essential and we feel the electricity when it is absent.</p> <p>Government is trying to generate electricity all over the country to minimize the demand of electricity.</p> <p>Matarbari and Dhalghata is indivisible, neglected island and with the installation of power plant, deep sea port and other associated infrastructural development i.e. road construction, embankment etc. of the area will increase.</p> <p>Power plant project at the Dhalghata will be well protected by the CPGC</p> <p>The Dhalghata, Matarbari area will be safe from natural calamity</p> <p>JICA will ensure the top up compensation for the project affected peoples (PAPs) and the transportation cost, rehabilitation cost will be orderly done to ensure the PAPs compensation.</p>	
	SHM was concluded by Chairperson.	

(Source:JICA Study Team)

2nd Stakeholder meeting

(Access road)

1st August, 2013

The Second Stakeholder Meeting (Finalizing stage)

a) Objective

The second stakeholder meeting was aimed at hearing the opinions and/or comments of individuals and organizations regarding the environmental impact and environmental management plan at finalizing stage of EIA report. The followings are the main objectives of the SHM:

- To know the project impacts (positive and negative) on the community
- To know the Environmental Management Plan and the Environmental Monitoring Plan
- To exchange views about the proposed project

b) Implementation Methodology

In accordance with JICA Guidelines for Environmental and Social Consideration, stakeholder meeting for the access road was held at the scoping stage of the feasibility study on the access road. The meeting was chaired by Upazilla Nirbahi Officer (UNO) and assisted by the JICA Study Team. The methodology of the meeting is shown in the following Table.

Methodology of 2nd Stakeholder Meeting

Item	Description
Date	1 st August, Thursday 2013
Time	11:30am – 2:00pm
Venue	Upazilla Parishad Conference Room
Targeted Stakeholders	Local Government Officers Community leaders Local NGOs Local Elite People Local affected residents
Notification Method	Notification over phone call was done to all key stakeholders prior to the meeting
Number of Participants	71 persons
Chairperson	Upazilla Nirbahi Officer (UNO)
Facilitator	Resettlement Specialist of JICA Study Team
Agenda	1) Registration 2) Recitation from the Holy Quran 3) Welcome Speech 4) Presentation of the Project by JICA Study Team 5) Participants' Opinion and Sharing about Project, Facilitated by Resettlement Specialist of JICA Study Team 6) Speech of Special Guests 7) Speech of Chief Guest 8) Speech of Host 9) Closing Speech and thanks to all by the Chairman of the Meeting

(Source: JICA Study Team)

c) Results

At the meeting, a power-point presentation was present before the local participants in their local language (Bengali), with a full explanation of the project work, to allow the audience to fully understand the project and contribute valuable comments. The main comments raised by the participants and then responded/shared by JICA Study team are listed in the following Table.

Comments and Responses/sharing of the 2nd SHM

Participants	Comments	Responses/Sharing
		<p>Shared the nationwide necessity of electricity</p> <p>Invited all participants for the constructive discussion on the project work</p>
Environmental Expert, JICA Study Team		
Present the Presentation of the SHM-2		
Resettlement Specialist, JICA Study Team Facilitate the SHM-2		
	<p>Is there any measures taken to keep the existing Graveyard & Canal undisturbed at the Yunuskhali Bazar? Make sure that some small ponds and a big pond along the existing roadside will not be affected by the Access road.</p> <p>Existing drain which is now used for the irrigation purpose shall be avoided or not?</p> <p>Existing salt field/shrimp field will be affected for the project or not?</p> <p>What measures are to be taken for the possible marginal land owners of the project?</p> <p>Is there any special measure for the embankment protection?</p>	<p>The access road is designed in a way that the existing Graveyard and Canal will remain untouched.</p> <p>The access road is especially designed to save the possible small ponds and the big pond along the route with retention wall and there the top width of the road will be properly maintained.</p> <p>The existing drain is fully avoided.</p> <p>The road is designed with required box culvert, regulator, sluice gate etc. to produce the minimum intervention of the existing setup. And possibly the salt field/shrimp field will not be affected due to this access road project.</p> <p>The project will follow the minimum land use policy and in the unavoidable circumstances the possible marginal land owners will get the top up compensation (i.e. land price with financial aid), even for the construction material deposition temporary land shall be requisitioned</p> <p>With proper Hydrological study the embankment shall be designed to protect the embankment from erosion, surge effect etc.</p>
	<p>Fish hatchery/Shrimp Cultivation/Salt cultivation/4Production Tube-well might be in the project area</p> <p>What compensatory measures shall be taken for?</p>	<p>JICA principally avoid the private land use and resettlement for any project</p> <p>The possibility of the affect are underway to evaluate through socioeconomic and resettlement field survey</p> <p>The minimum private land is accepted for this project and the top up compensation shall be made for that</p>
	Experience of past project	Nowadays the Project compensation is made

Participants	Comments	Responses/Sharing
	compensation for the PAPs are not so good in Bangladesh What is the fate of the PAPs compensation in this project?	before the start of any project work JICA has special care for the compensation of PAPs
	Land for the best quality road is not a problem for the local people	JICA is doing this project with best quality design and minimum land acquisition as because JICA don't encourage any resettlement
	Khash land (Government Land) shall be used than of Private land	JICA always encourage to use the Government owned land
	Road width shall be maintained in a way that the heavy vehicle can easily travel Local people shall get first priority to get the job opportunity of the project work during construction	Two lane 7.3m crest width road is designed for this project Local people will have the utmost priority to get the project job opportunity
	Crash Program for compensation should be taken for this project	Crash program shall be taken for compensation
	Jetty construction at the Bridge site shall be constructed so that existing waterway can be used Beautification of the Bridge site shall be made to encourage the tourism	Jetty at the Bridge side is approved by the RHD and beautification of the bridge site
	Women labor shall have the opportunity to get Job in this project	Women labor will get the priority to be employed during the construction of the project work
	RHD should design a sustainable road	Design of sustainable road is underway

(Source: JICA Study Team)

Appendix-C15.6

Results of the Air Pollutant Diffusion Simulation

in the case of a Lower Stack

Simulation of Air Pollutant Diffusion (Stack Height is 200m)

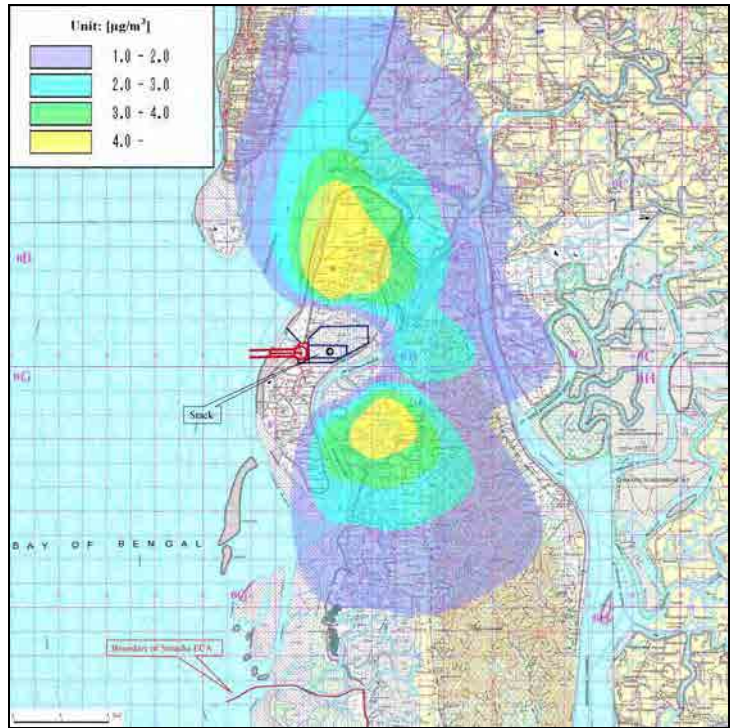
The Department of Environment, Bangladesh limits the lowest stack height for coal-fired power plants to 275 meters in order to control the sulfur oxide (SO₂) emitted from the stack, in accordance with the Environmental Conservation Rules 1997. Coal-fired power plants utilizing the ultra super critical technology used in this project are environmentally friendly and reduce the concentration level of the pollutants emitted from the power plant; therefore, SO₂ concentration will satisfy Bangladesh and the international standards even with a lower stack height.

An exhaust gas simulation was performed using a diffusion model when the stack height is 200 meters under the same conditions as when the stack height is 275 meters (Refer to Chapter 15.6.1).

The results of the simulation are shown below.

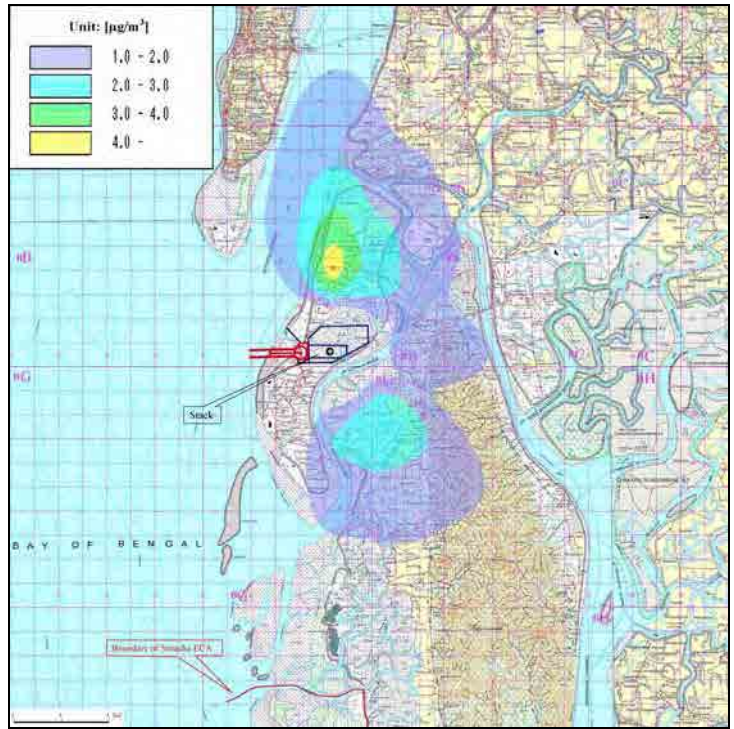
Table-1 Dispersion concentration of air pollutants (Case: Stack height 200m)

Time scale	Item	Background concentration (µg/m ³) (1)	The highest concentration (µg/m ³) (2)	The appearance distance from stack (km)	Prediction concentration in ambient air quality (µg/m ³) (1)+(2)	Air quality standards (µg/m ³)	IFC guideline value (General 2007) (µg/m ³)	EU Standards (Japanese Standards) (µg/m ³)
Annual Average	SO ₂	(3.0–4.1)	7.8	3.5	10.8–11.9	80	-	20
	NO ₂	(5.0–7.6)	4.4	3.5	9.4–12.0	100	40	40
	SPM/PM ₁₀	(42–62)	0.5	3.5	42.5–62.5	50	70	70
24 hour Maximum	SO ₂	3.0–4.1	47.2	3.5	50.2–51.3	365	125	125 (100)
	NO ₂	5.0–7.6	26.5	3.5	31.5–34.1	-	-	- (75 - 110)
	SPM/PM ₁₀	42–62	2.9	3.5	44.9–64.9	150	150	150 (100)
1 hour: normal condition (Maximum B,1m/s)	SO ₂	3.0–4.1	111.5	3.3	114.5–115.6	-	500(10min)	350 (260)
	NO ₂	5.0–7.6	62.6	3.3	67.6–70.2	-	200	200
	SPM/PM ₁₀	42–62	6.8	3.3	48.8–68.8	SPM:200 (8hr)	-	- (200)
1 hour: Occurrence of Invasion layer (Maximum B,1m/s)	SO ₂	3.0–4.1	223.0	3.3	225.0–227.1	-	500(10min)	350 (260)
	NO ₂	5.0–7.6	125.0	3.3	130.0–132.6	-	200	200
	SPM/PM ₁₀	42–62	13.6	3.3	55.6–75.6	SPM:200 (8hr)	-	- (200)



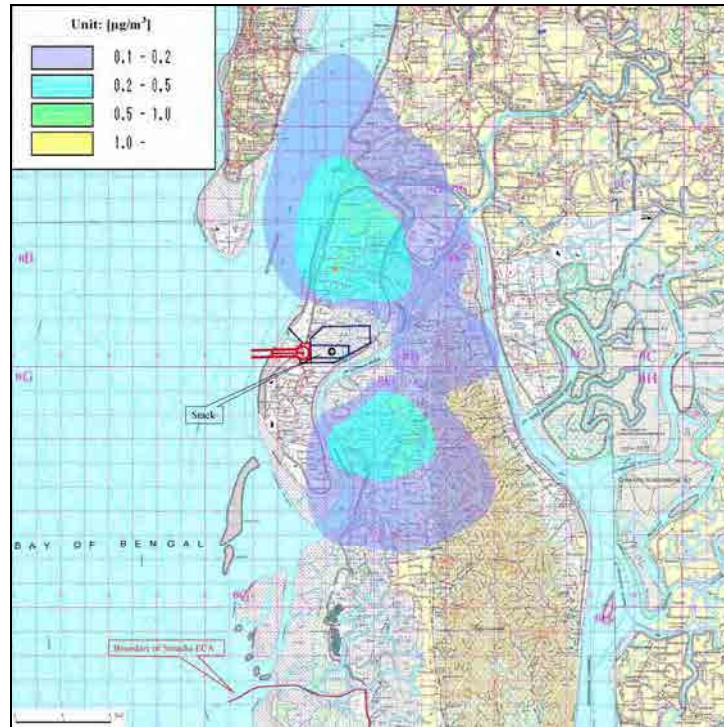
(Source: JICA Study Team)

Figure-1(1) Dispersion concentration of air pollutants (Annual Average) (SO₂)



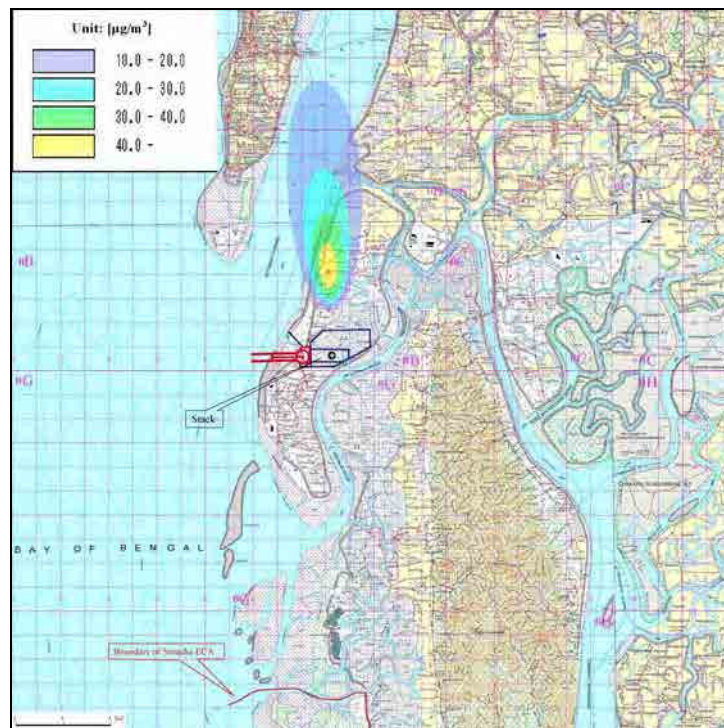
(Source: JICA Study Team)

Figure-1(2) Dispersion concentration of air pollutants (Annual Average) (NO₂)



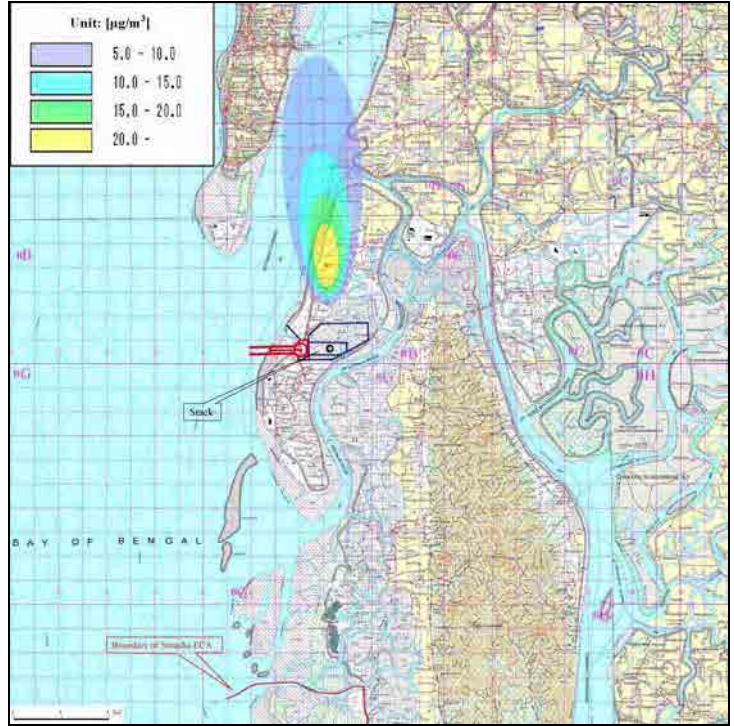
(Source: JICA Study Team)

Figure-1(3) Dispersion concentration of air pollutants (Annual Average) (PM_{10})



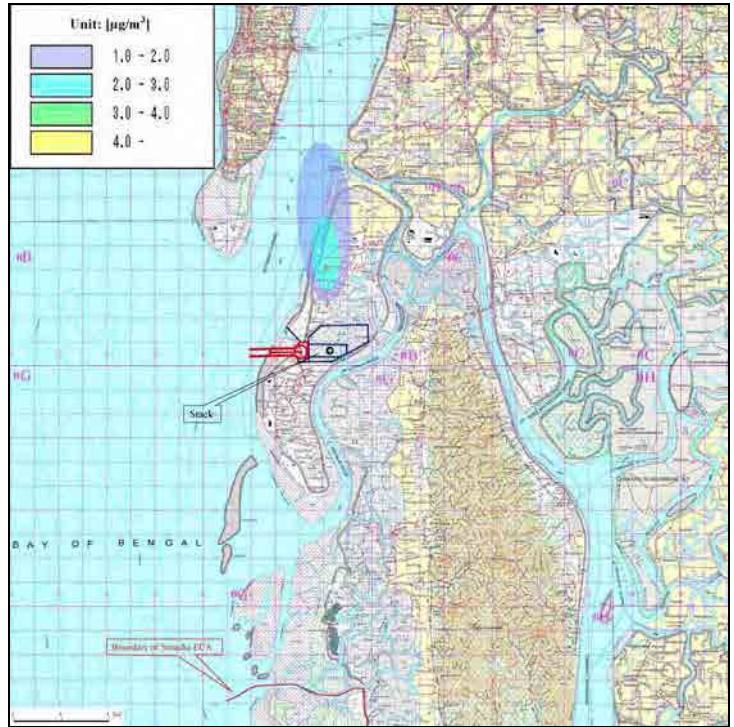
(Source: JICA Study Team)

Figure-2(1) Dispersion concentration of air pollutant (24 hour Maximum) (SO_2)



(Source: JICA Study Team)

Figure-2(2) Dispersion concentration of air pollutants (24 hour Maximum) (NO_2)



(Source: JICA Study Team)

Figure-2(3) Dispersion concentration of air pollutants (24 hour Maximum) (PM_{10})

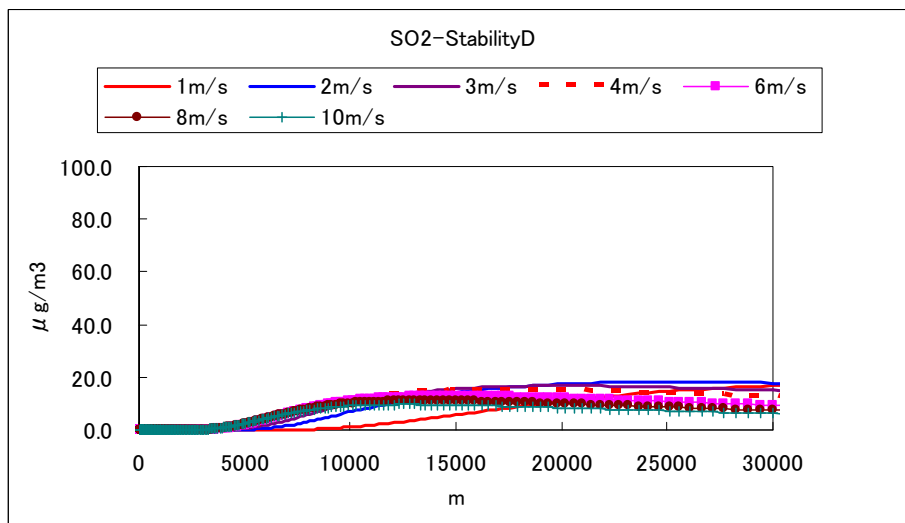
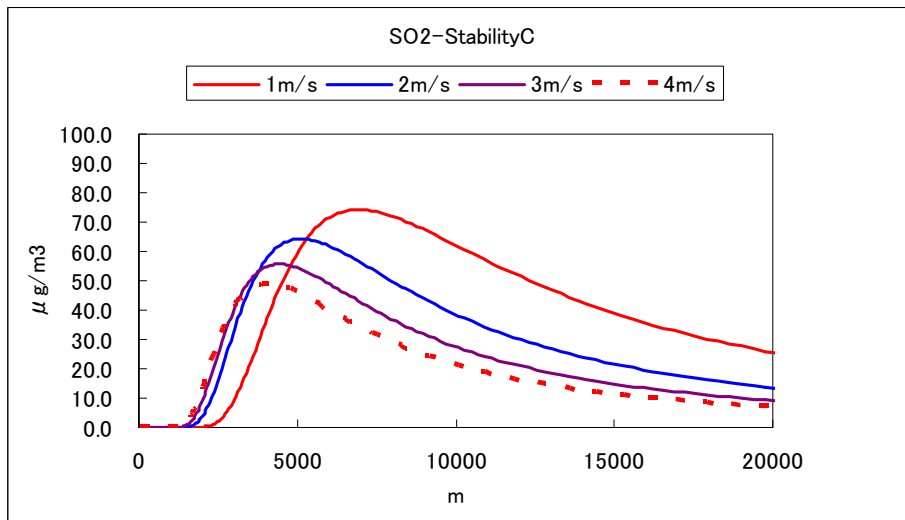
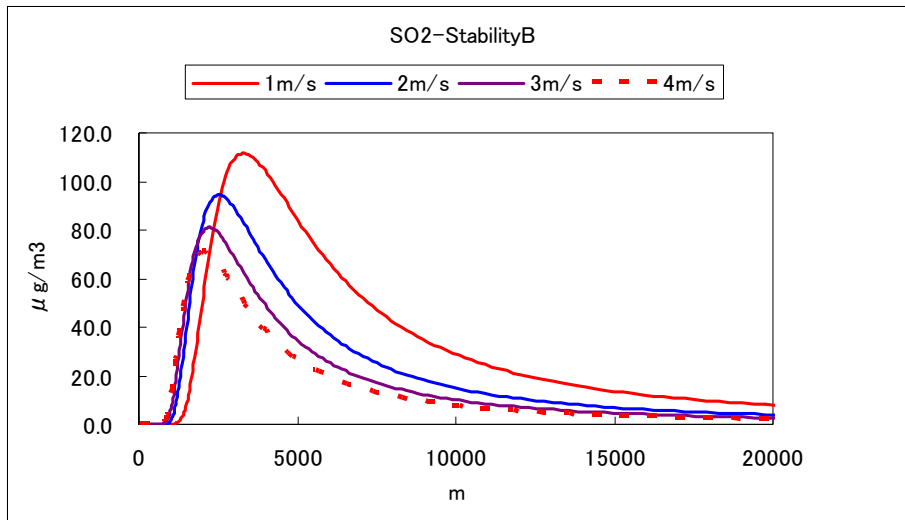


Figure-3(1) Dispersion concentration of air pollutants (1 hour Maximum) (SO₂)

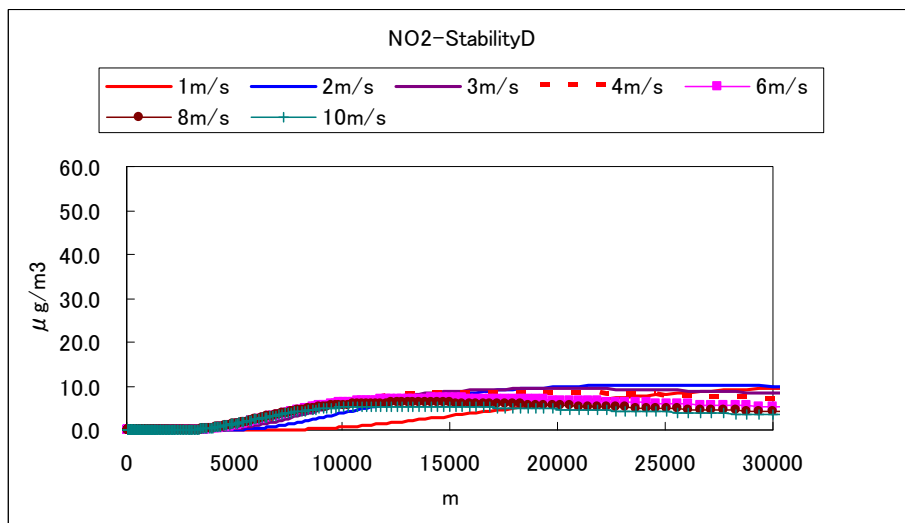
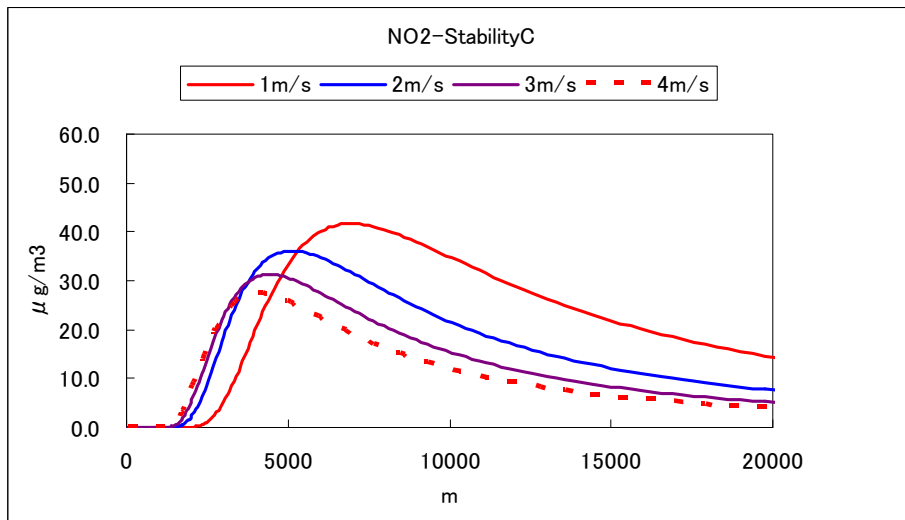
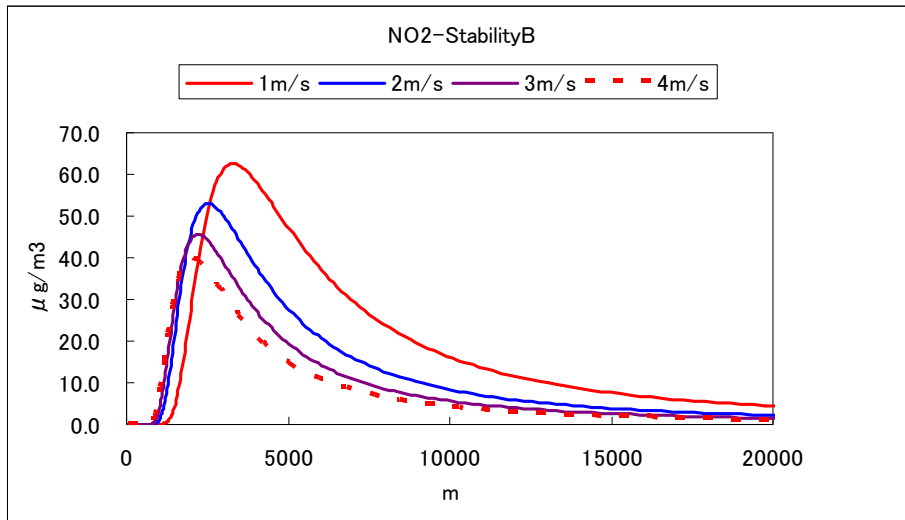


Figure-3(2) Dispersion concentration of air pollutants (1 hour Maximum) (NO₂)

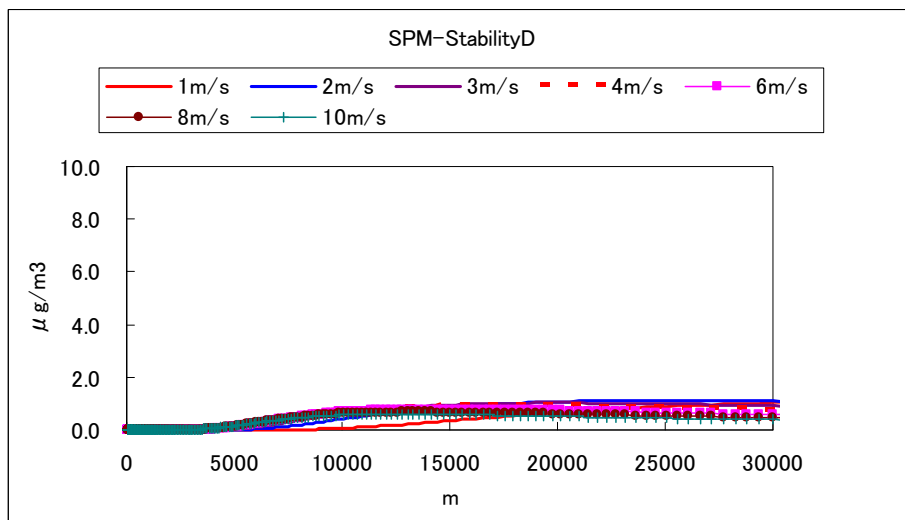
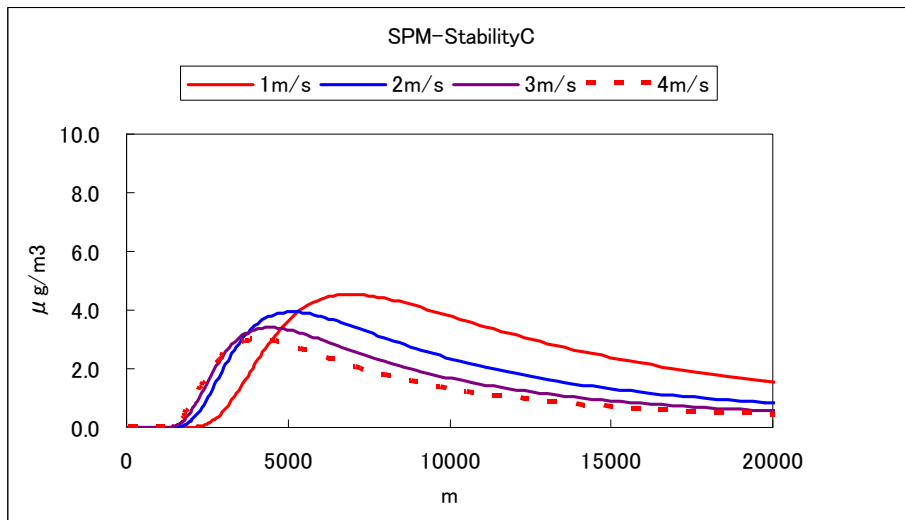
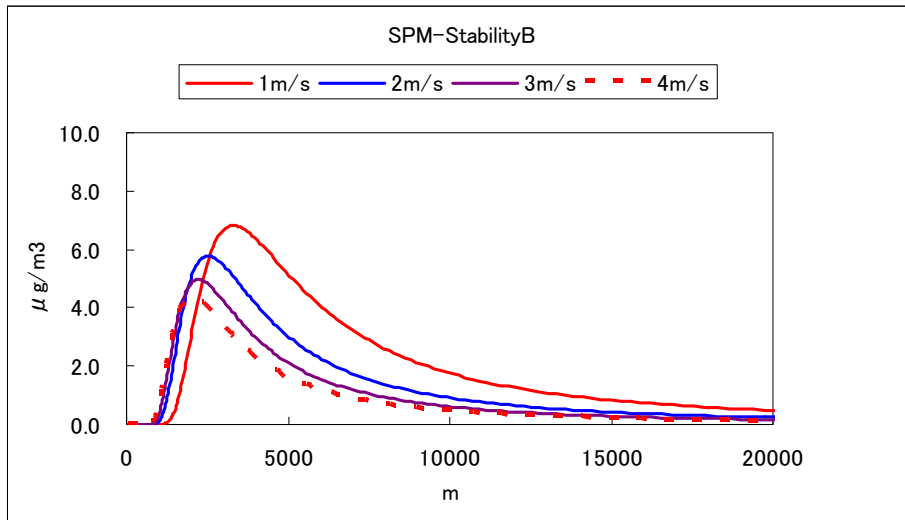


Figure-3(3) Dispersion concentration of air pollutants (1 hour Maximum) (PM_{10})

Appendix-C15.9-1

Land Acquisition and Resettlement Action Plan (Draft)

(Power Plant, Port Facility and Transmission Line)

**People's Republic of Bangladesh
Ministry of Power, Energy and Mineral Resources**

**Land Acquisition and
Resettlement Action Plan
(Draft)**

**Chittagong Area Coal Fired Power Plant
Development Project
(for Power Plant, Port Facility and Transmission Line)**

May 2013

**Japan International Cooperation Agency (JICA)
Tokyo Electric Power Services Co., LTD
Tokyo Electric Power Co., LTD**

Table of Contents

Table of Contents

List of Tables and Figures

Abbreviations

Definitions

	Page
1 Rationale.....	1
1.1 Objectives	1
1.2 Project Description	1
1.2.1 Project Components.....	1
1.2.2 Location of the proposed site	2
1.3 Brief Description of Social Impacts.....	5
1.3.1 Brief Description	5
1.3.2 Anticipated Impact caused by Power Plant and Port Facility Construction	5
1.3.3 Anticipated Impact caused by the Extension of Transmission Line	6
1.4 Specific Measures Taken to Minimize Adverse Impacts	7
1.4.1 Examination of Alternatives.....	7
1.4.2 Application of International Standards to Land Acquisition and Resettlement	8
1.4.3 Entitlements of Affected People without Legal Claims to Land	8
1.4.4 Measures for Avoidance and Further Influx of Illegal Occupation	9
1.4.5 Methods of Valuing Affected Assets	9
1.4.6 Livelihood Restoration and Rehabilitation	9
2 Legislations in Bangladesh and Gaps from JICA's Policy	10
2.1 Key legislations	10
2.2 JICA's policy on land acquisition and resettlement	11
2.3 Procedures of land acquisition.....	13
3 Social Impact Survey.....	15
3.1 Socioeconomic Survey and Focus Group Discussions at Power Plant and Port Facility Site	15
3.1.1 Survey Outline.....	15
3.1.2 Findings.....	18
3.2 Socioeconomic Survey and Focus Group Discussions at Transmission Line Site	34
3.2.1 Survey Outline.....	34
3.2.2 Findings.....	36
3.3 Local Consultation.....	40

3.3.1	First Public Consultation Meeting	40
3.3.2	Second Public Consultation Meeting.....	42
4	Detailed Description of Impacts and Category of PAPs.....	47
4.1	Power Plant.....	47
4.1.1	Pre-construction Phase and Construction Phase.....	47
4.1.2	Operation Phase.....	51
4.2	Port Facility	54
4.2.1	Pre-construction Phase and Construction Phase.....	54
4.2.2	Operation phase	55
4.3	Transmission Line.....	55
4.3.1	Pre-construction Phase and Construction Phase.....	55
4.3.2	Operation Phase.....	57
4.4	Entitlement for Different Types of Losses	59
5	Livelihood Restoration and Improvement Plan.....	63
6	Organizational Responsibilities and Implementation Procedures	64
6.1.1	Finalization of land acquisition and resettlement action plan	64
6.1.2	Data collection and EP identification.....	64
6.1.3	Local consultation and information management.....	64
6.1.4	Finalization of budget.....	64
6.1.5	Implementation of land acquisition and resettlement.....	64
6.1.6	Monitoring	65
7	Grievance Redress Mechanisms	67
7.1	Entitlement for Different Types of Losses	67
8	Specific Measures provided to Vulnerable Groups and Income Rehabilitation	
	Assistance	69
9	Estimated Land Acquisition and Resettlement Cost	70
9.1	Power plant and port facility site	70
9.2	Transmission line route.....	74
10	Local Consultation, Participation, Monitoring and Evaluation Procedures.....	77
10.1	Further Consultation Process	77
10.2	Monitoring and Evaluation Procedures	77

List of Tables and Figures

	Page
Table 1-1 Area covered by the proposed transmission line	3
Table 1-2 Anticipated Land Acquisition.....	5
Table 1-3 Anticipated Impact (Power Plant and Port Facility)	6
Table 1-4 Breakdown of Land Acquisition (Transmission Line)	6
Table 1-5 Anticipated Impact on the Owners of Angle Tower Locations	7
Table 2-1 Gap Analysis between Bangladeshi Laws and JICA Guidelines	13
Table 3-1 Interviewed Households	15
Table 3-2 Structure of Socioeconomic Survey	16
Table 3-3 Interviewed Population in Focus Group Discussion.....	18
Table 3-4 Total Surveyed Population	19
Table 3-5 Education Level of Heads and Household Size	20
Table 3-6 Literate Population	22
Table 3-7 Educational Levels and Literacy (FGD).....	22
Table 3-8 Occupations of the Household Heads	23
Table 3-9 Incidence of Poverty (Head Count Ratio) by CBN Method in 2010	26
Table 3-10 Incidence of Poverty (by per capita monthly income) in 2010.....	27
Table 3-11 Incidence of Poverty (by per capita monthly expenditure) in 2010	27
Table 3-12 Household Head's Per Capita Monthly Income and Expenditure	27
Table 3-13 Animals and Poultry owned by Households	29
Table 3-14 Energy Source by Purpose	29
Table 3-15 Availability of Medical Facilities	31
Table 3-16 Skill Development Requests	33
Table 3-17 Profile of Interviewed Households.....	34
Table 3-18 Interviewed Population in Focus Group Discussion.....	36
Table 3-19 Outcomes of First PCM	40
Table 3-20 Major Comments from Participants and Responses by the Project Owner.....	41
Table 3-21 Outcomes of Second PCM	43
Table 3-22 Major Comments from Participants and Responses by the Project Owner.....	44
Table 4-1 Anticipated Social Impact to 343 Households (Power Plant)	47
Table 4-2 Affected People and Land Owners at Angle Tower Points.....	56
Table 4-3 Entitlement matrix for PAPs (Power Plant, Port Facility and Transmission Line Sites)	59
Table 5-1 Livelihood Restoration Measures	63
Table 9-1 Acquisition of Private Land from Legal Owners	70
Table 9-2 Acquisition of Private Land from Tenants and Lessee.....	70

Table 9-3	Acquisition of Government Land from Legal Tenants and Lessee	71
Table 9-4	Acquisition of Government Land from Occupants without Legal Tenure	71
Table 9-5	Assistance for Transition in Recovering Loss of Income Source of Land Owners	71
Table 9-6	Assistance for Transition in Recovering Loss of Income from Livelihood Activities	72
Table 9-7	Assistance for Transition in Recovering Loss of Income from Own Business or Self-employment	72
Table 9-8	Assistance for Transition in Recovering Loss of Income from Residential / Commercial Structure	72
Table 9-9	Assistance for Transition in Recovering Loss of Income from Livelihood Means	73
Table 9-10	Assistance for Transition in Recovering Loss of Trees	73
Table 9-11	Compensation for PAPs at Power Plant Site	74
Table 9-12	Anticipated Land Acquisition and Assistance	76
Table 9-13	Compensation for PAPs at Power Plant Site	76
Table 9-14	Compensation for PAPs at Power Plant Site	76
Table 10-1	Contents of Environmental Management Plan and Monitoring Plan	78
Table 10-2	Monitoring Form 1 (for Performance Monitoring of Resettlement Action Plan)	80
Table 10-3	Monitoring Form 2 (for Impact Monitoring during Project Implementation)	83
Table 10-4	Monitoring Form 3 (for Impact Monitoring at Post-project Stage)	85
Figure 1-1	Location of the Power Plant	2
Figure 1-2	Route of the Proposed Transmission Line	3
Figure 1-3	Location of Access Roads	4
Figure 3-1	Length of Time Residing at the Site	19
Figure 3-2	Household Size	20
Figure 3-3	Types of Illness	23
Figure 3-4	Household Monthly Income	25
Figure 3-5	Household Monthly Expenditure	25
Figure 3-6	Average Expenditure Patterns	26
Figure 3-7	Ratio of Household Head's Per Capita Monthly Income and Expenditure	28
Figure 3-8	Household Assets	28
Figure 3-9	Water Sources	30

Figure 3-10 Type of Toilet.....	31
Figure 3-11 Source of Information.....	32
Figure 3-12 Examples of Pollution Experienced in the Past	33
Figure 6-1 Implementation Mechanism of Land Acquisition and Resettlement.....	65
Figure 6-2 Tentative Schedule for Land Acquisition and Resettlement.....	66
Figure 7-1 Flow of Grievance Redress	68

Abbreviations

AG	Additional Grant
BFD	Forest Department
CPGCBL	Coal Power Generation Company of Bangladesh Limited
CUL	Compensation under the Law
DAM	Department of Agricultural Marketing
DC	Deputy Commissioner
DOE	Department of Environment
DOF	Department of Fisheries
EP	Eligible Person
GOB	Government of Bangladesh
GRC	Grievance Redress Committee
HH	Household
IOL	Inventory of Losses
JICA	Japan International Cooperation Agency
LA	Land Acquisition
LAO	Land Acquisition Officer
LGED	Local Government Engineering Department
MOPEMR	Ministry of Power, Energy and Mineral Resources
NGO	Non-Governmental Organization
PAPs	Project Affected Persons
PGCB	Power Grid Company of Bangladesh Limited
PWD	Public Works Department
RB	Resettlement Benefit
RHD	Roads and Highways Department, Ministry of Communications
RP	Resettlement Plan
RPF	Resettlement Policy Framework
RV	Resettlement Value

Definitions

Resettlement Plan (RP) or Resettlement Action Plan (RAP): A resettlement plan (or resettlement action plan) is the planning document that describes what will be done to address the direct social and economic impacts associated with the involuntary taking of land.

Project Affected Person (PAP): Any person (household) that loses their home, land, or business interests because of land acquisition.

Compensation: A payment in kind, cash or other assets given in exchange for the taking of land, or loss of other assets, including fixed assets thereon, in part or whole.

Cut-off Date: This is the date on and beyond which any persons who encroach on the area are not entitled to compensation or any other form of resettlement assistance. It is often established on the commencement date or last date of the census of PAPs.

Eligibility: The criteria for qualification to receive benefits under a resettlement program.

Resettlement Entitlements: Resettlement entitlements with respect to a particular eligibility category are the sum total of compensation and other forms of assistance provided to displaced persons in the respective eligibility category.

Replacement Cost: In determining the replacement cost, depreciation of the asset and the value of salvage materials are not taken into account, nor is the value of benefits to be derived from the project deducted from the valuation of an affected asset.

For agricultural land, it is the pre-project or pre-displacement, whichever is higher, market value of land of equal productive potential or use located in the vicinity of the affected land, plus the cost of preparing the land to levels similar to those of the affected land, plus the cost of any registration and transfer taxes.

For land in urban areas, it is the pre-displacement market value of land of equal size and use, with similar or improved public infrastructure facilities and services and located in the vicinity of the affected land, plus the cost of any registration and transfer taxes.

For houses and other structures, it is the market cost of the materials to build a replacement structure with an area and quality similar to or better than those of the affected structure, or to repair a partially affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labor and contractors' fees, plus the cost of any registration and transfer taxes.

Grievance Procedures: The processes established under law, local regulations, or administrative decision to enable property owners and other displaced persons to redress issues related to acquisition, compensation, or other aspects of resettlement.

Population Census: A complete and accurate count of the population that will be affected by land acquisition and related impacts. When properly conducted, the population census provides the basic information necessary for determining eligibility for compensation.

Asset Inventory: A complete count and description of all property that will be acquired.

Household Survey: A complete and accurate survey of the project-affected population. The survey focuses on income-earning activities and other socioeconomic indicators.

Socioeconomic Survey: The population census, asset inventory, and household survey together constitute the socioeconomic survey of the affected population.

Note: Definitions are taken from the JICA Guidelines for Environmental and Social Consideration, or subsequently from the World Bank OP4.12 and glossary of *the Involuntary Resettlement Sourcebook, Planning and Implementation in Development Projects* (2004).

1 Rationale

1.1 Objectives

Out of the project components of Chittagong Area Coal Fired Power Plant Development Project, this Land Acquisition and Resettlement Action Plan (LARAP) is being prepared for a large-scale land acquisition and resettlement under the construction of power plant and port facility in Matarbari island of Maheshkhali Upazila in Cox's Bazar District, and extension of transmission line from Maheshkhali Upazila to Anowara Upazila of Chittagong District.

The LARAP is based on the principle of *the JICA Guidelines for Environmental and Social Considerations* that development projects must serve the needs of the society and ensure that PAPs are not made worse off by the proposed intervention. It aims to clarifying resettlement principles, organizational arrangements, and design criteria to be applied to the Project. It also addresses and fills the gap between the existing legislations of Bangladesh and the JICA Guidelines. In response to the above principle, involuntary resettlement should be an important consideration in project identification. Three important elements of involuntary resettlement are: 1) compensation for loss of assets, loss of income sources and livelihood means; 2) assistance for relocation including provision of relocation sites with appropriate facilities and services, and; 3) assistance for rehabilitation to achieve at least the same level of well-being.

The LARAP will be translated into Bengalese and disclosed for the reference of PAPs as well as other interested groups.

1.2 Project Description

The proposed Chittagong Area Coal Fired Power Plant Development Project is an initiative to cope with a rapid increase in power demand in Bangladesh and supply power in a stable manner through the construction of a coal-fired power plant (2 x 600MW) in Chittagong Division in the southeast of Bangladesh.

