

3-2-5 施工計画

3-2-5-1 施工方針

本計画が日本国政府の無償資金協力により実施される場合の基本事項は次のとおりである。

- 本計画は、日本政府と「カ」国政府で本計画に係る無償資金協力の交換公文が締結された後、日本政府の無償資金協力に従って実施される。
- 本計画の実施機関は「カ」国 MPWT、コンポンチュナン州 DPWT およびプレイベン州 DPWT である。
- 本計画の詳細設計、入札関連業務および施工監理業務に係るコンサルタント業務は、日本のコンサルタントが「カ」国とコンサルタント契約を締結し実施する。
- 本計画の道路・排水改修工事、橋梁改修工事は、入札参加資格審査の合格者による入札の結果、選定された日本業者により「カ」国との工事契約を締結し実施する。

本計画の施工にあたっての基本方針は次のとおりである。

- 建設資機材および労務調達には「カ」国現地調達とする。現地で調達できない場合は、所要の品質・供給能力が確保される範囲で最も経済的となる第三国からの調達とする。
- 施工方法および工事工程は、現地の気象、地形、地質および各工事に影響が及ぶ自然条件に合致したものとする。
- 可能な限り特殊機材や技術を必要としない一般的な工法を計画する。
- 適切な工事仕様および施工管理基準を設定するとともに、この基準を満足する建設業者の現場管理組織、コンサルタントの施工監理組織を計画する。
- 工事中の作業員および第三者に対する安全確保を徹底する。特に環境配慮および AIDS/HIV の教育を行う。
- 工事による既存側溝や河川への水質汚染や増水時期の土砂流出を防止するとともに、コンクリートプラント、土取場および砕石調達に関しては環境影響を軽減する処置を考慮する等、環境保全に努める。

3-2-5-2 施工上の留意事項

- 施工計画および施工方法等の策定においては、第三者および施工に従事する者への安全確保を第一とするとともに、道路利用者、沿道住民等への環境負荷低減を考慮した計画、工法の選定でなければならない。主な留意事項は次の通りである。

3-2-5-2-1 コンポンチュナン市内の道路と道路排水路の改修

施工順序：排水施設の建設は、下流側より上流側に向い施工する事を原則とする。

RC (Reinforced Concrete) 管：品質の良い RC 管の製造実績を有する業者は限られているためサイトで RC 管を製作する計画とする。

鋼矢板工（仮設土留め支保工）：現地の塀、家屋とも、耐震性のないレンガ積みモルタル仕上げで、鉄筋による補強がなく、振動に対して極めて弱いため、仮設用軽量鋼矢板を用い、掘削機にて少しずつ掘削しながら立込みを行う工法を計画する。

コンクリート：生コンプラントは、サイトから1時間以上かかるプノンペンにしかないため、現場にコンクリートプラントを設置するよう計画する。

アスファルト合材：プノンペン郊外にプラントがある。輸送用ダンプに覆いをかけて輸送すれば、気温の高い現地ではアスファルト合材の温度低下の問題なく舗設ができるので、アスファルト合材を既設プラントより購入する計画とする。

3-2-5-2-2 国道11号線上の橋梁の架け替え

コンクリート：生コンプラントは、近くにはないため、8箇所の橋梁サイトの中間に位置する場所にコンクリートプラントを設置するよう計画する。

RC杭：製作は、生コンプラントの近くで製造し、現場へトレーラで搬入し、現地で調達可能で施工精度の良いクローラ式杭打機（ディーゼルハンマ・直結3点支持式）で施工する工法を計画する。

仮設迂回路橋：既存橋の架替えであるため、仮設迂回路橋の構築→既存橋撤去→本体工事→交通切回し→仮設迂回路橋の撤去→完成という手順を踏むため、迂回路橋は長期間にわたり供用される。迂回路橋のほとんどが、雨季の期間も供用されることになる。堤防道路に架設されている既存橋は、橋・堤防の左右の水位を平衡させる避溢橋であるため、その横に平行して架設される仮設橋もその長さは既存橋と同程度長さが必要である。仮設迂回路橋により流路断面積（流積）が阻害されないように計画する。