1.2.1 Project Components

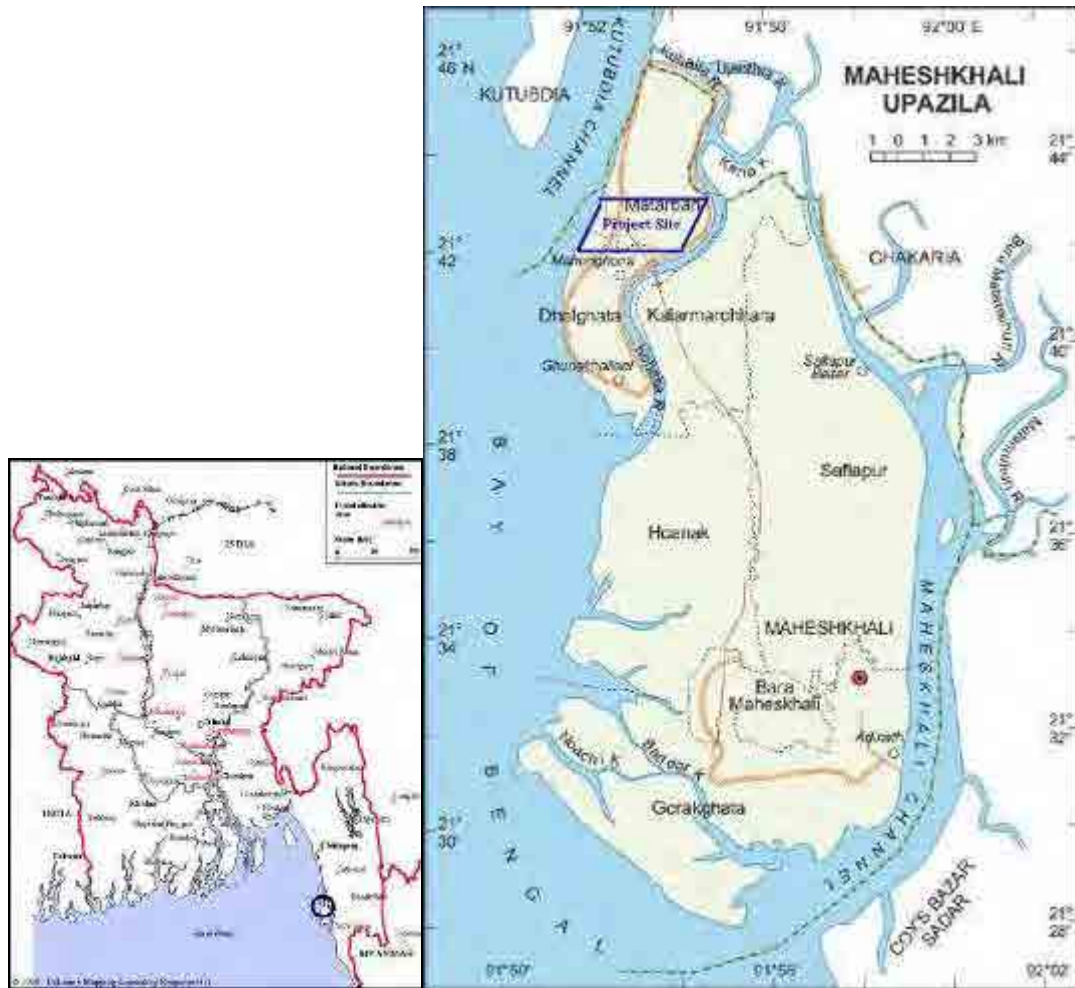
To achieve the above objectives, the project components will be as follows:

- construction of a coal-fired power plant (2 x 600MW) with ultra super critical technology (Cox's Bazar District)
- construction of an excavated port including a fuel berth and a fuel transportation facility to the power plant (Cox's Bazar District)
- construction of an access road (Cox's Bazar District)
- extension of a 400kV transmission line between Matarbari and Anowara (Cox's Bazar District and Chittagong District)

1.2.2 Location of the proposed site

(1) Power plant and Port facility

The proposed coal-fired power plant (CPCG Matarbari Coal-Fired Power Plant, 2 x 600MW) is located in Matarbari Union and Dhalghata Union in Maheshkhali Upazila in Cox's Bazar District, Chittagong Division (Figure 1-1).



Source: <http://www.in2bangla.com/upazilaMap.php?id=293> (accessed in March 2013)

Note: The location is 21 42'15" N, 91 53'16" E

Figure 1-1 Location of the Power Plant

(2) Transmission line

The power plant will be connected to the substation facility in Anowara power plant, which will be constructed in the south of Chittagong, with a 400kV transmission line of approximately 60km. The transmission line will take a route along the local road (R-170) as shown in Figure 1-2. As land for construction of the transmission towers are subject to compensation, the final route will be determined so as to avoid any residential areas, taking into account the firmness of

the land foundation.



(Source: JICA Study Team)

Figure 1-2 Route of the Proposed Transmission Line

Table 1-1 Area Covered by the Proposed Transmission Line

District	Upazila	Union
Chittagong	Anowara	Barasat
		Burumchhara
	Banshkhali	Khankhanabad
		Baharchhara
		Kalikapur

District	Upazila	Union
		Boilchori
		Banshkhali
		Sheakerkhil
		Fulchari
Cox's Bazar	Pekua	Bara Bakia
		Pekua
		Ujantia
	Maheshkhali	Matarbari

(Source: JICA Study Team)

(3) Access Road

The location and route of access road is shown in Figure 1-3. The route of access road is in the area from the national highway running between Chittagong and Cox's Bazar to the power plant site. Basically, existing road facilities will be utilized wherever possible. It is envisioned that the route segments to join the national highway in the north and the route from Maheshkhali Island to the power plant site will involve new road and bridge construction.

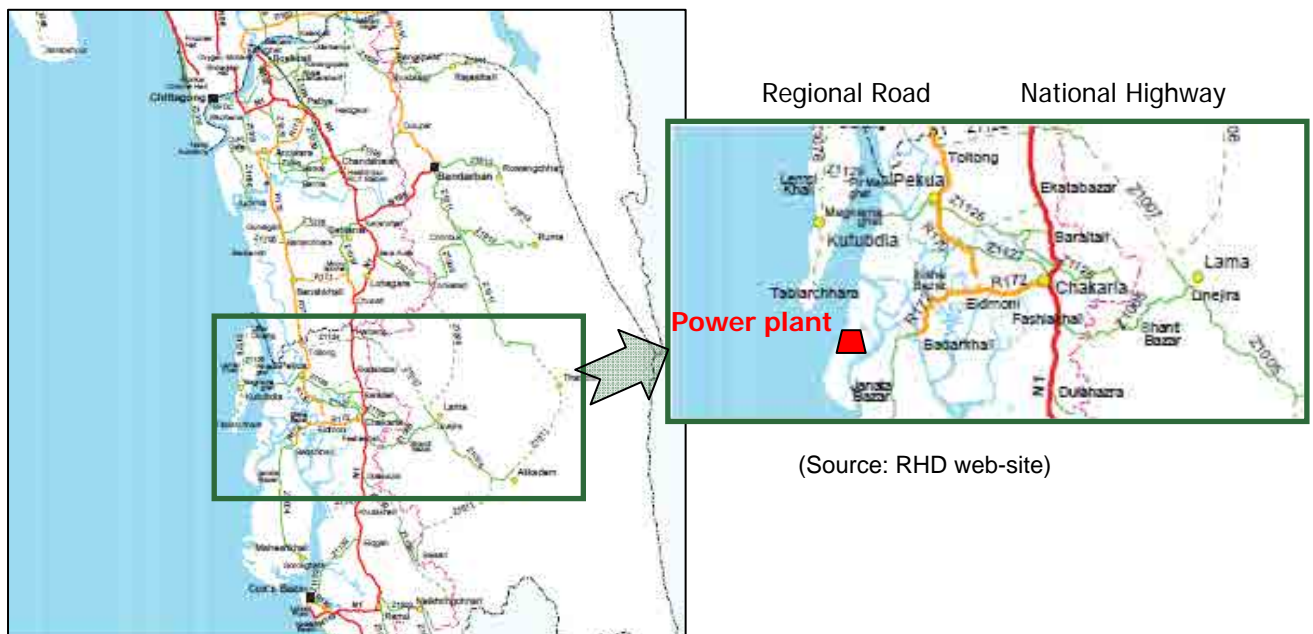


Figure 1-3 Location of Access Roads

1.3 Brief Description of Social Impacts

1.3.1 Brief Description

Among the above project components, the CPGCBL will acquire 455 ha of land for the construction of a coal-fired power plant, PGCB will acquire 0.13ha for 157 tower locations, and RHD will acquire 11.85ha of land for bridge and road construction as shown in the following table:

Table 1-2 Anticipated Land Acquisition

Project Component	Implementing Agency	Acquired Land	
		Location	Area (Ha)
(1) Power Plant and Port Facility	CPGCBL	Matarbari Union and Dhalghata Union of Maheshkhali Upazila (Cox's Bazar District)	455
(2) Transmission Line	PGCB	157 locations for tower erection from Anowara Upazila (Chittagong District) to Maheshkhali Upazila (Cox's Bazar District)	0.13
(3) Access Road	RHD	Matarbari Union, Dhalghata Union and Kalarmarchara Union of Maheshkhali Upazila (Cox's Bazar District)	11.85
Total			466.98

(Source: JICA Study Team)

1.3.2 Anticipated Impact caused by Power Plant and Port Facility Construction

At the site where the power plant and port facility are to be constructed, there are 343 households (2,031 members in total) who will be directly affected by the project implementation. These households own, rent or use private land within the site. There are certain households who rent or occupy government land for salt and shrimp cultivation. In addition, there are squatters living on government land without legal tenure, most of whom live along with the dyke road. About 70% of these 343 households' heads that will be directly or indirectly affected are working in salt or shrimp farms as laborers, mazi, businessmen or cultivators. They conduct salt, shrimp and fish cultivation by employing laborers. They run salt and shrimp business. Some of them are involved in agriculture, boat business, tea selling and construction as carpenters.

Apart from such land owners and users, there are also permanent and temporary laborers employed by them. Including laborers from outside, there are 165 permanent and 892 temporary employees involved in shrimp cultivation, salt farming, fishing activities and others. There are also twelve sharecroppers.

Table 1-3 Anticipated Impact (Power Plant and Port Facility)

No of household	No of household members	Anticipated impact
343	2,031	<ul style="list-style-type: none"> ✓ Lose land ownership to private land: 237 HHs ✓ Lose shelters on their private land and will be physically displaced: 4 HHs ✓ Lose tenant rights to private land: 77 HHs ✓ Lose tenant rights to government land: 10 HHs ✓ Lose occupancy of land to government land: 156 HHs ✓ Lose occupancy of government land for living place: 16 HHs ✓ Permanent loss of means of livelihood / sources of income: 34 HHs+ ✓ Loss of standing crops at home gardens, shrimp and fish: 499 HHs ✓ Loss of timber and fruit bearing trees: 274 HHs (Note) Numbers of HHs are all cumulative.
-	165	Permanent employees involved in shrimp cultivation, salt farming, fishing activities and others
-	892	Temporary employees involved in shrimp cultivation, salt farming, fishing activities and others
-	12	Sharecroppers of agriculture

(Source: JICA Study Team)

Total amount required for land acquisition, resettlement, and assistance for transition that includes the restoration of livelihood and income sources are 3.86 billion taka.

1.3.3 Anticipated Impact caused by the Extension of Transmission Line

There will be 1,256 m² (0.13ha) of land required for the installation of tower bases as shown in the following table. Each tower will require 8 m² for its base. There will be 157 towers for both angle towers and suspension towers from Anowara Upazila to Maheshkhali Upazila.

Table 1-4 Breakdown of Land Acquisition (Transmission Line)

Tower Area (Per Tower)	Tower Base Area (Per Tower)	Acquired Land		
		Per Tower	No. of Towers	Total Area
11.1m x 11.1m	2m ² x 4	8 m ²	157	1,256 m ² (0.13ha)

(Source: JICA Study Team)

The anticipated impact on the land owners will not last permanently or be critical, as the land area for tower bases are relatively small, and land owners' livelihood activities will be hindered only during the construction period. The table below shows the anticipated impact on the

owners of the angle tower locations from P1 to P10. There are no people living or using the P10 location (government land).

Table 1-5 Anticipated Impact on the Owners of Angle Tower Locations

Category	Impact	No. of HH	No. of HH Members
Owners of private land (P1 to P8)	Temporarily affected during construction period	8	83
Users of Government land with official agreement (P9)	Temporarily affected during construction period	1	9
Total		9	92

(Note) There are no people living or using the P10 location (government land).

(Source: JICA Study Team)

Total amount required for land acquisition of tower locations and compensation for the affected people is 3 million taka.

1.4 Specific Measures Taken to Minimize Adverse Impacts

1.4.1 Examination of Alternatives

For the construction of power plant and port facility, there had been two alternative locations for the CPGCBL to consider. One was the located 2 km south from the present one on Matarbari Island, and another on Maheshkhali Island.

Large settlements with thousands of people on private lands were found on the first location (administrative location was Dhalghata Union), which required large-scale land acquisition and resettlement. In order to minimize such issues, the present site was discovered, which is located right on the north next to it. Although resettlement was indeed minimized (around 20 households), construction at the present site will cause losses of private land, livelihood and income sources such as salt and shrimp farming were still anticipated.

Another alternative site on Maheshkhali Island (administrative location was Hoanak Union) was also considered. However, while no resettlement was anticipated, this was projected to lead to similar losses, i.e., losses of private land, livelihood and income sources such as salt and shrimp farming, and agriculture. The degree and scale of such adverse impacts remained same as the present one.

After thorough analyses from numerous aspects, not only from social aspect but from environmental, financial, technical aspects, the present location was finally prioritized and accepted.

As per transmission line route between the expected Anowara substation site and the planned coal-fired power plant site in Matarbari, there were two candidates: one along the National Highway No. 1 (“N1”) and the other along Regional Road No. 170 (“R170”). As a result of route selection, the route in the western side of the “R170” running parallel to the “R170” was selected for this project. This route can avoid crossing with the planned transmission line between Maheskhali power station and Anowara substation in the future and secure space for the transmission line route. There is no reserve forest and existing extra high voltage transmission line to be crossed over in this area and the “R170” allows for relatively easy construction and maintenance work. The terrain surrounding the route is mostly flat area and covered with bushes, farmlands and salt fields. A route in parallel with the “N1” was found unsuitable because there are reserve forests and an existing 132 kV transmission line along the “N1” and the total route length increases up to approximately 80 km.

1.4.2 Application of International Standards to Land Acquisition and Resettlement

As stipulated in *the Acquisition and Requisition of Immovable Property Ordinance 1982*, the CPGCBL will submit an application of land acquisition to the Government of Bangladesh (GOB), with sufficient data and information about the project design and cost, through the Deputy Commissioner (DC) of Cox’s Bazar. As this project will be financed by the Government of Japan, the CPGCBL will allocate its budget to fill the gap between the Ordinance 1982 and *JICA Guidelines for Environmental and Social Considerations* in order to compensate not only titleholders but also non-titleholders for their loss of land ownership, relocation, and loss of their livelihood means in an internationally accepted manner.

The DC Office will follow all the official procedures to acquire land and provide compensation as stipulated in the Ordinance 1982. It will take over eight months to complete all the procedures from the CPGCBL’s application to the payment of compensation through the DC Office to the project affected persons (PAPs).

1.4.3 Entitlements of Affected People without Legal Claims to Land

Lack of ownership does not imply ineligibility for compensation, if the JICA Guidelines and other internationally accepted practices are to be followed. CPGCBL will endeavor to provide suitable alternatives to resettle the squatters or to provide cash compensation on a replacement cost basis.

PAPs that lose only a part of their physical assets will not be left with a portion that is inadequate to sustain their current standards of living. The minimum size of the remaining land and structures will be agreed to during the resettlement planning process. People temporarily affected will also be considered PAPs and resettlement plans shall address the issue of

temporary acquisitions.

1.4.4 Measures for Avoidance and Further Influx of Illegal Occupation

All PAPs residing, working, doing business and/or cultivating land within the project impacted areas upon the cut-off date, will be entitled to compensation for their lost assets (land and/or non-land assets), at replacement cost, if known, and the restoration of incomes and businesses. Compensation will be provided with rehabilitation measures sufficient to assist the PAPs to improve or at least maintain their pre-project living standards, income-earning capacity and production levels.

In the Project, the cut-off date for titleholders will be the date of notification under Section 3 of the Ordinance of 1982. For non-titled holders, CPGCBL declared a cut-off date on the last day of the population census (December 28, 2012) and on the occasion of organizing 2nd public consultation meeting (February 13, 2013). CPGCBL intended to fix the number of households and their members who occupy the government land without permission so as to limit encroachment for the purpose of qualifying for entitlement. CPGCBL will also take appropriate measures to ensure that all land cleared for the project remains clear of squatters.

1.4.5 Methods of Valuing Affected Assets

All compensation for land and non-land assets owned by any households/shop owners who met the cut-off-date will be based on the principle of replacement costs. Replacement costs are the amounts calculated before displacement which are needed to replace any affected assets without depreciation and without deductions for taxes and/or costs of transaction.

The land acquisition officer (LAO) will support the sub-registrar's office for determining the price of land. Land price averages from the sub-registrar's office for the previous one year from the date of the notice given under Section 3 of the Ordinance of 1982 will be considered for the land valuation. The transacted price, recorded price, existing prices and expected prices should be averaged to ascertain the replacement value (RV).

1.4.6 Livelihood Restoration and Rehabilitation

The livelihood restoration and improvement program are based on consultation with PAPs and their socio-economic profile, living environment, level of education, etc., Such programs often incorporate vocational training, microfinance, and provision of job opportunities at the construction sites and new facilities.

2 Legislations in Bangladesh and Gaps from JICA's Policy

2.1 Key legislations

The Acquisition and Requisition of Immovable Property Ordinance of 1982 and its subsequent amendments in 1993 and 1994 provide the key legal instrument for the acquisition of private land for development activities in Bangladesh.

Salient provisions of the Ordinance which show tangible gaps with *the JICA Guidelines for Environmental and Social Considerations* are as follows:

Avoiding/ minimizing land acquisition: The Ordinance only implicitly discourages unnecessary acquisition as land acquired for one purpose cannot be used for a different purpose. There are, however, no mechanisms to monitor if this condition is actually adhered to.

Eligibility for compensation: The Ordinance stipulates compensation only for the persons who appear in the land administration records as the owners (i.e., titleholders). It does not recognize the rights of those without legal title to the land, who live in or make a living from it.

Compensation paid for: The Ordinance provides for compensation of land and other objects built and grown on it (structures, trees and orchards, crops and any other developments on the land like ponds, built amenities, etc.). There are no provisions to assess and restore lost income streams or income sources caused by the land acquisition to the PAPs.

Compensation standards: Landowners receive compensation under the law (CUL) as per the market value of the property at the publication date of the notice¹ with a premium of 50% on the assessed price. Any damage to standing crops or trees on the property, expenses incidental to compelled changes to the residence or place of business, and reduction of profits of the property in the acquisition period are also entitled to a sum of 50% on top of such market value². The 1994 amendment made provisions for payment of crop compensation to tenant cultivators (“*bargadar*”).

Although the Ordinance stipulates ‘market prices’ of the acquired land as just compensation, the legal assessment method almost always results in prices far below the actual market prices. Certain pricing standards, which are regarded as unrealistic, are used to assess other losses like structures and various built amenities, trees, and crops, etc.

Relocation of homestead losers: There is no legal obligation to relocate, or assist with the relocation of, those whose homesteads have been acquired.

¹ The average value of the properties of similar description and with similar advantages in the vicinity during the last twelve months prior to the publication date of the notice. (Section 8 (1) of *the Acquisition and Requisition of Immovable Property Ordinance 1982*.)

² The market value thus determined does not always reflect the actual market value.

Ensuring payment/ receipt of compensation: Even with the given legal provision, the compensation process is time-consuming. There is, moreover, no certainty as to when an affected landowner will obtain the stipulated compensation or whether he will obtain it at all.

Land is legally acquired and handed over to the project proponent as soon as the acquisition authority identifies the owners ('awardees') by examining the records, and sends a legal notice advising them to claim compensation ('awards'). And it also turns out that it is an obligation of the PAPs to prove that the acquired land legally belongs to them.

Socio-economic rehabilitation: The provisions are so restricted that the Ordinance shows no concern about the long-term socio-economic changes the PAPs might undergo in the post-acquisition period. Except for the compensation at the legal 'market price', there are no other provisions in the acquisition or other-laws that require the government to mitigate the resultant adverse impacts caused by the acquisition. Socio-economic rehabilitation of the involuntarily displaced persons is absent in the legal regime of Bangladesh.

2.2 JICA's policy on land acquisition and resettlement

The key principle of JICA policies on involuntary resettlement is summarized below.

- (1) Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives.
- (2) When, population displacement is unavoidable, effective measures to minimize the impact and to compensate for losses should be taken.
- (3) People who must be resettled involuntarily and people whose means of livelihood will be 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 as much as possible.
- (5) Compensation and other kinds of assistance must be provided prior to displacement.
- (6) For projects that entail large-scale involuntary resettlement, 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) 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.
- (8) Appropriate participation of affected people must be promoted in planning, implementation, and monitoring of resettlement action plans.

- (9) Appropriate and accessible grievance mechanisms must be established for the affected people and their communities.

Above principles are complemented by World Bank OP 4.12, since it is stated in JICA Guideline that "JICA confirms that projects do not deviate significantly from the World Bank's Safeguard Policies". Additional key principle based on World Bank OP 4.12 is as follows.

- (10) 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 project identification stage, to prevent a subsequent influx of encroachers of others who wish to take advance of such benefits.
- (11) Eligibility of Benefits include, the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who don't 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.
- (12) Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based.
- (13) Provide support for the transition period (between displacement and livelihood restoration).
- (14) 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, ethnic minorities etc.
- (15) For projects that entail land acquisition or involuntary resettlement of fewer than 200 people, abbreviated resettlement plan is to be prepared.

In addition to the above core principles on the JICA policy, it also laid emphasis on a detailed resettlement policy inclusive of all the above points; project specific resettlement plan; institutional framework for implementation; monitoring and evaluation mechanism; time schedule for implementation; and, detailed Financial Plan etc.

In terms of categories of PAPs and types of lost assets, the gaps in the existing legal framework of Bangladesh and requirements of the JICA Guidelines are identified as presented in the table below.

Table 2-1 Gap Analysis between Bangladeshi Laws and JICA Guidelines

No	Category of PAPs / Types of Lost Assets	Bangladesh Laws	JICA Guidelines
1	For all types of land and other assets for legal land	Acquired by DC as per legal requirements/ procedures	Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based
2	Land tenants	Compensation for standing crops if harvesting of crops is not possible	People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported.
3	Land Users	Squatters, encroachers and unauthorized users/ occupiers are not recognized	Ditto
4	Owners of temporary structures	Only cash compensation under law (CUL)	Compensation must be based on the full replacement cost as much as possible.
5	Owners of permanent structure buildings	Ditto	Ditto
6	Perennial crops	Market prices of the standing crops with value of plants	Compensation must be based on the full replacement cost as much as possible.
7	Timing for payment of entitled compensation to the PAPs	No concern on the part of the project proponent. Land is handed over to the project proponent as soon as the compensation funds are placed with the DC.	On the completion of payment of compensation to the PAPs, the land is to be vacated and handed over to the project proponent.
8	The issue of relocation and income generation activities	No concern about relocation and income generation activities.	People who must be resettled involuntarily and whose livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standards of living, income opportunities and production levels to pre-project levels.
9	Vulnerability of PAPs	No distinction between the PAPs	Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, the landless, elderly, women and children, ethnic minorities, etc.
10	Role of DC, project proponent and PAPs	DC to acquire land, the project proponent to use the land, and PAPs to seek compensation from the DC.	DC and project proponent to assist the PAPs in getting the compensation, assist to collect the legal and required documents, and provide support for the transition period between displacement and livelihood restoration.

(Source: JICA Study Team)

2.3 Procedures of land acquisition

Under the Ordinance of 1982 and its subsequent amendments 1989,1993, and 1994, the DC at District level is entrusted to acquire land for agencies requiring land for any public or private infrastructure projects. The procedures of land acquisition will follow the following steps:

Step 1: After identifying and selecting the exact ground locations of the required land, the project proponent will carry out detailed engineering surveys and design the construction work and lay them out on mauza maps. The project proponent will prepare the land acquisition proposals to obtain administrative approval by the line ministry.

Step 2: The project proponent, after obtaining the approval of the administrative ministry, will make a request to the DC, with sufficient information including the amount of land to be acquisitioned from each plot, and the ownership status such as private and public lands, for the acquisition of the land as per the proposal.

Step 3: Within 90 days, the DC will appraise the application through a) site observation, b) consultation with local politicians and residents, c) develop project profiles, and d) cost estimates. The DC will then develop and submit a proposal on land acquisition to the Ministry of Land for an appraisal by the central government within 90 days.

- The DC will publish a notice as stipulated in Section 3 of the Ordinance of 1982 stating that there is a proposal for the property to be acquired. The persons to be displaced may submit an objection to the land acquisition to the DC within 15 days after the notice is served. All the legal titleholders will be advised to show their ID cards and other documents that verify their rights. For those with no registrations, the DC Office will call for circumstantial evidence from community leaders, local elite people, and religious leaders, etc., to add these people to the list.
- The DC will consult with the Public Works Department (PWD), Forest Department (BFD), Department of Agricultural Marketing (DAM) and Department of Fisheries (DOF) to assess the value of structures, trees, crops and aqua products for their existing rates.
- Under Section 6, a second public notice will be served stating the GOB's decision on the land acquisition and taking possession thereof. The DC Office will confirm the PAPs, exact land area and size for acquisition, number of relocated houses, agriculture land, forestry and fishing areas that will be lost. The persons to be displaced will be requested to submit their statements of property, amounts and particulars of the claims to compensation after 15 days of the second notice being served. The DC Office will respond to any grievances made by the PAPs in order to agree to the assistance package.
- The project proponent shall deposit the estimated amount of the award of compensation with the DC within 60 days from the receipt of the estimate given by the DC.
- Upon serving the last notice (Section 7), the DC shall pay the amount to the owners of the acquired property within another 60 days from the date of deposit by the project proponent. The DC will take possession of the property after completion of the compensation payment to the PAPs and immediately declare this in the official gazette, and hand the property over to the project proponent.

3 Social Impact Survey

3.1 Socioeconomic Survey and Focus Group Discussions at Power Plant and Port Facility Site

3.1.1 Survey Outline

(1) Socioeconomic Survey

a) Objective

The survey aim was to collect the typical characteristics of the affected households, basic data of their livelihoods and living standards, and to gain a comprehensive idea of the socioeconomic conditions at the project site.

b) Main use of the results

Analyze the socioeconomic conditions of the project site to draw the needs of the affected people for the livelihood restoration/ improvement program and the area development
Estimate the cost required for land acquisition, resettlement, compensation and the implementation of the livelihood restoration program

c) Selection of interviewees

The interviewees were the directly affected people who own/ lease/ use their private land (or lease government land) and who work within the site. Squatters were also surveyed as well as the indirectly affected people living around the project site.

There were 343 household heads interviewed under the survey, and their major characteristics are as described below. Out of 343 household heads, 274 were from Matarbari Union, and the majority of these households lived in Shirar Dail village. The remaining 69 households were from Dhalghata Union, which is in southern part of the project site, and most of these households lived in Mohiraghona village.

Table 3-1 Interviewed Households

Union	No. of Households	No. of Household Members
Village		
Matarbari	274	1,666
Matarbari	3	
Maiz Para	1	
Shirer Dail* ¹	270	
Dhalghata	69	365
Mohiraghona* ²	59	
Sutaria Para	1	

Union	No. of Households	No. of Household Members
Village		
Nasir Mohammaddhil	9	
TOTAL	343	2,031

Note 1) Shirer Dail includes “Shirer Dail” (149 HHs), “East Shirer Dail” (19 HHs), “Middle Shirer Dail”(21 HHs), “West Shirer Dail” (4 HHs), “Dakshin Shirer Dail” (74 HHs) and “Uttar Shirer Dail” (3 HHs).
2) Mohiraghona includes “Mohiraghona” (7HHs) and “Uttar Mohiraghona” (52 HHs).

(Source: JICA Study Team)

d) Survey Method

The three pillars of the socioeconomic survey, i.e., population census, asset inventory, and household survey, were compiled into one set of questionnaires and targeted all the potential PAPs regardless of their entitlement of land ownership or whether they were affected/ displaced PAPs.

Table 3-2 Structure of Socioeconomic Survey

Survey	Achievements
Population Census	<p>A complete and accurate count of the population was made in the population census to confirm who and how many of the people would be affected by land acquisition and related impacts.</p> <p>The population census provided the basic information necessary for determining eligibility for compensation. A cut-off date was fixed as December 28, 2012, including the accurate/ exact number of PAPs, names, photos for identification, and assets. It was also declared on February 13, 2013 in the presence of such PAP.</p>
Asset Inventory	<p>In the asset inventory survey, a complete count and description of all property was undertaken for the property to be acquired.</p> <p>An asset inventory of losses (IOL) involved a mapping of all households affected by land acquisition, agricultural, homestead and business, trees, crops, fish, structures of residential and business and other kinds of losses, i.e., wages and income. A list of the losses was remunerated into a database.</p> <p>The IOL for each PAP recorded the following:</p> <ul style="list-style-type: none"> - amount and type of land to be acquired (residential, commercial, agricultural) - type of trees and/ or crops to be acquired - residential houses to be acquired - commercial structures to be acquired - loss of livelihood (type and income loss) - other types of losses - types of community infrastructure or common property resources to be acquired <p>The IOL also recorded the legal status of the land, residential houses, shops and other structures to be acquired.</p> <p>In conjunction with the population census and IOL of the PAPs, household data was collected on the following items:</p> <ul style="list-style-type: none"> - size, sex and age composition of each affected household - types of occupation/ livelihood for each economically active household member - assessment of income levels for each economically active household member - number of school age children attending school - ethnic, language, and religious identity of each affected household <p>PAPs attitudes (intentions/ opinions) towards the project, land acquisition and resettlement were</p>

Survey	Achievements
	also recorded.
Household Survey	<p>The household survey focused on income-earning activities and other socioeconomic indicators to observe the social and economic conditions of PAPs, such as income, expenditure, employment, education, skills, livelihood, utilities, health services facilities, social services, and other socio-economic and cultural aspects that prevailed in the targeted areas.</p> <p>The household survey also included an inventory of formal and informal community level organizations that represented the PAPs, which can be engaged in information dissemination and consultation related to the implementation of the resettlement plan.</p>

e) Interviewers

CPGCBL/ BPDB officials and researchers representing the Engineers Associates Ltd., who were commissioned by the JICA Study Team, conducted the survey.

f) Survey period

December 17 - 28, 2012.

g) Limitations of the survey:

The severe time constraints during the survey period and geographical remoteness of the site made it unable for the surveyors to return to the interviewed households to reconfirm their answers before they left the site. Incoherency of answers done by a person therefore is admitted in the data, which made it unable to implement a complete set of scientific analysis. The number of people for each occupation were as of December 2012. Land tenure, they insisted, could not be double-checked as they were reluctant to disclose their official registration including land registration certificate. Likewise, their household income and expenditure, land lease and lease amount stated by them were not certified.

(2) Focus Group Discussions

a) Objective

The focus group discussions aimed to collect specific information from particular groups, such as women and children who were regarded as vulnerable, and laborers who were mostly found at the project site in order to evaluate their specific characteristics.

b) Main use of the results

- Analyze the specific conditions of particular clusters of populations, who were placed in such groups with or without their wishes
- Draw specific needs of the vulnerable groups
- Obtain local needs for the livelihood restoration/ improvement program and the area development

c) Selection of interviewees

Each population cluster had three groups in which 86 people were randomly sampled at the project site.

Table 3-3 Interviewed Population in Focus Group Discussion

Cluster	No. of Groups	No. of People in Total	Age Range (as of Dec. 2012)
Children	3	21	6 to 11
Women	3	25	20 to 45
Salt laborers	3	19	13 to 50
Shrimp laborers	3	21	18 to 70
Total		86	

(Source: JICA Study Team)

d) Survey Method

Focus Group Discussions

e) Interviewers

CPGCBL/ BPDB officials and researchers representing the Engineers Associates Ltd., who were commissioned by the JICA Study Team, conducted the FGDs.

f) Survey period

December 18 - 25, 2012.

g) Limitation of the survey:

Not applicable.

3.1.2 Findings

The followings are the major findings from socioeconomic survey and FGDs.

(1) Profile of Interviewees and their family members

a) Surveyed Population

Out of 2,031 people comprising 343 interviewed households, 1,663 were from Matarbari union, of whom males shared 54.6%, and adults did 50.3%. In Dhalghata Union, on the other hand, males comprised of 57.3% and adults shared 56.0%.

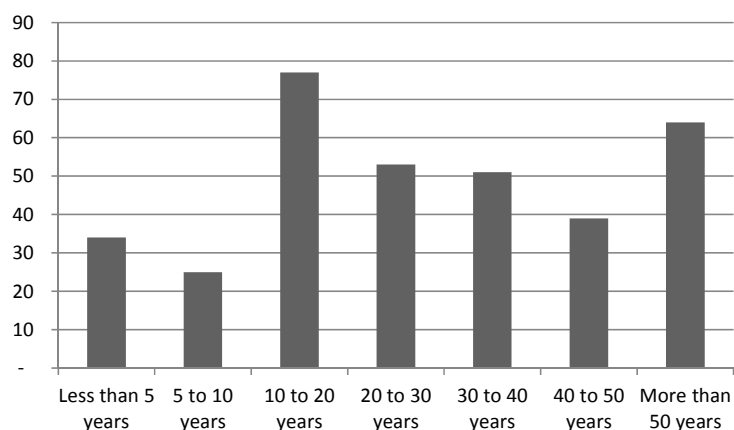
Table 3-4 Total Surveyed Population

	Total Surveyed Population			Matarbari Union			Dhalghata Union		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Adult	599	444	1,043	474	363	837	125	81	206
Child	520	468	988	434	392	826	86	76	162
Total	1,119	912	2,031	908	755	1,663	211	157	368

(Source: JICA Study Team)

b) Length of Residing at the Site

The length of time of households residing at the site varied. Those residing for over 50 years were 64 households, and the maximum length of time reached 300 years. This means that there are households residing at the site over generations.



Note: The median is amount of time is 25 years, and the mode is 15 years.

(Source: JICA Study Team)

Figure 3-1 Length of Time Residing at the Site

c) Size of Household

Average household size was 5.92 people, which is close to the median (6.0) and the mode (6.0). The minimum number of household member was 1, and the maximum number was 11.

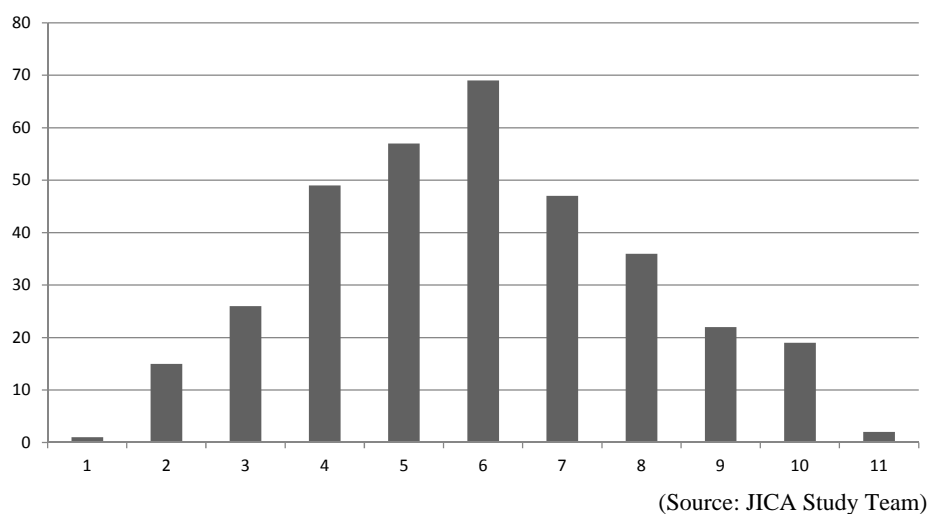


Figure 3-2 Household Size

(2) Education Level and Literacy

Taking a look at the education level of the household heads, 33.5% were illiterate, and 38.8% could only write their own names (signature). This implies that 72.3% of household heads live without reading or writing as part of their day-to-day activities. The household heads under these two clusters had a slightly larger number of household members than the other categories that had graduated from University.

Table 3-5 Education Level of Heads and Household Size

Education Degree/ Level	No. of HH Heads	%	Average of HH Size
Illiterate	115	33.5%	6.17
Write name	133	38.8%	6.14
Class I-V	25	7.3%	5.20
Class VI-X	40	11.7%	5.35
SSC	9	2.6%	5.33
HSC	9	2.6%	4.44
BA	5	1.5%	5.80
BA (Hons)	1	0.3%	7.00
MA	2	0.6%	6.00
Other 1	3	0.9%	7.33
Other 2	1	0.3%	3.00
TOTAL	343	100.0%	5.92

(Source: JICA Study Team)

Among the literate population, who comprised of 40.9% of the total surveyed population, males

were 52.3%, and adults 34.1%. In Matarbari, 69.4% of the literate population were children under 18 years old, and more female than male children were literate. In Dhalghata, on the contrary, more males than females were literate (for both adults and children), and the literate population children shared half (50.9%). Although literacy rates of Matarbari and Dhalghata were similar in total (40.3% and 43.2% respectively), 56.4e% of children in Matarbari were literate, whereas 50.0% were in Dhalghata.

Table 3-6 Literate Population

	Total Surveyed Population			Matarbari Union			Dhalghata Union		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Adult	170	113	283	118	87	205	52	26	78
Child	264	283	547	222	244	466	42	39	81
Total	434	396	830	340	331	671	94	65	159

(Source: JICA Study Team)

According to the FGD, females, salt laborers and shrimp laborers did not have sufficient opportunities for education. The number of government primary schools around the site was reported to be not sufficient, although there were Islamic schools. Due to households being poor, many people dropped out of school when they were children, even before they completed primary education.

There was no major difference found in education levels between male and female children.

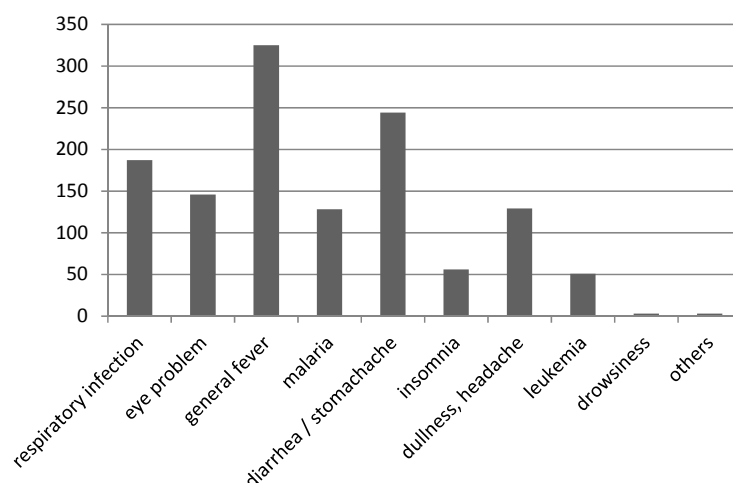
Table 3-7 Educational Levels and Literacy (FGD)

Clusters	Educational Qualifications			Literacy Levels		
	Primary	Secondary ≤	Unknown	Read & Write	Signature Only	Illiterate & N/A
Children	15	1	5	19	0	2
Women	4	3	18	9	12	4
Salt laborers	3	4	12	6	11	2
Shrimp laborers	9	3	9	13	7	1
Total	31	11	44	47	30	9

(Source: JICA Study Team)

(3) Health Conditions of Affected People

From the total households, 325 households (94.8%) answered that they suffered from general fevers. They also suffered from diarrhea/ stomachaches (244 households, 71.1%) and respiratory infections such as colds (187 households, 54.5%).



Note: Household heads were asked to select as many illnesses as they experienced.

(Source: JICA Study Team)

Figure 3-3 Types of Illness

(4) Occupations of Household Heads

Among the interviewed household heads, over 30% (108 household heads) were salt cultivators. These household heads are the owners and/or lessees of salt fields who invest money in salt cultivation. Sixty out of the 62 salt laborers (18%) were from Matarbari Union, being laborers who prepared the salt beds. These laborers always work under the guidance of salt cultivators, receiving wages. There was a lower number of shrimp cultivators, businessmen, mazi and laborers as the survey was conducted in December 2012 when salt cultivation was taking place. However, the majority of most types of laborers were from Matarbari, not Dhalghata.

Table 3-8 Occupations of the Household Heads

Occupations		Matarbari	Dhalghata	Total	
Cultivators				113	32.9%
	Salt Cultivators	66	42	108	
	Shrimp cultivators	5	0	5	
Businessman				36	10.5%
	Salt Businessmen	12	2	14	
	Fish Businessman	11	0	11	
	Businessmen (other)	10	1	11	
Mazi				35	10.2%
	Mazi (Salt)	18	10	28	
	Mazi (Shrimp)	5	2	7	
Laborers				94	27.4%
	Salt Laborers	63	2	65	

Occupations	Matarbari	Dhalghata	Total	
Shrimp Laborers	15	0	15	
Day Laborers	12	2	14	
Fishing			28	8.2%
Fishermen	18	1	19	
Boatmen	5	3	8	
Crab Catchers	1	0	1	
Agriculture			1	0.3%
Orchardists/ gardeners	1	0	1	
Others			36	10.5%
Teachers	4	1	5	
Grocery Shop Owners	4	0	4	
Masons	4	0	4	
Service Industry Workers	2	2	4	
Housewives	4	0	4	
Master Tailors	3	0	3	
Quack Doctors	2	1	3	
Carpenters	2	0	2	
Beggars	2	0	2	
Security Guards	1	0	1	
Singers	1	0	1	
Students	1	0	1	
Home Makers	1	0	1	
TOTAL	274	69	343	100.0%

Note: Cultivators are the owners or lessees of the salt, shrimp or fish fields who invest their own money for cultivation. Businessmen in salt, shrimp and fish are those who purchase the products from the fields and local markets, and sell them at different markets and other places. Laborers are those who sell their labor and prepare the fields. They work under the guidance of cultivators and receives wages from them. “Mazi” refers to middleman in Bengalese who recruit day laborers to introduce to businessmen, land owners and employers who need laborers.

(Source: JICA Study Team)

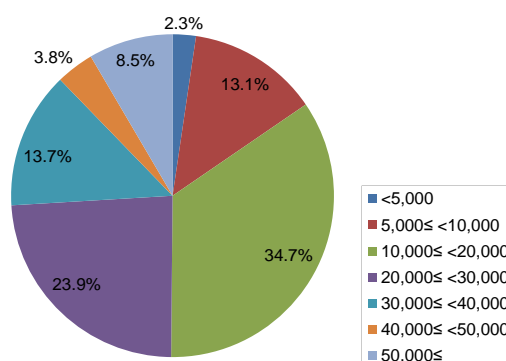
According to the FGD, salt laborers and shrimp laborers mentioned that they had fewer job opportunities because of their low education and literacy levels. They responded in the group interviews that discontinuation of education and school drop-out rates continued to increase due to the involvement of their children into these income generation activities. Women, on the contrary, gave up looking for jobs because of their low literacy levels and social barriers.

Fishing occurs throughout the year at the site, and the fish selected are of bigger size, good quality, or large quantity although smaller sized fish are sold at the fish markets in Cox’s Bazar and Chittagong from vehicles and engine boats. Fish of lower quality and smaller sizes are retailed by local businessmen at local markets.

(5) Household Incomes and Expenditure

a) Household Incomes

For monthly income, 119 households (34.7%) had 10,000 to 20,000 taka, and 82 (23.9%) had 20,000 to 30,000 taka. The average household monthly income was approximately 26,500 taka, but the median was 19,000 taka. There were 29 households receiving more than 50,000 taka per month, among whom the largest income was 842,000 taka.

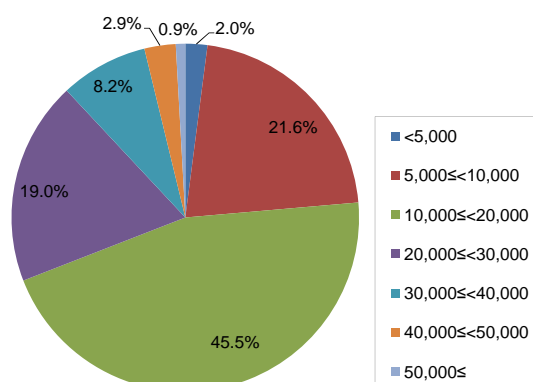


(Source: JICA Study Team)

Figure 3-4 Household Monthly Income

b) Household Expenditure

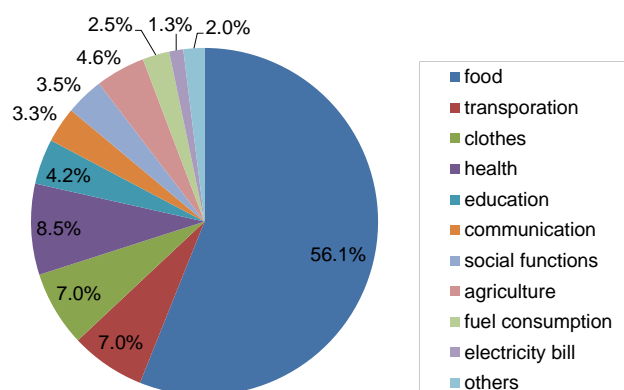
For household expenditure, 156 households (45.5%) spent 10,000 to 20,000 taka per month, 74 (21.6%) spent between 5,000 to 10,000 taka, and 65 (19.0%) spent from 20,000 to 30,000 taka. The average household monthly expenditure was approximately 18,000 taka, but the median was as much as 15,000 taka. There were three households which spent more than 50,000 taka per month, among whom the largest expenditure was 104,200 taka.



(Source: JICA Study Team)

Figure 3-5 Household Monthly Expenditure

A glance at the breakdown of average expenditure shows that approximately 10,000 taka (56.1%) was spent for food consumption, 1,522 taka (8.5%) on health, around 1,261 taka for clothes and 1,249taka (7.0%) for transportation.



(Source: JICA Study Team)

Figure 3-6 Average Expenditure Patterns

c) Per Capita Monthly Income and Expenditure

According to the Household Income & Expenditure Survey 2010 issued by the Bangladesh Bureau of Statistics (BBS)³, the population below the upper poverty line was 31.5% nationwide and 26.2% in Chittagong Division that includes Chittagong District and Cox's Bazar District. The population below the lower poverty line, on the other hand, was 17.5% nationwide and 13.1% in the Chittagong Division.

Table 3-9 Incidence of Poverty (Head Count Ratio) by CBN Method in 2010

	Nationwide			Chittagong		
	Average	Urban	Rural	Average	Urban	Rural
Upper poverty line	31.5	21.3	35.2	26.2	11.8	31.0
Lower poverty line	17.5	7.7	21.1	13.1	4.0	16.2

(Source: Bangladesh Bureau of Statistics (2011) Household Income & Expenditure Survey 2010)

In both cases, the incidence of poverty occurred more in rural areas, and 35.2% of the population were below the upper poverty line nationwide and 31.0% in Chittagong Division respectively.

³ BBS has conducted the HIES since the 1970s, and it has collected 12,240 households from the entire nation as samples for the HIES 2010. They have received technical and financial support from the World Bank for conducting the survey. They estimate the upper and lower poverty line taking into consideration the cost of basic needs (CBN) that include both food and non-food items.

Those who received 1,270.93 taka nationwide was 31.5% and 1,307.27 taka (26.2%) in Chittagong Division, and the population below the lower poverty line was estimated to receive as much as 1,102.84 taka nationwide, 17.5% of the population, and 1,051.67 taka in Chittagong Division (13.1%).

Table 3-10 Incidence of Poverty (by per capita monthly income) in 2010

	Nationwide			Chittagong		
	Average	Urban	Rural	Average	Urban	Rural
Upper poverty line	1,270.93	1,545.96	1,211.57	1,307.27	1,328.03	1,304.64
Lower poverty line	1,102.84	1,240.18	1,083.72	1,051.67	1,259.46	1,034.62

(Source: Bangladesh Bureau of Statistics (2011) Household Income & Expenditure Survey 2010)

Table 3-11 Incidence of Poverty (by per capita monthly expenditure) in 2010

	Nationwide			Chittagong		
	Average	Urban	Rural	Average	Urban	Rural
Upper poverty line	1,245.76	1,457.65	1,200.02	1,381.76	1,540.60	1,361.68
Lower poverty line	1,064.92	1,133.41	1,056.03	1,174.50	1,231.87	1,169.79

(Source: Bangladesh Bureau of Statistics (2011) Household Income & Expenditure Survey 2010)

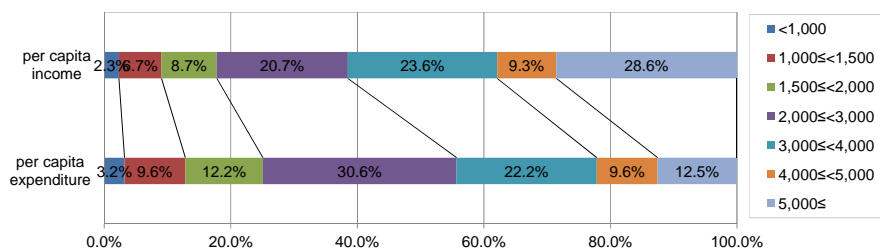
Taking the geographical location of the project site and the inflation rates of FY 2010 and FY 2011 into consideration⁴, the surveyed population whose per capita income and expenditure were below 1,500 taka were assumed as the poor in this report. Therefore, 31 surveyed households (9.0%) were categorized as poor households on monthly income basis, and 44 households (12.8%) on monthly expenditure basis.

Table 3-12 Household Head's Per Capita Monthly Income and Expenditure

	<1,000	1,000≤<1,500	1,500≤<2,000	2,000≤<3,000	3,000≤<4,000	4,000≤<5,000	5,000≤	Total
Per capita income	8	23	30	71	81	32	98	343
Per capita expenditure	11	33	42	105	76	33	43	343

(Source: JICA Study Team)

⁴ The inflation rate of FY 2010 in rural areas was 11.73% and for FY 2011 it was 8.69% on the year 2005 basis.

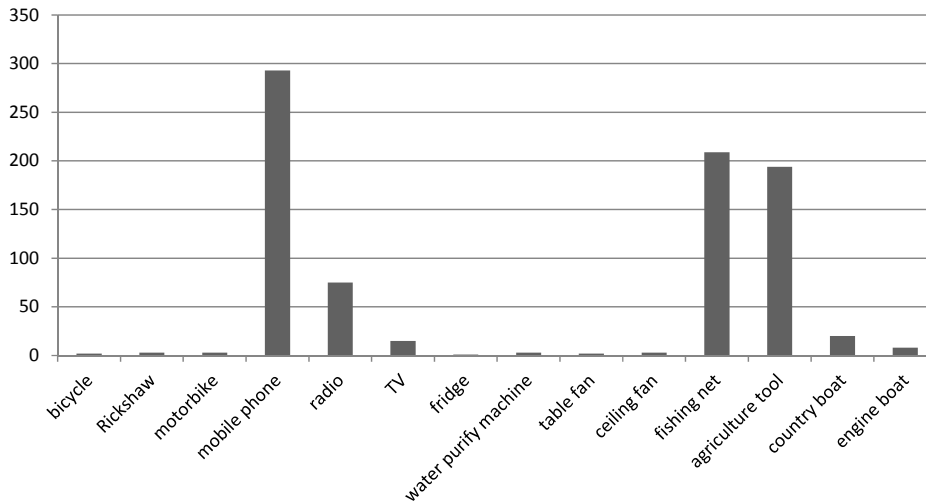


(Source: JICA Study Team)

Figure 3-7 Ratio of Household Head's Per Capita Monthly Income and Expenditure

(6) Assets

Out of 343 households, 295 (86.0%) had at least one mobile phone. There was one household head who said he had six phones at home, and the average number of mobile phones among 295 households was 1.23 phones. In addition, 212 households had fishing nets (1.91 on average) and 195 households had more than one kind of agriculture tool (average was 3.92 tools). Only 76 household had radios, and 15 had TV sets.



Note: Household heads were asked to choose as many assets as they had.

(Source: JICA Study Team)

Figure 3-8 Household Assets

In regards to animals and poultry, 149 interviewed households (37.3%) kept chickens at home, followed by ducks (95 households) and goats (81 households).

Table 3-13 Animals and Poultry owned by Households

Livestock	Household Ownership		Total Number	Average No. Per Household
	No. of Households	%		
Cows	74	18.5%	118	1.6
Pigs	1	0.3%	5	5.0
Ducks	95	23.8%	604	6.4
Chickens	149	37.3%	1,707	11.5
Goats	81	20.3%	389	4.8

Note: Household heads were asked to choose as many livestock as they owned.

(Source: JICA Study Team)

(7) Basic Infrastructure for Living

a) Energy Source

There were 332 household heads that responded that they did not have electricity yet. In fact, no single electric wire has been extended to Dhalghata Union as of March 2013, so that all interviewed households in Dhalghata Union had no choice but to depend on energy sources other than electricity.

Some 341 households (99.4%) used firewood for cooking, and 301 (87.8%) exclusively depended on kerosene lamps for lighting. There were 22 households who owned solar panels on their roofs.

Table 3-14 Energy Source by Purpose

Energy Source	Cooking	Lighting	Irrigation	Other
Electricity	0	7	1	1
Gas	0	0	0	0
Kerosene	1	301	19	0
Firewood	341	0	0	0
Solar	0	0	0	22
Diesel	0	0	3	0
None	1	2	320	320
Electricity + Kerosene	0	1	0	0
Kerosene + Solar	0	32	0	0
Total	343	343	343	343

Note: Household heads were asked to choose as many sources as they had.

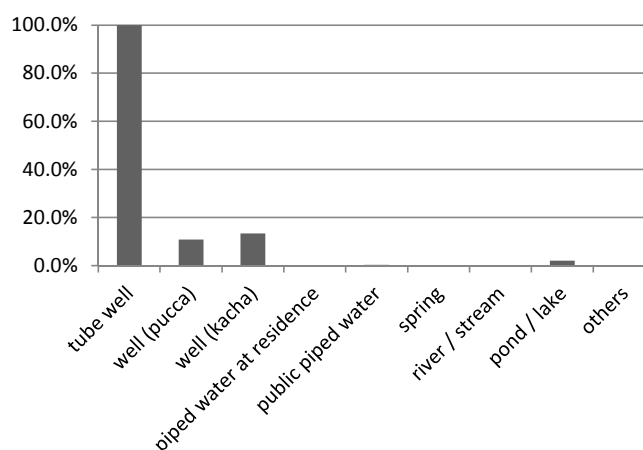
(Source: JICA Study Team)

Deteriorating living environments were commonly observed in the FGD as well. Sixty six out of 86 interviewees did not have electricity at home, whereas the remaining 20 had solar panels installed with the assistance of Rahimafrooz (Bangladesh) Ltd. Since there was no REB or

BPDB distribution network available at the project site, solar systems were introduced for lighting. Rahimafrooz works all over Bangladesh installing solar systems without charging the initial cost. However, households are supposed to make monthly repayments of the installment costs ranging from 200 to 800 taka depending on the actual costs until the full costs are recovered.

b) Water and Sanitation

All affected households depended on tube wells for water. Along with tube well water, some of them also used *pucca* wells and *kacha* wells of which water quality was not secured. Seven households used pond water and one used public piped water.



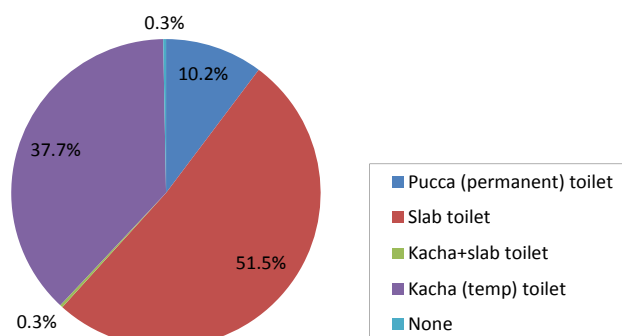
Note: Household heads were asked to choose as many facilities as they used.
(Source: JICA Study Team)

Figure 3-9 Water Sources

No household heads said they had the habit of boiling water before drinking⁵. And 13 household heads said that they had experienced arsenic contamination.

Out of 343 households, 35 (10.2%) used *pucca* toilets. In addition, 176 (51.5%) used slab toilets, and the remaining 129 used temporary facilities and one household did not use toilet facilities at all.

⁵ According to the FGD, local residents used alum (*phitkari*) for purifying water instead of boiling water.



(Source: JICA Study Team)

Figure 3-10 Type of Toilet

c) Medical Facilities

Asked where they consult with doctors, quack doctors and other sources of medical and health treatment, over 80% of household heads responded that they had medical consultations at the local markets. Nearly 50% of households also went to town for medical consultations.

Table 3-15 Availability of Medical Facilities

Availability of Medical Facilities	Village		Market		Town	
	Number	%	Number	%	Number	%
Yes	13	3.8%	275	80.2%	169	49.3%
No	330	96.2%	68	19.8%	174	50.7%
TOTAL	343	100.0%	343	100.0%	343	100.0%

Note: Household heads were asked to choose as many facilities as they used.

(Source: JICA Study Team)

According to the FGD, local people usually saw quack doctors for normal cases such as general fevers, and they went to Chakaria Upazila to consult private doctors for more complicated symptoms. They faced difficulty in traveling to Chakaria due to the deteriorated road access and transportation. Although men had more mobility in terms of access to private clinics and doctors, women and children had less such mobility.

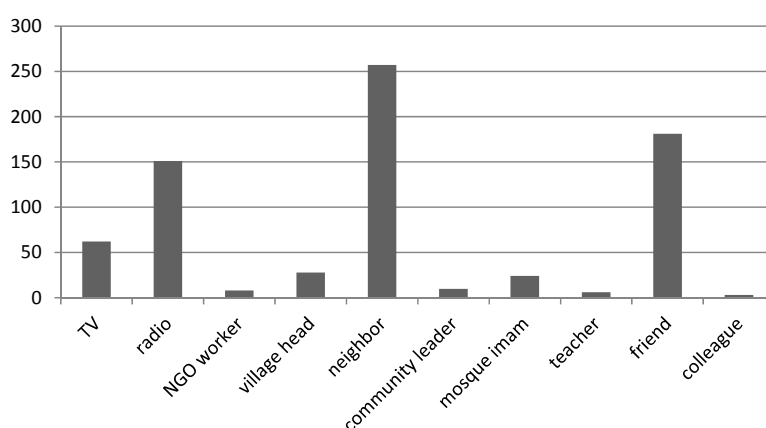
d) Tidal Waves

There were 304 household heads (88.6%) that said they had experienced tidal waves. Of these households, 303 said they experienced such tidal waves once or twice a year. And 263 people mentioned the floods of 1991 and 1997 as the biggest ones which they remembered.

(8) Others

a) Source of Information

There were 257 households that responded that they collected information through neighbors, and another 181 collected information from their friends. Not many of the households collected information from TV or radio as they did not have these items at home (see **Assets** above), but they often listened to radio or watched TV at tea stands or in the local markets.

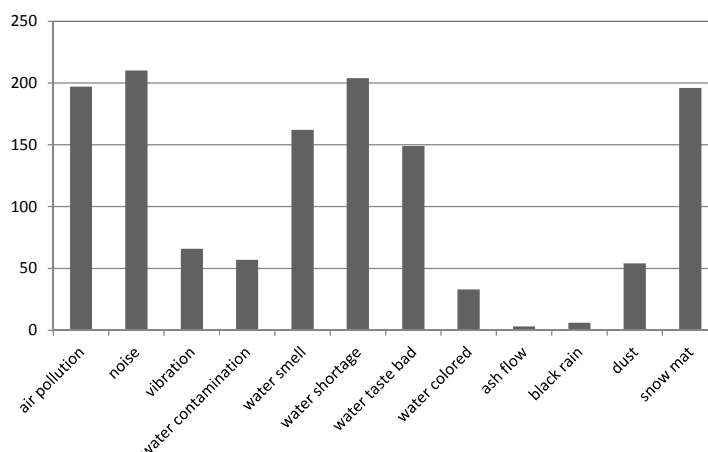


Note: Household heads were asked to choose as many sources as they used.
(Source: JICA Study Team)

Figure 3-11 Source of Information

b) Type of Pollution

As types of pollution, 210 household heads (61.2%) recognized noise, water shortages (204 households, 59.5%), air pollution (197 households, 57.4%) and snow mats (196 households, 57.1%). Complaints regarding water related issues were raised most among households. Not only water shortages, but also bad smells, bad tastes of water, colored water and contaminated water were mentioned.



Note: Household heads were asked to choose as many sources as they had liked.
(Source: JICA Study Team)

Figure 3-12 Examples of Pollution Experienced in the Past

(9) Available Job Opportunities

Responding to whether there were any job opportunities available around the project site, 19 household heads said fishing cultivation, 16 domestic animal husbandries, six said poultry and two stated tailoring work. As stated in the FGD, people living or working at the site had fewer job opportunities because of their low education and low literacy levels.

(10) Skill Development Needs

In response to the needs for skill development, household heads answered that they would like a wider variety of training skills. The skills demanded by the household heads were in fishing cultivation, followed by domestic animal husbandry, poultry, tailor, and technical work.

Table 3-16 Skill Development Requests

Rank	Skill Development Requests	No. of HH Heads who Show their Interests
1	Fishing cultivation	100
2	Domestic animal husbandry	79
3	Poultry	64
4	Tailor	53
5	Technical work	50
6	Social development	38
7	Vehicle licenses	20
8	Salt cultivation	15
9	Computer	14
10	Education (coaching)	5
11	Training for going abroad	3

Rank	Skill Development Requests	No. of HH Heads who Show their Interests
12	Shrimp cultivation	2
13	Agriculture farming	1
14	Music	1
15	Hatchery	1

Note: Household heads were asked to select as many needs as they liked.

(Source: JICA Study Team)

In the FGD, women were interested in receiving training for tailoring, making puppets and *Nakashi Katha* (hand-stitched bed covers) although they were not given any job opportunities.

3.2 Socioeconomic Survey and Focus Group Discussions at Transmission Line Site

3.2.1 Survey Outline

(1) Socioeconomic Survey

a) Objective

The survey aim was to collect the typical characteristics of the households who owned the potential locations of angle towers from Anowara Upazila to Maheshkhali Upazila, basic data of their livelihoods and living standards, and to gain a comprehensive idea of the socioeconomic conditions there.

b) Main use of the results

Analyze the socioeconomic conditions of the angle tower locations

Estimate the cost required for involuntary land acquisition for the base area of each tower and compensation.

c) Selection of interviewees

The interviewees were the land owners of angle tower locations:

Table 3-17 Profile of Interviewed Households

Angle Tower No.	House -hold No.	Location				Main Occupation
		Village	Union	Mauza	Upazila	
Chittagong District						
P1	No.1	Boalia	Borashat	Boalia	Anowara	Agriculture
P2	No.2	Barumchara	Barumchara	West Barumchoda	Anowara	Agriculture
P3	No.3	Barumchara	Barumchara	Barumchara	Banshkhali	Agriculture
P4	No.4	Raichatta	khankhana bad	Raichatta	Banshkhali	Agriculture

Angle Tower No.	House -hold No.	Location				Main Occupation
		Village	Union	Mauza	Upazila	
P5	No.5	Chechuria	6 No. Ka, Katharia	Purbo Katharia	Banshkhali	Businessman
Cox's Bazar District						
P6	No.6	Barabakia	Barabakia	Fasiakhali Rahatali para	Pekua	Agriculture
P7	No.7	Barabakia	Barabakia	Fasiakhali	Pekua	Service provider
P8	No.8	Uzantia	Uzantia	Sutachuda	Pekua	Shrimp cultivator
P9	No.9	Matarbari	Matarbari	Maiz Para	Maheshkhali	Businessman
P10	-	Matarbari	Matarbari	Maiz Para	Maheshkhali	-

Note: Land area of P9 and P10 belong to government, and there was nobody renting the land on P10.

(Source: JICA Study Team)

d) Survey Method

A questionnaire-based survey was conducted at household. The survey focused on income-earning activities and other socioeconomic indicators to observe the social and economic conditions of land owners / lessees, such as income, expenditure, employment, education, skills, livelihood, utilities, health services facilities, social services, and other socio-economic and cultural aspects that prevailed in the locations of angle towers.

e) Interviewers

Researchers representing the Engineers Associates Ltd., who were commissioned by the JICA Study Team, conducted the survey on behalf of PGCB.

f) Survey period

December 2012.

g) Limitation of the survey:

Locations of suspension towers were not surveyed as the locations were not identified yet at this stage. Findings at the angle tower locations through household interviews and focus group discussions therefore do not represent the local context throughout the transmission line route.

(2) Focus Group Discussions

a) Objective

The focus group discussions aimed to collect specific information from particular groups, such as women and children who were regarded as vulnerable, and agricultural farmers, who were mostly found at the transmission line route, in order to evaluate their specific characteristics.

b) Main use of the results

Analyze the specific conditions of particular clusters of populations, who were placed in such groups with or without their wishes
Draw specific needs of the vulnerable groups

c) Selection of interviewees

Eighteen people were randomly sampled (five children, five women and eight farmers) at either of angle tower locations.

Table 3-18 Interviewed Population in Focus Group Discussion

Cluster	Location	Number of People	Age Range (as of Dec. 2012)
Children	P8	5	7 to 10
Female	P7	5	29 to 40
Farmers	P3	8	28 to 65
Total		18	

Source: JICA Study Team

d) Survey Method

Focus Group Discussions

e) Interviewers

Researchers representing the Engineers Associates Ltd., who were commissioned by the JICA Study Team, conducted the FGDs on behalf of PGCB.

f) Survey period

December 2012.

g) Limitation of the survey:

Not applicable.

3.2.2 Findings

(1) Profile of Interviewees

a) Length of Time Residing at the Site

The length of time of households residing at the site varied from 20 to 100 years from one generation to the next.

b) Size of Household

The number of household members varied from five to eighteen, and the average size was 10.2.

c) Education Level and Literacy

Three out of nine respondents were illiterate or could write their own signature only. Others varied from Class VI-X to MA. Out of total members of nine families, 92 people, 61 were literate. 67.4% of adults and 65.3% of children were literate. Compared between male and female, 72.9% of male population were literate, whereas literate female remained 59.1% of total female population. Gender gap in literacy was caused by the low literacy of female adult (55.0%).

This tendency was also found among female respondents in the FGDs. Among three different groups (female at P7, children at P8 and male farmers at P3), no women of five members were literate, whereas all five children and eight farmers were literate.

d) Health Conditions of Affected People

Of nine respondents, all of them said they suffered from general fever, seven suffered from respiratory infection such as cold, six suffered from diarrhea and stomachache, and five from eye problem.

In the FGDs, four women had suffered from malaria. Respiratory problems, general fevers were commonly seen. Among children, respiratory problems and general fevers were commonly admitted. Three of them suffered from diarrhea and stomachache. Farmers' group members also showed similar tendency: six of them suffered from general fevers, diarrhea/stomachache, and respiratory diseases.

(2) Occupations of Household Heads

Among the interviewed household heads, five were involved in agriculture. Two were businessmen (P5 and P9). One was involved in service industry (P7), and the other (P8) was a shrimp cultivator. Their secondary livelihood means varied from Imam, UP member, travel agent, and construction worker.

According to the ad-hoc interviews at P3, P4, P5, P7 and P8 locations, most of the population in the villages depended on agriculture as farmers and agricultural laborers. People working abroad, business and services industry were also found. At P8, however, shrimp and salt cultivation were found as their secondary occupations.

The husbands' occupations of female group of FGD at P7 were: two salt laborers, two daily laborers, and one agriculture laborer. The fathers' occupations of children group at P8 were: two involved in fishing industry, two daily laborers, and one rickshaw puller.

(3) Household Incomes and Expenditure

a) Household Incomes

For monthly income, five households involved in agriculture of socioeconomic survey had 20,000 to 60,000 taka per month. Two involved in business had 40,000 taka and 43,000 taka.

One involved in service industry only had 12,000 taka. The biggest income was found at a household whose occupation was shrimp cultivator: 80,000 taka per month.

Female group of FGD (P7) said that their husbands' income varied from 4,500 to 6,000 taka per month who were all laborers. Among fathers of children group (P8), laborers and rickshaw puller received 5,000 to 7,000 taka, while two involved in fishing industry earned either 10,000 or 20,000 taka per month.

b) Household Expenditure

Household expenditure ranged from 11,750 to 57,250 taka. The average household expenditure was approximately 32,000 taka. Of all items, respondents spent most for food (average: 17,000 taka, max: 30,000 taka and min: 6,000 taka), followed by expenditure for agriculture activities (average: 5,000 taka, max: 13,000), health (average: 2,700 taka, max: 8,500 taka, min: 300 taka) and education (average: 2,000 taka, max: 5,000 taka, min: 350 taka).

c) Per Capita Income and Expenditure

Taking the geographical location of the project site and the inflation rates of FY 2010 and FY 2011 into consideration, the surveyed population whose per capita income and expenditure were below 1,500 taka were assumed as the poor in this report. The owners and a lessee, and their family members of the angle tower locations from P1 to P9 are not assumed as poor both on income and expenditure basis. Their per capita income ranged from 3,000 to 8,000 taka, and their per capita expenditure ranged from 1,958 to 4,250 taka.

(4) Assets

Out of nine interviewed households, all of them had at least one mobile phone and agriculture tools. Six of them had fishing nets and five of them had either table fan or ceiling fan. In regards to animals and poultry, six kept chickens at home, followed by cow (five households), ducks and goats (four).

(5) Basic Infrastructure for Living

a) Housing condition

Among participants of FGDs, houses of women were made of clay and thesis. Children's houses were made of clay: two had tin as their roof material, and three had thesis. Among farmers, two lived in bamboo-made houses, three lived in permanent houses, two lived in clay-walled house, and the last one lived in a house made of thesis and tin.

b) Energy Source

Five of nine land owners and a lessee of the angle towers had electricity at home. All of them use firewoods for cooking. They use electricity or kerosene for lighting. They use diesel for irrigation purpose.

Among female group members at P7 location, three had no electricity yet and two had lighting only by solar panels. Children group at P8, three had no electricity yet, and two had lighting only by solar panels. One of farmers of P3 location had solar panels at home, but others had no lights at home.

c) Water and Sanitation

All land owners and a lessee used tube wells for water. They had no habit of boiling water before drinking. No respondent said their water was contaminated with arsenic. Six of them had pucca latrine, and three had ring-slab latrines.

Among members of FGDs, all women, children and farmers in the groups took water from tube wells for cooking and drinking purposes. All women and children had ring-slab latrine (hygienic latrine).

d) Medical Facilities

People under the socioeconomic survey went to either markets or towns for medical treatment. Women and children of FGDs went to Upazila Health Complex for medical treatment. All farmers saw quack doctors for general diseases. They went to private doctors in Bottoli and Chittagong for more complex diseases.

e) Tidal Waves

All nine interviewed household heads said they had experienced tidal waves once to three times a year. They mentioned the floods of 1991 and 1997 as the biggest ones which they remembered.

(6) Others

a) Source of Information

As source of information, all respondents said they collected from their neighbors. Seven of them collected information from TV as they watched TV at tea stands or in the local markets, followed by mosque imam (five people), community leader (four people) and friends (three).

Among FGD participants, women collect information through NGO workers and neighbors, but not from TV or radio. Children collected information through TV, neighbors and their teachers.

b) Type of Pollution

No major pollutions were recognized among nine respondents in the socioeconomic survey, except snow mat.

c) Available Job Opportunities

Responding to whether there were any job opportunities available around the project site, the land owners from P1 to P7 stated that there was no job opportunity available. The land owner of

P8 said that there would be job opportunities in shrimp farming.

d) Skill Development Needs

In response to the needs for skill development, household heads answered that they would like to learn tailoring, salt farming technique, shrimp farming technique, training for working abroad, computer skill, and agriculture farming technique.

3.3 Local Consultation

CPGCBL has so far conducted two public consultation meetings (PCM) with the support of the JICA Study Team and EAL. The following is a summary of the meetings.

3.3.1 First Public Consultation Meeting

(1) Objectives

- Disclose information about the project
- Collect opinions and comments from individuals and organizations regarding the project
- Appropriately reflect such opinions, etc., into the LARAP

(2) Consultation Results

The first PCM was held at the scoping stage of the Feasibility Study of the Coal-fired Power Plant Development Project. CPGCBL hosted the meeting assisted by the JICA Study Team. Notification letters were distributed to all key stakeholders prior to the meeting. Outcomes of the meeting were shown below.

Table 3-19 Outcomes of First PCM

Date & Time	From 10am to 2pm, November 14, 2012
Venue	Puran Bazar Government Primary School, Matarbari, Maheshkhali Upazila, Cox's Bazar District
Host and Chair	Managing Director of CPGCBL
Participants	Local affected residents, community leaders, local elite people, local government officers, local NGOs, etc., a total of 115
Agenda	<ul style="list-style-type: none"> - Registration - Recitation of Quran - Welcome Speech by MD, CPGC - Background of the project by CPGC - Presentation on Project Description by CPGC - Question & Answer Session - Closing Speech by CPGC - Lunch

(Source: JICA Study Team)

At the meeting, a power-point presentation with a full explanation of the project was given to the participants in their local language, to allow the audience to fully understand the project and to contribute valuable comments. Major comments raised by the participants and the responses made by CPGCBL are shown in the table below, as per the meeting minutes and list of participants attached in the Annex.

Table 3-20 Major Comments from Participants and Responses by the Project Owner

Comments	Response	Reflection to LARAP (or EIA)
Teacher, local school, wanted to know the exact location of the proposed power plant. He suggested selecting a site towards the Bay of Bengal.	The project owner replied that the site for the power plant had been primarily selected between Matarbari and Dhalghata Union. The site will be finalized after the social and environmental survey.	[Water pollution] (EIA) <ul style="list-style-type: none"> - Cover installation on conveyor for coal transportation to coal yard. - Unloading of coal will be minimized (e.g., reduce the frequency of activity, etc.) during times of high speed winds. - Watering coal yard to keep the surface wet and prevent wind blowing coal and dust. - Installation of a dust control fence - Re-greening especially along boundary of project, surrounding coal yard with domestic plants - Water quality of tube wells and others will be checked periodically for the safety of local residents.
Job holder, LGED, Matarbari, commented that the main profession of local people of Matarbari is sea fishing. If hot water from the power plant is discharged into the sea, it will harm the fish. Therefore, the fishing profession will be affected.	The project owner replied that hot water will be cooled down to almost normal temperatures and then it will be released submerged into the sea without any harm to fish or other aquatic animals.	
Ex-Chairman Matarbari Union Council, wanted to know whether priority will be given to the affected people who will lose their livelihoods due to the power plant in Matarbari.	The project owner assured the audience that local people will be given high priority for employment in the project and related industries as well.	
Student from Matarbari, pointed out that agricultural land is normally affected by fly ash or dust produced from the coal-based power plants. As a result, agriculture is also affected. He also pointed out that people may suffer from respiratory problems.	The project owner replied that this power plant will be constructed using Ultra Super Critical (USC) technology and only negligible dust will be produced. As a result, agricultural land, agriculture and public health will not be affected.	
Chairman of Matarbari Union Awami league, requested to hold the next meeting in the project area to motivate more people of the area to participate in the meeting. He also demanded the following points: a. Local residents should be given high priority for employment in the project. b. Local competent people should be employed in the project. c. Roads, schools, colleges, fishery jetties, and health centers shall be developed. Roads along the east side and west side of Matarbari island should be made of <i>pucca</i> . d. The protective structure along the west coast of Matarbari island should be made very strong and permanent to protect the people of Matarbari from cyclones, tidal waves and erosion. e. Compensation for acquisition of land should be paid at least three times the present rate. f. No households should be damaged.	The project owner gave assurances that the next stakeholder meeting will be held at the project site. He also confirmed that local people will be given priority for employment in the project based on their skills. The affected salt farmers and fishermen will be compensated and rehabilitated. Regarding social facilities, he was told that the plant authority will establish a school, college and hospitals, etc., for the staff of the plant. Local people will also be able to use the above facilities. Apart from this, other infrastructure shall be developed in the Matarbari area to attract tourists as well. The compensation of the land shall be paid as per prevailing rules of the Government of Bangladesh.	[Employment] <ul style="list-style-type: none"> - Employ local residents as much as possible. - Developing an appropriate “land acquisition and resettlement action plan”, including “livelihood restoration program” - Enrollment in vocational training courses based on assessment of skills [Air pollution] (EIA) <ul style="list-style-type: none"> - To reduce PM emissions, Electrostatic Precipitator (EP; around 99.8% efficiency) will be installed. - Duct will be provided with CEMS (Continuous Emission

Comments	Response	Reflection to LARAP (or EIA)
<p>g. All affected fishermen and salt farmers should be compensated and rehabilitated.</p> <p>h. The road from Matarbari to Chittagong should be improved.</p> <p>i. Electricity should be supplied to the people of Matarbari at a subsidized rate.</p> <p>j. The plant should be constructed in such a way that it does not cause any damage to the environment and location.</p>		<p>Monitoring System) with the supported infrastructure as required under the gas emission standards and IFC guideline</p> <p>[Protective structure] -Coordination will be continuously made with local authorities to improve the local infrastructure.</p> <p>[Compensation] - Compensation under the Law (CUL) for all the private land as stipulated by the Ordinance 1982: average of last 12 months' sales values of same kind of land X 1.5 (50% premium) - Cash grant that covers the difference between CUL and the replacement value (RV) - Provision of stamp duty, land registration fee, capital gains tax and value added tax incurred for replacement land</p> <p>[Electrification] Electrification of surrounding area will be examined.</p>

(Source: JICA Study Team)

3.3.2 Second Public Consultation Meeting

(1) Objectives

- To update information on study progress (location of Power plant and anticipated social impact)
- To discuss possible actions and measures for the local residents
- To discuss implementation mechanisms

(2) Consultation Results

The meeting was presided over by Managing Director, CPGCBL, assisted by the JICA Study Team. Notification letters were distributed to selected representatives of the affected people prior to the meeting. Chairmen of Matarbari Union and Dhalghata Union, UNO of Maheshkhali Upazila, DOE of Cox's Bazar District, and a local NGO were consulted prior to the PCM. Results of the meeting are shown below.

Table 3-21 Outcomes of Second PCM

Date & Time	From 11:30 a.m. to 2:00 p.m., February 13, 2013
Venue:	Chakaria Upazila Parishad Auditorium
Host and Chair	Managing Director of CPGCBL
Participants	Local affected residents, Union Chairmen, local elites, local government officers, local NGOs, etc., a total of approximately 50
Agenda	<ul style="list-style-type: none">- Registration- Recitation of Quran- Welcome Speech by MD, CPGCBL- Opening Remarks by Team Leader of JICA Study Team- Presentation on Project Description by EAL- Question & Answer Session- Closing Speech by CPGCBL- Lunch

(Source: JICA Study Team)

Table 3-22 Major Comments from Participants and Responses by the Project Owner

Comments	Response	Reflection to LARAP (or EIA)
Teacher, Dhalghata Ideal High School, worried that there were rumors about the negative impacts on ecological balance, air quality, water quality, biodiversity, fish cultivation, livelihood, etc., in the project area if the power plant was constructed. He said that the affected people must be relocated as well. He wanted to know the extent of impacts if the power plant was constructed.	CPGCBL responded that the JICA Study Team was conducting a social and environmental survey in the project area to assess the impacts of the power plant. He also mentioned that the power plant would be environmentally friendly and the quality of the environment would be ensured by the department of environment. He mentioned the access road to be constructed for the power plant which would ease travel in the area. He clearly stated that local people would have employment opportunities in the power plant depending on their skills.	[Water pollution] (EIA) <ul style="list-style-type: none"> - Cover installation on conveyor for coal transportation to coal yard. - Unloading of coal will be minimized (e.g., reduce the frequency of activity, etc.) during times of high speed winds. - Watering coal yard to keep the surface wet and prevent wind blowing coal and dust. - Installation of a dust control fence
An NGO worker, pointed out that Matarbari was famous for shrimp cultivation. If the land was to be acquired, shrimp cultivation would be affected. Also, private land owners would lose their land. On the other hand, there was lot of government land unused in Chokoria Upazila and he suggested acquiring the government land in Chokoria Upazila to construct the power plant instead of Matarbari.	CPGCBL responded that there were several selection criteria to select the location of the power plant. Availability of land was one of the selection criteria. But the availability of fuel was also another criterion. In the proposed power plant the primary fuel would be imported coal which would require transportation and unloading facilities. In Matarbari, coal might be imported from foreign counties by large vessels and an unloading jetty facility would be created there. But Chokoria was far away from the Bay of Bengal, so the JICA Study Team selected the Matarbari site for the power plant.	[Employment] <ul style="list-style-type: none"> - Employ local residents as much as possible. - Developing an appropriate “land acquisition and resettlement action plan”, including “livelihood restoration program” - Enrollment in vocational training courses based on assessment of skills
Salt businessman, Sairer Dail, Matarbari, wanted to know whether any embankment would be constructed in Matarbari and Dhalghata if the power plant was to be constructed. The people who were passing the government land with their livelihood from cultivating those lands would be affected if the power plant would be constructed. He asked whether these affected people would get compensation or not. He also wanted to know whether those who would lose their houses in the project area would be resettled or not.	CPGCBL responded that the affected people would be compensated as per Bangladesh Laws (Ordinance 1982) through the district administration. There was no provision for compensating illegal residents or occupants of government land. But as per JICA guidelines, illegal residents or occupiers should also be compensated. The JICA Study Team was working on this issue and the illegal residents/occupants would also be compensated in accordance with JICA’s guidelines and Bangladesh government laws through the district administration. Regarding the embankment, he was unable to comment, but gave assurances that an access road would be constructed along with the power plant.	[Air pollution] (EIA) <ul style="list-style-type: none"> - To reduce PM emissions, Electrostatic Precipitator (EP; around 99.8% efficiency) will be installed. - Duct will be provided with CEMS (Continuous Emission Monitoring System) with the supported infrastructure as required under the gas emission standards and IFC guideline
A resident of Sairer Dail, Matarbari, wanted to know whether residents would receive free electricity. He also wanted to know whether they would get employment opportunities at the power plant.	CPGCBL responded that the surrounding area of the power plant would certainly get electricity extended there, and the electricity would be as per standard rates fixed by the government. Regarding employment opportunities, assurances were given that priority would be placed on hiring local people	[Protective structure] <ul style="list-style-type: none"> -Coordination will be

Comments	Response	Reflection to LARAP (or EIA)
	in the power plant depending on their skills.	continuously made with local authorities to improve the local infrastructure.
<p>Assistant Director, DoE, Cox's Bazar, said that coal-based power plants had negative impacts on the environment. But, the negative impacts could be mitigated by using the latest technology.</p> <p>He, however, raised the point that some birds were observed flying in the power plant area. He was worried about the negative impacts on the birds by the high stack/ chimney of the power plant. He then requested the JICA Study Team to design the height of the stack/chimney properly to avoid any negative impacts on the birds. He also suggested adopting adequate mitigation measures to keep SO_x and NO_x of ambient air quality within standard limits. Warm water of the power plant should be discharged into the sea in such a way that aquatic plants/animals were not affected. He assured the local people not to worry about the implementation of this power plant as the DoE is the enforcing agency of the GOB to ensure a pollution free environment.</p>		<p>[Compensation]</p> <ul style="list-style-type: none"> - Compensation under the Law (CUL) for all the private land as stipulated by the Ordinance 1982: average of last 12 months' sales values of same kind of land X 1.5 (50% premium) - Cash grant that covers the difference between CUL and the replacement value (RV) - Provision of stamp duty, land registration fee, capital gains tax and value added tax incurred for replacement land <p>[Electrification] Electrification of surrounding area will be examined.</p> <p>[Education] School facilities at power plant will be shared with the local residents.</p>
<p>One of the participants learnt that forestation for 20 years was needed if a coal-based power plant was to be constructed. In order to meet the present power crisis in Bangladesh, he said that nobody could wait 20 years to construct a coal-based power plant.</p>	<p>CPGCBL responded that the latest coal-based power plant would be environment friendly. Forestation and other necessary mitigation measures might be undertaken during the construction/ operation period.</p>	<p>[Health] Health facilities at power plant will be shared with the local residents.</p>
<p>Chairman, Dhalghata Union Council, welcomed the initiative to construct a coal-based power plant in Matarbari. He expected that an embankment, roads, schools/ colleges, and hospitals would be developed at Matarbari island. He learned that an access road would be constructed up to the power plant site, and requested the concerned authority to extend this access road up to Dhalghata via Mutila for about 5-6 km. He also requested the construction of hospitals and schools/ colleges around the power plant area for area development. He urged that project affected people be properly compensated.</p>	<p>CPGCBL responded that another JICA Study Team was conducting a feasibility study of the access road for the power plant. A similar public consultation meeting would be held for the access road also. He requested Mr. Bacchu to raise this issue in that PCM to include an additional 5-6 km road up to Dhalghata via Mutila.</p> <p>Regarding the construction of schools/colleges and hospitals outside the power plant, he said that sincere cooperation would be extended with other development agencies to construct the above facilities. However, schools/colleges, hospitals. etc., would be constructed in the power plant area for the power plant employees. He gave assurance that the above facilities would be accessible to the public residing around the power plant.</p>	

Comments	Response	Reflection to LARAP (or EIA)
<p>Chairman, Matarbari Union Council, told the meeting that there were both positive and negative perceptions for construction of a coal-based power plant in Matarbari. The local residents were very concerned about the negative impacts of the power plant. They must be motivated before the construction of this power plant so that they would not raise any objections against the construction of this plant.</p>	<p>CPGCBL responded that the project would be implemented after motivating the local people and satisfying all criteria set by the Government of Bangladesh and JICA as well.</p>	
<p>UNO, Maheshkhali Upazila, told the meeting that electricity was a very essential commodity for modern civilization. In order to meet the power crisis, he said that it would be essential to construct a big power plant. Some rental and quick rental power plants had been installed in Bangladesh to overcome the immediate power crisis, but the cost of energy of these power plants was very high. On the other hand, the cost of energy of this coal-based power plant would be very low. He therefore urged everybody to come forward with GOB to implement this big power plant. He gave assurances that the project affected people would be properly compensated and resettled as per the government and international rules.</p>		

(Source: JICA Study Team)

4 Detailed Description of Impacts and Category of PAPs

4.1 Power Plant

4.1.1 Pre-construction Phase and Construction Phase

(1) Land Acquisition

Findings: It is anticipated that 16 households currently living on the site without permission and four households who purchased the land will have to vacate their domiciles due to the land acquisition for the construction of the power plant. Apart from resettlement, land owners of the project site area will lose their land. Employers/ employees of salt farms and shrimp farms will lose their means of livelihood. Those people who run business, employers or employees at salt farms and shrimp farms in the site will lose their livelihood means. Note that the site selection was reconsidered to the present site from the previous one (2 km south), where large settlements were found on private land, in order to avoid a large-scale resettlement.

343 households and 2,031 people will be affected by the construction of the power plant and the port facility. They had complex land use patterns: some of them had lands of their own, rented additional private land and government land; some others had no land but rented private land and had domicile without permission. The following table shows the anticipated impact to the 343 households. The number of household for each category is cumulative as most of households have several kinds of statuses to the land they use.

Table 4-1 Anticipated Social Impact to 343 Households (Power Plant)

Category	Impact	No. of HH (cumulative)	No. of HH Members (cumulative)
Owners of private land			
Own & live	Lose land ownership	4	25
	Lose shelters and be physically displaced		
Own but do not live	Lose land ownership	237	1,429
Users of private land (lease)	Lose tenant rights	77	460
Users of government land with official agreement	Lose tenant rights	10	70
Users of government land without official agreement	Lose occupancy of land	140	844
Squatters living on government land	Lose occupancy of land for living place	16	86
	Lose shelters and be physically displaced		

Note: HH means household.

(Source: JICA Study Team)

Mitigation Measures: Not only a compensation plan but also a livelihood restoration program for affected people shall be established.

(2) Disturbance to Poor People

Findings: There are poor households among those to be resettled and/or will lose their livelihood. The household monthly income of 343 households (2,031 people) directly and indirectly affected by this project is from zero taka to 842,000 taka, and the income of nearly 60% of the households is within the range of 10,000 taka to 30,000 taka. For individual monthly incomes, 44% of the all family members fall into the range of 2,000 taka to 4,000 taka.

According to the national household revenue and expenditure survey conducted in 2010, the poverty line of agricultural area of Bangladesh is 1,211.57 taka per person/ month, and Chittagong District is 1,304.64 taka per person/ month. Setting the poverty line at 1,500 taka per person/ month for the proposed power plant site at the end of 2012, less than 10% of the local population falls below the poverty line on income basis. This rate is far better than the poverty rate of rural areas for the whole of Bangladesh (35.2%), and of the Chittagong District (31.0%).

Mitigation Measures: Their living conditions will not deteriorate compared to their current conditions, and they will have job opportunities at the construction site.

The employment of local people should be promoted to increase employment opportunities for various subcontract work resulting from the power plant construction activity. However, approximately 70% of heads of household are illiterate or can only write their signatures, so these people can only be engaged in very simple tasks due to their lack of skills. Livelihood restoration measures shall be established, including job training for those who want it.

(3) Deterioration of Local Economy such as Losses of Employment and Livelihood Means/
Land Use and Utilization of Local Resources

Findings: It is expected that employers and employees of salt farms, shrimp farms, and fishermen will lose their means of livelihood. Fishing activities around the site will also be affected due to a rise of water temperature and restriction of fishing. The implementation of this project will change the traditional land use patterns and utilization of local resources, which may have a large impact on the existing local economy.

About 70% of the heads of 343 households that will be directly or indirectly affected are working in salt or shrimp farms as laborers, mazi, businessmen or cultivators. Including laborers from outside, there are 165 permanent and 892 temporary employees involved in shrimp cultivation, salt farming, fishing activities and others. There are also twelve sharecroppers. Twenty two businessmen stated they received cash income from the salt business and three stated they received income from agriculture. There was also one boatman, six carpenters, and one tea seller.

Approximately 70% of heads of household are illiterate or can only write their signatures, so they can only be engaged in very simple tasks due to their lack of skills.

The sandy beach is 7km long at the west coast of Matarbari Island, according to the Maheshkhali Upazila Officer. The width of the navigation channel to be altered is 400m and the

length of discharge outlet is 100m, resulting in less than 10% of the sandy beach becoming disappeared. Then fishing ground for push net will be loss.

Fishermen around the project site fish offshore (3-50km from the coast), and as all dredged material will be land filled into land sites, not disposed into the ocean, therefore, there is no expected impact on fishery by the power plant construction.

The catches of shrimp fly in the coastal area may be affected by the change of the sand beach due to the construction of the navigation channel and water outlet.

Mitigation Measures: Although the number of salt and shrimp farms will decrease due to the construction of the power plant, employment opportunities will increase for various subcontract work of the construction. Local people will be given priority in employment. Livelihood restoration measures shall be established, including job training for those who want it. Decreased income from shrimp-fly fishing of the fishermen may be easily supplemented by increased job opportunities and job switching. Job training shall be provided for those who want it in order to assist in livelihood restoration.

(4) Disturbance to Water Usage, Water Rights, etc.

Findings: All water to be used for the construction work will be transported by vessels and stored in a tank. Ground water and river water will not be used.

The local economy may be affected by turbid water discharged from the construction site. Outflows of street dust and oil during rainy periods may also have certain effects. The turbid water discharged from the construction site and any oil spills may affect the water quality of the marine area, rivers and ground water, and adequate mitigation measures shall be taken.

Mitigation Measures: Water quality of well water, which is the main supply of drinking water, shall be monitored in order to monitor any adverse effects on ground water.

(5) Disturbance to Existing Social Infrastructure and Services

Findings: As material and equipment transportation will be mainly conducted by vessels, increased marine traffic may disturb existing marine traffic including fishing boats. Additionally, vehicles transporting commuting workers may cause increased traffic and traffic jams around the project area.

Mitigation Measures: In regard to vessels, water routes shall be determined after consultation with the related authorities. And in regard to vehicles, bus use will be promoted to reduce increasing the number of vehicles on the roads. The bus schedules shall be managed in consultation with related organizations.

(6) Social Institutions such as Social Infrastructure and Local Decision-making Institutions

Findings: Laws of Bangladesh stipulate the need to conduct public consultations in land acquisition processes. The Deputy Commissioner's Office of Cox's Bazar District will officially

take responsibility for initiatives to conduct local consultations concerning compensation.

Mitigation Measures: A number of consultations with local residents have been conducted in preparing the draft LARAP. In consideration of changing emotions of local residents over the course of negotiations with office staff, personnel responsible for responding to complaints or suggestions from local residents will work at the power plant office in the resettlement process.

(7) Misdistribution of Benefits and Compensation -

Findings: There is a possibility of unequal compensation among local residents.

Mitigation Measures: Equality of compensation shall be assured in the resettlement process.

(8) Local Conflicts of Interest

Findings: Local conflicts may occur between local residents who may feel that they receive unfair compensation and other local residents or conflict with staff of the Deputy Commissioner's Office. Conflict may occur between local residents and external workers because of any changes to local customs if external workers cannot understand local customs.

Mitigation Measures: A number of consultations with local residents have been conducted in preparing the draft LARAP. In the resettlement process, personnel responsible for responding to complaints or suggestions from local residents will work at the power plant office.