アスファルト合材：プノンペン郊外にプラントがある。輸送用ダンプに覆いをかけて輸送すれば、気温の高い現地ではアスファルト合材の温度低下の問題なく舗設ができるので、アスファルト合材を既設プラントより購入する計画とする。

3-2-5-2-3 その他

(1) 気候についての留意事項

「カ」国は11月～4月の乾季（メコン河の低水位期）と5月～10月までの雨季（メコン河の高水位期）になるが、工事は乾季を中心に行う。国道11号線においては主に橋梁工事であり雨期のメコン河増水時期は河川内の作業は施工不能となるため乾季を中心に施工を行う計画とする。

また、コンポンチュナンでの工事は排水構造物が主な工事で施工場所も既設道路を掘削して排水構造物を敷設するものであるため、降雨による影響は少なく道路の冠水が無い限り施工可能とした施工計画とする。

(2) 周辺住民および工事関係者への安全についての留意事項

- 工事ヤードを明確にし、工事関係者以外の立ち入り禁止措置を実施する。
- 資材運搬車両運転者への安全教育により、交通事故防止対策を実施する。
- 大型建設機械を使用するため、建設機械への見張り員を配置し接触事故防止を行う。

(3) 環境への留意事項

- 既設舗装撤去後の処分については、環境に負担が掛からず適正な処理を実施する。
- 土取場の選定については実施機関と協議の上、周辺環境に対して影響の少ない箇所を選定する。
- 振動および騒音が生じる工種の実施は、早朝および夜間を避けて行う。
- 工事車両による粉塵対策（散水等）を実施する。
- 関係者への環境情報の提供、掲示、教育、特に労働安全衛生、自然環境保護、保健（マラリア予防、性関連感染症の予防、AIDS/HIV 対策等）の教育を実施する。

3-2-5-3 施工区分

日本と「カ」国の各国政府が分担すべき事項は、表 3-2-15 のとおりである。

表 3-2-15 各国政府の負担区分

項目	内容	負担区分		備考
		日本国	「カ」国	
資機材調達	資機材の調達・搬入	○		
	内陸輸送路の整備		○	
準備工	工事に必要な用地の確保		○	現場事務所、資機材置場、作業場等
	占有物移設措置		○	
	土取場・土捨場の確保		○	
	廃材捨場の確保		○	
	上記以外の準備工	○		
工事障害物の撤去	地中障害物の移設		○	
本工事	道路工事／橋梁工事	○		

3-2-5-4 施工監理計画

日本のコンサルタントが「カ」国政府とのコンサルタント業務契約に基づき、詳細設計業務、入札関連業務および施工監理業務の実施にあたる。

3-2-5-4-1 詳細設計業務

コンサルタントが実施する詳細設計業務の主要内容は次のとおりである。

- 「カ」国実施機関との着手協議、現地調査、詳細設計
- 詳細設計、図面作成
- 資材調達計画、事業費積算

詳細設計業務の所要期間は、以下のとおりである。

- ・ コンサルタント契約認証後 2 ヶ月

3-2-5-4-2 入札関連業務

入札公示から工事契約までの期間に行う業務の主要項目は次のとおりである。

- ・ 入札図書の作成
(上記詳細設計期間と並行して作成)
- ・ 入札公示
- ・ 入札業者の事前資格審査
- ・ 入札実施
- ・ 入札書の評価
- ・ 契約促進業務

入札関連業務の所要期間は、以下のとおりである。

- ・ コンサルタント契約認証後 4 ヶ月

3-2-5-4-3 施工監理業務

コンサルタントは、施工業者が工事契約および施工計画に基づき実施する工事の施工監理を行う。その主要項目は次のとおりである。

- ・ 測量関係の照査・承認
- ・ 施工計画の照査・承認
- ・ 品質管理
- ・ 工程管理
- ・ 出来形管理
- ・ 安全管理
- ・ 出来高検査および引き渡し業務

施工場所がコンポynchナンとプレイベンとなり位置的に 200km 以上離れており、管轄の州公共事業局、さらに主要工種も異なっているため、施工監理業務には常駐施工監理者 1 名および施工監理者 1 名の計 2 名が必要である。