Local people should be employed at the power plant to the maximum extent possible, and any workers from other countries should be taught to respect local customs in order to facilitate good relationships with local people. The lodgings of the project workers should be equipped with sufficient living facilities to keep workers at the project site as much as possible.

(9) Gender

Findings: There are women among those to be resettled and/or lose their livelihood means. They currently have low living standards, living without proper facilities, will have better access to social services throughout the year. However, wives of those men who lose their land or jobs may suffer from adverse effects on their household economy.

(10) Children's Rights

Findings: Children are often forced to work and cannot attend school, and this may occur in the construction stage of the power plant as well. There will be children among those to be resettled and/or lose their livelihood means. Children from those households losing their land or jobs may suffer from adverse impact on their household economy such as drop-out of school.

Mitigation Measures: Labor contracts between the construction industry and children shall be prohibited. Regular patrols to check for child workers shall be conducted.

(11) Infectious Diseases such as HIV/AIDS

Findings: A temporary influx of migrant labor during the construction period may increase the risk of sexual transmitted diseases, etc.

Mitigation Measures: Local people should be recruited for simple work as much as possible so to minimize the risk of infectious diseases being transmitted from external workers. Pre-employment and periodic medical check-ups should be conducted for external workers (technical workers, etc.).

(12) Work Environment (Including Work Safety)

Findings: A high risk rate of accidents is predicted for the construction work.

Mitigation Measures: Construction companies should establish work safety plans and submit them to CPGCBL to obtain approval. Work safety plans should stipulate mitigation measures on soft aspects (safety training, etc.) and hard aspects (provide workers with appropriate protective equipment, etc.).

(13) Accidents

Findings: Land traffic and marine traffic accidents during construction work may occur.

Mitigation Measures: As prevention measures for land traffic accidents, observation of traffic regulations, and training and education on safe driving will be implemented. The bus schedules shall be communicated to people in the surrounding villages. For vessel operation, marking buoys will be set around the construction area for marine safety. Vessel schedules shall be announced to fishermen, etc.

4.1.2 Operation Phase

(1) Disturbance to Poor People

Findings: Resettled people may experience a deterioration of their household economies and livelihood losses due to their relocation if appropriate measures are not taken. The road around the project site is especially in a bad condition (not possible to travel in the rainy season), preventing local access to social services.

Mitigation Measures: Poor people, who currently have low living standards, living without proper facilities, will have better access to social services throughout the year if roads are improved along with the construction of the power plant, especially improved access during the rainy season. An access road, a community road that will replace the existing road and a road around the power plant boundary shall be built. These roads will be built with sufficient height so that they can be used even in the rainy season.

Local people should be employed to work at the power plant and related facilities to the

maximum extent possible according to their skills.

(2) Deterioration of Local Economy such as Losses of Employment and Livelihood Means/
Land Use and Utilization of Local Resources

Findings: There will be permanent losses or reduction of livelihood means in salt farming, shrimp farming and fishing activities. Employment opportunities will be offered at the power plant for local people.

The implementation of this project will change the traditional land use patterns and utilization of local resources, which may have a large impact on the existing local economy. Both fishermen around the project site who operate in the marine area (3-50km from the coast) outside of the adverse effects of thermal effluents and other wastewater discharge of the power plant, and fish catches, will not be affected.

Mitigation Measures: Local people should be employed to work at the power plant and related facilities to the maximum extent possible according to their skills. Livelihood restoration means shall be conducted including job training for those who want it. Services (e.g., laundry, catering services, etc.) and products offered by the local community should be used by the power plant as much as possible. Efforts for area development will be promoted, including the establishment of a local development plan in cooperation with the local government.

(3) Disturbance to Water Usage, Water Rights, etc.

Findings: In the operation phase, all water used for the project will be supplied not from ground water or river water, but from sea water desalinated by reverse osmosis. The local economy may be affected by discharged water from the power plant into the sea.

Mitigation Measures: Wastewater generated from the power plant will be appropriately treated before discharge. Waste will also be appropriately treated and disposed of, with necessary countermeasures to prevent any seepage of oil and chemicals.

(4) Disturbance to the Existing Social Infrastructure and Service

Findings: Traffic volume and traffic jams will increase in the surrounding roads during the operation phase.

Mitigation Measures: Mitigation measures to decrease traffic volume shall be conducted, such as the promotion of bus use. Additionally, an access road, community road and road around the power plant boundary shall be built. These roads will be built with sufficient height so that they can be used even in the rainy season, in order to enable public access to markets and social services.

In addition, a school and medical facility constructed within the power plant site shall be open to all local people for the improvement of their lives.

(5) Misdistribution of Benefits and Compensation

Findings: People who live in other areas have limited access or have been prevented from accessing the school and medical facility within the power plant site and the access road, which may cause grievances.

Mitigation Measures: The access road, school and medical facility constructed within the power plant site shall be open to all local people to the maximum extent possible in order to improve peoples' lives.

(6) Local Conflicts of Interest

Findings: Local conflicts of interest may occur between employers and employees of salt farms, shrimp farms and the fishing industry, and between local administration bodies and local political leaders. Conflicts among local residents may occur if such benefits were misdistributed.

Mitigation Measures: Local people should be employed at the power plant to the maximum extent possible, and workers from other countries should be taught to respect local customs in order to facilitate good relationships with the local people. The lodgings of project workers should be equipped with sufficient living facilities in order to keep workers at the project site as much as possible.

The access road, school and medical facility constructed within the power plant site shall be open to all local people to the maximum extent possible for the improvement of peoples' lives.

(7) Gender

Mitigation Measures: Residents will have better access to social services throughout the year if roads are improved along with the construction of the power plant, especially access during the rainy season.

(8) Children's Rights

Findings: There is a possibility that children may be forced to work and not attend school. Further, children's rights to go to school may further deteriorate if the access way to their school is physically blocked by the construction site.

Mitigation Measures: Labor contracts between the subcontractors and children shall be prohibited. Regular patrols to check for child workers shall be conducted. The access road, community road and road around the power plant boundary shall be built with sufficient height so that it can be used even in the rainy season, so that access to markets and social services shall be improved, including access by children.

(9) Work Environment (Including Work Safety)

Findings: Work accidents involving workers may occur at the power plant site.

Mitigation Measures: CPGCBL shall establish a work safety plan. The work safety plan shall stipulate mitigation measures on soft aspects (safety training, etc.) and on hard aspects (provide workers with appropriate protective equipment, etc.).

(10) Accidents

Findings: Marine traffic and land traffic accidents may occur during plant operation. Fires caused by spontaneous ignition of stored coal may also occur.

Mitigation Measures: Observation of traffic regulations, installation of traffic signs, and training and education on safe driving shall be conducted for land traffic vehicles. For ocean navigation, determining water routes after consultation with related authorities, and setting course buoys around navigation channel for marine safety will be undertaken as prevention measures for accidents. Fire prevention measures shall be conducted including regular watering of the coal storage site, installation of fire protection equipment in the power plant and organization of fire-fighting team and fire-fighting training.

4.2 Port Facility

4.2.1 Pre-construction Phase and Construction Phase

(1) Disturbance to Existing Social Infrastructure and Social Services

Findings: Pump dredgers will be used in dredging work in the marine area, and increased marine traffic may slightly disturb the existing marine traffic including fishing boats.

Mitigation measures: The construction area shall be determined after consultation with related authorities.

(2) Work Environment (Including Work Safety)

Findings: A high risk rate of accidents is predicted during the construction work.

Mitigation measures: Construction companies shall establish work safety plans and submit them to CPGCBL to obtain approval. Work safety plans shall stipulate mitigation measures on soft aspects (safety training, etc.) and on hard aspects (provide workers with appropriate protective equipment, etc.).

(3) Accidents

Findings: Marine traffic accidents may occur during the construction work.

Mitigation measures: The navigation route of vessels shall be determined after consultation with related authorities. Marking buoys will be set around the construction area for marine

safety.

4.2.2 Operation phase

(1) Disturbance to the Existing Social Infrastructure and Services

Findings: Navigation of large coal transport vessels and tankers will cause increased marine traffic, and may disturb the existing marine traffic including fishing boats.

Mitigation measures: Navigation routes shall be determined after consultation with related authorities.

(2) Work Environment (Including Work Safety)

Findings: Accidents may be caused by the entry and departure of vessels and the loading-unloading of coal.

Mitigation measures: Work safety plans shall be established that stipulate mitigation measures on soft aspects (safety training, etc.) and on hard aspects (provide workers with appropriate protective equipment, etc.).

(3) Accidents

Findings: Marine traffic accidents may occur.

Mitigation measures: Navigation routes shall be determined after consultation with related authorities. Course buoys will also be set around navigation channel for marine safety.

4.3 Transmission Line

4.3.1 Pre-construction Phase and Construction Phase

(1) Land Acquisition and Compensation

The construction of one tower base requires $2\text{m}^2 \times 4 = 8\text{m}^2$ of land. The construction of 157 transmission towers, including angle towers and suspension towers, is planned requiring a total amount of $1,256\text{m}^2$ (0.13ha) of land acquisition. Voluntary offers of land do not require compensation, but it is assumed here that all land necessary for tower construction will be acquired.

The table below shows the details of the assumed affected people. Land acquisition will be conducted on the basis of compensation at replacement cost. As the land to be acquired for each transmission tower is small, it is not expected that there will be any semi-permanent loss of livelihood means. However, there is a possibility of temporary impact on livelihood means during the construction period.

Table 4-2 Affected People and Land Owners at Angle Tower Points

Category	Impact	No. of HH	No. of HH Members
Owners of private land	Temporarily affected during construction period	8	83
Users of government land with official agreement	Temporarily affected during construction period	1	9
Total		9	92

In the case of acquisition of farm land, entry into such land will be temporarily halted during the construction period and hence farming will be impossible. Also, all trees within clearance distance from cables will be removed. All standing crops and trees lost by the land owners will be compensated with a market price.

(2) Deterioration of Local Economy such as Losses of Employment and Livelihood Means/
Land Use and Utilization of Local Resources

Farm land located at the base of the towers will be lost, although the total area will be small. Land owners and users of tower locations will be tentatively affected during construction period resulting in a loss of means of livelihood. In addition, land located under the transmission line will decline in value. Tall trees will be cut down. However local people will be employed for construction work.

In the case of acquisition of farm land, entry into such land will be prohibited temporarily during the construction period and hence farming will be impossible. The construction work aims to employ as many local residents as possible, and to use the services and products of the local community as much as possible.

The transmission line construction areas can be reused for farming after the completion of each transmission tower construction, except for the $2\text{m}^2 \times 4 = 8\text{m}^2$ of land used for tower bases. Therefore, adverse effects on income will be very limited.

(3) Disturbance to Water Usage, Water Rights, etc.

There may be soil runoff from the exposed soil of the embankments and cut slopes, resulting in water pollution of the downstream area of the surrounding rivers and consequently alteration of water use. The transmission line route shall avoid using steep sloping land, and any slopes used shall be reinforced with concrete, plantation or other means to minimize soil runoff and turbid water generation.

(4) Social Institutions such as Social Infrastructure and Local Decision-making Institutions

The Deputy Commissioner's Office of Cox's Bazar District will be responsible for taking the initiative to conduct local consultations concerning compensation. In consideration of the possible changing emotions of local residents over the course of negotiations with office staff,

Compensation should be carried out in consultation with the local people.

(5) Cultural Heritage

There is a possibility that some historical, cultural and/or archaeological property and heritage may be found in the course of the construction work. In this case, construction work will be interrupted and experts will be consulted.

(6) Infectious Diseases such as HIV/AIDS

A temporary influx of migrant labor during the construction period may increase the risk of transmitted diseases. Local people will be recruited for simple work as much as possible and there is low risk of infectious diseases transmitted from external workers. Pre-employment and periodic medical check-ups shall be carried out for external workers (technical workers, etc).

(7) Work Conditions (Including Work safety)

A high risk rate of accidents is predicted during the construction work. The construction company shall establish a work safety plan and submit it to PGCB to obtain approval. The work safety plan shall stipulate mitigation measures on soft aspects (safety training, etc) and on hard aspects (provide workers with appropriate protective equipment, etc).

(8) Accidents

There may be land traffic accidents during the construction work. Also, other accidents may occur, including soil runoffs and tower breakages caused by cyclones, etc. As prevention measures for land traffic accidents, observation of traffic regulations, installation of traffic signs and training and education on safe driving will be implemented.

In addition, the transmission line route shall avoid using steep sloping land, and any slopes used shall be reinforced with concrete, plantation or other means to minimize soil runoff and turbid water generation.

4.3.2 Operation Phase

(1) Deterioration of Local Economy such as Losses of Employment and Livelihood Means

Farm land located at the base of towers will be lost, although the total area will be small. The transmission line construction area can be reused for farming after the completion of the construction, except for the $2m^2 \times 4 = 8m^2$ of land for tower bases, and any adverse effects on income will be very limited.

(2) Disturbance to Water Usage, Water Rights, etc.

Soil runoff may occur from the exposed soil of the embankments and cut slopes, resulting in water pollution of the downstream area of the surrounding rivers and possible alteration of water

use. The transmission line route shall avoid using steep sloping land, and any slopes used shall be reinforced with concrete, plantation or other means to minimize soil runoff and turbid water generation.

(3) Work Conditions (Including Work Safety)

There is a risk that accidents, such as electrification and workers falling, may occur during maintenance work. A work safety plan shall be established including mitigation measures on soft aspects (safety training, etc) and on hard aspects (provide workers with appropriate protective equipment, etc).

(4) Accidents

Accidents may occur from such factors as soil runoffs and tower breakages caused by cyclones, etc. The transmission line route shall avoid using steep sloping land, and any slopes used shall be reinforced with concrete, plantation or other means to minimize soil runoff and turbid water generation.

4.4 Entitlement for Different Types of Losses

Based on the findings and analyses in the field surveys, the entitlement matrix for the PAPs at the construction site of power plant and port facility, and transmission line route has been drafted as in the table below.

Table 4-3 Entitlement matrix for PAPs (power plant, port facility and transmission line sites)

No	Type of Loss	Entitled Persons (Beneficiaries)	Entitlement (Compensation and Assistance Package)	Responsible Organizations
1	Loss of private land	Legal owners of land	<ul style="list-style-type: none"> - Cash compensation under the law (CUL) for all the private land stipulated by the Ordinance 1982 is the average of last 12 months' sales values of same kind of land X 1.5 (50% premium). CUL should be estimated based on the current market value of private land, not the average of last 12 months' sales values. - Cash grant that covers the difference between CUL and the replacement value (RV) - Provision of stamp duty, land registration fee incurred for replacement land (15%) - value added tax - One-time assistance for lost income (based on monthly income for three years at minimum wage rates) 	Deputy Commissioner (DC) Land Acquisition Officer (LAO) Property Valuation Advisory Team (PVAT) CPGCBL
		Tenants and leaseholders	<ul style="list-style-type: none"> ✓ Provision of another land or equivalent amount of cash compensation including with 50% premium added to the land price ✓ Provision of stamp duty, land registration fee (15%) ✓ One-time assistance for lost income (based on monthly income for three years at minimum wage rates) 	
2	Loss of government land including khas land	Tenants and lessee	<ul style="list-style-type: none"> ✓ Provision of another khas land or equivalent amount of cash compensation assuming tenants and lessee will seek private land with 50% premium is added to the land price ✓ Provision of stamp duty, land registration fee (15%) ✓ One-time assistance for lost income (based on monthly income for three years at minimum wage rates) 	DC LAO PVAT CPGCBL
		Occupants without legal tenure	<ul style="list-style-type: none"> ✓ Provision of another khas land or equivalent amount of cash compensation assuming tenants and lessee will seek private land with 50% premium is added to the land price ✓ Provision of stamp duty, land registration fee (15%) ✓ One-time assistance for lost income (based on monthly income for three years at minimum wage rates) 	

No	Type of Loss	Entitled Persons (Beneficiaries)	Entitlement (Compensation and Assistance Package)	Responsible Organizations
3	Permanent loss of means of livelihoods/ source of income	✓ Lessor (land owners who rent their land will lose income from land lease contract)	✓ One-time assistance for opportunity loss (based on the lease amount) (assuming the inflation rate stays 10%)	DC DOF PVAT CPGCBL
		✓ Permanent laborers ✓ Temporary laborers ✓ Sharecroppers	✓ One-time assistance for lost income (based on monthly income for three years at minimum wage rates) ✓ Enrollment in vocational training courses based on assessment of skills (@300 taka / day for 120 days)	
		Businessmen, employers of salt farms, shrimp farms and fishing sites, self-employed people	✓ One-time assistance for opportunity loss (based on the lease amount) (assuming the inflation rate stays 10%) ✓ One-time assistance for lost income (based on monthly income for three years at minimum wage rates)	
4	Loss of residential/ commercial structures	Legal title holders Owners of structures	✓ Cash compensation for affected portion of the structure and other fixed assets at replacement cost (50% premium) ✓ Option to be compensated for entire structure if remaining structure is no longer viable ✓ Provision of all taxes, registration costs and other fees incurred for replacement structure (15%) ✓ Reconstruction grant for reconstruction / repair of the remaining structure (@15 taka / sft) ✓ Shifting allowance based on actual costs of moving (@10 taka / sft)	DC PVAT Public Works Department (PWD) CPGCBL
		Legal tenants/ lease holders of the structure	✓ Cash compensation equivalent to replacement cost of structure (or part of structure) for the portions of the structure constructed by the tenant/ leaseholder (50% premium) ✓ Reconstruction grant for reconstruction / repair of the remaining structure (@15 taka / sft) ✓ Shifting allowance based on actual cost of moving (@10 taka / sft)	
		Socially recognized owners/ unauthorized occupants	✓ Cash compensation equivalent to replacement cost of structure (or part of structure) erected by the displaced person (50% premium) ✓ Reconstruction grant for reconstruction / repair of the remaining structure (@15 taka / sft) ✓ Shifting allowance based on actual cost of moving (@10 taka / sft)	
5	Loss of standing crops at home gardens, shrimp, and fish	Land owners, <i>Bargadar</i> , Lessee and Unauthorized occupant of land	✓ One-time assistance for opportunity loss (based on the lease amount) (assuming the inflation rate stays 10%)	DC PVAT Department of Fisheries (DOF) Department of Agricultural Marketing

No	Type of Loss	Entitled Persons (Beneficiaries)	Entitlement (Compensation and Assistance Package)	Responsible Organizations
				(DAM) CPGCBL
6	Loss of timber and fruit bearing trees	Legal owner of land Non-titled user of land	✓ Market value of trees	DC PVAT Forest Department (BFD) DAM CPGCBL
7	Temporary loss of land during construction	Owners with legal title, tenants, leaseholders	✓ Rental assistance for the period for which the land is temporarily requisitioned ✓ Temporarily requisitioned land will be returned to owners rehabilitated to original or preferably better condition	DC LAO PVAT CPGCBL
8	Temporary loss of access to land, structure, utilities, common property resource during construction	Owners with legal title, tenants, leaseholders	✓ Provision of temporary access and relocation where possible ✓ Restoration of access to the land, structure, utilities	DC PVAT CPGCBL
9	Temporary loss of livelihood/ source of income during construction	Business owners, tenants, leaseholders, employees, vendors	✓ One-time assistance for lost income based on monthly income for three years from products, minimum wage rates or based on actual income, verified through incomes of comparable businesses in the area	DC DOF DAM CPGCBL

(Source: JICA Study Team)

A land and property valuation survey based on the prices recorded from formal and informal sources as below will determine the RV of land and structures:

- Government price
- Potential sales price
- Potential buyer price
- Enumerated price collected in the socioeconomic survey
- Price deemed appropriate as quoted by a retired government officer living in the vicinity
- Price deemed appropriate as quoted by local intellectuals
- Price deemed appropriate as quoted by religious leaders

For the valuation of affected property, a legal body called “Property Valuation Advisory Team” (PVAT) should be formed with a neutral position to obtain endorsement on the valuations from the GOB. The PVAT shall be comprised of representatives from the DC Office, CPGCBL, and the Ministry of Power, Energy and Mineral Resources (MOPEMR). The PVAT will recommend the replacement values of land and structures to the MOPEMR. CPGCBL will pay the difference between the RV and the compensation under law (CUL). In the case of any

depreciation costs deducted from affected structures in the CUL by the DC, CPGCBL will pay the same as additional construction grants to re-settlers. It will also pay stamp duty and land registration fees when replacement land purchases are confirmed.

5 Livelihood Restoration and Improvement Plan

The livelihood restoration and improvement plan will be implemented based on consultation with PAPs and their socio-economic profile, living environment, level of education, etc. which were identified in the socioeconomic survey. CPGCBL have agreed to incorporate the following measures into livelihood restoration program.

Table 5-1 Livelihood restoration measures

Current situation	Negative impact	Program
<ul style="list-style-type: none"> - Nearly 80 % of Household heads are illiterate or only write their names. - Only 43 % of the affected people are literate 	<ul style="list-style-type: none"> - Hard to find job - Access to information is limited 	<ul style="list-style-type: none"> - Power plant offers literacy classes to local children
<ul style="list-style-type: none"> - Skills remain undeveloped - Women stay home 	<ul style="list-style-type: none"> - Hard to find good jobs - Salary stays low 	<ul style="list-style-type: none"> - PS arranges skill training classes
<ul style="list-style-type: none"> - Job opportunity: limited 	<ul style="list-style-type: none"> - High unemployed rates - Daily labor - Children drop out of school 	<ul style="list-style-type: none"> - PS offers jobs at PS and associated facilities

(Source: JICA Study Team)

6 Organizational Responsibilities and Implementation Procedures

The following figure shows the implementation schedule of LARAP. Major actions taken by CPGCBL are summarized down below:

6.1.1 Finalization of land acquisition and resettlement action plan

CPGCBL is the implementing agency of the project, and the Deputy Commissioner's Office of Cox's Bazar district is the immediate organization for affected people to consult for compensation as stipulated in the Ordinance 1982. CPGCBL will prepare and submit an application for land acquisition to MOPEMR and make a request to DC of Cox's Bazar. It will also prepare and submit the Resettlement Action Plan (RAP) to MOPEMR.

It will allocate the required budget for Additional Grant (AG) on top of DC's payment for land and Resettlement Benefits (RBs), which are to be approved by the GOB.

6.1.2 Data collection and EP identification

CPGCBL will, as shown in Figure 6-2 below, deploy adequate human resources for supervision, consultation, and monitoring of land acquisition, resettlement and rehabilitation activities during project implementation.

CPGCBL, in line with the DC, will design and conduct a socioeconomic survey and collect data. A supplemental survey can be conducted to obtain additional key information and update all the data, and the RAP should be revised if required. ID cards, EP files, and Entitlement Cards will be issued at this stage. It is desirable to formulate an inventory verification committee to ensure if this procedure is properly implemented among the affected people.

6.1.3 Local consultation and information management

CPGCBL will prepare an information brochure for information dissemination. Local consultations such as public consultation meetings and focus group discussion should be organized to ensure if project affected people keep informed of the project implementation process, benefits and losses, environmental and social impact, and etc. For effective information sharing, it is recommended to conduct such meetings not only for the affected people but local residents living in the surrounding area. Meetings can be conducted and brochure be distributed at local markets.

6.1.4 Finalization of budget

In order to ensure if proper valuation is conducted, CPGCBL will set up a property valuation advisory committee (PVAC) at this stage to assess the assets value.

6.1.5 Implementation of land acquisition and resettlement

The Deputy Commissioner will pay the cash Compensation under Law (CCL) for the affected

lands, structures crops and trees to the EPs. CPGCBL will pay the AG on top of DC's payment for the lands and other RBs to the EPs. CPGCBL is responsible for assisting EPs purchase land and relocating, and encouraging them to take advantage of the livelihood rehabilitation/improvement program. CPGCBL will set up a grievance redress committee (GRC) for receiving grievance from stakeholders including the affected people (see next chapter for further detail on GRC). To implement the land acquisition and resettlement, a resettlement advisory committee is recommended to be formulated for CPGCBL to ensure proper implementation of resettlement.

6.1.6 Monitoring

Appropriate reporting including auditing and redress functions, monitoring and evaluation mechanisms will be identified and set in place as part of the resettlement management system. In addition to an internal monitoring conducted by CPGCBL, an external monitoring group should be hired that will evaluate the resettlement process and final outcome (see the last chapter for further details).

The following diagram (Figure 6-1) shows the implementation mechanism of land acquisition and resettlement, and the Figure 6-2 shows the tentative schedule for implementing LARAP.

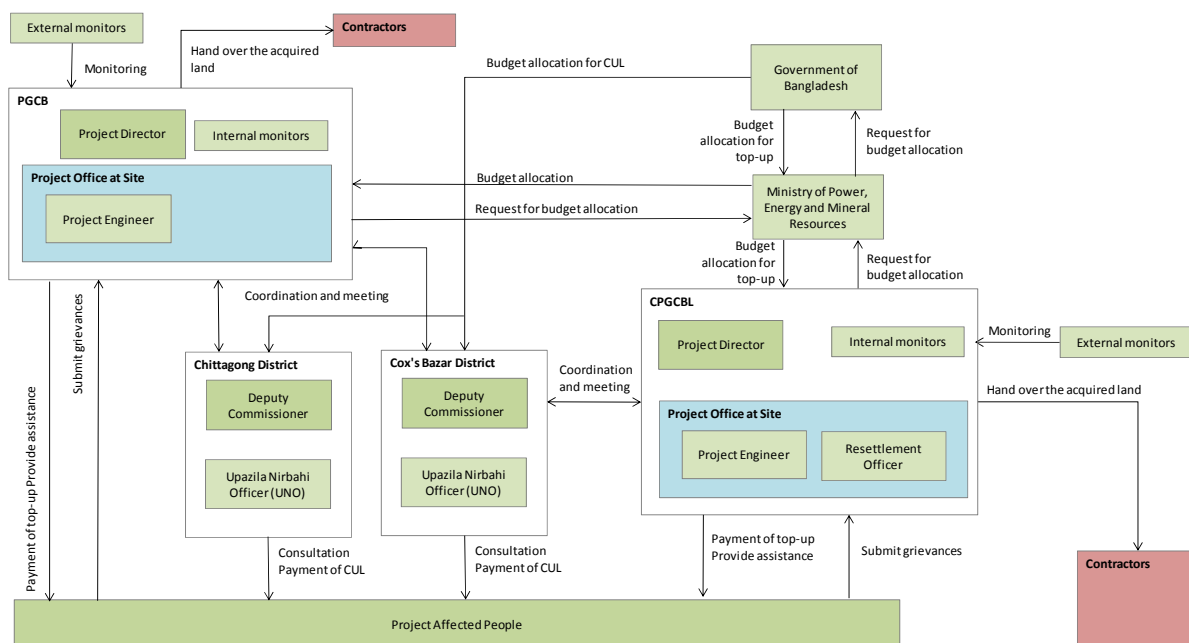


Figure 6-1 Implementation Mechanism of Land Acquisition and Resettlement

7 Grievance Redress Mechanisms

Other than the grievance redress mechanism stipulated by the Ordinance 1982, CPGCBL will make efforts at project level to resolve grievances through negotiations involving representatives of PAPs, village heads and Union Parishad Chairmen. The Project Director will allocate a resettlement officer at the project office, who deals with such negotiations up front. The resettlement officer will be the entry point and receive all the inquiries, concerns and complaints directly from PAPs. A notebook will also be installed at the project office entrance for anybody to write suggestions anonymously.

A grievance redress committee at project site will convene meetings monthly. Non-regular meetings will also be held ad-hoc basis as necessary at such places as it is considered appropriate (such as village, union, etc.) for dealing with urgent matters. The proceedings (or minutes of meetings) will be made with the object to promptly address the concerns and complaints using an accessible and transparent process to the PAPs, and to bring an amicable settlement between the parties. All reports will be recorded in Bengalese language and provided to all parties concerned.

The committee at project level will include the following people:

- Resettlement Officer
- Representative from local NGO/CBOs
- Representatives of Displaced Persons
- Representative from local government
- Local intellectuals or religious figures, who would represent the residents of the project area and be publicly known to be persons of integrity, good judgment and commands respect.

7.1 Entitlement for Different Types of Losses

In case dispute is not resolved at local level, the matter will be placed before a grievance resolution committee at the Upazila level. The Upazila Nirbahi Officer will chair the committee comprised of the project level GRC members, Project Engineers and legal advisors.

In case dispute still continues, the UNO will make a decision regarding entitlement and compensation, and the decision taken during negotiations and the meetings will be formally recorded for future reference and presentation in the court, if necessary.

If the matter cannot be resolved at the Upazila level, complaints will be referred to the Project Director, who will head a committee jointly with the Deputy Commissioner. Members of GRC at the Upazila level (including those at the project level) are summoned at any time for inquiry from PD and DC.

Steps for grievance are shown in the diagram below for easy reference. There will be no cost required when residents appeal to the authorities at each level. Each committee is responsible to solve the issues raised by the residents within 45 days.

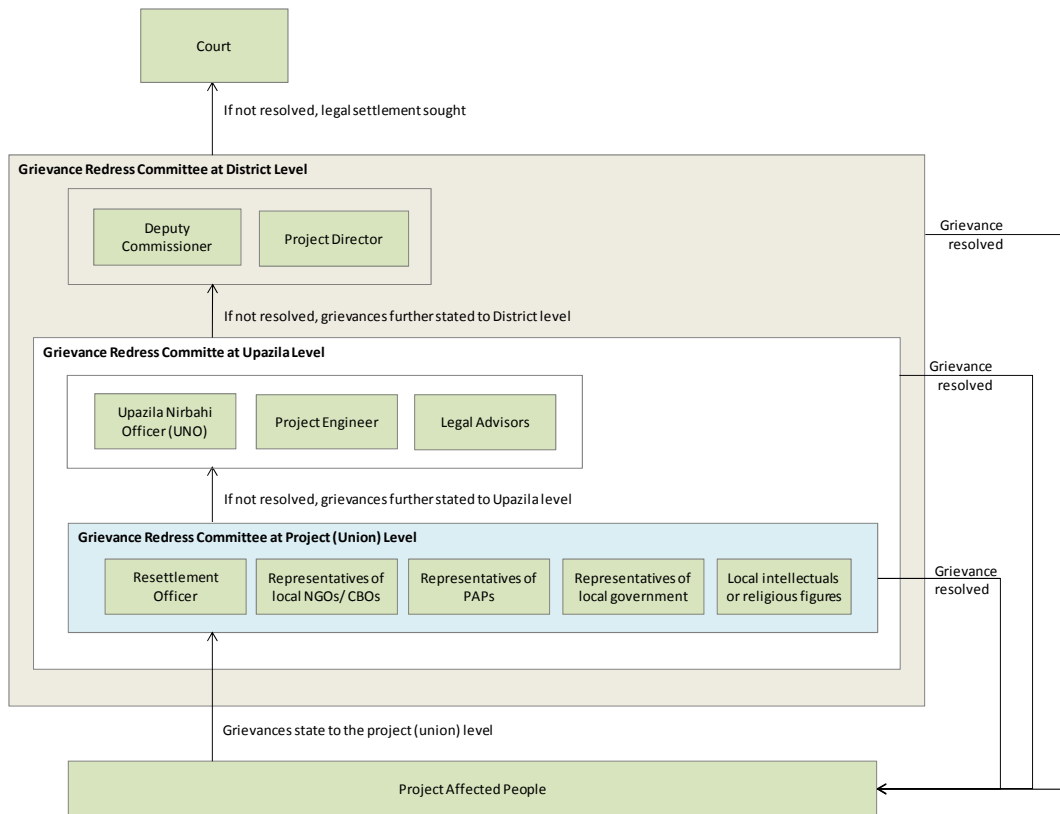


Figure 7-1 Flow of Grievance Redress

8 Specific Measures provided to Vulnerable Groups and Income Rehabilitation Assistance

There are socially vulnerable people among those to be resettled and/or lose their livelihood means: poor households, women, children, elders.

Their living conditions however will not deteriorate compared to their current ones, and poor people who currently have deteriorated living standards without proper facilities will have better access to social services throughout the year if roads are improved along with the construction of the power plant, especially access during the rainy season. Deterioration of household economies and livelihood losses may occur, on the other hand, to the resettled people due to the relocation or losses of their livelihood means. Not all adult populations at the project site are literate, which often makes them stay unskilled. Wives of those men who lose their land or jobs and their children may suffer from adverse effects on their household economy. Number of male children who drop out of school may increase because of a huge demand of unskilled workers at the construction site if there is no age restriction of unskilled workers at the power plant site. Specific measures to the vulnerable groups taken in LARAP are as follows:

(1) Employment

When employing local residents at the construction site as well as power plant and associated facilities when the power plant operates,

- local residents will be more prioritized according to their skills
- no child will be allowed to work in order to prevent their drop-out from schooling and child labor. Periodic and regular patrol will be made to make sure there is no child.
- local women will be more prioritized if the requires skills meet local women's.
- Enrollment in vocational training courses based on assessment of skills

(2) Education

School facilities at power plant will be shared with the local residents.

(3) Health

Health facilities at power plant will be shared with the local residents.

(4) Water and sanitation

Water quality of tube wells and others will be checked periodically for the safety of local residents.

(5) Electrification

Electrification of surrounding area will be examined.

9 Estimated Land Acquisition and Resettlement Cost

9.1 Power plant and port facility site

Budget allocation will be fully committed by CPGCBL and made available to cover the costs of land acquisition (including compensation and income restoration measures) within the agreed implementation period. CPGCBL will finance the resettlement compensation as they will be impacting on the local people's livelihoods.

In addition to the compensation stipulated by the Ordinance 1982, CPGCBL will be required to finance those non-titleholders. All the compensation will be done according to the principle of the replacement cost, which will require CPGCBL to pay the gap between CUL and the replacement value (top up).

Based on the entitlement matrix for the PAPs shown in Table 4-3, the compensation package for the PAPs at the construction site of power plant has been drafted as in the tables below. Values appearing in the tables, such as land, income, standing crops etc., were the figures collected from the local residents through socioeconomic survey.

(1) Loss of private land

Table 9-1 Acquisition of private land from legal owners

Entitled Persons	No of HHs	Area (ha)	Land value (taka)	(a) cash compensation under law (taka)	(b) Replacement value of land except VAT and contingency (taka)	(c) One time assistance for lost income	(d) Total (a+b+c)
Legal owners of land	237	455.00	1,124,329,603	1,686,494,405	252,974,160.68	259,147,152	2,198,615,717

Note: Unit price (decimal) 10,000 taka (identified in land price survey)

Unit price (m2) 247 taka

Unit price (ha) 2,471,054 taka

Remarks: (a) CUL adds 50% premium to the current market price, not the average of last 12 months' sales values of same kind of land.

(b) Replacement value covers stamp duty and land registration fees incurred for replacement of land @0.15 VAT and contingency will be added for the total project cost.

(c) Lost income includes monthly household income for 3 years.

(d) Although 237 households identified in the household survey had 106.78 ha in total as of Dec 2012, land acquisition costs is estimated here assuming all 455 ha is privately owned.

(Source: JICA Study Team)

Table 9-2 Acquisition of private land from tenants and lessee

Entitled Persons	No of HHs	Area (ha)	Land value (taka)	Compensation package (taka)		
				(a) Amount for provision of another land	(b) One time assistance for lost income	(c) Total (a+b)
Tenants and lessee (private land)	77	155.86	385,150,000	664,383,750.00	83,300,400	747,684,150

Note: Unit price (decimal) 10,000 taka (identified in land price survey)

Unit price (m2) 247 taka

Unit price (ha) 2,471,054 taka

Remarks: (a) The estimate is based on a case which requires cash compensation equivalent to the amount for purchasing another private land with 50% premium, stamp duty and land registration fees @0.15

(b) Lost income includes monthly household income for 3 years.

(Source: JICA Study Team)

(2) Loss of government land

Table 9-3 Acquisition of government land from legal tenants and lessee

Entitled Persons	No of HHs	Area (ha)	Land value (taka)	Compensation package (taka)		
				(a) Amount for provision of another land	(b) One time assistance for lost income	(c) Total (a+b)
Tenants and lessee (gov land)	10	1.15	2,840,000	4,899,000.00	12,155,976	17,054,976

Note: Unit price (decimal) 10,000 taka (identified in land price survey)

Unit price (m2) 247 taka

Unit price (ha) 2,471,054 taka

Remarks: (a) The estimate is based on a case which requires cash compensation equivalent to the amount for purchasing private land with same area with 50% premium, stamp duty and land registration fees @0.15

(b) Lost income includes monthly household income for 3 years.

It is assumed that tenants and lessee will seek private land.

(Source: JICA Study Team)

Table 9-4 Acquisition of government land from occupants without legal tenure

Entitled Persons	No of HHs	Area (ha)	Land value (taka)	Compensation package (taka)		
				(a) Amount for provision of another land	(b) One time assistance for lost income	(c) Total (a+b)
Occupants without legal tenure	156.00	19.41	47,973,161	82,753,703.00	129,902,400	212,656,103

Note1: Compensation amount is based on the land value stated by the interviewees for the sake of estimation.

Note2: Unit price (decimal) 10,000 taka (identified in land price survey)

Unit price (m2) 247 taka

Unit price (ha) 2,471,054 taka

Remarks: (a) The estimate is based on a case which requires cash compensation equivalent to the amount for purchasing private land with same area with 50% premium, stamp duty and land registration fees @0.15

(b) Lost income includes monthly household income for 3 years.

Number of households include both occupants for cultivation (140 HHs) and occupants for domicile (16 HHs).

(Source: JICA Study Team)

(3) Permanent loss of means of livelihood / sources of income

Table 9-5 Assistance for transition in recovering loss of income source of land owners

Entitled Persons	Type of loss	Area (ha)	Annual value (taka)	Rate for opportunity loss	Compensation package (taka)
lessor (land owners who rent their land)	Income from land lease contract	155.86	8,748,665	10	87,486,650.00

Note: Compensation amount is based on the land value stated by the interviewees for the sake of estimation.

Remarks: It was not possible to identify the number of lessor who lend land to the tenants and lessee identified in the household survey.

(Source: JICA Study Team)

Table 9-6 Assistance for transition in recovering loss of income from livelihood activities

Entitled Persons	Type of Loss	Type of labor	No of employed persons	Total annual wage (taka)	Compensation package		
					(a) One time assistance for lost income	(b) Enrollment in vocational training courses	(c) Total (a+b)
Laborers	income from shrimp cultivation	Permanent	44	5,211,000	15,633,000	36,000	15,669,000
		Temporary	597	1,428,800	4,286,400	36,000	4,322,400
	income from salt farming	Permanent	117	6,943,000	20,829,000	36,000	20,865,000
		Temporary	256	2,844,550	8,533,650	36,000	8,569,650
	income from fishing activities	Permanent	4	0	0	36,000	36,000
		Temporary	22	2,400,000	7,200,000	36,000	7,236,000
income from other activities	Permanent	0	0	0	36,000	36,000	
	Temporary	17	30,800	92,400	36,000	128,400	
Sharecroppers	income from crop	Sharecroppers	12	2,478,961	7,436,884	36,000	7,472,884

Note: Compensation amount is based on the actual wages stated by the interviewees for the sake of estimation.

Remarks: (a) Lost income includes monthly household income for 3 years.

(b) Vocational training is estimated @Tk.300/day for 120 days (6 months).

(Source: JICA Study Team)

Table 9-7 Assistance for transition in recovering loss of income from own business or self-employment

Entitled Persons	Type of Loss	No of people involved	Amount of capital (taka)	Rate for opportunity loss	Compensation for opportunity loss
Businessmen	Income from salt business	22	1,455,000	10	14,550,000
	Agriculture	3	0	10	-
Boat men	Boat	1	200,000	10	2,000,000
Teacher	Teaching	1	30,000	10	300,000
Carpenter	Construction	6	105,000	10	1,050,000
Tea staller	Shop	1	250,000	10	2,500,000
Others (unknown)	Unknown	Unknown	2,240,000	10	22,400,000

Note: Compensation amount is based on the actual wages stated by the interviewees for the sake of estimation.

Remarks: (a) Opportunity loss is fixed based on recent annual inflation rates in Bangladesh. It is assumed as 10% here.

(b) Lost income includes monthly household income for 3 years.

(Source: JICA Study Team)

(4) Loss of residential / commercial structure

Table 9-8 Assistance for transition in recovering loss of income from residential / commercial structure

Entitled Persons	No of HHs	House size	Compensation package (taka)				(c) Total (a+b)
			Replacement of structure value with 50 % premium (taka)	Stamp duty and registration fees (taka)	Reconstruction grant (taka)	shifting allowance (taka)	
Legal title holders / owners of structure	4	1,130 sft	420,000	42,000	16,950	11,300	490,250
		105 m2					
Legal tenants / lease holders of the structure	-	-	-	-	-	-	-
Socially recognized owners / unauthorized occupants	16	4,712 sft	855,000	85,500	70,673	47,115	1,058,288
		438 m2					

Note1: Compensation amount is based on the house size stated by the interviewees for the sake of estimation.

Note2: 1m² is approximately equivalent to 10.7639 sft.

Remarks: (a) Amount for provision of another land includes 50% premium, stamp duty and land registration fees @0.15

(b) Reconstruction grant will be provided to the affected households at the rate of 15 taka per square feet.

(c') Shifting allowance will be provided at the rate of 10 taka per square feet.

(Source: JICA Study Team)

(5) Loss of standing crops at home gardens, shrimp and fish

Table 9-9 Assistance for transition in recovering loss of income from livelihood means

Entitled Persons	Source of income from activities	No of HHs	Production amount	Annual income from productive activities (taka)	Rate for opportunity loss	Compensation package (taka)
Land owners, bargadar, lesse and unauthorized occupants	income from shrimp cultivation	65	-	4,553,831	10	45,538,310
	income from salt bed	139	-	4,907,881	10	49,078,810
	income from fishing	23	-	50,010	10	500,100
	income from other activities	8	-	52,000	10	520,000
	income from pisciculture	109	-	3,398,303	10	33,983,030
	income from crop	155	6,669,715 kg	30,506,536	10	305,065,364

Note: Compensation amount is based on the actual wages stated by the interviewees for the sake of estimation.

Remarks: Opportunity loss is fixed based on recent annual inflation rates in Bangladesh. It is assumed as 10% here.

(Source: JICA Study Team)

(6) Loss of timber and fruit bearing trees

Table 9-10 Assistance for transition in recovering loss of trees

Entitled Persons	No of HHs	No of trees in total	Market value of tree (taka)	Compensation package (taka)
Owner of trees	274	28,589	2,000	57,178,000

Remarks: to be recalculated.

(Source: JICA Study Team)

(7) Temporary loss of land during construction

Not applicable.

(8) Temporary loss of access to land, structure, utilities, common property resource during construction

Not applicable.

(9) Temporary loss of livelihood/source of income during construction

Not applicable.

Total amount required for land acquisition, resettlement, and assistance for transition in restoring livelihood means and income sources are 3.86 billion taka.

Table 9-11 Compensation for PAPs at power plant site

	Compensation Item	Amount (taka)	Remarks
1	Permanent loss of private land caused by land acquisition	2,946,299,867	Table 9-1, Table 9-2
2	Permanent loss of government land caused by land acquisition	229,711,079	Table 9-3, Table 9-4
3	Permanent loss of means of livelihood	194,621,984	Table 9-5, Table 9-6, Table 9-7
4	Permanent loss of residential / commercial structure caused by resettlement	1,548,538	Table 9-8
5	Loss of standing crops at home gardens, shrimp and fish	434,685,614	Table 9-9
6	Loss of timber and fruit bearing trees	57,178,000	Table 9-10
7	Temporary loss of land during construction	0	-
8	Temporary loss of access to land, structure, utilities, common property resource during construction	0	-
9	Temporary loss of livelihood/source of income during construction	0	-
	Total	3,864,045,082	

(Source: JICA Study Team)

9.2 Transmission line route

It is PGCB who will allocate budget to cover the costs of temporary land acquisition and compensation for standing crops within the agreed implementation period. All the compensation will be done according to the principle of the replacement cost, and PGCB will pay the gap between CUL and the replacement value (top up).

Based on the entitlement matrix for the PAPs shown in Table 4-3, the compensation package for the PAPs has been drafted as in the tables below. Values appearing in the tables, such as land, income, standing crops etc., were the figures collected from the local residents through socioeconomic survey.

(1) Permanent loss of private land

There will be 157 towers for both angle towers and suspension towers from Anowara Upazila to Maheshkhali Upazila, which will require 1,256 m² (0.13ha) of land for the installation of tower bases. When PGCB acquire land involuntarily from the land owners at the tower locations, PGCB will pay for the land. It is estimated as shown in the following table:

Table 9-12 Anticipated Land Acquisition and Assistance

Entitled Persons	No of HHs	Total area for towers (m ²)	Land value* (taka)	Cash compensation under law (taka)	Replacement value of land except VAT and contingency**	Total
Land owners	157	1,256 (8 m ² X 157)	932,279	1,398,419	0	1,398,419

Remarks: (a) Land value was estimated based on the current market prices of land varied from 247 m² to 1,236 m² from Maheshkhali Upazila to Anowara Upazila.

(b) Replacement value is estimated as zero as the landowners will not have to be shifted.

(Source: JICA Study Team)

(2) Permanent loss of government land

Not applicable.

(3) Permanent loss of means of livelihood / sources of income

Not applicable.

(4) Permanent loss of residential / commercial structure

(5) Permanent loss of standing crops at home gardens, shrimp and fish

Not applicable.

(6) Permanent loss of timber and fruit bearing trees

Not applicable.

(7) Temporary loss of land during construction

The anticipated impact on the land owners will not last permanently or be critical, as the land area for tower bases are relatively small, and land owners' livelihood activities will be hindered only during the construction period. Landowners with legal title, tenants and lease holders will receive rental assistance for the construction period for which the land is temporarily requisitioned. Temporarily requisitioned land will be returned to owners rehabilitated to original or preferably better condition.

(8) Temporary loss of access to land, structure, utilities, common property resource during construction

Landowners with legal title, tenants and leaseholders will be provided temporary access and relocation where possible. Restoration of access to the land, structure and utilities will be confirmed.

(9) Temporary loss of livelihood/source of income during construction

One-time assistance for lost income based on monthly income for three years from products,

minimum wage rates or based on actual income, verified through incomes of comparable businesses in the area.

Table 9-13 Compensation for PAPs at Power Plant Site

Entitled Persons	No of HHs	One-time assistance for lost income*	Total
land owners	157	1,720,800	1,720,800

Remarks: Lost income includes monthly household income for 3 years. It was based on the annual crop price as of Dec 2012 (30 taka / m²).

(Source: JICA Study Team)

Total amount required for land acquisition, resettlement, and assistance for transition in restoring livelihood means and income sources are 3.86 billion taka.

Table 9-14 Compensation for PAPs at Power Plant Site

	Compensation Item	Amount (taka)	Remarks
1	Permanent loss of private land caused by land acquisition	1,398,4190	Table 9-11
2	Permanent loss of government land caused by land acquisition	0	
3	Permanent loss of means of livelihood	0	
4	Permanent loss of residential / commercial structure caused by resettlement	0	Table 9-11
5	Loss of standing crops at home gardens, shrimp and fish	0	
6	Loss of timber and fruit bearing trees	0	
7	Temporary loss of land during construction	0	-
8	Temporary loss of access to land, structure, utilities, common property resource during construction	0	-
9	Temporary loss of livelihood/source of income during construction	1,720,800	Table 9-11
	Total	3,119,219	

(Source: JICA Study Team)

10 Local Consultation, Participation, Monitoring and Evaluation Procedures

10.1 Further Consultation Process

CPGCBL is planning to conduct another consultation opportunity at the next stakeholder meeting planned in April 2013.

The PAPs and their communities will be further consulted about the project, the rights and options available to them, and the proposed mitigation measures for adverse effects, and to all extents possible they will be involved in the decision-making process concerning their resettlement. The PAPs will receive prior notification of the compensation, relocation and other assistance available to them.

CPGCBL will be responsible to hold and conduct a number of consultations with primary and secondary stakeholders and information dissemination on the following issues:

- The relevant details of the project
- The RP and various degrees of project impact
- Details of entitlements under the RP and what is required of PAPs in order to claim their entitlements
- Compensation process and compensation rates
- Relocation and resettlement site development operation in order to obtain agreement and support of affected people in participating in these operations
- Implementation schedule and timetable for the delivery of entitlements

Local participation should be spontaneously encouraged and information be made available during the preparation and implementations of the LARAP and at the minimum include community meetings and focus groups discussions. Information dissemination can be done not only for the project affected people but non-affected people out of the project site for sharing proper knowledge on the project with broader channels.

Where a host community is affected by the development of resettlement sites in that community, the host community shall be involved in any resettlement planning and decision-making. All attempts shall be made to minimize adverse impacts of resettlement upon host communities.

10.2 Monitoring and Evaluation Procedures

Appropriate reporting (including auditing and redress functions), monitoring and evaluation mechanisms, will be identified and set in place as part of the resettlement management system.

An external monitoring group will be hired by the Project and will evaluate the resettlement process and final outcome.

An Environmental Monitoring Plan will be prepared to provide guidelines for the construction activities of the power plant. The environmental components to be monitored are those that will be positively or negatively affected, or expected to be affected, by the construction activities. The purposes of creating an Environmental Monitoring Plan for the construction of the power plant are to:

- Confirm that mitigation measures shall reduce any negative impacts on the environment to allowable levels during the construction and operation phases.
- Set up an organization that is responsible for the implementation of monitoring the plan.
- Perform appropriate monitoring during the construction and operation phases.

Table 10-1 Contents of environmental management plan and monitoring plan

Item	Impact	Targeted Range	Contents of Environmental Management Plan	Contents of Monitoring Plan
Resettlement	- Land Acquisition and Resettlement	- Around the power plant site	-Preparation of LARAP (livelihood restoration plan)	- Monitoring the progress of land acquisition and resettlement - Monitoring the conditions of local residents' employment - Grievances from residents
Disturbance to Poor People	- Land Acquisition and Resettlement	- Around the power plant site	- Preparation of LARAP (livelihood restoration plan)	- Monitoring the livelihood conditions of the targeted households - Grievances from residents
Deterioration of Local Economy such as Losses of Employment and Means of Livelihood	- Loss or damage to the salt/shrimp cultivation ponds by land acquisition	- Around the power plant site	- Preparation of LARAP (livelihood restoration plan)	- Monitoring the livelihood conditions of the households engaged in salt cultivation/ shrimp aquaculture - Grievances from residents
Land Use and Utilization of Local Resources	- Change of land use	- Around the power plant site	- Employment of local residents - Procurement of materials from the local area	- Grievances from residents
Disturbance to Existing Social Infrastructure and Services	- Change of land use	- Around the power plant site	- Construction of roads that can be used by local residents - Permit usage of certain facilities in the power	- Grievance from residents

Item	Impact	Targeted Range	Contents of Environmental Management Plan	Contents of Monitoring Plan
	- Increase of traffic during construction phase	- Around the power plant site	plant to local residents - Reschedule construction schedule	- Grievances from residents
Misdistribution of Benefits and Damages	- Loss or damages to the salt/shrimp cultivation ponds by land acquisition	- Around the power plant site	- Preparation of livelihood restoration plan to the targeted households, in case the households engaged in salt/shrimp cultivation are included in the relocated households	- Monitoring the livelihood conditions of the targeted households - Grievances from residents
Local Conflicts of Interest	- Loss or damages to the salt/shrimp cultivation ponds by land acquisition	- Around the power plant site	- Preparation of livelihood restoration plan to the targeted households, in case the households engaged in salt/shrimp cultivation are included in the relocated households	- Monitoring the livelihood conditions of the targeted households - Grievances from residents
Gender	- Change of land use	- Around the power plant site	- Construction of roads that can be used by local residents - Permit usage of certain facilities in the power plant to local residents	- Grievances from residents
Children's Rights	- Change of land use	- Around the power plant site	- Construction of roads that can be used by local residents - Permit usage of certain facilities in the power plant to local residents	- Grievances from residents

(Source: JICA Study Team)

The following tables shows the performance monitoring form for land acquisition, resettlement and assistance for transition of the project affected people, impact monitoring during implementation and post-project stage.

Table 10-2 Monitoring Form 1(for Performance Monitoring of Resettlement Action Plan)

Procedure	Indicator (specific step/action)	Unit	Year 1				Year 2				Comments	
			1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr		
Staffing and Management												
Recruitment, training and deployment of staff / expert in charge	1.	Deployment of (an) officer(s) / expert(s) in charge of land acquisition	Man-months									
	2.	Deployment of resettlement officer(s) / expert(s)	Man-months									
	3.	Training and mobilization of officers-in-charge (if required)	No. of trained personnel									
Supervision and Management	1.	Supply of manpower and logistics	No. of persons									
	2.	Liaison with other agencies (ex. DC Office, Upazila Nirbahi Office, Union Parishads etc.)	No. of meetings									
	3.	Administrative management	Month									
Finalization of land acquisition and resettlement action plan												
Finalization of land acquisition	1.	Preparation of an application for land acquisition	%									
	2.	Submission of application to MOPEMR and make a request to the Deputy Commissioner of Cox's Bazar	Date of submission									
	3.	Approval of land acquisition by the GOB	Date of approval									
Adoption of the Resettlement Action Plan	1.	Review of the draft Resettlement Action Plan (RAP)	%									
	2.	Submission of application to MOPEMR and make a request to the Deputy Commissioner of Cox's Bazar District for implementation of RAP in line with land acquisition	Date of submission									

Procedure	Indicator (specific step/action)		Unit	Year 1				Year 2				Comments
				1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
	3.	Approval of RAP	Date of approval									
Identification of eligible persons												
Socioeconomic Survey (in liaison with DC office)	1.	Survey design	Time									
	2.	Field Survey and collection of data	%									
	3.	Computerization of field data	%									
	4.	Data analysis and report processing	%									
	5.	Preparation of ID card, EP file, and Entitlement Cards	%									
Identification of Eligible Persons (in liaison with DC office)	1.	Collection of award data	No. of EPs									
	2.	Assigning ID numbers	No. of EPs									
	3.	Photographing of EPs	No. of EPs									
	4.	Issuance of ID cards	No. of EPs									
	5.	Distribution of ID cards	No. of EPs									
Local consultation and information management												
Information Management (in liaison with DC office)	1.	Preparation of information brochure	%									
	2.	Distribute information brochure	No. distributed									
	3.	Personal contacts	No. contacted									
	4.	Local consultations (ex. public consultation meetings, focus group discussions (FGD) s, etc.)	No of consultations									
Budgeting												
Valuation of affected property (in liaison with DC office)	1.	Formation of Property Valuation Advisory Committee (PVAC)	%									
	2.	Planning for valuation	%									
	3.	Communication and collection of data	%									
	4.	Valuation	%									
	5.	Finalization of resettlement budget	%									

Procedure	Indicator (specific step/action)	Unit	Year 1				Year 2				Comments
			1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
Implementation of land acquisition and resettlement											
Payment of compensation for land acquisition (in liaison with DC office)	1	Motivate Eligible Persons (EP)	No. of EPs								
	2	Assist EPs to collect Cash Compensation under Law (CCL)	No. of EPs								
	3	Organize top-up payment to fill the gap between CUL and RV	No. of EPs								
Relocation of Project Affected Persons (in liaison with DC office)	1.	Motivate Eligible Persons (EP)	No. of EPs								
	2.	Payment of Transfer Grant	No. of EPs								
	3	Assist EPs in replacement land purchase/Relocation	No. of cases								
Resettlement of Project Affected Persons (in liaison with DC office)	1.	Assist EPs to collect Cash Compensation under Law (CCL)	No. of EPs								
	2.	Organize top-up payment to fill the gap between CUL and RV	No. of EPs								
	3.	Assist vulnerable EPs in resettlement	No. of EPs								
Assistance in transition (in liaison with DC office)	1.	Motivate EPs to join the livelihood rehabilitation / improvement program	No of EPs								
	2.	Literacy class	No of class								
			No of attendance								
	3.	Skill trainings	No o trainings offered								
			No of trained personnel								
	4.	Job opportunities at power station and associated facilities	No of posts offered to EPs								
No of employed EPs											
Grievance Redress	1.	Formation of Grievance	No. of members								

Procedure	Indicator (specific step/action)	Unit	Year 1				Year 2				Comments
			1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
(in liaison with DC office)	1. Redress Committee (GRC)										
	2. Publicizing/notifying of GRC	%									
	3. Receiving grievance from stakeholders	No. of cases									
	4. Resolving grievances	No. of cases (%)									
	5. Other claim/criticism	No. of cases									
Report processing											
Performance Reporting	1. Inception report	Date of submission									
	2. Monthly progress report	Date of submission									
	3. Draft final report	Date of submission									
	4. Final report	Date of submission									

Table 10-3 Monitoring Form 2 (for Impact Monitoring during Project Implementation)

Indicator	Unit (Standard value)	Year 1				Year 2				Comments
		1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
Grievance redress mechanism										
Grievance submitted by the stakeholders	Number of cases									
Grievance resolved	No. of cases (%)									
Conflict with host community	No. of cases									
Other claim/criticism	No. of cases									
Land acquisition and compensation										
Households losing their own land	No of HHs (%)									
Households losing their domicile on their own land	No of HHs (%)									
Households losing their renting land (private land)	No of HHs (%)									
Households losing their renting land	No of HHs (%)									

Indicator	Unit (Standard value)	Year 1				Year 2				Comments
		1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
(government land)										
Households losing their occupancy on khas land	No of HHs (%)									
Households losing their illegal domicile on government land	No of HHs (%)									
Households losing income from own land	No of HHs (%)									
Households losing income from own livelihood activities	No of HHs (%)									
Households losing income from own business	No of HHs (%)									
Households losing income from standing crops	No of HHs (%)									
Compensation completed	No. of cases (%)									
Relocation and compensation										
Relocated households	No of HHs (%)									
Relocated households owning land	No of HHs (%)									
Relocated households owning domicile	No of HHs (%)									
Relocated households renting land	No of HHs (%)									
Relocated households renting domicile	No of HHs (%)									
Compensation completed	No. of cases (%)									
Household economy										
Project affected household that lacks the source of income	No of HHs (%)									
Project affected household with reduced monthly income	No of HHs (%)									
Livelihood restoration										
Literacy class	Number (%)									
Job training conducted	No. of courses									
PAPs (age over 16) that received job training	Number (%)									
Compensated/relocated structure for business (e.g. shop, garage, etc)	Number (%)									
Allocation of substitute farmland	Area (%)									

Indicator	Unit (Standard value)	Year 1				Year 2				Comments
		1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
Substitute farmland being utilized	Area (%)									
Employment of project affected people (age over 16) by the project	No. of PAPs (%)									
Employment of female PAPs (age over 16) by the project	No. of PAPs (%)									
Child labour	No. of children									
Provision of personal protective equipment (PPE)	PAPs provided with PPE (100%)									
Labour accident	No. of cases									
Area infrastructure development										
Water and sanitation facility	Number (%)									
Electricity distribution	Number of HHs (%)									
Clinics or health facilities	Number (%)									
Primary schools	Number (%)									

Table 10-4 Monitoring Form 3 (for Impact Monitoring at Post-project Stage)

Category	Source of information	Baseline data (at the commencement of Year 1)	Actual					End-line data	Comments
			Month 24	Month 48	Month 72	Month 96	Month XX		
Social									
Registers crimes/disputes (per 1,000 pop.)	Statistics obtained at local police								
Crimes/disputes involving women (per 1,000 pop.)	do								
Crimes/disputes involving vulnerable group (per 1,000 pop.)	do								
Primary school attendance (male)	Statistics obtained at local								

	education department								
Primary school attendance (female)	do								
Number of community-based organizations	Upazila Office								
Household Economy									
Average land holding per household (hectares)	Household survey								
Percentage households owning land	do								
Percentage households owning domicile	do								
Percentage households renting land	do								
Percentage households renting domicile	do								
Agricultural production: Rice	do								
Fish catch (ton per household/per annum)	do								
Shrimp catch (ton per household/per annum)	do								
Salt cultivation (ton per household/per annum)	do								
Employment: Number of male wage earners	do								
Employment: Number of female wage earners	do								
Average household income (Taka per annum)	do								
Average household expenditure (Taka per annum)	do								
Energy Consumption: Fuel wood (tons per annum)	do								
Energy Consumption: Kerosene (tons per annum)	do								
Energy Consumption: Electricity (kWh per annum)	do								
Health									
Water source	Household survey								
Incidence of diarrhea	do								
Incidence of upper respiratory infection	do								
HIV infection	do								
Other epidemics	do								
Others									
Traffic accidents in resettlement site	do								

Appendix-C15.9-2

Land Acquisition and Resettlement Action Plan (LARAP)

(Access Road)

People's Republic of Bangladesh
Ministry of Power, Energy and Mineral Resources

**Land Acquisition and
Resettlement Action Plan
(Draft)**

**Chittagong Coal Fired Power Plant
Development Project
(For Access Road)**

September 2013

Japan International Cooperation Agency (JICA)

Table of Contents

Abbreviations

Definitions

1	Rationale.....	1
1.1	Objectives	1
1.2	Project Description	1
1.2.1	Project Components.....	1
1.2.2	Location of the proposed site	2
1.3	Brief Description of Social Impacts.....	5
1.3.1	Brief Description	5
1.3.2	Anticipated Impact caused by Access Road	6
1.4	Specific Measures Taken to Minimize Adverse Impacts	7
1.4.1	Examination of Alternatives.....	7
1.4.2	Current Condition of Each Section	9
1.4.3	Comparison of Candidate Routes	11
1.4.4	Application of International Standards to Land Acquisition and Resettlement	15
1.4.5	Entitlements of Affected People without Legal Claims to Land	15
1.4.6	Measures for Avoidance and Further Influx of Illegal Occupation	16
1.4.7	Methods of Valuing Affected Assets	16
1.4.8	Livelihood Restoration and Rehabilitation	16
2	Legislations in Bangladesh and Gaps from JICA’s Policy	17
2.1	Key legislations	17
2.2	JICA’s policy on land acquisition and resettlement	18
2.3	Procedures of land acquisition.....	21
3	Social Impact Survey.....	23
3.1	Socioeconomic Survey and FGD Meetings at Access Road.....	23
3.1.1	Survey Outline.....	23
3.1.2	Findings.....	26
3.2	Local Consultation.....	35
3.2.1	1st Stakeholder Meeting.....	35
3.2.2	Focus Group Discussion.....	40
3.2.3	The Second Stakeholder Meeting (Finalizing stage).....	45
3.2.4	Focus Group Discussion (Finalizing stage).....	48
4	Detailed Description of Impacts and Category of PAPs.....	54
4.1	Access Road.....	54

4.1.1	Pre-construction Phase and Construction Phase.....	54
4.2	Entitlement for Different Types of Losses.....	55
5	Livelihood Restoration and Improvement Plan.....	63
6	Specific Measures to be Provided to Vulnerable Groups and Income	
	Rehabilitation Assistance	64
7	Organizational Responsibilities and Implementation Procedures	65
7.1	Finalization of land acquisition and resettlement action plan.....	65
7.2	Data collection and EP identification.....	65
7.3	Local consultation and information management.....	65
7.4	Finalization of budget.....	65
7.5	Implementation of land acquisition and resettlement	66
7.6	Monitoring	66
8	Grievance Redress Mechanisms	68
8.1	Entitlement for Different Types of Losses	68
9	Estimated Land Acquisition and Resettlement Cost	70
9.1	Access road.....	70
10	Local Consultation, Participation, Monitoring and Evaluation Procedures.....	73
10.1	Further Consultation Process	73
10.2	Monitoring and Evaluation Procedures	73

List of Tables

Table 1-1 Inventory of Selected Route	11
Table 1-2 Area Covered by the Proposed Access Road.....	11
Table 1-3 Anticipated Land Acquisition	14
Table 1-4 Sectional Breakdown of Land Acquisition	14
Table 1-5 Primary Occupation of the HH	15
Table 1-6 Use of Land to be Affected	15
Table 1-7 Sectional Distance of Candidate Routes	18
Table 1-8 Comparison of Environmental and Social Aspects on Each Candidate Route	20
Table 1-9 Comparison of Construction Aspects on Each Candidate Route	21
Table 1-10 Comparison of Construction Aspects on Each Candidate Route.....	23
Table 1-11 Comparison of Total Construction Cost (Unit: million BDT).....	23
Table 1-12 Inventory of Selected Route.....	23
Table 2-1 Gap Analysis between Bangladeshi Laws and JICA Guidelines	29
Table 3-1 Structure of Socioeconomic Survey	32
Table 3-2 Interviewed Population in Focus Group Discussion	34
Table 3-3 Distribution of Household Members by Age.....	35
Table 3-4 Educational Achievement of the HH Heads.....	36
Table 3-5 Educational Achievement of the HH Members	36
Table 3-6 Primary Occupation of the HH	36
Table 3-7 Farming by Occupation	37
Table 3-8 Housing Pattern & Ownership	37
Table 3-9 Monthly Income of the Households	38
Table 3-10 Status of Latrine	38
Table 3-11 Access to Drinking Water, Electricity and Gas.....	38
Table 3-12 Access to Health Services	39
Table 3-13 Duration of Stay in the Locality by Year.....	39
Table 3-14 NGO Membership	39
Table 3-15 Interest in Job/ Business Opportunity.....	40
Table 3-16 Primary Occupation of the HH	40
Table 3-17 Use of land to be affected	40
Table 3-18 Ownership Status of This Land Occupied by You	41
Table 3-19 Use of the Land for Agriculture Purpose	41
Table 3-20 Total Income from the Land to be Affected (Annual).....	42
Table 3-21 Structure to be Affected	42
Table 3-22 Incidence of Poverty (Head Count Ratio) by CBN Method in 2010	43
Table 3-23 Incidence of Poverty (by Per Capita Monthly Income) in 2010.....	43

Table 3-24 Incidence of Poverty (by Per Capita Monthly Expenditure) in 2010	43
Table 3-25 Household Head's Per Capita Monthly Income and Expenditure	44
Table 3-26 Methodology of 1st Stakeholder Meeting	45
Table 3-27 Result of the 1st Stakeholder Meeting	45
Table 3-28 Outline of FGD in Scoping Stage	49
Table 3-29 Result of FGD in Kalarmachara Union	49
Table 3-30 Result of FGD in Dhalghata Union	52
Table 3-31 Methodology of 2nd Stakeholder Meeting	55
Table 3-32 Comments and Responses/Sharing of the 2nd SHM	56
Table 3-33 Outline of FGD in Finalizing Stage	57
Table 3-34 Comments by Participants and Response in the 2nd FGD in Kalarmachara	58
Table 3-35 Comments by Participants and response in the 2nd FGD in Matarbari	59
Table 3-36 Comments by Participants and Response in the 2nd FGD in Dhalghata	61
Table 4-1 Anticipated Social Impact to Households (Titleholder & Non-titleholder)	63
Table 4-2 Entitlement Matrix for PAPs of Access Road	65
Table 7-1 Tentative Land Acquisition Schedule	76
Table 9-1 Acquisition of Private Land from Legal Owners	79
Table 9-2 Acquisition of Private Land from Tenants and Lessee	79
Table 9-3 Assistance for Transition in Recovering Loss of Income from Own Business or Self-employment	80
Table 9-4 Assistance for Transition in Recovering Loss of Income from Livelihood Means	80
Table 9-5 Assistance for Transition in Recovering Loss of Trees	80
Table 9-6 Compensation for PAPs at Access Road Site	81
Table 10-1 Contents of Environmental Management Plan and Monitoring Plan	83
Table 10-2 Monitoring Form 1 (for Performance Monitoring of Resettlement Action Plan)	84
Table 10-3 Monitoring Form 2 (for Impact Monitoring during Project Implementation)	87

List of Figures

Figure 1-1 Location of Access Roads 13

Figure 1-2 The Candidate Routes of Access Road..... 17

Figure 1-3 The New Bridge Alternatives over Kohelia River for Candidate 1 and 3..... 22

Figure 7-1 Flow of Grievance Redress 78

Abbreviations

AG	Additional Grant
AASHTO	American Association of State Highway and Transportation Officials
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BFD	Forest Department
BPDB	Bangladesh Power Development Board
BRRL	Bangladesh Road Research Laboratory
BWDB	Bangladesh Water Development Board
CBN	Cost of Basic Need
CBO	Community Based Organization
CCL	Cash Compensation under Law
CPGCBL	Coal Power Generation Company of Bangladesh Limited
CUL	Compensation under the Law
DAM	Department of Agricultural Marketing
DC	Deputy Commissioner
DOE	Department of Environment
DOF	Department of Fisheries
EIA	Environmental Impact Assessment
EP	Eligible Person
EP	Entitled Person
FGD	Focus Group Discussion
GOB	Government of Bangladesh
GRC	Grievance Redress Committee
Ha	Hactor
HH	Household
HIV/AIDS	Human immunodeficiency virus infection / acquired immunodeficiency syndrome
HTW	Hand Tubewell
ID	Identity
IFC	International Finance Corporation
IGP	Income Generating Program
IOL	Inventory of Losses
JICA	Japan International Cooperation Agency
JVT	Joint Verification Team

LA	Land Acquisition
LAO	Land Acquisition Officer
LARAP	Land Acquisition and Resettlement Action Plan
LGED	Local Government Engineering Department
MARV	Maximum Allowable Replacement Value
MOPEMR	Ministry of Power, Energy and Mineral Resources
N/A	Not Applicable
NGO	Non-Governmental Organization
OP	Operational Policy
PAPs	Project Affected Persons
PD	Project Director
PGCB	Power Grid Company of Bangladesh Limited
PPE	Provision of personal protective equipment
PVAT	Property Valuation Assessment Team
PWD	Public Works Department
RAP	Resettlement Action Plan
RB	Resettlement Benefit
RG	Resettlement Grant
RHD	Roads and Highways Department, Ministry of Communications
RP	Resettlement Plan
RPF	Resettlement Policy Framework
RV	Resettlement Value
SES	Socio-economic Survey
SHM	Stakeholders Meeting
TG	Transfer Grant
UNO	Upazilla Nirbahi Officer
USA	United States of America

Definitions

Following the JICA Guidelines for Environmental and Social Consideration, and the World Bank OP4.12 and glossary of *the Involuntary Resettlement Sourcebook, Planning and Implementation in Development Projects* (2,004), definitions for the present project have proposed.

Asset Inventory: A complete count and description of all property that will be acquired.

Compensation: A payment in kind, cash or other assets given in exchange for taking over land, or loss of other assets, including fixed assets thereon, in part or whole.

Cut-off Date: This is the date on and beyond which any person who encroaches on the area are not entitled to compensation or any other form of resettlement assistance. It is often established on the commencement date or last date of the census of PAPs.

Eligibility: The criteria for qualification to receive benefits under a resettlement program.

For agricultural land, it is the pre-project or pre-displacement, whichever is higher, market value of land of equal productive potential or use located in the vicinity of the affected land, plus the cost of preparing the land to levels similar to those of the affected land, plus the cost of any registration and transfer taxes.

For houses and other structures, it is the market cost of the materials to build a replacement structure with an area and quality similar to or better than those of the affected structure, or to repair a partially affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labor and contractors' fees, plus the cost of any registration and transfer taxes.

For land in urban areas, it is the pre-displacement market value of land of equal size and use, with similar or improved public infrastructure facilities and services and located in the vicinity of the affected land, plus the cost of any registration and transfer taxes.

Grievance Procedures: The processes established under law, local regulations, or Eidmoni decision to enable property owners and other displaced persons to redress issues related to acquisition, compensation, or other aspects of resettlement.

Household Survey: A complete and accurate survey of the project-affected population. The survey focuses on income-earning activities and other socioeconomic indicators.

Population Census: A complete and accurate count of the population that will be affected by land acquisition and related impacts. When properly conducted, the population census provides the basic information necessary for determining eligibility for compensation.

Project Affected Person (PAP): Any person (household) that loses their home, land, or business interests because of land acquisition.

Replacement Cost: In determining the replacement cost, depreciation of the asset and the value of salvage materials are not taken into account, nor is the value of benefits to be derived from the

project deducted from the valuation of an affected asset.

Resettlement Entitlements: Resettlement entitlements with respect to a particular eligibility category are the sum total of compensation and other forms of assistance provided to displaced persons in the respective eligibility category.

Resettlement Plan (RP) or Resettlement Action Plan (RAP): A resettlement plan (or resettlement action plan) is the planning document that describes what will be done to address the direct social and economic impacts associated with the involuntary taking of land.

Socioeconomic Survey: The population census, asset inventory, and household survey together constitute the socioeconomic survey of the affected population.

1 Rationale

1.1 Objectives

This Land Acquisition and Resettlement Action Plan (LARAP) is prepared for land acquisition and resettlement for construction of access road for Chitagong Coal Fired Power Plant Development Project, under Maheshkhali Upazilla in Cox's Bazar District. The LARAP is developed following the principle of *the JICA Guidelines for Environmental and Social Considerations* that development project must serve the purpose of the society and comply that PAPs are not made worse off by the proposed intervention. It contains resettlement principles, organizational arrangements, and design criteria to be applied to the Project. It also addresses the existing legislations of Bangladesh and the JICA Guidelines. Following the above principles three important elements of involuntary resettlement are considered which include: 1) compensation for loss of assets, loss of income sources and livelihood means; 2) assistance for relocation including provision of relocation sites with appropriate facilities and services, if needed and; 3) assistance for rehabilitation to achieve at least the same level of well-being. The LARAP will be translated into local language Bengali and disclosed for the reference of PAPs as well as other interested groups.

1.2 Project Description

The five optional routes of the access road are in the area from the national highway running between Chittagong and Cox's Bazar to the Power Plant site. Basically, existing road facilities will be utilized wherever possible. It is envisioned that the route segments to join the national highway in the north and the route from Maheshkhali Island to the Power Plant site will involve new road and bridge construction. Out of five options the selected route was option-3 which starts from Ekata Bazar via Zilla road Z1125, Pekua Bazar, via R170, Eidmoni, R172, Badarkhali Bridge and new road & bridge to the Power Plant Site. This route is an alternative of Candidate 1 to avoid the congestion of Chakoria intersection and select good condition route.

1.2.1 Project Components

The access road project has the following components:

- Road Improvement
- Road Widening
- New Road Construction and
- New Bridge, Sluice Gate, Regulator, Causeway, Culvert etc. Construction

The inventory of the selected project route is tabulated below in Table-1.1:

Table 1-1 Inventory of Selected Route

Section	Managed by	Distance	Current condition
Existing Road		35.05 km	
Ekata – Pekua	RHD (Zilla road Z1125)	11.80km	Well maintained
Pekua – Eidmoni	RHD (Regional highway R170)	10.90km	Spot holes, cracks, etc.
Eidmoni – Badarkhali Bridge	RHD (Regional highway R172)	7.40km	Spot holes, cracks, etc.
Badarkhali Bridge – Janata Bazar		1.35km	
Janata Bazar – Thallatoli Intersection	RHD (Zilla road Z1004)	0.30km	Damaged all through the road
Thallatoli Inter. – Yunuskhali Intersection		1.60km	
Yunuskhali Intersection – Jetty	LGED (Village road 4013)	1.70km	Out of Requirement
New road		1.25 km	
Government land between two embankments in Matarbari	(DC office)	0.24km	Salt field/ Shrimp farm
Embankment	BWDB	0.60 km	
Partial dyke	BWDB	0.24 km	
Private land	Private	0.17 km	Salt field/ Shrimp firm
New Bridge		0.64 km	
New Bridge (Fly-over Kuhelia River)	Government (River)	0.64km	Jetty built by community (Maheshkhali side)
TOTAL		36.94 km	

(Source: JICA Study Team)

1.2.2 Location of the proposed site

The proposed access road is located in Kalarmachara and Matarbari Union in Maheshkhali Upazilla in Cox's Bazar District, Chittagong Division (Table 1-2).

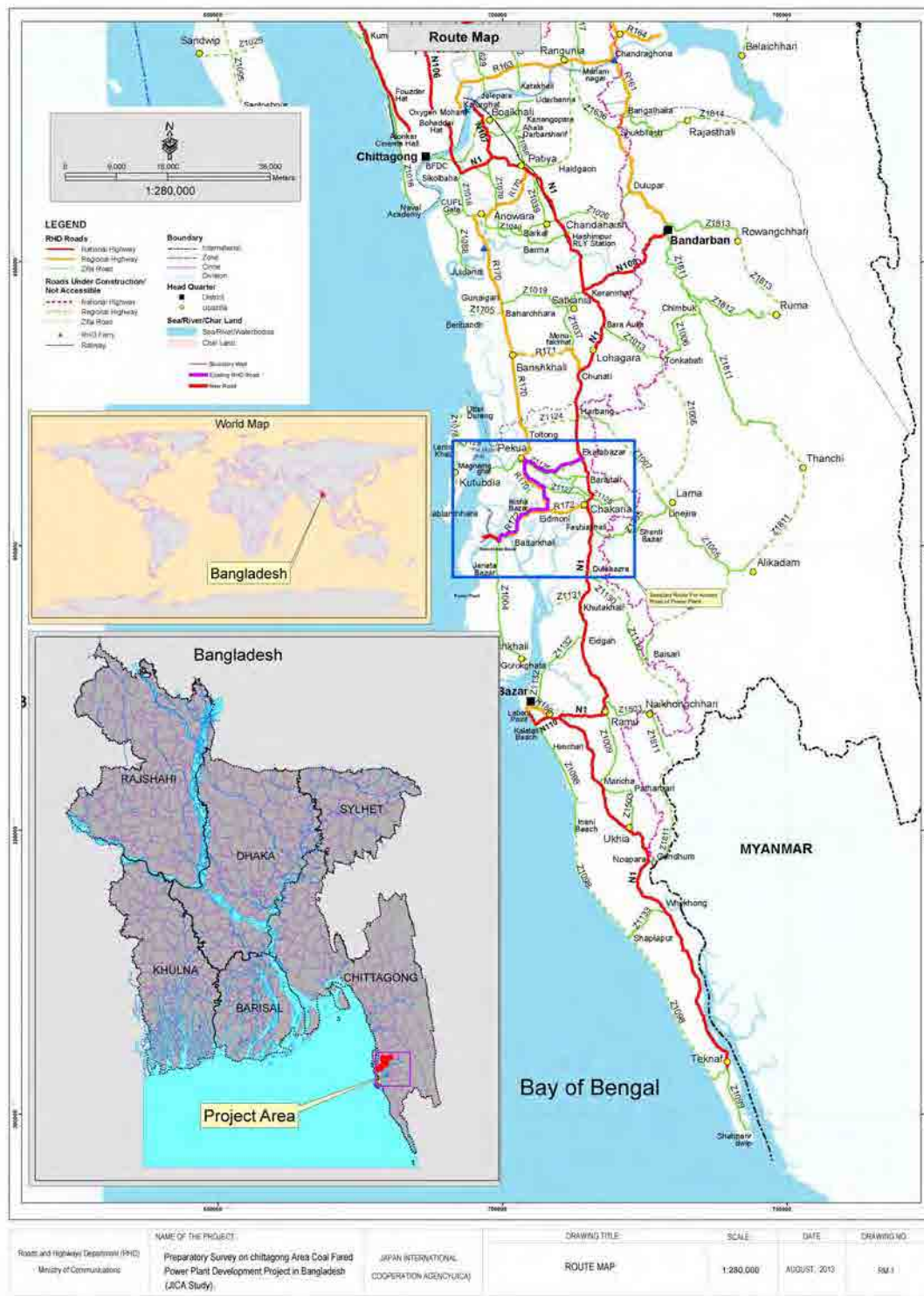
Table 1-2 Area covered by the proposed access road

District	Upazilla	Union
Cox's Bazar	Maheshkhali	Kalarmachara
		Matarbari

(Source: JICA Study Team)

(1) Access Road

The location and route of access road is shown in Figure 1-1. The route of access road is in the area from the national highway running between Chittagong and Cox's Bazar to the power plant site. Basically, existing road facilities will be utilized wherever possible. It is envisioned that the route segments to join the national highway in the north and the route from Maheshkhali Island to the power plant site will involve new road and bridge construction.



(Source: JICA Study Team)

Figure 1-1 Location of Access Roads

1.3 Brief Description of Social Impacts

1.3.1 Brief Description

RHD will acquire approximately 11.85ha of land for bridge and road construction as shown in the following Table 1-3:

Table 1-3 Anticipated Land Acquisition

Sl. No	Mouza Details	Plot Nos	Area (m ²)
1	Thana: Maeshkhali, Union:Kalarmachara , Mouza:Yunuskhali	42	32,566.87
2	Thana: Maeshkhali, Union: Matarbari, Mouza: Matarbari	26	85,844.29
3	Thana: Maeshkhali, Union: Yunuskhali, Mouza: Uttarnalbila	1	123.6,467
	Total	69	118,534.8
Total land acquisition in hectar			11.85 ha

(Source: JICA Study Team)

Table 1-4 Sectional Breakdown of Land Acquisition

Sl. No.	Section	Distance	Plot Nos.	Area (m ²)	Remarks
1	Ekata-Pekua	11.8 km	Nil		
2	Pekua-Eidmoni	10.9 km	Nil		
3	Eidmoni-Badarkhali Bridge	7.4 km	Nil		
4	Badarkhali Bridge-Janata Bazaar	1.35 km	Nil		
5	Janata Bazaar-Thallatori Intersection	0.3 km	Nil		
6	Thallatori Intersection-Yunuskhali Intersection	1.6 km	Nil		
7	A. Yunuskhali Intersection-Jetty	1.52 km	43	26,287.37	Plot No-1 shared between section A & B
8	B. New bridge	645 m	2	51,075.98	Plot No-2,060 shared between section B,C & D
9	C. New road (Matarbari) New bridge -BWDB embankment	0.24 km	6	7,155.758	Plot No.-15,124 , 15,129 & 15,136 shared between section C&D
10	D. New road (Matarbari) BWDB embankment	0.6 km	12	21,685.04	Plot No.-15,688 & 15,689 shared between section D&E
11	E. New road (Matarbari) Partial dyke	0.24 km	10	7,617.338	Plot No.-156 shared between Section E&F
12	F. New road (Matarbari) Private land	0.17 km	5	4,713.308	
13	Total		69	118,534.80	9 plots shared with different sections

(Source: JICA Study Team)

1.3.2 Anticipated Impact caused by Access Road

At the proposed site where the access road will be constructed, only 56 households (238 members in total) will be directly affected by the project implementation who own, rent or use private land within the proposed alignment site. The primary occupation of households is shown in Table 1-5.

Use of land also varies which include residential purpose (7.14%), commercial purpose (1.79%), agricultural (75.0%) and pond (14.29%) and some others as shown in Table 1-6.

Total amount required for land acquisition includes about BDT: 47 million.

Table 1-5 Primary Occupation of the HH

Occupation	Male	%	Female	%	Total	%
Farming	48	34.29	0	0.00	48	20.17
Housemakers	4	2.86	46	46.94	50	21.01
Day labour	43	30.71	0	0.00	43	18.07
Teacher	2	1.43	1	1.02	3	1.26
Doctor	1	0.71	0	0.00	1	0.42
Business	2	1.43	0	0.00	2	0.84
Working abroad	2	1.43	0	0.00	2	0.84
Student	37	26.43	45	45.92	82	34.45
Unemployed	1	0.71	0	0.00	1	0.42
Disabled	0	0.00	2	2.04	2	0.84
Others	0	0.00	4	4.08	4	1.68
Total	140	100	98	100	238	100

(Source: JICA Study Team)

Table 1-6 Use of Land to be Affected

Land use	No. of HH	%	Remarks
Use as homestead	4	7.14	
Use for commercial purpose	1	1.79	
Agricultural	42	75.00	
Unused	1	1.79	
Other (specify)	8	14.29	Pond to be affected
Total:	56	100	

(Source: JICA Study Team)

1.4 Specific Measures Taken to Minimize Adverse Impacts

1.4.1 Examination of Alternatives

The candidate routes of access road are in the area from the national highway running between Chittagong and Cox's Bazar to the Power Plant site. Basically, existing road facilities will be utilized wherever possible. It is envisioned that the route segments to join the national highway in the north and the route from Maheshkhali Island to the Power Plant site will involve new road and bridge construction.

The following 5 candidate routes were examined with consideration on avoiding/minimizing adverse impacts on environment and socio-economic.

Candidate Route 1

From Chakoria via Regional Highway R172, Badarkhali Bridge and new road & bridge to the Power Plant Site

This route is the shortest route from the National highway to the Power Plant Site, and need new bridge construction.

Candidate Route2

From Chakoria via Regional Highway R172, Badarkhali Bridge, Upazilla road, Matarbari Road Bridge, Matarbari Bridge and Union road to the Power Plant Site.

This route is composed of existing roads only to be shorter from the national highway to the Power Plant Site.

Candidate Route 3

From Ekata Bazar via Zilla road Z1125, Pekua Bazar, via R170, Eidmoni, R172, Badarkhali Bridge and new road & bridge to the Power Plant Site

This route is an alternative of Candidate 1 to avoid the congestion of Chakoria intersection and select good condition route.

Candidate Route 4

From Ekata Bazar via Zilla road Z1125, Pekua Bazar, R170, Eidmoni, R172, Badarkhali Bridge, Upazilla road, Matarbari Road Bridge, Matarbari Bridge and Union road to the Power Plant Site

This route is an alternative of Candidate 2 to avoid the congestion of Chakoria intersection and select good condition road.

Candidate Route 5

From (Chittagong via Regional Highway R170 or via National highway NH1, Ekata Bazar, Z1125) Pekua Bazar and, Upazilla road (Pekua), new bridge, Upazilla road (Maheshkhali),

and Union road to the Power Plant Site.

This route is an alternative of the section between Pekua and Power Plant Site considering the transmission line route and connection with Regional road 170 instead of the national highway.



(Source: LGED, modified by JICA Study Team)

Figure 1-2 The Candidate Routes of Access Road

Table 1-7 shows sectional distance of candidate routes.

Table 1-7 Sectional Distance of Candidate Routes

Candidate Route	Candidate 1	Candidate 2	Candidate 3	Candidate 4	Candidate 5
Ekata~Chakoria	9.00km	9.00km			
Chakoria~Eidmoni	8.00km	8.00km	-	-	-
Reconstruction Br.(Chakoria)	0.20km	0.20km			
Ekata~Pekua	-	-	11.80km	11.80km	-
Pekua~Eidmoni	-	-	10.90km	10.90km	-
Eidmoni~Badarkhali Br.	7.40km	7.40km	7.40km	7.40km	-
Badarkhali Br.~Janata Bazar	1.35km	1.35km	1.35km	1.35km	
Janata Bazar~Thallatoli Inter.	0.30km	0.30km	0.30km	0.30km	-
Thallatoli Inter.~Yunuskhali Inter.	1.60km	-	1.60km	-	
Yunuskhali Inter.~New Br.	2.56km	-	2.56km	-	-
New Bridge(Kohelia river)	0.64km	-	0.64km	-	-
West end of New Bridge~ Power Plant	1.25km	-	1.25km	-	-
Thallatoli Inter.~New Matarbari Br.	-	1.80km	-	1.80km	-
New Matarbari Br.	-	0.06km	-	0.06km	-
New Matarbari Br.~Matarbari Br.	-	1.90km	-	1.90km	-
Matarbari Br.(Reconstruction)	-	0.44km	-	0.44km	-
Matarbari Br.~ Power Plant	-	5.60km	-	5.60km	-
Pekua~Katahari Br,	-	-	-	-	3.73km
Katahari Br,	-	-	-	-	0.10km
Katahari Br,~New Br.(Kohelia river)	-	-	-	-	8.34km
New Br,(Kohelia river)	-	-	-	-	0.50km
New Br,(Kohelia)~Matarbari Mogdail Bazar	-	-	-	-	5.10km
Matarbari Mogdail Bazar~Power Plant	-	-	-	-	9.73km
TOTAL DISTANCE	32.30km	36.15km	37.80km	41.85km	27.50km

(Source: JICA Study Team)

1.4.2 Current Condition of Each Section

(1) From Chakoria to Eidmoni via Regional highway R172 (Candidate 1, 2)

Chakoria intersection is so congested that some improvement measures will be required.

There are some narrow sections following to the intersection, and some structures along the road should be removed for improvement.

About 2km west from Chakoria, there is a steel bridge (bridge length is 200m) which should be replaced, because the width is out of standard of Regional highway, and the weight limit is only 5 ton. The reconstruction works will be started after rainy season of 2013.

In this entire section, houses are concentrated along the road, and there are so many narrow and winding spots that the traffic safety measurements will be necessary.

(2) From Ekata to Pekua via Zilla road Z1125 (Candidate 3, 4)

This section has been improved with the regional highway standard to mitigate the congestion at Chakoria intersection and westward transportation in 2,009. Entire section is well maintained. The width is enough in the entire section, so no land acquisition will be required.

(3) From Pekua to Eidmoni via Regional highway R170 (Candidate 3, 4)

The width is enough in the entire section, so no land acquisition will be required. On the other hand, the road condition is not well maintained, and improvement works will be required.

(4) From Eidmoni to Badarkhali Bridge via Regional highway R172 (Candidate 1-4)

No improvement work will be required.

There are two congested places, one bazar and the bridge guard, but both of them will be manageable.

(5) From Badarkhali Bridge to Janata Bazar via Regional highway R172 (Candidate 1-4)

The road condition near Janata Bazar is not good, and improvement works will be required.

The traffic safety measurements will be required around Janata bazar.

(6) From Janata Bazar to Yunushkhali Bazar via Zilla road Z1,104, and from Yunushkhali to the Jetty via Village road, and from the jetty to Power Plant Site (Candidate 1, 3)

The condition of Zilla road section is not good, and the entire section should be improved. Especially the drainage system including drain ditch and causeway should be considered. As the record of ROW is not confirmed, the width of road should be remained in actual condition. The width of Village road is 3.0 m, so widening and land acquisition will be required in the most of section, but no resettlement will be required. There is graveyard of Kararmachara union near the Yunushkhali intersection. To cross Kohelia River, new bridge should be constructed, and land acquisition for new road in Matarbari side will be required. But there will be no resettlement in Matarbari side. This route will benefit wide area, such as Karamachara Union, Matarabari Union and Dalghata Union.

(7) From Janata Bazar to Matarbari Bridge via Upazilla road, and to Power Plant Site via Union road (Candidate 2, 4)

The most parts of this section should be widened, and a large culvert should be replaced. And Matarbari Bridge should be improved. Therefore land acquisition will be required between Matarbari and BWDB embankment.

In the section between Matarbari Bridge and BWDB embankment huge resettlement will be occurred, and on the embankment used for union road there are many houses.

(8) From Pekua to west via Zilla road Z1125, and to Power Plant Site in Matarbari via Upazilla road (Pekua), new bridge crossing Kohelia River, BWDB embankment and Union road (Candidate 5).

Zilla road section after Pekua intersection is very congested, and it seems to be hard to manage the traffic and keep safety.

There is a broken bridge under construction between Zilla road and Upazilla road.

The length of Upazilla road is 9.0km, and its width is 2.9m. Basically land acquisition will be required along Zilla road., and also resettlement will be required.

To cross Kohelia River, a bridge should be constructed. The length will be about 600m.

In the Matarbari, no land acquisition will be required, but a large resettlement will be occurred within the ROW of BWDB embankment.

1.4.3 Comparison of Candidate Routes

(1) Environmental and Social Aspects

Table 1-8 shows a comparison of environmental and social aspects on each candidate route. Based on this comparison, Candidate 3 is the most suitable route which is less congested in traffic, less condensed in residence, the least land acquisition and no resettlement, if the impact on mangrove forest in Kohelia River is avoidable.

Table 1-8 Comparison of Environmental and Social Aspects on Each Candidate Route

Candidate Route	Candidate 1	Candidate 2	Candidate 3	Candidate 4	Candidate 5
1. Environmental Aspect					
1.1 Living Environment	In the section between Chakoria and Eidmoni the impact of construction works and traffic will be significant.		In the section between Ekata and Eidmoni the impact of construction works and traffic will not be so significant		In the section between Pekua and Matarbari impact of construction works and traffic will be significant.
	In the section between Janata Bazar and Yunushkhali the impact of construction works and traffic will not be so significant.	In the section between Janata Bazar and Matarbari the impact of construction works and traffic will be significant.	In the section between Janata Bazar and Yunushkhali the impact of construction works and traffic will not be so significant.	In the section between Janata Bazar and Matarbari the impact of construction works and traffic will be significant.	
1.2 Natural Environment	Along the all road section any important natural environment is not observed.	A Along the all road section any important natural environment is not observed.	Along the all road section any important natural environment is not observed.	Along the all road section any important natural environment is not observed.	Along the all road section any important natural environment is not observed.
	Mangrove forest is observed along the Kohelia	No sensitive biota is observed near	Mangrove forest is observed along	No sensitive biota is observed near	No sensitive biota is observed near

Candidate Route	Candidate 1	Candidate 2	Candidate 3	Candidate 4	Candidate 5
	River near the expected point of new bridge.	Matarbari Bridge which will be rehabilitated.	the Kohelia River near the expected point of new bridge.	Matarbari Bridge which will be rehabilitated.	the expected point of new bridge.
2. Social Aspect					
2.1 Land Acquisition (m ²)	134,782 Land acquisition will not be significant.	248,530 Land acquisition will not be significant, but more than Candidate 1.	118,532 Land acquisition will be least.	242,280 Land acquisition will not be significant, but more than Candidate 3.	272,500 Land acquisition will be most.
2.2 Resettlement (PAPs)	Approx. 500 In Chakoria area, resettlement will be required, but not significant comparing with Candidate 2, 4, 5.	Approx. 4,100 In Chakoria and Matarbari area huge resettlement will be required,	None	Approx. 3,500 In Matarbari area huge resettlement will be required,	Approx. 4,200 In Pekua and Matarbari area huge resettlement will be required,
2.3 Benefit to Local People	New bridge construction will increase safety, communication capacity and broad economic effect.	Economic effect will be highest, but restrictive in Matarbari.	New bridge construction will increase safety, communication capacity and broad economic effect.	Economic effect will be highest, but restrictive in Matarbari.	New bridge will increase travel convenience, but restrictive in Matarbari.