工事施工においては、施工業者の安全管理者と協議、協力しながら事故の発生を未然に防ぐよう監理を行う。

3-2-5-5 品質管理計画

コンクリートの品質管理計画を表 3-2-16 に、土工および舗装工の品質管理計画を表 3-2-17 に示す。

表 3-2-16 コンクリート工の品質管理計画

項目	試験項目	試験方法 (仕様書)	試験頻度
セメント	セメントの物性試験	AASHTO M85	試験練り前に1回、その後コンクリート 500m ³ 打設毎に1回 あるいは原材料が変わった時点
細骨材	コンクリート用細骨材の物性試験	AASHTO M6	試験練り前に1回、その後 500m ³ 毎に1回あるいは供給場所 が変わった時点 (納入業者のデータ確認)
	ふるい分け試験	AASHTO T27	毎月1回
粗骨材	コンクリート用粗骨材の物性試験	AASHTO M80	試験練り前に1回、その後 500m ³ 毎に1回あるいは供給場所 が変わった時点 (納入業者のデータ確認)
	ふるい分け試験	AASHTO T27	毎月1回
水	水質基準試験	AASHTO T26	試験練り前に1回
コンクリート	スランプ試験	AASHTO T119	2回/日
	エア量試験	AASHTO T121	2回/日
	圧縮強度試験	AASHTO T22	各打設毎に6本の供試体、1回の打設数量が大きい場合には 75 m ³ 毎に6本の供試体 (7日強度-3本、28日強度-3本)
	温度	—	2回/日
	塩分濃度試験	—	2回/日

表 3-2-17 土工および舗装工の品質管理計画

項目	試験項目	試験方法 (仕様書)	試験頻度
盛土工	密度試験 (締固め)	AASHTO T191	500 m ² 毎
路盤工	現場密度試験 (締固め)	AASHTO T191	1,000m ³ 毎
	締固めおよび一軸圧縮試験	AASHTO T180	1,000m ³ 毎
アスファルト 舗装工	アスファルト合材の温度	出荷温度、敷均しおよび 転圧温度測定	5回/日
	骨材のすり減り抵抗試験	AASHTO T96	1,500m ³ 毎に1回あるいは供給場所が変わった時点 (納入業者 のデータ確認)

3-2-5-6 資機材等調達計画

本プロジェクトに必要な建設資材および建設機械は一部を除いて殆どは現地調達が可能である。現地建設業者が多数の建設機械を所有しているため、これをリースする。主要な建設用資材・機械の調達先を表 3-2-18 に示す。

表 3-2-18 建設用資材・機械調達先

項 目	調 達 先			備 考
	現 地	日本国	第三国	
[資 材]				
砕 石	○			
セメント	○			
砂	○			
玉 石	○			
アスファルト	○			
鉄 筋	○			
コンクリート混和材	○			
蛇 籠	○			
R C杭	○			
ガードレール	○			
鋼 材			○	タイ
型枠用合板	○			
支保工(木材)、足場用丸太	○			
燃料、油脂類	○			
[機 械]				
ブルドーザ	○			
バックホウ	○			
ダンプトラック	○			
クレーン装置付トラック	○			
クローラクレーン	○			
トラッククレーン	○			
ラフテレーンクレーン	○			
クローラ式杭打機	○			
大型ブレーカー	○			
モータグレーダ	○			
ロードローラ	○			
タイヤローラ	○			
振動ローラ	○			
タンパ	○			
コンクリートプラント			○	タイ
コンクリートポンプ車			○	タイ
トラックミキサ			○	タイ
発動発電機	○			
アスファルトフィニッシャ	○			
散水車	○			

3-2-5-7 実施工程

実施設計、施工の実施工程表を表 3-2-19 に示す。

表 3-2-19 事業実施工程

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
実施設計	■	■																						
	■ (現地調査)																							
	■ (国内作業)																							
	■ (入札関連業務)																				■ (計 4ヶ月)			
施工	■ (準備工)																							
	国道11号線 橋梁改修 (8橋 総橋長: 308m)																							
	■ Kbal Boeung 橋								■ Snate 橋				■ Sam Puthet II 橋								■ Mebon 橋			
	■ Tkov I 橋								■ Ek Ream 橋								■ Clv-1 Tkov II 橋							
	■ Clv-2 Rom Lech 橋																							
	コンポンチュナン市道路改修・排水路整備 (国道5号線: 2.2km、主要街路: 2.4km、排水路: 2.6km)																							
	■ NR-5																				■ Street -2+ Street-1+Street-3			
	■ Drainage-6+ Street-6																■ Street -2+ Street-1+Street-5							
	■ (片付工)																							
	■ (計 24ヶ月)																							