(Source: JICA Study Team)

(2) Construction Aspects

Table 1-9 shows a comparison of construction aspects on each candidate route.

Table 1-9 Comparison of Construction Aspects on Each Candidate Route

Candidate Route	Candidate 1	Candidate 2	Candidate 3	Candidate 4	Candidate 5
1. Total length (km)	31.44km Maintenance will be least.	36.15km	36.94km	41.85km Maintenance will be most.	27.50km +11.80 km =39.30 km (from Ekata)
2. New or reconstructed road (km)	2.95 km The construction period will be shortest and the impact of construction will be the least.	9.3 km The construction period will be longer than Candidate 1	2.95 km The construction period will be shortest and the impact of construction will be the least.	9.3 km The construction period will be longer than Candidate 1	23.17 km The construction period will be the longest.
3. New or reconstructed bridge	0.64 km (minimum) -1.370 km (maximum)	0.44 km	0.64 km (minimum) -1.370 km (maximum)	0.44km	0.50 km

(Source: JICA Study Team)

Regarding the new bridge on Candidate 1 and 3, the length will influence not only the bridge cost, but also total cost. And the bridge location will influence the mangrove forest and tidallat.

Therefore the following bridge locations shown in

(Source: JICA Study Team)

Figure 1-3 have been considered, and the comparison of altanatives are shown in Table 1-10.

- 1) Alternative-1 is to avoid impacts on the mangrove forest, but it needs two bridges.
- 2) Alternative-1a is to avoid impacts on the mangrove forest, and to minimize bridge length, land acquisition and cost by utilizing BWDB embankment.
- 3) Alternative-2 is the shortest bridge with minimized new road, but it passes between mangrove forests.
- 4) Alternative 3 is another way to avoid impacts on mangrove forest, but it also needs two bridges and long road.



(Source: JICA Study Team)

Figure 1-3 The New Bridge Alternatives over Kohelia River for Candidate 1 and 3

Table 1-10 Comparison of Construction Aspects on Each Candidate Route

Candidate Route	Alternative -1	Alternative-1a	Alternative-2	Alternative-3
1. Total bridge length (m)	1,340 m	640 m	1,000 m	1,370 m.
2. New road between the jetty and Power Plant (km)	2.56 km	1.25 km	1.4 km	3.06 km
3. Impact on the mangrove forest	Avoidable	Avoidable	Not avoidable	Avoidable
4. Social aspect		Land acquisition will be the least		Land acquisition will be the most.
5. Technical issue				Soft ground measures will be the most
6. Ascending order of cost	4	1	3	2
EVALUATION		Most suitable		

(Source: JICA Study Team)

Table 1-11 shows comparison of rough estimation of total construction cost. The total construction cost is lowest in Candidate 3, because of well-balanced cost among road, bridge and other structure portion.

Table 1-11 Comparison of Total Construction Cost (Unit: ratio to the lowest)

Candidate Route	Candidate 1	Candidate 2	Candidate 3	Candidate 4	Candidate 5
1. Road	1.00	1.18	1.56	1.74	1.54
2. Bridge	1.67	1.40	1.27	1.00	1.19
3. Other Structure	1.00	1.57	1.06	1.57	2.25
Total	1.05	1.06	1.00	1.28	1.15

(Source: JICA Study Team)

(3) Conclusion

According to the comparison of environmental, social and construction aspects and cost, Candidate 3 is the most suitable for the access road.

Table 1-12 shows the inventory of selected route.

Table 1-12 Inventory of Selected Route

Section	Managed by	Distance	Current condition
Existing Road		35.05 km	
Eakata – Pekua	RHD (Zilla road Z1125)	11.80km	Well maintained
Pekua - Eidmoni	RHD (Regional highway R170)	10.90km	Spot holes, cracks, etc.
Eidmoni – Badarkhali Bridge	RHD (Regional highway R172)	7.40km	Spot holes, cracks, etc.
Badarkhali Bridge – Janata Bazar	RHD (Zilla road Z1004)	1.35km	
Janata Bazar – Thallatoli Intersection		0.30km	Damaged all through the road
Thallatoli Inter. – Yunuskhali Intersection		1.60km	

Section	Managed by	Distance	Current condition
Yunuskhali Intersection – Jetty	LGED (Village road 4013)	1.70km	Out of Requirement
New road		1.25 km	
Government land between two embankments in Matarbari	Government	0.24km	Salt field/ Shrimp farm
Embankment	BWDB	0.60 km	
Partial dyke	BWDB	0.24 km	
Private land	Private	0.17 km	Salt field/ Shrimp firm
New Bridge		0.64 km	
New Bridge (Fly-over Kohelia River)	Government (River)	0.64km	Jetty built by community (Maheshkhali side)
TOTAL		36.94 km	

(Source: JICA Study Team)

1.4.4 Application of International Standards to Land Acquisition and Resettlement

As stipulated in *the Acquisition and Requisition of Immovable Property Ordinance 1982*, RHD will submit an application of land acquisition to the Government of Bangladesh (GOB), with sufficient data and information about the project design and cost, through the Deputy Commissioner (DC) of Cox's Bazar. As this project will be financed by the Government of Japan, RHD will allocate its budget to fill the gap between the Ordinance 1982 and *JICA Guidelines for Environmental and Social Considerations* in order to compensate not only titleholders but also non-titleholders for their loss of land ownership, relocation, and loss of their livelihood means in an internationally accepted manner.

The DC Office will follow all the official procedures to acquire land and provide compensation as stipulated in the Ordinance 1982 and subsequent amendment. It will take over eight months to complete all the procedures from RHD's application to the payment of compensation through the DC Office to the project affected persons (PAPs).

1.4.5 Entitlements of Affected People without Legal Claims to Land

Lack of ownership does not imply ineligibility for compensation, if the JICA Guidelines and other internationally accepted practices are to be followed. RHD will endeavor to provide suitable alternatives to provide cash compensation on a replacement cost basis. PAPs that lose only a part of their physical assets will not be left with a portion that is inadequate to sustain their current standards of living. The minimum size of the remaining land and structures will be agreed to during the resettlement planning process. People temporarily affected will also be considered PAPs and resettlement plans shall address the issue of temporary acquisitions.

1.4.6 Measures for Avoidance and Further Influx of Illegal Occupation

All PAPs residing, working, doing business and/or cultivating land within the project impacted areas upon the cut-off date, will be entitled to compensation for their lost assets (land and/or non-land assets), at replacement cost, if known, and the restoration of incomes and businesses. Compensation will be provided with rehabilitation measures sufficient to assist the PAPs to improve or at least maintain their pre-project living standards, income-earning capacity and production levels.

As per definition adopted for this access road project cut-off date is 27 July 2013, the date of commencement of social survey. This LARAP is prepared based on this cut-off date for the EIA appraisal and the project approval.

After the project approval the cut-off date under Section 3 of the Ordinance of 1982 will be declared again. RHD and DC office intend to fix the number of households and their members who occupy the government land without permission so as to limit encroachment for the purpose of qualifying for entitlement. RHD will also take appropriate measures to ensure that all land cleared for the project remains clear of squatters.

1.4.7 Methods of Valuing Affected Assets

All compensation for land and non-land assets owned by any households/shop owners who met the cut-off-date will be based on the principle of replacement costs. Replacement costs are the amounts calculated before displacement which are needed to replace any affected assets without depreciation and without deductions for taxes and/or costs of transaction.

The land acquisition officer (LAO) will support the sub-registrar's office for determining the price of land. Land price averages from the sub-registrar's office for the previous one year from the date of the notice given under Section 3 of the Ordinance of 1982 will be considered for the land valuation. The transacted price, recorded price, existing prices and expected prices should be averaged to ascertain the replacement value (RV). The expected value will be decided in line with the future potential use of the land.

1.4.8 Livelihood Restoration and Rehabilitation

The livelihood restoration and improvement program are based on consultation with PAPs and their socio-economic profile, living environment, level of education, etc., Such programs often incorporate vocational training, microfinance, and provision of job opportunities at the construction sites and new facilities.

2 Legislations in Bangladesh and Gaps from JICA's Policy

2.1 Key legislations

The Acquisition and Requisition of Immovable Property Ordinance of 1982 and its subsequent amendments in 1993 and 1994 provide the key legal instrument for the acquisition of private land for development activities in Bangladesh.

Salient provisions of the Ordinance which show tangible gaps with *the JICA Guidelines for Environmental and Social Considerations* are as follows:

Avoiding/ minimizing land acquisition: The Ordinance only implicitly discourages unnecessary acquisition as land acquired for one purpose cannot be used for a different purpose. There are, however, no mechanisms to monitor if this condition is actually adhered to.

Eligibility for compensation: The Ordinance stipulates compensation only for the persons who appear in the land Eidmoni records as the owners (i.e., titleholders). It does not recognize the rights of those without legal title to the land, who live in or make a living from it.

Compensation paid for: The Ordinance provides for compensation of land and other objects built and grown on it (structures, trees and orchards, crops and any other developments on the land like ponds, built amenities, etc.). There are no provisions to assess and restore lost income streams or income sources caused by the land acquisition to the PAPs.

Compensation standards: Landowners receive compensation under the law (CUL) as per the market value of the property at the publication date of the notice¹ with a premium of 50% on the assessed price. Any damage to standing crops or trees on the property, expenses incidental to compelled changes to the residence or place of business, and reduction of profits of the property in the acquisition period are also entitled to a sum of 50% on top of such market value². The 1994 amendment made provisions for payment of crop compensation to tenant cultivators (“*bargadar*”).

Although the Ordinance stipulates ‘market prices’ of the acquired land as just compensation, the legal assessment method almost always results in prices far below the actual market prices. Certain pricing standards, which are regarded as unrealistic, are used to assess other losses like structures and various built amenities, trees, and crops, etc.

Relocation of homestead losers: There is no legal obligation to relocate, or assist with the

¹ The average value of the properties of similar description and with similar advantages in the vicinity during the last twelve months prior to the publication date of the notice. (Section 8 (1) of *the Acquisition and Requisition of Immovable Property Ordinance 1982*.)

² The market value thus determined does not always reflect the actual market value.

relocation of those whose homesteads have been acquired. Under the proposed alignment of the access road no house structure will be replaced, only part of homestead land and pond will be affected.

Ensuring payment/ receipt of compensation: Even with the given legal provision, the compensation process is time-consuming. There is, moreover, no certainty as to when an affected landowner will obtain the stipulated compensation or whether he will obtain it at all. Land is legally acquired and handed over to the project proponent as soon as the acquisition authority identifies the owners ('awardees') by examining the records, and sends a legal notice advising them to claim compensation ('awards'). And it also turns out that it is an obligation of the PAPs to prove that the acquired land legally belongs to them.

Socio-economic rehabilitation: The provisions are so restricted that the Ordinance shows no concern about the long-term socio-economic changes the PAPs might undergo in the post-acquisition period. Except for the compensation at the legal 'market price', there are no other provisions in the acquisition or other-laws that require the government to mitigate the resultant adverse impacts caused by the acquisition. Socio-economic rehabilitation of the involuntarily displaced persons is absent in the legal regime of Bangladesh.

2.2 JICA's policy on land acquisition and resettlement

The key principle of JICA policies on involuntary resettlement is summarized below.

- (1) Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives.
- (2) When, population displacement is unavoidable, effective measures to minimize the impact and to compensate for losses should be taken.
- (3) People who must be resettled involuntarily and people whose means of livelihood will be 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 as much as possible.
- (5) Compensation and other kinds of assistance must be provided prior to displacement.
- (6) For projects that entail large-scale involuntary resettlement, 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) 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.
- (8) Appropriate participation of affected people must be promoted in planning, implementation, and monitoring of resettlement action plans.
- (9) Appropriate and accessible grievance mechanisms must be established for the affected people and their communities.

Above principles are complemented by World Bank OP 4.12, since it is stated in JICA Guideline that "JICA confirms that projects do not deviate significantly from the World Bank's Safeguard Policies". Additional key principle based on World Bank OP 4.12 is as follows.

- (10) 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 project identification stage, to prevent a subsequent influx of encroachers of others who wish to take advance of such benefits.
- (11) Eligibility of Benefits include, the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who don't 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.
- (12) Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based.
- (13) Provide support for the transition period (between displacement and livelihood restoration).
- (14) 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, ethnic minorities etc.
- (15) For projects that entail land acquisition or involuntary resettlement of fewer than 200 people, abbreviated resettlement plan is to be prepared.

In addition to the above core principles on the JICA policy, it also laid emphasis on a detailed resettlement policy inclusive of all the above points; project specific resettlement plan; institutional framework for implementation; monitoring and evaluation mechanism; time

schedule for implementation; and, detailed Financial Plan etc.

In terms of categories of PAPs and types of lost assets, the gaps in the existing legal framework of Bangladesh and requirements of the JICA Guidelines are identified as presented in the Table 2-1.

Table 2-1 Gap Analysis between Bangladeshi Laws and JICA Guidelines

No	Category of PAPs / Types of Lost Assets	Bangladesh Laws	JICA Guidelines
1	For all types of land and other assets for legal land	Acquired by DC as per legal requirements/ procedures	Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based
2	Land tenants	Compensation for standing crops if harvesting of crops is not possible	People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported.
3	Land Users	Squatters, encroachers and unauthorized users/ occupiers are not recognized	Ditto
4	Owners of temporary structures	Only cash compensation under law (CUL)	Compensation must be based on the full replacement cost as much as possible.
5	Owners of permanent structure buildings	Ditto	Ditto
6	Perennial crops	Market prices of the standing crops with value of plants	Compensation must be based on the full replacement cost as much as possible.
7	Timing for payment of entitled compensation to the PAPs	No concern on the part of the project proponent. Land is handed over to the project proponent as soon as the compensation funds are placed with the DC.	On the completion of payment of compensation to the PAPs, the land is to be vacated and handed over to the project proponent.
8	The issue of relocation and income generation activities	No concern about relocation and income generation activities.	People who must be resettled involuntarily and whose livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standards of living, income opportunities and production levels to pre-project levels.
9	Vulnerability of PAPs	No distinction between the PAPs	Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, the landless, elderly, women and children, ethnic minorities, etc.
10	Role of DC, project proponent and PAPs	DC to acquire land, the project proponent to use the land, and PAPs to seek compensation from the DC.	DC and project proponent to assist the PAPs in getting the compensation, assist to collect the legal and required documents, and provide support for the transition period between displacement and livelihood restoration.

(Source: JICA Study Team)

2.3 Procedures of land acquisition

Under the Ordinance of 1982 and its subsequent amendments 1989, 1993, and 1994, the DC at District level is entrusted to acquire land for agencies requiring land for any public or private infrastructure projects. The procedures of land acquisition will follow the following steps:

Step 1: After identifying and selecting the exact ground locations of the required land, the project proponent will carry out detailed engineering surveys and design the construction work and lay them out on mauza maps. The project proponent will prepare the land acquisition proposals to obtain Eidmoni approval by the line ministry.

Step 2: The project proponent, after obtaining the approval of the Eidmoni ministry, will make a request to the DC, with sufficient information including the amount of land to be acquired from each plot, and the ownership status such as private and public lands, for the acquisition of the land as per the proposal.

Step 3: Within 90 days, the DC will appraise the application through a) site observation, b) consultation with local politicians and residents, c) develop project profiles, and d) cost estimates. The DC will then develop and submit a proposal on land acquisition to the Ministry of Land for an appraisal by the central government within 90 days.

- The DC will publish a notice as stipulated in Section 3 of the Ordinance of 1982 stating that there is a proposal for the property to be acquired. The persons to be displaced may submit an objection to the land acquisition to the DC within 15 days after the notice is served. All the legal titleholders will be advised to show their ID cards and other documents that verify their rights. For those with no registrations, the DC Office will call for circumstantial evidence from community leaders, local elite people, and religious leaders, etc., to add these people to the list.
- The DC will consult with the Public Works Department (PWD), Forest Department (BFD), Department of Agricultural Marketing (DAM) and Department of Fisheries (DOF) to assess the value of structures, trees, crops and aqua products for their existing rates.
- Under Section 6, a second public notice will be served stating the GOB's decision on the land acquisition and taking possession thereof. The DC Office will confirm the PAPs, exact land area and size for acquisition, number of relocated houses, agriculture land,

forestry and fishing areas that will be lost. The persons to be displaced will be requested to submit their statements of property, amounts and particulars of the claims to compensation after 15 days of the second notice being served. The DC Office will respond to any grievances made by the PAPs in order to agree to the assistance package.

- The project proponent shall deposit the estimated amount of the award of compensation with the DC within 60 days from the receipt of the estimate given by the DC.
- Upon serving the last notice (Section 7), the DC shall pay the amount to the owners of the acquired property within another 60 days from the date of deposit by the project proponent. The DC will take possession of the property after completion of the compensation payment to the PAPs and immediately declare this in the official gazette, and hand the property over to the project proponent.

3 Social Impact Survey

3.1 Socioeconomic Survey and FGD Meetings at Access Road

3.1.1 Survey Outline

(1) Socioeconomic Survey

a) Objective

The survey aim was to collect the typical characteristics of the affected households, basic data of their livelihoods and living standards, and to gain a comprehensive idea of the socioeconomic conditions at the project sites.

b) Main use of the results

Analyze the socioeconomic conditions of the project site to draw the needs of the affected people for the livelihood restoration/ improvement program and the area development
Estimate the cost required for land acquisition, resettlement, compensation and the implementation of the livelihood restoration program

c) Selection of interviewees

The interviewees were the directly affected people who own/ lease/ use their private land (or lease government land) and who work within the site. Squatters were also surveyed as well as the indirectly affected people living around the project site. There were 56 household heads interviewed under the survey, and their major characteristics are as described below in several tables. Out of 56 households, 39 households were from Kalarmachara Union, and 17 from Matarbari and the majority of these households lived in adjacent villages.

d) Survey Method

The three pillars of the socioeconomic survey, i.e., population census, asset inventory, and household survey, were compiled into one set of questionnaires and targeted all the potential PAPs regardless of their entitlement of land ownership or whether they were affected/ displaced PAPs as shown in Table 3-1.

Table 3-1 Structure of Socioeconomic Survey

Survey	Achievements
PAP Census	A count of the PAPs was made to confirm who and how many of the people would be affected by land acquisition and related impacts. The PAP census provided the basic information necessary for determining eligibility for compensation.
Land ownership	A land loss of all households affected by land acquisition, agricultural, homestead and business, trees, crops, fish, structures of residential and business and other kinds of losses, i.e., wages and income. A list of the losses was remunerated into a database.

Survey	Achievements
	<p>The IOL for each PAP recorded the following:</p> <ul style="list-style-type: none"> - amount and type of land to be acquired (residential, commercial, agricultural) - type of trees and/ or crops to be acquired - commercial structures to be acquired - loss of livelihood (type and income loss) - other types of losses - types of community infrastructure or common property resources to be acquired <p>The IOL also recorded the legal status of the land, residential houses, shops and other structures to be acquired.</p> <p>In conjunction with the population census and IOL of the PAPs, household data was collected on the following items:</p> <ul style="list-style-type: none"> - size, sex and age composition of each affected household - types of occupation/ livelihood for each economically active household member - assessment of income levels for each economically active household member - number of school age children attending school - ethnic, language, and religious identity of each affected household <p>PAPs attitudes (intentions/ opinions) towards the project, land acquisition and resettlement were also recorded.</p>
Household Survey	<p>The household survey focused on income-earning activities and other socioeconomic indicators to observe the social and economic conditions of PAPs, such as income, employment, education, livelihood, utilities, health services facilities, social services, and other socio-economic and cultural aspects that prevailed in the targeted areas.</p>

(Source: JICA Study Team)

e) Interviewers

Consultants representing the BETS Consulting Services Ltd., who were commissioned by the JICA Study Team, conducted the survey. The field survey was conducted by four survey staffs trained by BETS' consultants who conducted the survey at the field level.

f) Survey period

July 27 –August 7, 2013.

g) Limitations of the survey:

The severe time constraints during the survey period and geographical remoteness of the site made it unable for the surveyors to return to the interviewed households to reconfirm their answers before they left the site. Incoherency of answers done by a person therefore is admitted in the data, which made it unable to implement a complete set of scientific analysis. The number of people for each occupation was as of July 2013. Land tenure, they insisted, could not be double-checked as they were reluctant to disclose their official registration including land

registration certificate. Likewise, their household income and expenditure, land lease and lease amount stated by them were not certified.

(2) Focus Group Discussion

a) Objective

The Focus Group Discussion meetings (FGDs) were aimed to collect specific information from diverse groups including male and female from farmers, land owners in the corridor, business persons, teachers, students, religious leaders, transport operators, boatmen, shopkeepers, sharecroppers, social workers/ NGO workers, local leaders, and elected representatives. Table 3-2 shows interviewed population in FGD.

b) Main use of the results

Analyze the opinions of the local people having involvement with different kinds of occupation and have some interest in the project and also matters their opinion about the project.. Most of them were opinion makers of the area who have capacity to influence the opinion of the people, who will be affected or who may be future participants in the project activities. Obtain idea about local needs of the people who will be affected and how the project can give more benefits to them.

c) Selection of participants

One Focus Group Discussion Meeting in each union was conducted in addition to Stakeholders meeting at Maheshkhali Upazilla Parishad. List of the people is given in Annex-1.

Table 3-2 Interviewed Population in Focus Group Discussion

Cluster	No. of participants
Kalarmachara Union	25
Dhalgoda Union	22
Matarbari Union	31
Maheshkhali	71
Total	149

(Source: JICA Study Team)

d) Survey Method

Focus Group Discussion and Stakeholders Consultation

e) Interviewers

Researchers representing the BETS Consulting Services Ltd., who were commissioned by the JICA Study Team, conducted the consultations.

f) Survey period

July 25 – August 1, 2013.

g) Limitation of the survey:

Not applicable.

3.1.2 Findings

(1) Census survey

The census survey was conducted just to list down the name and address of the potential affected people from which the sample could be drawn for the socio-economic survey. From the census survey 56 households were identified.

Before conducting the socio-economic survey a census of the PAPs was conducted in mid-July 2013 from where 25 sampled households were selected covering both Kalamarchara and Matarbari Unions.

(2) Socio-economic survey

Under the corridor 56 households will be affected; out of that following a systematic random sampling method 25 households were brought under social survey where their average size was 5.4 from Table 3-3. The income dependency ratio was also 28.57 only.

Among the household heads none was found illiterate and 84% studied upto primary level and only 4% were graduate and above was shown in Table 3-4. Among the household members 90% studied upto primary level are shown in Table 3-5. Generally all household heads are parent population.

Table 3-3 Distribution of household members by age

Age	Male (No)	Male (%)	Female (No)	(%)	Total Pop.	Total (%)
<=14	12	15	14	26	26	19
>= 15-59	67	83	38	70	105	78
60+	2	2	2	4	4	3
Total	81	100	54	100	135	100

(Source: JICA Study Team)

Table 3-4 Educational Achievement of the HH heads

Education level	Male	Male (%)	Female	Female (%)	Total	Total (%)
Illiterate	0	0.00	0	0	0	0.00
Primary level	21	84.00	0	0	21	84.00
Secondary level	3	12.00	0	0	3	12.00
Higher secondary	0	0.00	0	0	0	0.00
Graduate	1	4.00	0	0	1	4.00
Post graduate	0	0.00	0	0	0	0.00
Other (specify)	0	0.00	0	0	0	0.00
Total:	25	100	0	0	25	100

(Source: JICA Study Team)

Table 3-5 Educational Achievement of the HH members

Education level	Male	Male (%)	Female	Female (%)	Total	Total (%)
Illiterate	0	0.00	1	1.85	1	0.74
Primary level	56	69.14	34	62.96	90	66.67
Secondary level	16	19.75	9	16.67	25	18.52
Higher secondary	5	6.17	5	9.26	10	7.41
Graduate	4	4.94	2	3.70	6	4.44
Post graduate	0	0.00	0	0.00	0	0.00
Other (specify)	0	0.00	3	5.56	3	2.22
Total:	81	100	54	100	135	100

(Source: JICA Study Team)

Table 3-6 shows primary occupation survey. It reveals that farming and housekeeping was the occupation of 17.04% and 17.78% respectively, day labour was 19.26% and students were 36.30%. Among the potentially affected people all were Muslim.

Table 3-6 Primary Occupation of the HH

Occupation	Male	%	Female	%	Total	%
Farming	22	27.16	1	1.85	23	17.04
Housemakers	0	0.00	24	44.44	24	17.78
Day labour	25	30.86	1	1.85	26	19.26
Teacher	2	2.47	1	1.85	3	2.22
Doctor	1	1.23	0	0.00	1	0.74
Business	2	2.47	0	0.00	2	1.48
Working abroad	2	2.47	0	0.00	2	1.48

Occupation	Male	%	Female	%	Total	%
Student	27	33.33	22	40.74	49	36.30
Children	0	0.00	3	5.56	3	2.22
Disabled	0	0.00	2	3.70	2	1.48
Total	81	100	54	100	135	100

(Source: JICA Study Team)

Table 3-7 shows farming by occupation. Only 4% PAPs are related to fishing activities and 84% related to salt or farming activities. That was evident at the field level as all the lands that likely to be affected are from those categories.

Table 3-7 Farming by Occupation

Fishing by occupation	No. of HH	%
Yes	1	4
No	24	96
Total	25	100
Farming/salt farm	No. of HH	%
Yes	21	84
No	4	16
Total	25	100

(Source: JICA Study Team)

Housing pattern (Table 3-8) shows that none had pucca house, where 72% had tin shed house and rest have semi-pucca houses (28.0%) which they owned (100%), not rented in.

Table 3-8 Housing pattern & ownership

House stricture	No. of house	%
Tinshed/ Katcha	18	72
Semi-pucca	7	28
Total:	25	100
Ownership status		
Owned	25	100
Total:	25	100

(Source: JICA Study Team)

Households' monthly income (Table 3-9) shows a wide variation like 4% households have less BDT 2,000 and another 12% have income between 2,001-4,000 and almost half of them (48.0%) have more than BDT 8,000.

Table 3-9 Monthly Income of the Households

Income level (per capita)	No. of HH	%
1,101-2,000	1	4
2,001-4,000	3	12
4,001-8,000	9	36
8,001+	12	48
Total:	25	100

(Source: JICA Study Team)

In regard to sanitation it may be mentioned that all the households have their own latrine and all those are reported to be sanitary (Table 3-10). About access to drinking water all of them have tubewells, only 28% have electricity connection and none of them have gas connection where they were using firewood for cooking purpose (Table 3-11).

Table 3-10 Status of Latrine

Latrine in house	No. of HH	%
Yes	25	100
Total	25	100
Types of latrine		
Sanitary	25	100
Total	25	100

(Source: JICA Study Team)

Table 3-11 Access to Drinking Water, Electricity and Gas

Access to drinking water	No. of HH	%
Own HTW	25	100
Total	25	100
Electricity connection		
Yes	7	28
No	18	72
Total	25	100
Gas connection		
No	25	100
Total	25	100
Cooking fuels used by the HH		
Gas connection		
Firewood	25	100
Total	25	100

(Source: JICA Study Team)

Access to health care services shows that most of them have scope to utilize public hospital and village doctor (Table 3-12). Only 24% avail private clinic which is indeed, not affordable by them all.

Table 3-12 Access to Health Services

Access to health services	No. of HH	%
Public hospital	25	100
Private clinic	6	24%
Village doctor	24	96%

Note: Multiple responses

(Source: JICA Study Team)

All of potential PAPs are staying more than 10 years in that area which means all of them historically living in that locality (Table 3-13).

Table 3-13 Duration of stay in the locality by year

Length of stay	No. of HH	%
Length of stay in the locality more than 10 years	25	100
Total	25	100

(Source: JICA Study Team)

Only 4% of the potential PAPs have NGO membership which means people in that area have less interaction with the NGOs (Table 3-14).

Table 3-14 NGO Membership

NGO membership	No. of HH	%
Yes	1	4
No	24	96
Total	25	100

(Source: JICA Study Team)

Most of them (Table 3-15) are not interested in job or business opportunities (96%) under the project which does not mean that they would not avail any regular job once the plant goes under operation. But at the moment all are not interested to do some manual works for the proposed access road.

Table 3-15 Interest in Job/ Business Opportunity

Job/Business opportunity	No. of HH	%
Yes	1	4
No	24	96
Total	25	100

(Source: JICA Study Team)

(3) Landonwer Survey (Resettlement Survey)

All 56 households will be directly affected who are involved in salt or shrimp farmings. The primary occupation of households is shown in Table 3-16.

Table 3-16 Primary Occupation of the HH

Occupation	Male	%	Female	%	Total	%
Farming	48	34.3	0	0.0	48	20.2
Housemakers	4	2.9	46	46.9	50	21.0
Day labour	43	30.7	0	0.0	43	18.1
Teacher	2	1.4	1	1.0	3	1.3
Doctor	1	0.7	0	0.0	1	0.4
Business	2	1.4	0	0.0	2	0.8
Working abroad	2	1.4	0	0.0	2	0.8
Student	37	26.4	45	45.9	82	34.5
Unemployed	1	0.7	0	0.0	1	0.4
Disabled	0	0.0	2	2.0	2	0.8
Others	0	0.0	4	4.1	4	1.7
Total	140	100	98	100	238	100

(Source: JICA Study Team)

Table 3-17 shows that use of land also varies which include residential purpose (7.1%), commercial purpose (1.8%), agricultural (75.0%) and pond (14.3%) and some others.

All of them were using that land more than 5 years.

Table 3-17 Use of land to be affected

Land use	No. of HH	%	Remarks
Use for homestead	4	7.1	
Use for commercial purpose	1	1.8	
Shops	0	0.0	
Agricultural	42	75.0	
Unused	1	1.8	

Land use	No. of HH	%	Remarks
Other (specify)	8	14.3	Pond to be affected
Total	56	100	
Duration of land use			
Duration of use: > 5 years	56	100	
Total	56	100	

(Source: JICA Study Team)

Only one household does not own land, but uses the government land as salt field (Table 3-18) , and two households use the land for shrimp production and the rest go for other agricultural productions (Table 3-19).

Table 3-18 Ownership Status of This Land Occupied by You

Ownership status of this land	No. of HH	%
Yes	55	98.2
No	1	1.8
Total:	56	100

(Source: JICA Study Team)

Table 3-19 Use of the Land for Agriculture Purpose

Type of use	No. of HH	%
Use of land for agricultural purpose: Shrimp production	2	3.6
Use of land for agricultural purpose: any other	54	96.4
Total:	56	100

(Source: JICA Study Team)

Survey reveals that household which have income less than Tk. 10,000 were 41.1% which means majority of the people have more than that amount of income (Table3-20).

Table 3-20 Total Income from the Land to be Affected (Annual)

Amount of Tk.	No. of HH	%
Less than Tk. 10,000	23	41.1
More than Tk. 10,000	33	58.9
Total:	56	100

(Source: JICA Study Team)

Table 3-21 shows the structure to be affected. Only one commercial structure will be affected, located along the existing road in Kalarmachara Union cost of which was estimated at about Tk.10,000 and 268 trees located in different plots of Kalarmachara Union will be affected cost of which would be approximately BDT 858,000.00. Total numbers of household that will lose the means of livelihood were only a few (5 persons). Among them only 2 were willing to participate in any construction works. Land labour and sharecoppers to be compensated BDT 450,000.00 and 5 ponds will be partially affected which have to be compensated following the standard rate of the area.

Table 3-21 Structure to be Affected

Type of affected structure	No. of structure
Use of structure for commercial	1
Total loss of tress	268
Livelihood loss	Number
Total number of household will loss the total means of livelihood	3
Total number of employee who will loss the means of livelihood	5
Willingness to participation in constructions	2
Other loss to be compensated for the sharecropper/ land labour or for other employment	Tk. 450,000.00
Loss of income from common property resources	5 Ponds

(Source: JICA Study Team)

According to the Household Income & Expenditure Survey 2,010 of BBS³, the population

³ BBS has conducted the HIES since the 1970s, and it has collected 12,240 households from the entire nation as samples for the HIES 2010. They have received technical and financial support from the World Bank for

below the upper poverty line was 31.5% at national level and 26.2% in Chittagong Division that includes Chittagong and Cox's Bazar Districts. The population below the lower poverty line, on the other hand, was 17.5% at national level and 13.1% in the Chittagong Division.

Table 3-22 Incidence of Poverty (Head Count Ratio) by CBN Method in 2010

	Nationwide			Chittagong		
	Average	Urban	Rural	Average	Urban	Rural
Upper poverty line	31.5	21.3	35.2	26.2	11.8	31.0
Lower poverty line	17.5	7.7	21.1	13.1	4.0	16.2

(Source: Bangladesh Bureau of Statistics (2,011) Household Income & Expenditure Survey 2,010)

In both the cases, the incidence of poverty were more in rural areas, where 35.2% of the population were below the upper poverty line at national level and 31.0% in Chittagong Division. The population below the lower poverty line was estimated to receive as much as BDT 1,102.84 at national level (17.5% of the population), and BDT 1,051.67 in Chittagong Division (13.1% of population).

Table 3-23 Incidence of Poverty (by per capita monthly income) in 2010

	Nationwide			Chittagong		
	Average	Urban	Rural	Average	Urban	Rural
Upper poverty line	1,270.93	1,545.96	1,211.57	1,307.27	1,328.03	1,304.64
Lower poverty line	1,102.84	1,240.18	1,083.72	1,051.67	1,259.46	1,034.62

(Source: Bangladesh Bureau of Statistics (2,011) Household Income & Expenditure Survey 2010)

Table 3-24 Incidence of Poverty (by Per Capita Monthly Expenditure) in 2010

	Nationwide			Chittagong		
	Average	Urban	Rural	Average	Urban	Rural
Upper poverty line	1,245.76	1,457.65	1,200.02	1,381.76	1,540.60	1,361.68
Lower poverty line	1,064.92	1,133.41	1,056.03	1,174.50	1,231.87	1,169.79

(Source: Bangladesh Bureau of Statistics (2011) Household Income & Expenditure Survey 2,010)

Taking the geographical location of the project site and the inflation rates of FY 2010 and FY 2011 into consideration⁴, the surveyed population whose per capita income and expenditure

conducting the survey. They estimate the upper and lower poverty line taking into consideration the cost of basic needs (CBN) that include both food and non-food items.

⁴ The inflation rate of FY 2010 in rural areas was 11.73% and for FY 2011 it was 8.69% on the year 2005 basis.

were below BDT 1,500.00 were assumed as the poor in this report. Therefore, no household (0.00%) was categorized as poor household on the basis of monthly income.

Table 3-25 Household Head's Per Capita Monthly Income and Expenditure

	<1,000	1,000≤ <1,500	1,500≤ <2,000	2,000≤ <3,000	3,000≤ <4,000	4,000≤ <5,000	5,000≤	Total
Per capita income	8	23	30	71	81	32	98	343
Per capita expenditure	11	33	42	105	76	33	43	343

(Source: JICA Study Team)

3.2 Local Consultation

3.2.1 1st Stakeholder Meeting

(1) Objective

The 1st Stakeholder Meeting (SHM) was aimed at hearing the opinions and/or comments of individuals and organizations regarding the project, and understanding the needs of local residents, as well as appropriately reflecting those needs into the relevant survey. The followings are the main objectives of the SHM:

- To disseminate the project outline and related activities to the project stakeholders
- To know the views of the stakeholders' about the project
- To identify the issues and remedies, if any, related to the proposed project during and after the implementation
- To know the project impacts (positive and negative) on the community
- To exchange views about the proposed project

(2) Implementation Methodology

In accordance with JICA Guidelines for Environmental and Social Consideration, stakeholder meeting for the access road was held at the scoping stage of the feasibility study on the access road. The meeting was chaired by Upazilla Nirbahi Officer (UNO) and assisted by the JICA Study Team. The methodology of the meeting is shown in Table 3-26.

Table 3-26 Methodology of 1st Stakeholder Meeting

Item	Description
Date	21st March, Thursday 2013
Time	11:00am – 1:30pm
Venue	Upazilla Parishad Conference Room
Targeted Stakeholders	Local Government Officers Community leaders Local NGOs Local Elite People Local affected residents
Notification Method	Notification over phone call was done to all key stakeholders prior to the meeting
Number of Participants	58 persons
Chairperson	Upazilla Nirbahi Officer (UNO)
Facilitator	Resettlement Specialist of JICA Study Team
Agenda	Registration Recitation of Quran Keep One Minute Silent for Respecting the Departed Soul of Honorable President of Bangladesh Welcome Speech by XEN, PDB, Cox's Bazar Speech of Special Guests (4 persons) Presentation of the Project by JICA Study Team Question & Answer Session Closing Speech and Thanks to all by the Chairman of the Meeting* Lunch

* (SHM program was shorten because of official leave declaration from 2.00pm local time for the three day mourning to the departed soul of Honorable President of Bangladesh)

(3) Results

At the meeting, a power-point presentation was given to the participants in their local language (Bengali), with a full explanation of the project work, to allow the audience to fully understand the project and contribute valuable comments. The main comments raised by the participants are shown in the Table 3-27.

Table 3-27 Result of the 1st Stakeholder Meeting

Participants	Comments	Responses
	Shared the nationwide necessity of electricity	(N/A)
	Road is indispensable for a nations development This access road will help the	(N/A)

Participants	Comments	Responses
	Maheshkhali to reach Chittagong by 2 hour journey which may upgrade the economy of the Project area	
	Electricity is our crying need at this moment in Maheshkhali because the Maheshkhali get only 2 hours electricity services in a day JICA expert must look into the anticipated problems that may arise during and after the construction of the access road project	→Environmental Management Plan and Environmental Monitoring Plan will be built, and implemented during and after construction.
	Thanks to JICA for taking initiatives of Road construction in the remote village areas like Matarbari, Maheshkhali. The specific proposals are; Road from Rangakhali to Mohori Gona Ghat, Dhalghata through existing embankment Connecting road from Rangakhali to west Matarbari existing embankment	→Proposed road is not scope of the access road, but it will be considered in future. →The access road will be connected to the circuit road of the power plant, and these roads will connect the east and west side of Matarbari Island completely.
	Local development depends on the good communication systems Specific proposals and info: Most of the settlements are in and around the existing big Pond Existing road widening will encroach many houses Jetty at Bahunaghata (Nayaghata) which is maintained by local people shall be taken into consideration during and after the road construction of the project Proposed road can be straight if it starts before the Yunuskhali Bazar point of Kalarmachara Road i.e. at the causeway point	→Proper measurement, for example guide walls will be considered. →Widening will be conducted carefully. →The function of Jetty will be carefully considered through public consultations. →The proposed road route will cause resettlement for several households.

Participants	Comments	Responses
	<p>Many private land owner will be affected by the Power Plant project</p> <p>The proposed road will not be helpful for the Matarbari people</p> <p>Road construction at the proposed location for the Matarbari is immaterial and for no use</p>	<p>→Power plant issue</p> <p>→The access road will connect the east and west side of Matarbari Island, and benefit Matarbari people.</p>
	<p>Road crossing through hilly areas should consider Mitigation Measures like retaining wall etc.</p> <p>Matarbari is a siltation prone area. Study on siltation of the Kohelia River should be taken into consideration so that bridge construction over the Kohelia River does not create any damage to the Bridge adjacent areas</p> <p>Mangrove forest should be considered carefully so that no damage is done during and after the development</p> <p>A full scale EIA shall be prepared for this project and with that the Environmental Clearance have to be collected from DOE before construction of this project</p>	<p>→Drainage measurement will be considered.</p> <p>→Topographical and morphological study will be conducted.</p> <p>→The bridge alignment has been considered about the mangrove forest and sifted to north to avoid impact on it.</p> <p>→EIA study is conducted as 'Red Category' in Bangladeshi regulation.</p>
	<p>I received mixed reactions from my local people on the issue of Access Road Construction</p> <p>I'm one of the affected persons who will lose around 30-40 Kani of land for the Power Plant construction</p> <p>If environmental deterioration does not prevail due to road construction then I have no objection as I'm not a scientist to assess the affects</p> <p>This road construction is only for the Power Plants use not for the local development</p> <p>The bridge construction is no more useful for the local people as because an existing bridge is now workable and still doing well for us</p> <p>A leaflet was distributed among you for sharing the bad effects of the power plant at Matarbari and my people like to know from this meeting about the environmental effect of the construction</p>	<p>→It will be considered on environmental and social impact on road construction and operation.</p> <p>→This access road including road and bridge will benefit people not only Matarbari but also Dhalghata and Kalarmachara.</p> <p>→As the leaflet was not specified on the Matarbari site and included some misunderstanding, proper</p>

Participants	Comments	Responses
	<p>of the Power Plant and Its access road.</p> <p>If the power plant is not environmentally viable then the access road may not be acceptable to us.</p>	<p>explanation will be done.</p> <p><i>*The explanation was done in the second SHM for the power plant.</i></p>
	<p>For this access road development work; Initial Environmental Examination (IEE) will be done.</p> <p>Environmental Impact Assessment (EIA) will be done following the IEE.</p> <p>Advantages, disadvantages of local people during construction and maintenance of roads shall be noted in EIA study and for that the Environmental Management Plan (EMP) will be prepared.</p> <p>At the end, the environmental clearance of DOE will be taken, complying with the DOE procedures for starting the construction work in the project site.</p>	
	<p>More fruitful discussion was possible to do as maximum participants from different corners of the project assembled here to place their views. But sorry for wrapping this program before our schedule due to the declaration of three days national mourning for the death of Mr. Zillur Rahman, Honorable President, GOB.</p> <p>Electricity is essential and we feel the electricity when it is absent.</p> <p>Government is trying to generate electricity all over the country to minimize the demand of electricity.</p> <p>Matarbari and Dhalghata is indivisible, neglected island and with the installation of power plant, deep sea port and other associated infrastructural development i.e. road construction, embankment etc. of the area will increase.</p> <p>Power plant project at the Dhalghata will be well protected by the CPGC</p> <p>The Dhalghata, Matarbari area will be safe from natural calamity</p> <p>JICA will ensure the top up compensation for the project affected peoples (PAPs) and the transportation cost, rehabilitation cost will be orderly</p>	

Participants	Comments	Responses
	done to ensure the PAPs compensation.	
	SHM was concluded by Chairperson.	

(Source: JICA Study Team)

3.2.2 Focus Group Discussion

The access road project will directly involve Kalarmachara Union and Matarbari Union, and indirectly but closely involved Dhalghata Union, and Matarbari Union and Dhalghata Union requested strongly to hold consultation meeting at each union to be able to gather many local people. Therefore Focus Group Discussion (FGD) at each Union was planned and held instead of public consultation meeting.

Outline of FGD is shown in Table 3-28

Table 3-28 Outline of FGD in Scoping Stage

Item	Kalarmachara Union	Matarbari Union	Dhalghata Union
Date	16 April 2013	26 April 2013	25 April 2013
Time	4:20 pm – 5:00pm	12:10 am – 3:40 pm	10:45 am – 1:00 pm
Venue	Union Parishad Auditorium, Maheshkhali Upazilla office	Magdil Bazar in Matarbari Union	Muhuri Guna Govt. Primary School in Dhalghata Union
Focused person	Representative of the union, Woman, Intelligent people		
Participants	Local people: 7 persons including the Chairman	Statement opinion: 6 persons Total participants	Statement opinion: 6 persons Total participants: 42 persons
	Facilitator, Government and Local government officer, JICA Study Team	Facilitator, Government and Local government officer, JICA Study Team	Facilitator, Government and Local government officer, JICA Study Team

(Source: JICA Study Team)

(1) Kalarmachara Union

The result of FGD in Kalarmachara Union is shown in Table 3-29

Table 3-29 Result of FGD in Kalarmachara Union

No	Comments by participant	Comments by facilitator	Response
1	For any work, people participation, awareness and motivation should be required. So the client should do work	Implementing agencies will work accordingly	Coordination will be continuously made with local authorities to improve

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

No	Comments by participant	Comments by facilitator	Response
	with very close contact with local representative (i.e. Chairman, member and other elite persons).	to local representative.	the local infrastructure.
2	At the intersection of the proposed access road at Yusushkhali bazar, there is a grave yard. They request not to touch that point, as this is very sensitive point. Other than in the Access road no historical/ archaeological site/other important places are there and also there is no potential risk and sensitive issues at and around the access road.	Detailed alignment should be made as not to touch this sensitive area.	Road alignment will be fixed upon sensitive area's consideration.
3	For the access road expansion land need to be acquired, for that reasons many complexities about owners' information will arise. For this reason joint verification team for original land owner identification is required for proper compensation.	Original land owners list will be identified through local land office and then DC office.	Developing an appropriate "land acquisition and resettlement action plan", including "livelihood restoration program".
4	For the land acquire for road development, take minimum land so that the affect will be less to the land owner.	JICA have policy to make minimum affected people of acquired land.	Developing an appropriate "land acquisition and resettlement action plan", including "livelihood restoration program".
5	Proper compensation should be provided to the land owner. Government compensation is not sufficient.	The compensation will made through Bangladesh and JICA guidelines.	Land acquisition and resettlement action plan will be developed through Bangladesh and JICA guidelines.
6	The soil condition is not good at that area. That's why proper design for the road and proper protection need for the road. They also suggested for Guide wall for the road construction.	Road design Engineer will consider this issues and design in proper way to protect the road.	For Road design, the guidelines are as follows: BRRL manual (Bangladesh) , Japanese Guidelines, AASHTO (USA), etc.
7	In every rainy reason, flash water come down from the hills and washed the road and also enters the water in closed residences. As there is no drainage system around the road. So proper drainage network should be construction along the access road.	Drainage system network will be developed, in according with the road design.	Adequate drainage system will be developed so that it can be used even in the rainy season.
8	Along the access road proper road protection design and construction and also box culvert construction (if any).	It will be consider in road design, if needed.	For Road design, the guidelines are as follows: BRRL manual (Bangladesh) , Japanese Guidelines, AASHTO (USA), etc.
9	Along the road there are two or three ponds, which is very old. At the ponds side proper protection work need to be design.	It will be consider in road design.	For Road design, the guidelines are as follows: BRRL manual (Bangladesh) , Japanese Guidelines, AASHTO

No	Comments by participant	Comments by facilitator	Response
			(USA), etc.
10	Take proper action at the intersection and turning of the road.	It will be consider in road design.	For Road design, the guidelines are as follows: BRRL manual (Bangladesh) , Japanese Guidelines, AASHTO (USA), etc.
11	The Bohonaghata jetty was made by the local participation. If the bridge constructed at the point, the people depends or live there life with the income on the jetty will be deprived. For them, there should be some compensation to that people.	If required, the compensation will be provided according to the Bangladesh and JICA guidelines.	Developing an appropriate “land acquisition and resettlement action plan”, including “livelihood restoration program”.
12	At the time of construction of access road, there will be some disturbance and the air pollution will happen. So proper methodology of work should be engaged.	It will be consider in a social and environmental management plan.	Pre and Post construction and operation methodology will be develop.
13	The people of this union are very much concern about the health and education. They request us to provide medical facilities at a routine basis during the road construction.	Health facilities will be improved through proper management plan.	Pre and Post construction and operation methodology will be develop.
14	At the time of construction, the local people should get preference from any other for any work.	The project owner gave assurances that priority will be given to local people for employment in the project.	Employ local residents as much as possible.
15	At the end of the meeting, the participants told that they are very much happy for that access road. For any cooperation need, they will give all support at any time. They also said that for the development of this area, the road network should be developed. For the social, environmental and economic perspective, if proper management plan prepared and proper communication with the Chairman, local elite and local representative has done, then no negative impact will impact in this project. The people are waiting for the road development.	JICA will introduce proper Social and Environmental Management plan.	

(Source: JICA Study Team)

(2) Matarbari Union

In the FGD for Matarbari Union, there was no specific comment on the access road, but many

comments on the power plant.

(3) Dhalghata Union

The result of FGD in Kalamachara Union is shown in Table 3-30

Table 3-30 Result of FGD in Dhalghata Union

No	Comments by participant	Comments by facilitator	Response
1	<ul style="list-style-type: none"> - This is very good approach and this project is approved by the Govt. of Bangladesh. - Good communication network will be developed by this Access road. - Dredging is required at the Rangakhali Khal. - Total embankment development in this area is necessary for disaster problem. - Green environment and environmental safeguard policy should be taken. 	<p>JICA Study Team will consider all sort of design for embankment protect, dredging of river and khal and also the environmental safe guard policy.</p> <p>JICA will assist to introduce proper Social, Resettlement and Environmental Management plan.</p>	<p>For Road design, the guidelines are as follows: BRRL manual (Bangladesh), Japanese Guidelines, AASHTO (USA), etc.</p> <p>BWDB's dredging guidelines will applicable.</p> <p>DoE, JICA and IFC guidelines will apply for Environmental and Social consideration.</p> <p>Pre and Post construction and operation methodology will be developed.</p>
2	<ul style="list-style-type: none"> - Dhalghata road network should be developed. - Save Dhalghata people through proper protect. - Road up to the Shammardhil ghat under this project is needed. - Local people will get preference as employment at the time of construction. 	<p>The extension of road will be considered in future.</p> <p>The project owner gave assurances that priority will be given to local people for employment in the project.</p>	<p>Employ local residents as much as possible.</p>
3	<ul style="list-style-type: none"> - After this project, the total area infrastructure and peoples life style will be changed. - At 1,991 cyclone, 25ft water surge hit this area, so the embankment needs to be above the 25ft from ground level. - People are scared about this power plant project activity, so proper and appropriate consultation is required. - Drainage system should be improved due to water scoring. 	<p>Road design Engineer will consider this issue and design in proper way to protect the road.</p> <p>Drainage system network will be developed, in</p>	<p>For Road design, the guidelines are as follows: BRRL manual (Bangladesh), Japanese Guidelines, AASHTO (USA), etc.</p> <p>Adequate drainage</p>

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

No	Comments by participant	Comments by facilitator	Response
	<ul style="list-style-type: none"> - Local land price will increase. - Employment will increase during and after this project. - For the development of the nature, impact on environment is less significant. - Employment of fisher man and salt/shrimp production people, should be considered at the before and after construction. - Ecological critical area need to be considered. - Total cooperation will be gotten from Dhalghata's people. 	<p>according with the road design.</p> <p>JICA will introduce proper Social, Resettlement and Environmental Management plan.</p>	<p>system will be developed so that it can be used even in the rainy season.</p> <p>Pre and Post construction and operation methodology will be develop.</p>
4	<ul style="list-style-type: none"> - The economic and living standard of this area is not good condition. - Embankment development throughout the area is to be the main objective, under this project, as in 1,991 cyclone lot of people died as there is area in un-protected. - Dhalghat's people are watching over this project and JICA, for the development. - Education will be developed if road communication is developed. - Power plant name need to change, both union names should be incorporated. 	<p>Road design Engineer will consider this issues and design in proper way to protect the road.</p>	<p>For Road design, the guidelines are as follows: BRRL manual (Bangladesh), Japanese Guidelines, AASHTO (USA), etc.</p>
5	<ul style="list-style-type: none"> - Road design height should be considered according to the last flood water level. - Without road development, no development will arise. - The access road should be extended up to the Shammardhil ghat. - People are scared when rainy season come in every year. - Tree plantation for green environment along the access road. 	<p>Road design Engineer will consider this issues and design in proper way to protect the road.</p> <p>This issue will be considered in future.</p> <p>Proper Environmental Management plan will be built.</p>	<p>For Road design, the guidelines are as follows: BRRL manual (Bangladesh), Japanese Guidelines, AASHTO (USA), etc.</p> <p>Pre and Post construction and operation methodology will be develop.</p>
6	<ul style="list-style-type: none"> - For the access road development, embankment needs to be developed. - Medical facilities need to be improved. 	<p>Road design Engineer will consider this issues and design in proper way to protect the road.</p>	<p>For Road design, the guidelines are as follows: BRRL manual (Bangladesh), Japanese Guidelines, AASHTO (USA), etc.</p>

No	Comments by participant	Comments by facilitator	Response
		Health facilities will be improved through proper management plan.	Pre and Post construction and operation methodology will be develop.
7	<ul style="list-style-type: none"> - Dredging is required at the Rangkhali khal. At summer season the salt carrying boat cannot move due to low depth. - Dhalghata to Matarbari road need to develop. - Total surrounding area embankment need to be developed. 	All sort of design for embankment protect, dredging of river and khal and also the environmental safe guard policy will be considered.	BWDB's dredging guidelines will be applicable.
8	<p>Chairman:</p> <ul style="list-style-type: none"> - For the access road and power plant, Dhalghata people will give land. - This project is the dream of this area. - All kind of support and cooperation will get from the people of Dhalghata. - The access road should be extended up to the Shammardhil ghat. 	The extension of road will be considred.	

(Source: JICA Study Team)

3.2.3 2nd Stakeholder Meeting (Finalizing stage)

(1) Objective

The second stakeholder meeting was aimed at hearing the opinions and/or comments of individuals and organizations regarding the environmental impact and environmental management plan at finalizing stage of EIA report. The followings are the main objectives of the SHM:

- To know the project impacts (positive and negative) on the community
- To know the Environmental Management Plan and the Environmental Monitoring Plan
- To exchange views about the proposed project

(2) Implementation Methodology

In accordance with JICA Guidelines for Environmental and Social Consideration, stakeholder meeting for the access road was held at the scoping stage of the feasibility study on the access road. The meeting was chaired by Upazilla Nirbahi Officer (UNO) and assisted by the JICA Study Team. The methodology of the meeting is shown in Table 3-31

Table 3-31 Methodology of 2nd Stakeholder Meeting

Item	Description
Date	1 st August, Thursday 2013
Time	11:30am – 2:00pm
Venue	Upazilla Parishad Conference Room
Targeted Stakeholders	Local Government Officers Community leaders Local NGOs Local Elite People Local affected residents
Notification Method	Notification over phone call was done to all key stakeholders prior to the meeting
Number of Participants	71 persons
Chairperson	Upazilla Nirbahi Officer (UNO)
Facilitator	Resettlement Specialist of JICA Study Team
Agenda	1) Registration 2) Recitation from the Holy Quran 3) Welcome Speech by Manager, CPGCBL 4) Presentation of the Project by JICA Study Team 5) Participants' Opinion and Sharing about Project 6) Speech of Special Guests 7) Speech of Chief Guest 8) Speech of Host 9) Closing Speech and thanks to all by the Chairman of the Meeting

(Source: JICA Study Team)

(3) Results

At the meeting, a power-point presentation was present before the local participants in their local language (Bengali), with a full explanation of the project work, to allow the audience to fully understand the project and contribute valuable comments. The main comments raised by the participants and then responded/shared by JICA Study team are listed in Table 3-32

Table 3-32 Comments and Responses/Sharing of the 2nd SHM

Participants	Comments	Responses/Sharing
		Shared the nationwide necessity of electricity Invited all participants for the constructive discussion on the project work
Environmental Expert, JICA Study Team Present the Presentation of the SHM-2		
Resettlement Specialist, JICA Study Team Facilitate the SHM-2		
	Is there any measures taken to keep the existing Graveyard & Canal undisturbed at the Yunuskhali Bazar? Make sure that some small ponds and	The access road is designed in a way that the existing Graveyard and Canal will remain untouched. The access road is especially designed to

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Participants	Comments	Responses/Sharing
	<p>a big pond along the existing roadside will not be affected by the Access road.</p> <p>Existing drain which is now used for the irrigation purpose shall be avoided or not?</p> <p>Existing salt field/shrimp field will be affected for the project or not?</p> <p>What measures are to be taken for the possible marginal land owners of the project?</p> <p>Is there any special measure for the embankment protection?</p>	<p>save the possible small ponds and the big pond along the route with retention wall and there the top width of the road will be properly maintained.</p> <p>The existing drain is fully avoided.</p> <p>The road is designed with required box culvert, regulator, sluice gate etc. to produce the minimum intervention of the existing setup. And possibly the salt field/shrimp field will not be affected due to this access road project.</p> <p>The project will follow the minimum land use policy and in the unavoidable circumstances the possible marginal land owners will get the top up compensation (i.e. land price with financial aid), even for the construction material deposition temporary land shall be requisitioned</p> <p>With proper Hydrological study the embankment shall be designed to protect the embankment from erosion, surge effect etc.</p>
	<p>Fish hatchery/Shrimp Cultivation/Salt cultivation/4Production Tube-well might be in the project area</p> <p>What compensatory measures shall be taken for?</p>	<p>JICA principally avoid the private land use and resettlement for any project</p> <p>The possibility of the affect are underway to evaluate through socioeconomic and resettlement field survey</p> <p>The minimum private land is accepted for this project and the top up compensation shall be made for that</p>
	<p>Experience of past project compensation for the PAPs are not so good in Bangladesh</p> <p>What is the fate of the PAPs compensation in this project?</p>	<p>Nowadays the Project compensation is made before the start of any project work</p> <p>JICA has special care for the compensation of PAPs</p>
	<p>Land for the best quality road is not a problem for the local people</p>	<p>JICA is doing this project with best quality design and minimum land acquisition as because JICA don't encourage any resettlement</p>
	<p>Khash land (Government Land) shall be used than of Private land</p>	<p>JICA always encourage to use the Government owned land</p>
	<p>Road width shall be maintained in a way that the heavy vehicle can easily travel</p> <p>Local people shall get first priority to get the job opportunity of the project work during construction</p>	<p>Two lane 7.3m crest width road is designed for this project</p> <p>Local people will have the utmost priority to get the project job opportunity</p>
	<p>Crash Program for compensation should be taken for this project</p>	<p>Crash program shall be taken for compensation</p>
	<p>Jetty construction at the Bridge site shall be constructed so that existing waterway can be used</p> <p>Beautification of the Bridge site shall be made to encourage the tourism</p>	<p>Jetty at the Bridge side is approved by the RHD and beautification of the bridge site</p>

Participants	Comments	Responses/Sharing
	Women labor shall have the opportunity to get Job in this project	Women labor will get the priority to be employed during the construction of the project work
	RHD should design a sustainable road	Design of sustainable road is underway

(Source: JICA Study Team)

3.2.4 Focus Group Discussion (Finalizing stage)

The 2nd Focus Group Discussion (FGD) at each Union was planned and held instead of public consultation meeting.

Outline of FGD is shown in Table 3-33

Table 3-33 Outline of FGD in Finalizing Stage

Item	Kalarmachara Union	Matarbari Union	Dhalghata Union
Date	25 July 2013	27 July 2013	26 July 2013
Time	10:45am –12:45am	10:15am –12:15am	11:40am –1:00pm
Venue	Kalarmachara Union Parishad Office	Rajghat Government Primary School	Muhuri Guna Govt. Primary School in Dhalghata Union
Focused person	Ward Member (Male & Female), School Teacher, Religious Leader, Political Leader, Social Worker		
Participants	Local people: 25 persons	Local people: 31 persons	Local people: 22 persons
	Facilitator, Government and Local government officer, JICA Study Team	Facilitator, Government and Local government officer, JICA Study Team	Facilitator, Government and Local government officer, JICA Study Team

(Source: JICA Study Team)

(1) Kalarmachara Union

The result of FGD in Kalarmachara Union is shown in Table 3-34

Table 3-34 Comments by Participants and Response in the 2nd FGD in Kalarmachara

Item	Topics	Response
1.	Damages of House Structures	If there are, they will be compensated
2.	Compensation of the Damages	It will be covered by RHD
3.	Top up compensation should be made before the start of the Project Work	It will be covered by RHD

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Item	Topics	Response
4.	No objection for this project would come from the local people if everything goes well as per suggestion above	N/A
The pros of the project were deliberately shared by the participants with the following points:		
5.	Communication between Dhalghata and Matarbari will be developed i.e. most of the Dhalghata people and 2/3rd of the Matarbari people will use the new proposed bridge & road as because the existing bridge is not much functional to them at present.	N/A
6.	Fish/salt transportation of Dhalghata, Matarbari and Kalarmachara will be easier and ultimately this road will promote the business of these areas.	N/A
7.	Dropout of school going children will decrease.	N/A
8.	Female education will increase which will help to increase the total education rate of the project areas (female > male).	N/A
9.	Transport cost will be reduced remarkably	N/A
10.	Business centre will develop along the new road and Bridge ends	It will be considered by RHD and CPGCBL
11.	Migration of people (climate refugee) from Matarbari and Dhalghata will decrease	N/A
12.	Tourism will get a new shape for the construction of a new Bridge over Kohelia River and connectivity between Matarbari Sub-Island and Maheshkhali Island	N/A
13.	Health facilities will increase access of Ambulance to the remote areas and easy-quick transport facilities	N/A
14.	Pregnant women can avail easy-quick transport facilities if critical situation arises	N/A
15.	Security of the areas will be strengthened	N/A
16.	Social crime will decrease	N/A
17.	Land price will go up i.e. demand of land will increase	N/A
Special suggestions were made by the participants relating to the project components		
18.	Toilet facilities should have some points along the roads	It will be considered by RHD
19.	Ensure the Road Safety (especially for the child)	It will be considered by RHD
20.	Final road design should be shared with the Project Affected Persons (PAPs) in the project areas	It will be considered by RHD
21.	Security of the Construction materials should be taken care of by the Contractors	It will be considered by RHD
22.	Uninterrupted Material Transportation to the construction site will be ensured by the local people	It will be considered by RHD

Item	Topics	Response
23.	Improvement of the existing Jetty (good landing facilities of children/female; heavy loading and unloading facilities etc.) is a request	It will be considered by RHD
24.	Improved Jetty will help to keep the waterway communication of Dhalghata-Kalarmachara-Matarbari route	N/A
Facilities to the Implementing Authorities and PAPs		
25.	Security of the Constructions Materials is first and foremost important thing.	It will be considered by RHD
26.	Temporary land acquisition (if possible) will do instead of unnecessary permanent acquisition of land especially for storage of construction materials.	It will be considered by RHD
27.	Project Work Should be started after land acquisition with top up compensation	It will be considered by RHD
28.	A well defined work plan shall be shared with local people before the commencement of the project	It will be considered by RHD
In reply of the use of the land of Yunuskhali to Power Plant Site via Nayaghata Jetty, if Road & Bridge is not built, one answer was pronounced by the participants.		
29.	Fate of the local people will remain unchanged	N/A
The FGD was concluded with thanking each other and assuring necessary cooperation in future.		

(Source: JICA Study Team)

(2) Matarbari Union

The result of FGD in Matarbari Union is shown in Table 3-35.

Table 3-35 Comments by Participants and response in the 2nd FGD in Matarbari

Item	Topics	Response
1.	Land loss for the Power Plant Project shall be maximum	It will be compensated by CPGCBL
2.	Assuming significant environmental deterioration due to Power Plant	Environment friendly Technology shall be Installed by the CPGCBL
3.	Top up compensation should be made before the start of the Project Work	It will be Covered by RHD
4.	No objection for this project would come from the local people if everything goes well as per suggestion above	N/A
The pros of the project were deliberately shared by the participants with the following points:		
5.	Communication between Matarbari and Maheshkhali Upazilla will be shortened and 2/3 rd people will use the new proposed	N/A

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Item	Topics	Response
	bridge & road as because the existing bridge is not much functional to them at present.	
6.	Fish/salt transportation will be easier	N/A
7.	Female education will increase which will help to increase the total education rate of the project areas (female >male).	N/A
8.	Transport cost will be reduced remarkably	N/A
9.	Health facilities will increase due to access of Ambulance to the remote areas and easy-quick transport facilities as well	N/A
10.	Pregnant women can avail easy-quick transport facilities if critical situation arises	N/A
11.	Security of the area will be strengthened	N/A
12.	Social crime will decrease	N/A
13.	Land price will goes up i.e. demand of land will increase	N/A
14.	Factory i.e. Ice, Hatchery, Salt Processing, Fish Processing etc. will establish	N/A
15.	Job opportunity and Job Migration will create	N/A
16.	Day labourer, Rickshaw Puller will earn better	N/A
17.	Overall local economy will boost up	N/A
Special suggestions were made by the participants relating to the project components		
18.	Rangakhali to Billpara Road is highly important in addition to the access road which will shorten the road distance with Yunuskhali and Maheshkhali Upazilla	N/A
19.	For the protection/sustainability of the Power Plant as well as the protection of Matarbari Union, a well designed Ring Road is highly required	N/A
20.	Security of the Construction materials should be taken care of by the Contractors	It will be considered by RHD
21.	Uninterrupted Material Transportation to the construction site will be ensured by the local people	It will be considered by RHD
Facilities to the Implementing Authorities and PAPs		
22.	Security of the Constructions Materials is first and foremost important thing	It will be considered by RHD
23.	Temporary land acquisition (if possible) will do instead of unnecessary permanent acquisition of land especially for storage of construction materials.	It will be considered by RHD
24.	Project Work Should be started after land acquisition with top up compensation	It will be considered by RHD
25.	A well defined work plan shall be shared with local people before the commencement of the project	It will be considered by RHD

Item	Topics	Response
In reply of the land use of Rangakhali for the Power Plant access road, if Road & Bridge is not built, one answer was pronounced by the participants.		
26.	Fate of the local people will remain unchanged even the existence of Matarbari might be questionable	N/A
The FGD was concluded with thanking each other and assuring necessary cooperation in future.		

(Source: JICA Study Team)

(3) Dhalghata Union

The result of FGD in Dhalghata Union is shown in Table 3-36

Table 3-36 Comments by Participants and Response in the 2nd FGD in Dhalghata

Item	Topics	Response
	Land loss for the Power Plant Project shall be maximum	It will be compensated by CPGCBL
	Assuming significant environmental deterioration due to Power Plant	Environment friendly Technology shall be Installed by the CPGCBL
	Top up compensation should be made before the start of the Project Work	It will be Covered by CPGCBL
	No objection for this project would come from the local people if everything goes well as per suggestion above	N/A
The pros of the project were deliberately shared by the participants with the following points:		
	Communication between Dhalghata and Maheshkhali Upazilla will be easier i.e. most of the Dhalghata people will use the new proposed bridge & road as because the existing bridge is not much functional to them at present.	N/A
	Fish/salt transportation will be easier	N/A
	Female education will increase which will help to increase the total education rate of the project areas (female > male).	N/A
	Transport cost will be reduced remarkably	N/A
	Migration of people (climate refugee) will remarkably decrease and the migrated people will return to their homestead	N/A
	Health facilities will increase the access of Ambulance to the remote areas and easy-quick transport facilities as well	N/A
	Pregnant women can avail easy-quick transport facilities if critical situation arises	N/A
	Security of the areas will be strengthened and ultimately the pirates attack and torture to the female/child will be bunged up	N/A
	Social crime will decrease	N/A

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Item	Topics	Response
	Land price will goes up i.e. demand of land will increase	N/A
	Factory i.e. Ice, Hatchery, Salt Processing, Fish Processing etc. will establish	N/A
	Job opportunity and Job Migration will create	N/A
Special suggestions were made by the participants relating to the project components		
	Rangakhali to Muhurighona via Bangabandhu Road is highly important to be connected shortly with Yunuskhali and Maheshkhali Upazilla by road	N/A
	For the protection/sustainability of the Power Plant as well as the protection of Dhalghat Union, a well designed Ring Road is highly required	N/A
	Security of the Construction materials should be taken care of by the Contractors	It will be considered by RHD
	Uninterrupted Material Transportation to the construction site will be ensured by the local people	It will be considered by RHD
Facilities to the Implementing Authorities and PAPs		
	Security of the Constructions Materials is first and foremost important thing.	It will be considered by RHD
In reply of the land use for the Power Plant Project if Road & Bridge is not built, one answer was pronounced by the participants.		
	Fate of the local people will remain unchanged even the existence of Dhalghata might be questionable.	N/A
The FGD was concluded with thanking each other and assuring necessary cooperation in future.		

(Source: JICA Study Team)

4 Detailed Description of Impacts and Category of PAPs

4.1 Access Road

4.1.1 Pre-construction Phase and Construction Phase

(1) Land Acquisition

Findings: No household is currently living on the site (Table 4-1) without permission and no household have to vacate their domiciles due to the land acquisition for the construction of the access road. But land owners of the project site area will lose their some land. Only 5 employees of shrimp farms will lose their means of livelihood from those lands.

Mitigation Measures: Only a compensation plan for affected people shall be established.

Table 4-1 Anticipated Social Impact to Households (Titleholder & non-titleholder)

Category		Impact	No. of HH (cumulative)	No. of HH Members (cumulative)
Titleholders (Owners of private land)				
	Own & live	Lose land ownership Lose shelters and be physically displaced	0	0
	Own but do not live	Lose land ownership	4	21
	Own and cultivate	Lose land ownership	52	217
	Total		56	238
Non-titleholders				
	Users of private land (estimated lease in)	Lose tenant rights	8	43
	Users of government land with official agreement	Lose tenant rights	15	79
	Users of government land without official agreement	Lose occupancy of land	0	0
	Squatters living on government land	Lose occupancy of land for living place Lose shelters and be physically displaced	0	0
	Total		23	122

Note: HH means household.

(Source: JICA Study Team)

(2) Disturbance to Poor People

Findings: There are poor households whose land will be affected but not their livelihood as they are not dependent fully on the land which will be occupied.

Mitigation Measures: Their living conditions will not deteriorate compared to their current conditions, and they will have job opportunities at the construction site.

(3) Social Institutions such as Social Infrastructure and Local Decision-making Institutions

Findings: Laws of Bangladesh stipulate the need to conduct public consultations in land acquisition processes. The Deputy Commissioner's Office of Cox's Bazar District will officially take responsibility for initiatives to conduct local consultations concerning compensation.

Mitigation Measures: A number of consultations with local residents have been conducted in preparing the draft LARAP.

(4) Gender

Findings: No women headed household was there from the potential PAPs.

(5) Infectious Diseases such as HIV/AIDS

Findings: A temporary influx of migrant labor during the construction period will be there but they will not have any risk of sexual transmitted diseases .as the area is highly conservative area where any kind of sexual activity by outsider will not be tolerated by the members of the society. Therefore such risk is unlikely to be there as access to sex would be rare.

(6) Work Environment (Including Work Safety)

Findings: A risk of accidents is predicted for the construction work.

Mitigation Measures: Construction companies should establish work safety plans and submit them to RHD to obtain approval. Work safety plans should stipulate mitigation measures on soft aspects (safety training, etc.) and hard aspects (provide workers with appropriate protective equipment, etc.).

(7) Accidents

Findings: During land traffic after construction accidents may occur.

Mitigation Measures: Observation of traffic regulations, installation of traffic signs, and training and education on safe driving shall be conducted for land traffic vehicles.

4.2 Entitlement for Different Types of Losses

Based on the findings and analyses in the field surveys, the entitlement matrix for the PAPs at the construction site of access road has been drafted as in the table below:

Table 4-2 Entitlement Matrix for PAPs of Access Road

SL No.	Type of loss or disturbance	Entitled Person (EP)	Entitlements	Additional services	Expected Results
1.	Loss of agriculture land	Legal owner of the land at the time of serving notice under section 3 of LA Laws.	i. CCL (Market value assessed by DC plus 50% premium as per Law) ii. Additional grants to cover difference between CCL and Maximum Allowable Replacement Value (MARV) of land determined by PVAT. iii. Refund of registration cost incurred for replacement land purchase at the replacement value determined by a legally constituted body (PVAT)	i. Owners-Cultivators being head of household (as identified by NGO survey) not able to purchase replacement agricultural land before eviction will be entitled to a one time maintenance grant of Tk. 10,000.00	Replacement of land or the value to the APs
2.	Loss of homestead land	Legal owner of the land at the time of serving notice under section 3 of LA Laws	i. CCL (Market value assessed by DC plus 50% premium as per Law) ii. Additional grants to cover difference between CCL and Maximum Allowable Replacement Value (MARV) of land determined by PVAT. iii. Refund of registration cost incurred for replacement land purchase at the replacement	i. Resettlement Site(s): Each of the displaced household who opts for self relocation elsewhere other than the resettlement site shall be given a one time cash grant of Tk. 1,00,000.00 for purchasing new homestead land.	Replace of land or the value to the APs

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

SL No.	Type of loss or disturbance	Entitled Person (EP)	Entitlements	Additional services	Expected Results
			value determined by a legally constituted body (PVAT)		
3.	Loss of residential/commercial structure	Legal Titleholder Owner(s) of the structures identified by DC	<p>i. CCL (Market value assessed by DC plus 50% premium as per Law)</p> <p>ii. Additional grants to cover difference between CCL and Maximum Allowable Replacement Value (MARV) of land determined by PVAT.</p>	<p>i. Transfer grant (TG) @ 12.5% of the value of non-masonry (kutcha) and semi-pucca and 5% for masonry (pucca) assessed by PVAT.</p> <p>ii. Owner will be allowed to take all salvaged materials at free of cost without delaying.</p> <p>iii. Reconstruction grant (RG) @ 12.5% of the value of all structures assess by PVAT for title owners.</p> <p>iv. Special assistance for Female Headed/ Vulnerable Households @ Tk. 5,000, Tk. 7,000, and Tk. 10,000 for kutcha, semi-pucca and (pucca) structure.</p> <p>v. Special Assistance of Tk. 10.000 for Vulnerable Households having disabled member in the family.</p>	Reconstruction of structure at a new site
4.	Loss of Access to Cultivable Land by Farmers, Tenant/ Sharecroppers including cultivations of Khas land	Farmers, tenants and sharecroppers of the land under contract as identified by the SES to be conducted during implementation of RP.	i. Transition Allowance equivalent to one year's net income from the cultivable land to farmer, tenant/ sharecropper, based on Market value of the Crop/fish.		Compensation for loss of access to farm land
5.	Loss of economically valuable perennials	Legal owner of the land where the full grown trees are	i. CCL (Market value assessed by DC plus 50% premium as per	i. EPs will be given free 10 sapling of their choice at new homestead.	Compensation for full grown trees.

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

SL No.	Type of loss or disturbance	Entitled Person (EP)	Entitlements	Additional services	Expected Results
		located at the time of serving notice under section 3 of LA Laws.	Law)	ii. EPs will be allowed to cut the trees and take it away free of cost if they wish so.	
6.	Loss of standing crops	Legal owner of the land where standing crops are located at the time of serving notice under section 3 of LA Laws.	i. CCL (Market value assessed by DC)	I. EPs will be allowed to cut the crops and take it away free of cost if they wish so.	Compensation for standing crops.
7.	Loss of Access to house/ commercial structure (rented or leased)	Tenants renting/leasing the property as identified by the SES	i. One time cash grant for facilitating alternative housing/ structure assessed by PVAT		Alternate rental arrangement
8.	Loss of residence by informal settlers/ encroachers or unauthorized occupants	Heads of Household occupying homestead land illegally or squatting as identified by SES.	i. Compensation for the lost structure (if owner) as per assessed value/ price by DC provided certified by the land owner	i. The owner's income is under the poverty line will get paid training and cash grant under income generation program (IGP) ii. Transfer grant (TG) @ 12.5% of the value of non-masonry (kutcha) and semi-pucca and 5% for masonry (pucca) assessed by PVAT iii. Owner will be allowed to take all salvaged materials at free of cost without delaying.	Alternate rental arrangement
9.	Loss of Business by shops/ business owners due to dislocation	Owner/ Operator of the business as recorded by the SES	i. Business Restoration Grant to owners, renters and leaseholders assessed by PVAT ii. Non titled shop owners above the poverty line will		Alternate business restoration

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

SL No.	Type of loss or disturbance	Entitled Person (EP)	Entitlements	Additional services	Expected Results
			not be eligible for business restoration Grant.		
10.	Loss of Income Employment/ Work Opportunity of Full Time/ Part Time Workers	Workers of affected business as recorded the SES	i. One time cash grant for 30/90 days at the rate of local wage rate (30 days in commercial area and 90 days in agriculture area)		Subsistence and income in post displaced period
11.	Poor and vulnerable	Poor and vulnerable household including informal settler, squatters/ non titled APs identified by SES	i. Paid Training and cash grant under income generation program (IGP)	i. Additional cash grant of Tk. 10,000 for affected women headed households and other vulnerable households. ii. Advantages on qualification for employment will be given.	Poverty reduction measures and development
12.	Loss of Access to Utility Services such as Piped water supply, Electricity, Sewerage line or Telephone	Legal owner of the structure with utility services at the time of serving LA notice Section 3 or only the legal owner of the Utility Service as identified by SES	i. CCL (Market value assessed by DC plus 50% premium as per Law) ii. Additional grant to cover difference between CCL and Maximum Allowable Replacement Value (MARV) of structure determined by PAVT.	i. One time Cash grant to transfer/Re-installment of the utility services to new location	Reconstruction of structure at a new site
13.	Loss of community facilities/ common property resources by APs	Community as a whole where the PAs will relocate	i. CCL (Market value assessed by DC plus 50% premium as per Law) ii. Additional grant to cover difference between CCL and Maximum Allowable Replacement Value (MARV)	i. Transfer grant (TG) @ 12.5% of the value of non-masonry (kutchra) and semi-pucca and 5% for masonry (pucca) assessed by PVAT ii. Owner will be allowed to take all salvaged materials at free of cost without delaying. iii. Reconstruction grant	Restoration of community structure for common benefits.

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

SL No.	Type of loss or disturbance	Entitled Person (EP)	Entitlements	Additional services	Expected Results
			of structure determined by PAVT.	(RG) @ 12.5% of the value of all structures assessed by PVAT	
14.	Adverse impact on the Host Communities due to relocation of APs during and after Project implementation	Affected or host area/village where the APs will relocate	i. Provision for additional civic amenities (roads, plantation, tube-well for drinking water, community slab latrines and drainage to community facilities)		Development of cluster settlements assisted by EA
15	Loss of agriculture/ homestead land	Legal owner of the land at the time of serving notice under section 3 of LA Laws.	As mentioned Sl. 1 and 2	As mentioned Sl. 1 and 2 Special provision: The EA will give preference to the nominated members of the displaced and other affected households in the matter of employment. The order of preference will be as follows: (i) Displaced household losing all land including homestead land, (ii) Displace household losing more than 2/3 rd of agricultural land and homestead land (iii) Household losing all agricultural land but not homestead land, (iv) Displaced household losing more than 1/3 rd of agricultural land and homestead land. (v) Displaced household losing only homestead land but not agricultural land vi. Household losing only agricultural land in part but not homestead	

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

SL No.	Type of loss or disturbance	Entitled Person (EP)	Entitlements	Additional services	Expected Results
				land. As far as practicable, the objective shall be to provide one member from each displaced / other household as mentioned above with employment in the project. However, where the same cannot be provided because of reason to be explained in writing, cash compensation as mentioned below shall be provided to such displaced households. (a) Displaced households coming under category (i) Tk. 7.50 lakh Displaced (b) Displaced households coming under category (ii) Tk. 4.50 lakh (c) Displaced households coming under category (iii)- Tk. 3.0 lac (d) Displaced households coming under category (iv. v. vi)- Tk. 1.50 lakh	
16.	Loss of income not having scope of investment in the area	Households who have land or other assets in the project area	i. 6% of the households' annual income for each year as per growth rate of the country.		Income augmentation of the affected households
17.	Any other loss not identified	Unanticipated involuntary impacts caused to any AP	i. Determined by Joint Verification Team (JVT)		Mitigate all types of loss incurred to APs

(Source: JICA Study Team)

A land and property valuation survey based on the prices recorded from formal and informal

sources as below will determine the RV of land and structures:

- Government price
- Potential sales price
- Potential buyer price
- Enumerated price collected in the socioeconomic survey
- Price deemed appropriate as quoted by a retired government officer living in the vicinity
- Price deemed appropriate as quoted by local intellectuals
- Price deemed appropriate as quoted by religious leaders

For the valuation of affected property, a legal body called “Property Valuation Advisory Team” (PVAT) should be formed with a neutral position to obtain endorsement on the valuations from the GOB. The PVAT shall be comprised of representatives from the DC Office, RHD, and the Ministry of Communication (MOC). The PVAT will recommend the replacement values of land and structures to the MOC. RHD will pay the difference between the RV and the compensation under law (CUL). In the case of any depreciation costs deducted from affected structures in the CUL by the DC, RHD will pay the same as additional construction grants to re-settlers. It will also pay stamp duty and land registration fees when replacement land purchases are confirmed.

5 Livelihood Restoration and Improvement Plan

For the access road construction, land acquisition will be required, but no resettlement is expected. Therefore any PAPs will not be affected on their livelihood. However if they are affected, livelihood restoration and improvement measures will be implemented as needed.

6 Specific Measures to be Provided to Vulnerable Groups and Income Rehabilitation Assistance

According to the socio-economic survey, it is confirmed that there is no household who is regarded as Vulnerable Group. If such household regarded as Vulnerable Group is identified, proper support measures will be taken as needed. (Table 4-2 sl. 11).

7 Organizational Responsibilities and Implementation Procedures

The following figure shows the implementation schedule of LARAP. Major actions taken by RHD are summarized down below:

7.1 Finalization of land acquisition and resettlement action plan

RHD is the implementing agency of the project, and the Deputy Commissioner's Office of Cox's Bazar district is the immediate organization for affected people to consult for compensation as stipulated in the Ordinance 1982. RHD will prepare and submit an application for land acquisition to MOC and make a request to DC of Cox's Bazar. It will also prepare and submit the Resettlement Action Plan (RAP) to MOC.

It will allocate the required budget for Additional Grant (AG) on top of DC's payment for land and Resettlement Benefits (RBs), which are to be approved by the GOB.

7.2 Data collection and EP identification

RHD will, as shown in Figure 6-2 below, deploy adequate human resources for supervision, consultation, and monitoring of land acquisition, resettlement and rehabilitation activities during project implementation.

RHD, in line with the DC, will design and conduct a socioeconomic survey and collect data. A supplemental survey can be conducted to obtain additional key information and update all the data, and the RAP should be revised if required. ID cards, Eligible Person (EP) files, and Entitlement Cards will be issued at this stage. It is desirable to formulate an inventory verification committee to ensure if this procedure is properly implemented among the affected people.

7.3 Local consultation and information management

RHD will prepare an information brochure for information dissemination. Local consultations such as public consultation meetings and focus group discussion should be organized to ensure if project affected people keep informed of the project implementation process, benefits and losses, environmental and social impact, etc. For effective information sharing, it is recommended to conduct such meetings not only for the affected people but local residents living in the surrounding area. Meetings can be conducted and brochure be distributed at local markets.

7.4 Finalization of budget

In order to ensure proper valuation, RHD will set up a property valuation advisory committee (PVAC) at this stage to assess the assets value.

7.5 Implementation of land acquisition and resettlement

The Deputy Commissioner will pay the cash compensation under Law (CCL) for the affected lands, structures crops and trees to the EPs. RHD will pay the AG on top of DC's payment for the lands ad other RBs to the EPs. RHD is responsible for assisting EPs purchase land and relocating, and encouraging them to take advantage of the livelihood rehabilitation/improvement program. RHD will set up a grievance redress committee (GRC) for receiving grievance from stakeholders including the affected people (see next chapter for further detail on GRC). To implement the land acquisition and resettlement, a resettlement advisory committee is recommended to be formulated for RHD to ensure proper implementation of resettlement. Tentative land acquisition schedule is shown in Table 7-1.

7.6 Monitoring

Appropriate reporting including auditing and redress functions, monitoring and evaluation mechanisms will be identified and set in place as part of the resettlement management system. In addition to an internal monitoring conducted by RHD, an external monitoring group should be hired that will evaluate the resettlement process and final outcome.

Table 7-1 Tentative Land Acquisition Schedule

(This table has been removed because of confidential information.)

8 Grievance Redress Mechanisms

Other than the grievance redress mechanism stipulated by the Ordinance 1982, RHD will make efforts at project level to resolve grievances through negotiations involving representatives of PAPs, village heads and Union Parishad Chairmen. The Project Director will allocate a resettlement officer at the project office, who deals with such negotiations up front. The resettlement officer will be the entry point and receive all the inquiries, concerns and complaints directly from PAPs. A notebook will also be installed at the project office entrance for anybody to write suggestions anonymously.

A grievance redress committee at project site will convene meetings monthly. Non-regular meetings will also be held ad-hoc basis as necessary at such places as it is considered appropriate (such as village, union, etc.) for dealing with urgent matters. The proceedings (or minutes of meetings) will be made with the object to promptly address the concerns and complaints using an accessible and transparent process to the PAPs, and to bring an amicable settlement between the parties. All reports will be recorded in Bengali language and provided to all parties concerned.

The committee at project level will include the following people:

- Resettlement Officer
- Representative from local NGO/CBOs
- Representatives of PAPs
- Representative from local government
- Local intellectuals or religious figures, who would represent the residents of the project area and be publicly known to be persons of integrity, good judgment and commands respect.

8.1 Entitlement for Different Types of Losses

In case dispute is not resolved at local level, the matter will be placed before a grievance resolution committee at the Upazilla level. The Upazilla Nirbahi Officer will chair the committee comprised of the project level GRC members, Project Engineers and legal advisors.

In case dispute still continues, the UNO will make a decision regarding entitlement and compensation, and the decision taken during negotiations and the meetings will be formally recorded for future reference and presentation in the court, if necessary.

If the matter cannot be resolved at the Upazilla level, complaints will be referred to the Project Director (PD), who will head a committee jointly with the Deputy Commissioner. Members of

GRC at the Upazilla level (including those at the project level) are summoned at any time for inquiry from PD and DC.

Steps for grievance are shown in the diagram below for easy reference. There will be no cost required when residents appeal to the authorities at each level. Each committee is responsible to solve the issues raised by the residents within 45 days.

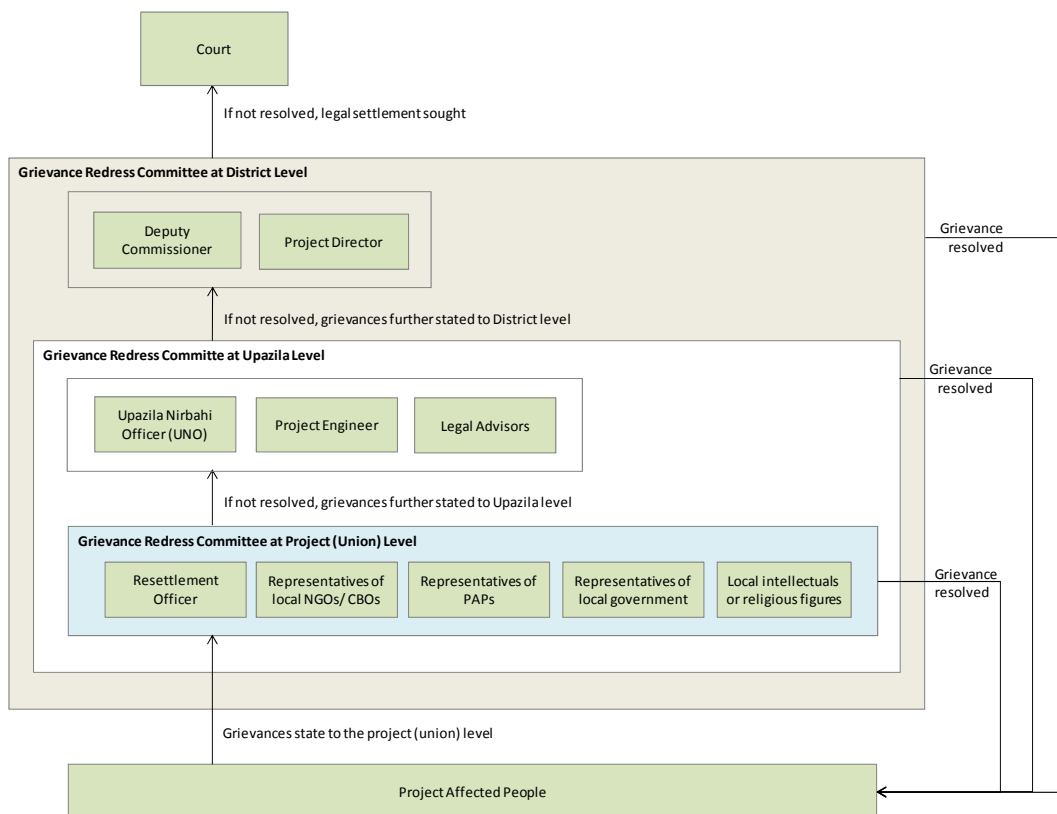


Figure 8-1 Flow of Grievance Redress

9 Estimated Land Acquisition and Resettlement Cost

9.1 Access road

Budget allocation will be fully committed by RHD and made available to cover the costs of land acquisition within the agreed implementation period. In addition to the compensation stipulated by the Ordinance 1982, RHD will be required to finance those non-titleholders. All the compensation will be done according to the principle of the replacement cost, which will require RHD to pay the gap between CUL and the replacement value (top up).

Based on the entitlement matrix for the PAPs shown in Table 4-2 the compensation package for the PAPs at the construction site of access road has been drafted as in the tables below. Values appearing in the tables, such as land, income, standing crops etc., were the figures collected from the local residents through socioeconomic survey.

(1) Loss of private land

Table 9-1 Acquisition of Private Land from Legal Owners

(This table has been removed because of confidential information.)

Table 9-2 Acquisition of Private Land from Tenants and Lessee

(This table has been removed because of confidential information.)

Table 9-3 Assistance for Transition in Recovering Loss of Income from Own Business or Self-employment

(This table has been removed because of confidential information.)

(2) Loss of standing crops at home gardens, shrimp and fish

Table 9-4 Assistance for Transition in Recovering Loss of Income from Livelihood Means

(This table has been removed because of confidential information.)

(3) Loss of timber and fruit bearing trees

Table 9-5 Assistance for Transition in Recovering Loss of Trees

(This table has been removed because of confidential information.)

(4) Temporary loss of land during construction

Not applicable.

(5) Temporary loss of access to land, structure, utilities, common property resource during construction

Not applicable.

(6) Temporary loss of livelihood/source of income during construction

If the existing jetty will be demolished and no temporary jetty will be provided, the boatmen's income will be affected. In that case provision shall be kept for their compensation which would

be for 3 years, perday income would be not less thast BDT 700-800. This is just tentative figure and actual conditions shall be confirmed later.

Table 9-6 Compensation for PAPs at Access Road Site

(This table has been removed because of confidential information.)

10 Local Consultation, Participation, Monitoring and Evaluation Procedures

10.1 Further Consultation Process

The PAPs and their communities will be further consulted about the access road, the rights and options available to them, and the proposed mitigation measures for adverse effects, and to all extents possible they will be involved in the decision-making process concerning their resettlement. The PAPs will receive prior notification of the compensation and other assistance available to them.

RHD will be responsible to hold and conduct a number of consultations with primary and secondary stakeholders and information dissemination on the following issues:

- The relevant details of the access road
- The RP and various degrees of access road impact
- Details of entitlements under the RP and what is required of PAPs in order to claim their entitlements
- Compensation process and compensation rates
- Relocation and resettlement site development operation in order to obtain agreement and support of affected people in participating in these operations
- Implementation schedule and timetable for the delivery of entitlements

Local participation should be spontaneously encouraged and information be made available during the preparation and implementations of the LARAP and at the minimum include community meetings and focus groups discussions. Information dissemination can be done not only for the access road affected people but non-affected people out of the project site for sharing proper knowledge on the project with broader channels.

10.2 Monitoring and Evaluation Procedures

Appropriate reporting (including auditing and redress functions), monitoring and evaluation mechanisms, will be identified and set in place as part of the resettlement management system. An external monitoring group needs to be hired by the access road implementation authority and will evaluate the resettlement process and final outcome.

An Environmental Monitoring Plan will be prepared to provide guidelines for the construction activities of the access road. The environmental components to be monitored are those that will be positively or negatively affected, or expected to be affected, by the construction activities.

The purpose of creating an Environmental Monitoring Plan for the construction of the access road is to:

- Confirm that mitigation measures shall reduce any negative impacts on the environment to allowable levels during the construction and operation phases.
- Set up an organization that is responsible for the implementation of monitoring the plan.
- Perform appropriate monitoring during the construction and operation phases.

Table 10-1 Contents of Environmental Management Plan and Monitoring Plan

Item	Impact	Targeted Range	Contents of Environmental Management Plan	Contents of Monitoring Plan
Resettlement	- Land Acquisition and Resettlement	- Around the access road	-Preparation of LARAP	- Monitoring the progress of land acquisition and resettlement - Grievances from residents
Social Infrastructure	- Increase of traffic during construction phase	- Around access road site	- Reschedule construction schedule	- Grievances from residents

The following table shows the performance monitoring form for land acquisition, resettlement and assistance for transition of the access road affected people, impact monitoring during implementation and performance evaluation after access road implementation.

Table 10-2 Monitoring Form 1 (for Performance Monitoring of Resettlement Action Plan)

Procedure	Indicator (specific step/action)	Unit	Year 1				Year 2				Comments	
			1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr		
Staffing and Management												
Recruitment, training and deployment of staff / expert in charge	1.	Deployment of (an) officer(s) / expert(s) in charge of land acquisition	Man-months									
	2.	Deployment of resettlement officer(s) / expert(s)	Man-months									
	3.	Training and mobilization of officers-in-charge (if required)	No. of trained personnel									
Supervision and Management	1.	Supply of manpower and logistics	No. of persons									
	2.	Liaison with other agencies (ex. DC Office, Upazilla Nirbahi Office, Union Parishads etc.)	No. of meetings									
	3.	Eidmoni management	Month									
Finalization of land acquisition and resettlement action plan												
Finalization of land acquisition	1.	Preparation of an application for land acquisition	%									
	2.	Submission of application to MOC and make a request to the Deputy Commissioner of Cox's Bazar	Date of submission									
	3.	Approval of land acquisition by the GOB	Date of approval									
Adoption of the Resettlement Action Plan	1.	Review of the draft Resettlement Action Plan (RAP)	%									
	2.	Submission of application to MOC and make a request to the Deputy Commissioner of Cox's Bazar District for implementation of RAP in line with land acquisition	Date of submission									
	3.	Approval of RAP	Date of approval									
Identification of eligible persons												
Socioeconomic Survey (in liaison with DC office)	1.	Survey design	Time									
	2.	Field Survey and collection of data	%									
	3.	Computerization of field data	%									
	4.	Data analysis and report processing	%									

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Procedure	Indicator (specific step/action)		Unit	Year 1				Year 2				Comments
				1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
	5.	Preparation of ID card, EP file, and Entitlement Cards	%									
Identification of Eligible Persons (in liaison with DC office)	1.	Collection of award data	No. of EPs									
	2.	Assigning ID numbers	No. of EPs									
	3.	Photographing of EPs	No. of EPs									
	4.	Issuance of ID cards	No. of EPs									
	5.	Distribution of ID cards	No. of EPs									
Local consultation and information management												
Information Management (in liaison with DC office)	1.	Preparation of information brochure	%									
	2.	Distribute information brochure	No. distributed									
	3.	Personal contacts	No. contacted									
	4.	Local consultations (ex. public consultation meetings, focus group discussions (FGD) s, etc.)	No of consultations									
Budgeting												
Valuation of affected property (in liaison with DC office)	1.	Formation of Property Valuation Advisory Committee (PVAC)	%									
	2.	Planning for valuation	%									
	3.	Communication and collection of data	%									
	4.	Valuation	%									
	5.	Finalization of resettlement budget	%									
Implementation of land acquisition and resettlement												
Payment of compensation for land acquisition (in liaison with DC office)	1	Motivate Eligible Persons (EP)	No. of EPs									
	2	Assist EPs to collect Cash Compensation under Law (CCL)	No. of EPs									
	3	Organize top-up payment to fill the gap between CUL and RV	No. of EPs									
Relocation of Project Affected Persons (in liaison with DC office)	1.	Motivate Eligible Persons (EP)	No. of EPs									
	2.	Payment of Transfer Grant	No. of EPs									
	3	Assist EPs in replacement land purchase/Relocation	No. of cases									
Resettlement of Project Affected Persons (in liaison with DC office)	1.	Assist EPs to collect Cash Compensation under Law (CCL)	No. of EPs									
	2.	Organize top-up payment to fill the gap between CUL and RV	No. of EPs									

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Procedure	Indicator (specific step/action)		Unit	Year 1				Year 2				Comments	
				1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr		
	3.	Assist vulnerable EPs in resettlement	No. of EPs										
Assistance in transition (in liaison with DC office)	1.	Motivate EPs to join the livelihood rehabilitation / improvement program	No of EPs										
	2.	Literacy class	No of class										
			No of attendance										
	3.	Skill trainings	No o trainings offered										
			No of trained personnel										
	4.	Job opportunities at power station and associated facilities	No of posts offered to EPs										
			No of employed EPs										
	Grievance Redress (in liaison with DC office)	1.	Formation of Grievance Redress Committee (GRC)	No. of members									
2.		Publicizing/notifying of GRC	%										
3.		Receiving grievance from stakeholders	No. of cases										
4.		Resolving grievances	No. of cases (%)										
5.		Other claim/criticism	No. of cases										
Report processing													
Performance Reporting	1.	Inception report	Date of submission										
	2.	Monthly progress report	Date of submission										
	3.	Draft final report	Date of submission										
	4.	Final report	Date of submission										

Table 10-3 Monitoring Form 2 (for Impact Monitoring during Project Implementation)

Indicator	Unit (Standard value)	Year 1				Year 2				Comments
		1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
Grievance redress mechanism										
Grievance submitted by the stakeholders	Number of cases									
Grievance resolved	No. of cases (%)									
Other claim/criticism	No. of cases									
Land acquisition and compensation										
Households losing their own land	No of HHs (%)									
Households losing their domicile on their own land	No of HHs (%)									
Households losing their renting land (private land)	No of HHs (%)									
Households losing their renting land (government land)	No of HHs (%)									
Households losing their occupancy on khas land	No of HHs (%)									
Households losing their illegal domicile on government land	No of HHs (%)									
Households losing income from own land	No of HHs (%)									
Households losing income from own livelihood activities	No of HHs (%)									
Households losing income from own business	No of HHs (%)									
Households losing income from standing crops	No of HHs (%)									
Compensation completed	No. of cases (%)									
Household economy										
Project affected household that lacks the source of income	No of HHs (%)									
Project affected household with reduced monthly income	No of HHs (%)									
Livelihood restoration										
Literacy class	Number (%)									
Job training conducted	No. of courses									
PAPs (age over 16) that received job training	Number (%)									
Compensated/relocated structure for	Number (%)									

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Indicator	Unit (Standard value)	Year 1				Year 2				Comments
		1st qtr	2nd qtr	3rd qtr	4th qtr	1st qtr	2nd qtr	3rd qtr	4th qtr	
business (e.g. shop, garage, etc)										
Allocation of substitute farmland	Area (%)									
Substitute farmland being utilized	Area (%)									
Employment of project affected people (age over 16) by the project	No. of PAPs (%)									
Employment of female PAPs (age over 16) by the project	No. of PAPs (%)									
Child labour	No. of children									
Provision of personal protective equipment (PPE)	PAPs provided with PPE (100%)									
Labour accident	No. of cases									
Jetty	Number (%)									

Annex-I
Participants' List of SHM and FGDs

A. Second Stakeholder Meeting (SHM-2)

Sl.No.	Name	Designation	Organization	Mobile No.
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Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Sl.No.	Name	Designation	Organization	Mobile No.
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Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Sl.No.	Name	Designation	Organization	Mobile No.
51.				
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B. Focus Group Discussion (FGD)-Kalarmachara

Sl. No.	Name	Occupation	Mobile No.
1			
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25			

C. Focus Group Discussion (FGD)-Dhalgha

Sl.	Name	Occupation	Mobile No.
1			
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7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

D. Focus Group Discussion (FGD)-Matarbari

Sl.	Name	Occupation	Mobile No.
1			
2			
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9			
10			
11			
12			
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14			
15			
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23			

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Sl.	Name	Occupation	Mobile No.
24			
25			
26			
27			
28			
29			
30			
31			

Annex-II

Plot Details of Access Road Project

A. Mouza:Yunuskhali , Union:Kalarmachara ,Thana: Maeshkhali

Sl. No.	Owners Name	Plot No./ Dag No.	BS khatian	Land Type (Indigenous Typology)	Land Acquisition (m²)	Remarks
1						
2						
3						
4						
5						
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12						
13						

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Sl. No.	Owners Name	Plot No./ Dag No.	BS khatian	Land Type (Indigenous Typology)	Land Acquisition (m ²)	Remarks
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
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32						
33						
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Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Sl. No.	Owners Name	Plot No./ Dag No.	BS khatian	Land Type (Indigenous Typology)	Land Acquisition (m ²)	Remarks
35						
36						
37						
38						
39						
40						
41						
42						
43						

B. Mouza: Matarbari , Union: Matarbari, Thana: Maeshkhali,

Sl. No.	Owners Name	Plot No./ Dag No.	BS khatian	Land Type	Land Acquisition (m ²)	Remarks
1						
2						
3						
4						
5						
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12						
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14						
15						
16						
17						

Land Acquisition and Resettlement Action Plan (LARAP)
for the Access Road of Matarbari Coal Fired Power Plant Development Project

Sl. No.	Owners Name	Plot No./ Dag No.	BS khatian	Land Type	Land Acquisition (m ²)	Remarks
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

C. Mc

Sl. No.
1

Summary of Plot Details:

(This table has been removed because of confidential information.)

Appendix-C15.9-3

Materials for public consultation meeting

1st meeting

14th November, 2012

মাতারবাড়ি ২x৬০০ মেঃওঃ কয়লাভিত্তিক তাপ বিদ্যুৎ
কেন্দ্র ও আনুষঙ্গিক সুবিধাদি নির্মাণ প্রকল্প



কোল পাওয়ার জেনারেশন কোঃ বাংলাদেশ লিঃ
(সিপিজিসিবিএল)

1

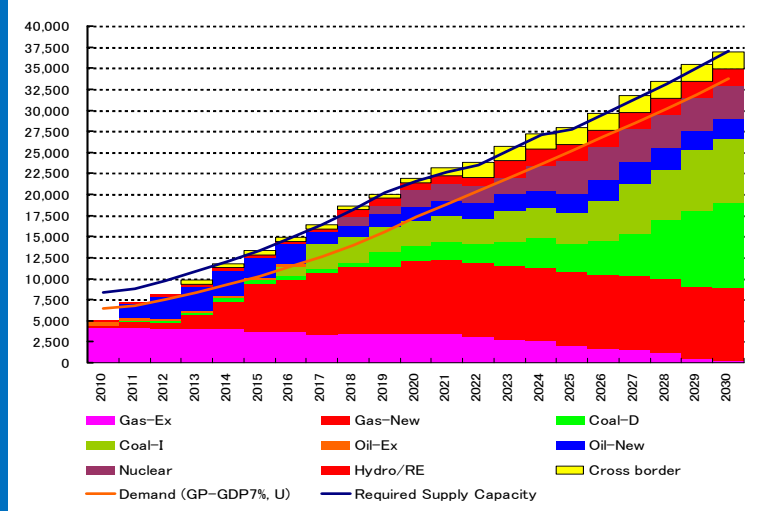
মতবিনিময় সভা, নভেম্বর ২০১২

উদ্দেশ্য

প্রকল্প সংশ্লিষ্ট স্থানীয় জনগণ ও
অন্যান্য সংকর্ষকহোল্ডারদের মনোভাব
সম্পর্কে আলোচনা করা

2

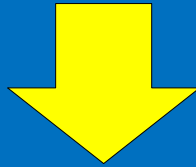
প্রকল্পের পটভূমি ও প্রয়োজনীয়তা



- ক্রমবর্ধমান বিদ্যুতের চাহিদা পূরণের জন্য অনেক বড় বড় বিদ্যুৎ কেন্দ্র স্থাপন দরকার

প্রকল্পের পটভূমি ও প্রয়োজনীয়তা

- দেশীয় কয়লা উত্তোলন (আপাতত) স্থগিত ঘোষণা



- আমদানিকৃত কয়লা ভিত্তিক বিদ্যুৎ কেন্দ্র উন্নয়ন

সমীক্ষার উদ্দেশ্য

প্রস্তাবিত প্রকল্পের বাস্তবায়নের জন্য কারিগরি,
পরিবেশ, ইকোনমিক ও আর্থিক দিক বিবেচনা
পূর্বক সম্ভাব্যতা বিশ্লেষণ

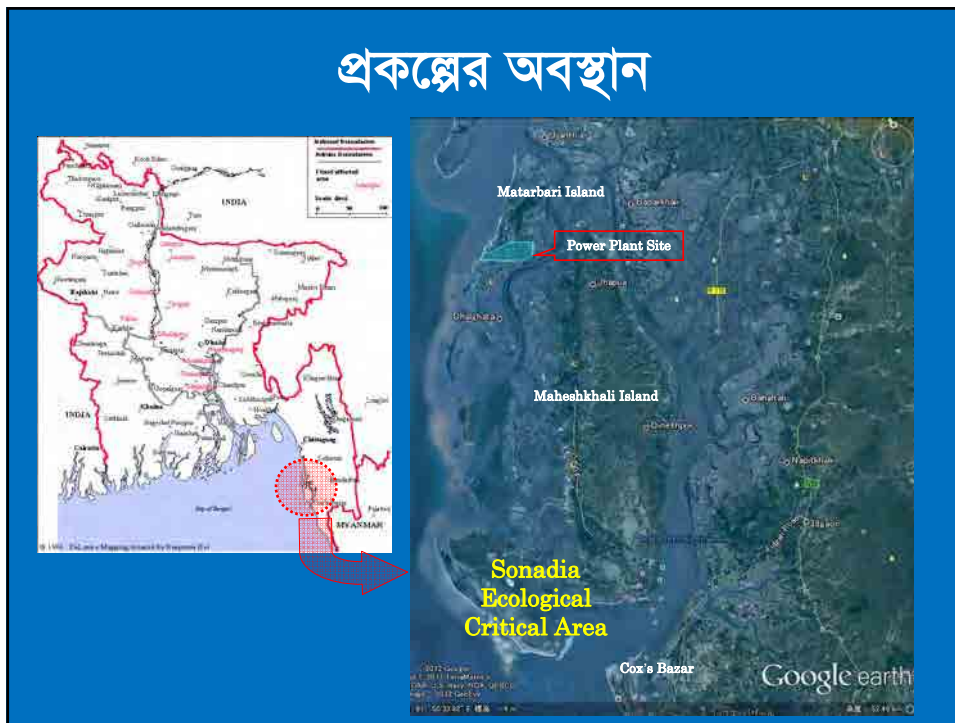


চট্টগ্রাম অঞ্চলে কয়লাভিত্তিক বিদ্যুৎ কেন্দ্র
/ সঞ্চালন লাইন নির্মাণ

প্রকল্পের পরিধি

- ২X৬০০মেঃওঃ কয়লাভিত্তিক বিদ্যুৎ কেন্দ্র
- কয়লা কেন্দ্র
- ছাই এর পুকুর
- কয়লা খালাশ বন্দর
- নৌচলাচল চ্যানেল
- বন্দর সুবিধা (৮০,০০০টঃ ভেসেলের জন্য)
- ব্রেক ওয়াটার (যদি প্রয়োজন হয়)
- আনোয়ারা গ্রীড উপকেন্দ্র পর্যন্ত ৪০০কেভি
সঞ্চালন লাইন নির্মাণ

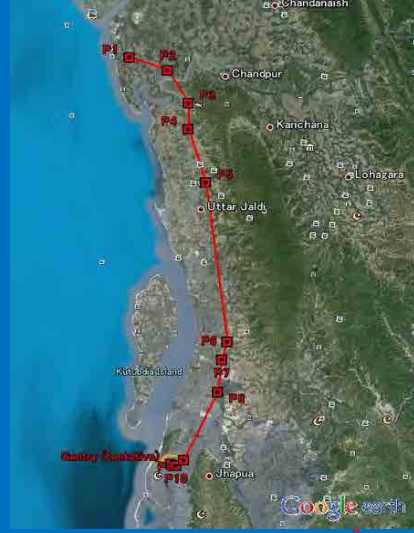
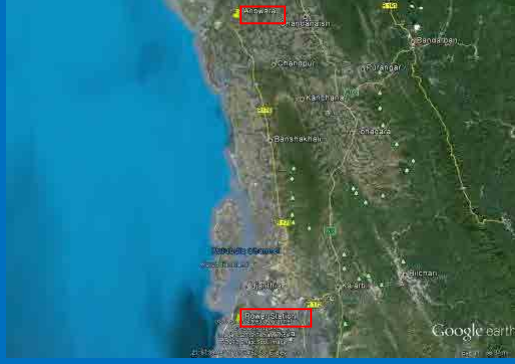
প্রকল্পের অবস্থান



প্রস্তাবিত নূতন বিদ্যুৎ কেন্দ্রের লে-আউট



বিদ্যুৎ কেন্দ্র হতে আনোয়ারা পর্যন্ত প্রস্তাবিত সঞ্চালণ লাইন রুট

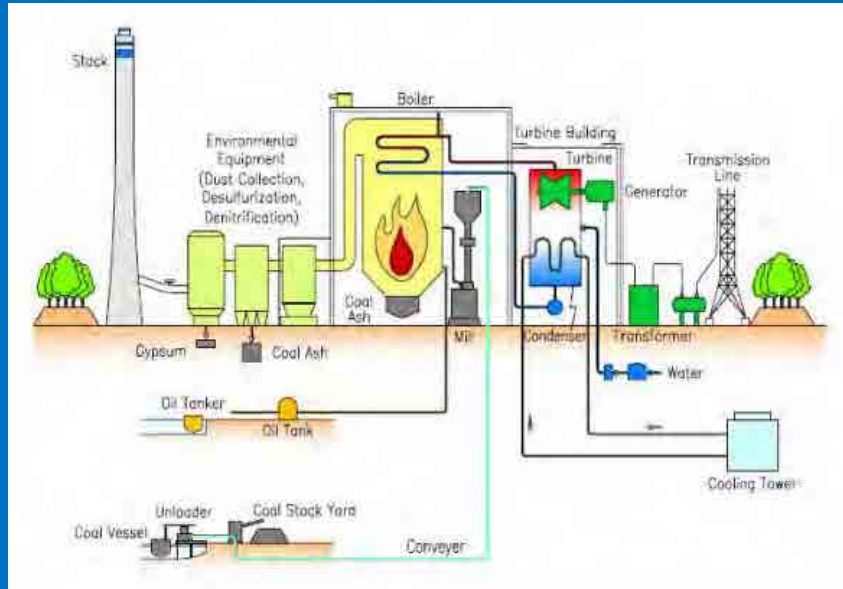


কয়লা ভিত্তিক তাপ বিদ্যুৎ কেন্দ্রের প্রধান প্রধান অংশ

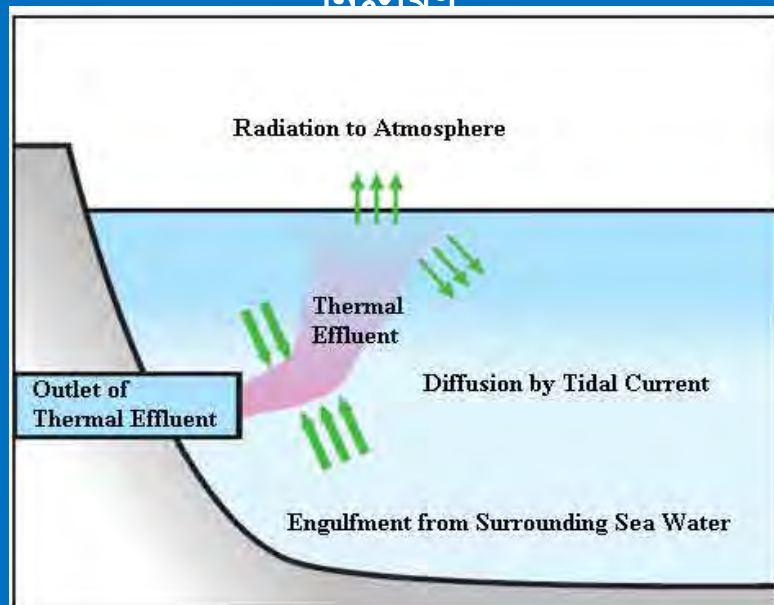


10

কয়লা ভিত্তিক তাপ বিদ্যুৎ কেন্দ্রের খসড়া চিত্র

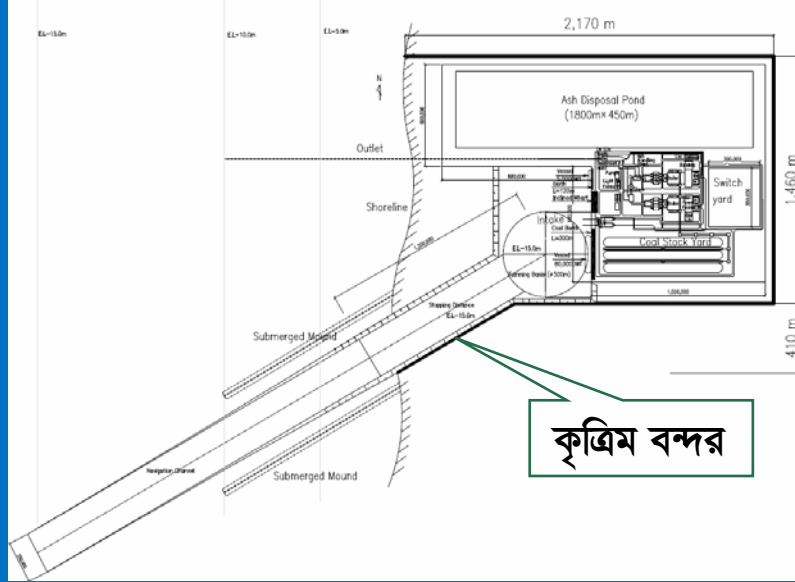


পানির অভ্যন্তরে উষ্ণতা বিতরণের মডেল নিঃসরণ

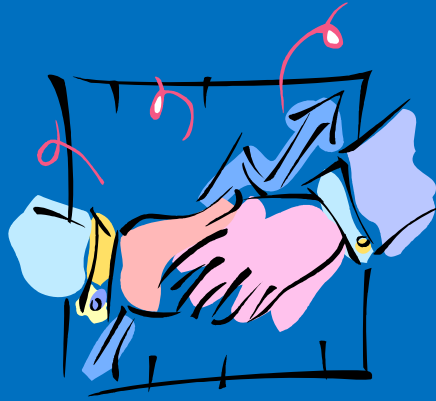


12

কৃত্রিম বন্দর সুবিধার প্লান



13



উপস্থিত সকলকে ধন্যবাদ

14

2nd meeting

13th February, 2013

মাতারবাড়ি ২x৬০০ মেঃওঃ কয়লাভিত্তিক তাপ বিদ্যুৎ
কেন্দ্র ও আনুষঙ্গিক সুবিধাদি নির্মাণ প্রকল্প

২য় মত বিনিময় সভা

তারিখঃ ১৩ ফেব্রুয়ারী, ২০১৩ইং

স্থানঃ চকরিয়া উপজেলা মিলনায়তন



কোল পাওয়ার জেনারেশন কোঃ বাংলাদেশ লিঃ (সিপিজিসিবিএল)

1

১ম মত বিনিময় সভার পর্যালোচনা

আইটেম	বিবরণ
তারিখ	১৪ নভেম্বর ২০১২ইং
স্থান	পুরান বাজার সরকারী প্রাথমিক বিদ্যালয়
উদ্দেশ্য	প্রকল্পের খসড়া চিত্র বর্ণনা এবং স্থানীয় চাহিদা সম্পর্কে অবগত হওয়া
সভাপতি	বিউবো/সিপিজিসিবিএল
অংশগ্রহনকারী	স্থানীয় সরকার কর্মকর্তাবৃন্দ, স্থানীয় রাজনৈতিক ব্যক্তিবর্গ, গ্রামবাসী, এনজিও এবং স্থানীয় গন্যমান্য ব্যক্তিবর্গ
ফলাফল	<ul style="list-style-type: none">সমীক্ষার অগ্রগতি সম্পর্কে ধারণা দেওয়া হয়েছে।বিদ্যুৎ কেন্দ্র সম্পর্কে ভুল তথ্য সংশোধন ও ভুল বোঝাবুঝি কমানো হয়েছে।বিদ্যুৎ কেন্দ্র সম্পর্কে অংশগ্রহনকারীদের কি ধারণা তা অনুধাবন করা হয়েছে।

2

২য় মত বিনিময় সভার উদ্দেশ্য

১. সমীক্ষার অগ্রগতির তথ্য আপডেট-করন :-
 - ক) বিদ্যুৎ কেন্দ্রের অবস্থান
 - খ) সামাজিক প্রভাব
২. স্থানীয় জনগণের জনপ্রয়োজনীয় পদক্ষেপ এবং বস্তু গ্রহন সম্পর্কে আলোচনা
৩. বাস্তবায়ন পন্থার উপর আলোচনা

3

১. সমীক্ষার অগ্রগতি : তথ্য আপডেট

4

বিদ্যুৎ কেন্দ্রের অবস্থান

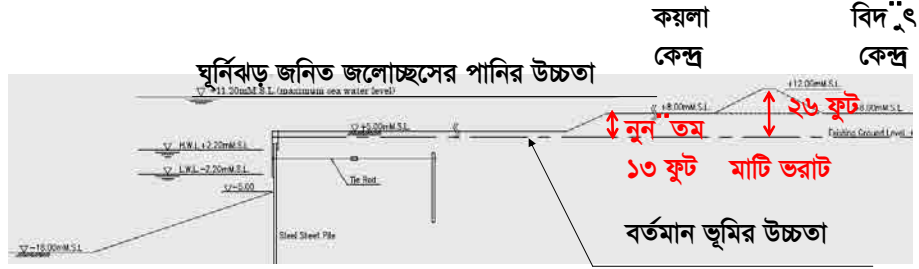


বিদ্যুৎ কেন্দ্রের প্রধান প্রধান অংশ



প্রাথমিক ভূমি উন্নয়ন পরিকল্পনা

ঘূর্ণিঝড়জনিত জলোচ্ছ্বাস ঠেকানোর বঁধ স্থা



যে সমস্ত গ্রাম প্রতিরক্ষিত হবে

যে সমস্ত গ্রামের জমি অধিগ্রহণ করা হবে :

- সাইরের ডেল (মাতারবাড়ী ইউনিয়ন)
- নাসির মোহাম্মদ ৫ দ ডেল (ধলঘাটা ইউনিয়ন)
- হামিদ খালি চর (ধলঘাটা ইউনিয়ন)

গ্রামবাসীরা কিভাবে ঐতিহ্য হবেন ?

- ভূমি হারানো
৩টি গ্রামের কমপক্ষে ৩৩৬ হেক্টর জমি স্থায়ীভাবে অধিগ্রহণ করা হবে।
- আয়ের উৎস (জীবিকার উপায়) কমে যাওয়া।
প্রকল্প এলাকায় লবন চাষ, চিংড়ী চাষ, মাছধরা ও সংশ্লিষ্ট বসাজনিত আয় কমে যাওয়া।
- প্রকল্প এলাকার সম্পদ কমে যাওয়া।
- প্রকল্প এলাকায় আশ্রয়স্থল কমে যাওয়া।

9

প্রকল্পে ঐতিহ্য লোকজন

শ্রেণী	প্রভাব	খানার সংখ্যা	সদস্য সংখ্যা
বেসরকারী জমির মালিক			
• নিজে মালিক ও বসবাসকারী	জমির মালিকানা হারাতে বাসস্থানের জায়গা হারাতে	৪	২৪
• নিজে মালিক কিন্তু বসবাস করেন না	জমির মালিকানা হারাতে	২৩৬	১৪৬৫
বেসরকারী জমির ব্যবহারকারী (গিজ)	জীবিকার উপায় হারাতে	৯	
আইনানুগভাবে সরকারী জমির ব্যবহারকারী	জীবিকার উপায় হারাতে	২	১১
সরকারী জমিতে অবৈধ বসবাসকারী	বাসস্থানের জায়গা হারাতে	১৬	৮৮

দ্রষ্টব্যঃ সাময়িকভাবে ঐতিহ্য জনগণও "প্রকল্পে ঐতিহ্য জনগণ" হিসাবে বিবেচ্য।

10

২. প্রয়োজনীয় পদক্ষেপ ও ব"বস্থা সমূহ (আলোচনার জন")

11

¶তিপূরণ

- সংশ্লিষ্ট জেলা প্রশাসকের দপ্তর ভূমি অধিগ্রহণের জন" প্রয়োজনীয় ব"বস্থা গ্রহণ করবেন।
- ভূমি অধিগ্রহণ আইনের ধারা-৩ মোতাবেক জেলা প্রশাসকের দপ্তর মত-বিনিময়ের ব"বস্থা করবেন।
- যদি জাইকা প্রকল্পে অর্থায়নের সি Xান্ত গ্রহণ করে, তবে
 - আন্তর্জাতিকভাবে স্বীকৃত শর্তানুসারে অতিরিক্ত ¶তিপূরণের ব"বস্থা গ্রহণ করা হবে।
 - জীবিকা পুনরু Xারের কার্যক্রম অন্তর্ভুক্ত করা হবে।
 - প্রতিস্থাপন খরচের উপর ভিত্তি করে জমি এবং সম্পদের মূল" নির্ণয় করা হবে।

12

জীবিকা পুনরু X 1র কার্যক্রম

সিপিজিসিবিএল জীবিকা পুনরু X 1র কার্যক্রম প্রকল্পে অন্তর্ভুক্ত করবে। উদাহরণ স্বরূপঃ

কারণ	প্রভাব	প্রতিকার ব্যবস্থা
নিম্ন শিক্ষার হার	<ul style="list-style-type: none"> চাকুরি খুজে পাওয়া কঠিন তথ্য পাওয়ার সীমাবদ্ধতা 	শিক্ষার ব্যবস্থা
অদক্ষতা	<ul style="list-style-type: none"> ভাল চাকুরি খুজে পাওয়া কঠিন নারীরা ঘরে আবদ্ধ বেতন কম 	দক্ষতা বৃদ্ধির প্রশিক্ষণের ব্যবস্থা
সীমিত চাকুরির সুযোগ	<ul style="list-style-type: none"> কর্মসংস্থানের হার কম দিন মজুর স্কুল থেকে ঝরে পড়া ছেলেমেয়ে 	বিদ্যুৎ কেন্দ্রে কর্মসংস্থানের ব্যবস্থা (নির্মাণ ও পরিচালন পর্যায়ে)

13

এলাকা উন্নয়নের কার্যক্রম

সিপিজিসিবিএল স্থানীয় সরকারের সাথে সমন্বয় করে নিম্নলিখিত কার্যক্রম বাস্তবায়ন করবে :

কারণ	প্রভাব	প্রতিকার ব্যবস্থা
পানি ও পয়ঃ নিষ্কাশন ব্যবস্থা খারাপ	<ul style="list-style-type: none"> নিরাপদ খাবার পানির অভাব অস্বাস্থ্যকর পরিবেশ সংক্রামক রোগের বিস্তার 	পানি ও পয়ঃনিষ্কাশন ব্যবস্থার উন্নয়ন
বিদ্যুৎ ও গ্যাস এর অভাব	<ul style="list-style-type: none"> বাড়িতে কাজ ও পড়াশুনা করা কঠিন অস্বাস্থ্যকর খাবার 	বিদ্যুৎ ও গ্যাস সরবরাহ ব্যবস্থার উন্নয়ন
স্বাস্থ্য সুবিধা কম	<ul style="list-style-type: none"> অপ্রতুল চিকিৎসা অস্বাস্থ্যকরভাবে বসবাস পুষ্টি জ্ঞানের অভাব 	স্বাস্থ্য সুবিধার সংখ্যা বাড়ানো
শিক্ষা সুবিধার অভাব	<ul style="list-style-type: none"> শিক্ষার হার কম ছেলেমেয়েরা শিক্ষা বঞ্চিত 	শিক্ষা সুবিধার সংখ্যা বাড়ানো

14

৩. বাস্তবায়ন প X তির উপর আলোচনা

15

প্রাতিষ্ঠানিক ব"বস্থা

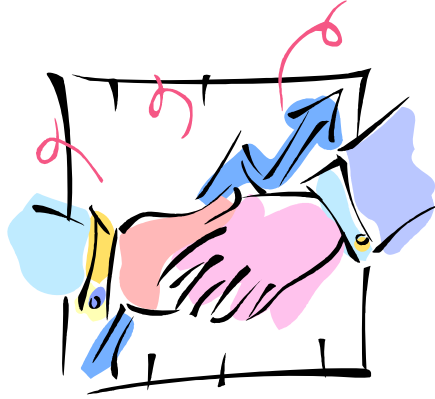
- সিপিজিসিবিএল বাস্তবায়নকারী সংস্থা।
- কক্সবাজার জেলা প্রশাসকের দপ্তর "তিগ্রস্থ জনগনকে "তিপূরণের পরামর্শ প্রদানের জন" নিকটবর্তী সংস্থা হিসাবে কাজ করবে।
- স্থানান্তর প্রক্রিয়া নির্মাণ কাজের পূর্বে বাস্তবায়ন করা হবে।

16

অভিযোগ প্রতিকার প X তি (নির্মাণকালীন সময়ে)

- প্রকল্প এলাকায় নিম্নলিখিত উদ্দেশ্যে একটি "অভিযোগ প্রতিকার কমিটি" গঠন করা হবে ঃ
 - শ্রিত্তিগ্রস্থ লোকজনদের সহজ প্রবেশাধিকার ।
 - অতি দ্রুত তাঁদের উদ্বেগ ও অভিযোগের প্রতিকার করা ।
- "অভিযোগ প্রতিকার কমিটি" নিম্নবর্ণিত প্রতিনিধিদের সমন্বয়ে গঠিত ঃ
সিপিজিসিবিএল, প্রকল্প ংাফ, স্থানীয় এনজিও, শ্রিত্তিগ্রস্থ জনগনের প্রতিনিধি, ইউনিয়ন পরিষদের চেয়ারম ংান সহ স্থানীয় গন ংমান" ব ং ঙ্গিবর্গ এবং আইন উপদেষ্টা ।

17



উপস্থিত সকলকে ধন ংবাদ

18

Appendix-C15.9-4

Minutes of public consultation meeting

1st meeting
14th November, 2012

Preparatory Survey on Chittagong Coal Fired Power Plant Project

Construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar **Minutes of 1st Public Consultation Meeting (Power Plant)**

Venue : Puran Bazar Govt. Primary School:

Date : November 14, 2012

Time : 10:00 AM to 2:00 PM

Participants : List of Participants is enclosed.

The meeting was presided over by President of Matarbari Union Awami League. The welcome speech was given by Managing Director, Coal Power Generation Company Bangladesh Limited (CPGCBL). Managing Director, welcomed all participants. He thanked Japan International cooperation Agency (JICA) for their cooperation to conduct the feasibility study for construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar. He also thanked the JICA Study team for carrying out the study. He described the background of this project in brief. Then he requested all participants to give their valuable comments on implementation of the project.

BPDB officer and Secretary Matarbari Union Jubo League also spoke on the occasion followed by the power point presentation on the feasibility study for construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar presented by Engineers Associates Limited (EAL).

After presentation, the following discussions were held:

1. Teacher, Local school wanted to know the exact location of the proposed power plant. He suggested to select the site towards the Bay of Bengal. In reply, BPDB officer informed that the site for power plant has been selected between

Matarbari and Dhalghata Union primarily. The site will be finalized after social and environmental survey.

2. Job holder, LGED, Matarbari told that the main profession of local people of Matarbari is fishing in the sea. If the hot water from the power plant is discharged in the sea, it will harm to the fishes. So, their fishing profession will be affected. In reply, Mr. A. Latif Khan of BPDB informed that hot water will be cooled down to almost at normal temperature and then that water will be released submerged in the sea without any harms to the fishes or other aquatic animals
3. Local politician came to know that a power plant will be constructed in Sonadia island. So, he wanted to know why the location power plant is shifted from Sonadia to Matarbari. In reply, Mr. Latif Khan told that a deep sea port will be established in Sonadia island. So, it was proposed to construct power plant at Matarbari instead of Sonadia.
4. Ex-Chairman, Matarbari Union Council wanted to know whether the power plant will affect the surrounding area. If yes, how far will be affected. In reply, BPDB officer told that this power plant will be very environment friendly as ultra super critical (USC) technology will be used in this plant. So, this power plant will not affect the surrounding.
5. Ex- Chairman Matarbari Union Council wanted to know whether any industrialization will take place in Matarbari area. He also wanted to know whether priority will be given to the affected people who will lose their livelihood because of power plant in Matarbari. In reply, BPDB officer told that obviously interested persons can set up their industries in Matarbari area as the electricity will be available if the power plant is constructed. He also assured that local people will be given high priority for employment in the project and industries as well.
6. A Student, Matarbari pointed out that agricultural lands are normally affected due to fly ash or dust produced from the coal based power plant. As a result, agriculture is also affected. He also pointed out that the people may also suffer

from respiratory problems. In reply, BPDB officer informed that this power plant will be constructed using Ultra Super Critical (USC) technology by which negligible dust will be produced. As a result, agricultural land, agriculture and public health will not be affected.

7. Chairman of Matarbari Union Awami league welcomed the initiative to establish power plant in Matarbari area. People of matarbari are very much optimistic to have the power plant in Matarbari area. So, he requested to hold the next stakeholder meeting in the project area to motivate more people of the area. However, he demanded some points as follows:

- a) Local residents should be given high priority for employment in the project..
- b) Local competent people shall be employed in the project.
- c) All roads, schools, colleges, fishery jetty, health center shall be developed. Roads along the east side and west side of Matarbari island shall be made pucca.
- d) Protective dam along the west coast of Matarbari island shall be made very strong and permanent to save the people of Matarbari form cyclone, tidal waves and erosion.
- e) Compensation for acquisition of land shall be paid at least three times the present rate.
- f) No households shall be damaged.
- g) All affected fishermen, salt farmers shall be compensated and rehabilitated .
- h) Road from Matarbari to Chittagong shall be improved
- i) Electricity shall be supplied to the people of Matarbari at subsidized rate.
- j) The plant shall be constructed in such away that it does not cause any damage to environment and locality

In reply, BPDB officer assured that next stakeholder meeting will be held at project site. He also assured that local people will be given priority to employ in

the project based on their skills. The affected salt farmers and fishermen will be compensated and rehabilitated.

Regarding social facilities, he told that the plant authority will establish school, college and hospitals etc. for the staff of the plant. Local people will also avail the above facilities.

Apart from this, other infrastructure shall be developed in Matarbari area to attract the tourists as well.

The compensation of the land shall be paid as per prevailing rules of the Government of Bangladesh.

He also assured that the power plant will be very environment friendly. Locality and environment will not be affected by this plant.

Finally, MD, CPGC thanked all participants for giving their valuable comments and assured the people to take all points raised by them into consideration for implementation of the power plant project in Matarbari.

Then he concluded the stakeholder meeting giving thanks to all participants.

Feasibility Study of 2X600 MW Coal Fired Power Plant Development Project at Matarbari, Cox's Bazar
Public Consultation Meeting (Power Plant)

Venue : Puran Bazar Govt. Primary School, Matarbari, Maheskhali, Cox's Bazar

Date : November 14, 2012

Time : 10:30 AM to 2:30 PM

Attendance Sheet

Sl. No.	Name of Participant	Designation & Organization	Contact Phone No.	Signature
01.				
02.				
03.				
04.				
05.				
06.				
07.				
08.				
09.				

Sl. No.	Name of Participant	Designation & Organization	Contact Phone No.	Signature
10.				
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Feasibility Study of 2X600 MW Coal Fired Power Plant Development Project at Matarbari, Cox's Bazar
Public Consultation Meeting (Power Plant)

Venue : Puran Bazar Govt. Primary School, Matarbari, Maheskhali, Cox's Bazar

Date : November 14, 2012

Time : 10:30 AM to 2:30 PM

Attendance Sheet

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2nd meeting
13th February, 2013

Preparatory Survey on Chittagong Coal Fired Power Plant Project

Construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar **Minutes of 2nd Public Consultation Meeting (Power Plant)**

Venue : Chokoria Upazila Parishad Auditorium:
Date : February 13, 2013
Time : 11:30 AM to 2:00 PM
Participants : List of Participants is enclosed. (Pls. see the **Attachment-I**)
Photographs : Some pics of participants in the 2nd PCM (Pls see the **Attachement-II**)

1. The meeting was presided over by **Managing Director, Coal Power Generation Company Bangladesh Limited (CPGCBL)**, an enterprise of the Government of Peoples' Republic of Bangladesh newly established to own the proposed 2x600MW coal based Power Plant at Matarbari, Cox's Bazar. The meeting was started with recitation from holy Quran. Managing Director welcomed all participants. He informed that power crisis is main concern in Bangladesh. Development of Coal based power plants is now only solution to overcome the power crisis as gas reserve is gradually decreasing in Bangladesh. He thanked JICA to come up with development of coal based power plant in Bangladesh. He also thanked JICA Study Team for carrying out the feasibility study on this proposed power plant.
2. Then **Team Leader, JICA Study Team** thanked all participants He informed that JICA is a donor agency of Japan Government providing loan or grant to Bangladesh for infrastructure development. JICA is now conducting feasibility study on coal power project in Matarbari, Cox's Bazar through JICA Study Team (TEPSCO & TEPCO) The objective of the 2nd public consultation meeting is have the feedback from the participants about the development of coal based

power plant in Matarbari. He noted that 1st public consultation meeting was held in November 2012. However, he assured the participants not to worry about implementation of this project. Rather this power station will improve the living standard of this area. There will be no negative environmental impacts as this power station will be environment friendly. In addition, the affected people will be properly compensated and resettled. He also informed that another stakeholder meeting will be held in April 2013. Finally, he introduced his all team members with the participants.

3. Then the power point presentation on the feasibility study for construction of 2x600MW Coal Fired Power Plant at Matarbari, Cox's Bazar was made by **Engineers Associates Limited (EAL)** followed by question and answer session.

4. During Q&A session the following discussions were held:

1. **Teacher, Dhalghata Ideal High School** worried that there is rumor about the negative impacts on ecological balance, air quality, water quality, biodiversity, fish cultivation, livelihood etc. in the project area if the power plant is constructed. The affected people need to be relocated as well. So, he wanted to know the extent of impacts if the power plant is constructed. In reply MD, CPGC informed that JICA Study Team is conducting social and environmental survey in the project area to assess the impacts of the power plant. Anyway, this power plant will be environment friendly and the quality of the environment will be ensured by the department of environment. So there is nothing to worry about. However, an access road will be constructed for this power plant which will ease travelling in the area. Besides, local people will have employment opportunities in the power plant according to their skills.
2. **An NGO Worker** pointed out that Matarbari is famous for shrimp cultivation. If the land is acquired, shrimp cultivation will be affected. Also private land owners will lose their lands. On the other hand, there is lot of govt land unused in

Chokoria upazila. So, he suggested to acquire the govt. land in Chokoria upazila to construct this power plant instead of Matarbari. In reply, MD, CPGC informed that there are several selection criteria to select the location of power plant. Availability of land is one of the selection criteria. But the availability of fuel is also another criterion. In this proposed power plant the primary fuel is imported coal which requires transportation and unloading facilities. In Matarbari, coal may be imported from foreign countries by big ships and unloaded creating Jetty facilities there. But Chokoria is far away from the Bay of Bengal. So, JICA Study Team has selected Matarbari site for this power plant.

3. **Salt Businessman, Sairer Dail, Matarbari** wanted to know whether any embankment will be constructed in Matarbari and Dhalghata if the power plant is constructed. The people who are possessing the govt land and having their livelihood by cultivating those lands will be affected if the power plant is constructed. He asked whether these affected people will get compensation or not. He also wanted to know whether those who will lose their houses in the project area will be resettled or not. In reply MD, CPGC informed that the affected people will be compensated as per Bangladesh Laws. (Ordinance 1982) through the district administration. There is no provision for compensating the illegal residency or occupancy of govt land. But as per JICA guidelines the illegal residents or occupiers should be compensated. The study team is working on this issue and the illegal residents/occupants will be also compensated in accordance with JICA's guidelines and Bangladesh govt laws through the district administration. Regarding the embankment, MD, CPGC expressed his inability to say anything about it. However, he assured that access road will be constructed with the power plant.
4. **Aresident of Sairer Dail, Matarbari** wanted to know whether they will get free electricity. He also wanted to know whether they will get employment opportunities in the power plant. In reply, MD, CPGC informed that the surrounding area of the power plant will certainly be electrified and they will get electricity as per standard rate fixed by the govt. Regarding employment

opportunities, he assured that priority will be given to the local people for employment in the power plant according to their skills.

5. **Assistant Director, DoE**, Cox's Bazar told that coal based power plant has negative impacts on the environment. But, the negative impacts can be mitigated by using the latest technology. However, he raised that some birds are found flying in the power plant area. He is worried about the negative impacts on the birds by the high stack/ chimney of power plant. So, requested the study team to design the height of stack/chimney properly to avoid any negative impacts on the birds. He also suggested adopting adequate mitigation measures to keep SO_x and NO_x of ambient air quality within standard limit. Worm water of the power plant should be discharged in the sea in such a way that aquatic plants/animals are not affected. He assured the local people not to worry about implementation of this power plant as the DoE is enforcing agency of GOB to ensure pollution free environment.
6. **One of participants** learnt that there is need of forestation for 20 years ahead if coal based coal based power plant is planned to construct. It is absolutely ok for normal situation. But in order to meet the present power crisis in Bangladesh, it is not possible to wait for 20 years to construct coal based power plant. MD, CPGC told that the latest coal based power plant is environment friendly. Forestation and other necessary mitigation measures may be undertaken during construction/ operation period..
7. **Chairman, Dhalghata Union Council** welcome the initiative taken by JICA to construct coal based power plant in Mattarbari. It is expected that embankment, roads, schools/ colleges, hospitals will be developed Matarbai island. It is learnt that an access road will be constructed up to power plant site. So, he requested the concerned authority to extend this access road up to Dhalghata via Mutila for about 5-6km. He also requested to construct hospitals, schools/ colleges around power plant area for area development. He urged that project affected people

should be properly compensated. In reply, MD, CPGC informed that another JICA Study Team is conducting feasibility study of access road for power plant. Similar public consultation meeting will be held for access road also. He requested someone to raise this issue in that PCM to include additional 5-6km road up to Dhalghata via Mutila. Regarding construction of schools/colleges and hospitals outside power plant, sincere cooperation will be extended with other development agencies to construct the above facilities. However, schools/colleges, hospitals etc will be constructed in the power plant area for the power plant employees. He assured to keep the above facilities accessible to public around the power plant.

8. **Chairman, Matarbari Union Council** told that there is both positive and negative perceptions for construction of coal based power plant in Matarbari. The local residents are very concerned about negative impacts of this power plant. They must be motivated before construction of this power plant so that they will not raise any objection to construct this plant. In this respect, MD, CPGC informed that this project will be implemented after motivating the local people and satisfying all criteria set by Government of Bangladesh and JICA as well.
9. **UNO, Moheshkhali Upazila** told that Electricity is very essential commodity for modern civilization. At present, there is power crisis in Bangladesh. In order to meet this power crisis, it is essential to construct big power plant. Some rental and quick rental power plants have been installed in Bangladesh to overcome immediate power crisis. But the cost of energy of these power plants is very high. On the other hand, the cost of energy of this coal based power plant is very low. So, he urged everybody to come forward with GOB to implement this big power plant. He assured that project affected people will be properly compensated and resettled as per Govt. and international rules.

5. Finally, MD, CPGC thanked all participants for giving their valuable comments and assured them to take all points raised by them into consideration for implementation of the power plant project in Matarbari.

Then public consultation meeting was concluded with thanks to all participants.

Preparatory Study on Chittagong Area Coal Fired Power Plant Development Project
2nd Public Consultation Meeting (Power Plant)

Venue Ckokoria Upazila Parishad Auditorium, Chokoria, Cox's Bazar

Date February 13, 2013

Time 11:00 hours

Attendance Sheet

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Preparatory Study on Chittagong Area Coal Fired Power Plant Development Project

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Preparatory Study on Chittagong Area Coal Fired Power Plant Development Project

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