3-3 相手国側分担事業の概要

本計画が実施される場合の「カ」国政府の分担事項は以下のとおりである。

- 本計画の実施上必要な資料／情報の提供
- プロジェクト影響住民の補償内容の合意取得
- 移転補償、用地取得に必要な予算の確保、支払い
- 工事のために必要な作業ヤード、資材置き場、現場事務所等の用地の提供
- 工事に必要な土取場、土捨場、産廃捨て場用地の確保
- 本計画に関し日本に口座を開設する銀行の手数料の負担
- 本計画の資機材輸入の免税措置、通関手続きおよび速やかな国内輸送のための措置
- 本計画に従事する日本人および実施に必要な物品／サービス購入の際の課税免除
- 本計画に従事する日本人が「カ」国へ入国および滞在するために必要な法的措置
- 本計画を実施するために必要な許認可の取得または発行 (建設許可、工事中の交通規制等の許可、迂回路設置許可、河川内工事許可、土工事許可等)
- プロジェクト実施に支障となる電柱・電気／通信線・その他の地下埋設物の移設

- 道路建設後の適切な使用および維持管理
- 本計画実施において住民または第三者と問題が生じた場合、その解決への協力
- 両国の分担取り決めに基づく本計画実施上必要となる経費のうち、日本国の無償資金協力によるもの以外の経費負担のための措置
- 工事中のサイトの安全確保

3-4 プロジェクトの運営・維持管理計画

3-4-1 運営・維持管理の体制

本計画実施後の日常の運営・維持管理は、コンポンチュナン市内道路・排水路についてはコンポンチュナン州 DPWT、国道 11 号線橋梁についてはプレイベン州 DPWT により行われる。

舗装クラックのシーリングおよびポットホールの修繕や躯体の大規模補修等については、MPWT が担当する。

本プロジェクトで建設される施設に必要な維持管理は技術的に困難な問題はなく、現在の体制で運営・維持管理を行うことは可能であると判断される。

(1) 維持管理業務の内容

必要な維持管理業務は次のとおりである。

- 定期点検：日常維持管理：路面、法面、排水施設、道路・橋梁付属物の清掃等
- 補修：舗装のクラックのシーリング、パッチング、路面表示の再塗布、その他破損箇所の補修

(2) 維持管理の実施状況と留意点

維持管理の実施状況は次のとおりである。

- 定期点検・日常維持管理：道路の清掃は比較的良好に実施されているが、排水施設の清掃が十分とは言えない。
- 補修：車道、舗装の補修は比較的良好に実施されている。

事業効果を十分に発現・持続させるため、道路・橋梁の維持管理を十分に行い、常に良好な走行条件を保つとともに、施設の耐久性の向上を図ることが重要であり、特に次の点に留意する必要がある。

- 定期的に点検を行い、施設の状況を常に把握しておくこと。
- 清掃、特に排水施設の清掃を十分に行うこと。
- 維持管理に必要な予算を確保すること。

3-5 プロジェクトの概略事業費

3-5-1 協力対象事業の概略事業費

本協力対象事業を実施する場合に必要な事業費総額は 15.13 億円となり、先に述べた日本と「カ」国との負担区分に基づく双方の経費内訳は、以下に示す積算条件によれば、次のとおりと見積もられる。

3-5-1-1 概略総事業費

約 1,513 百万円

3-5-1-2 日本側負担経費

概算事業費 約 1,510 百万円 (10 百万円未満を切り上げ)

事業内容： コンポンチュナン市道路・排水施設改修および国道 11 号線橋梁改修

表 3-5-1 日本国側負担経費

費 目		概略事業費 (百万円)		
施 設	コンポン チュナン市 の道路・排水 施設の改修	土工	52.5	1,366.0
		排水工	267.0	
		法止め工	3.5	
		道路工	510.7	
		その他	16.3	
	プレイベン 州国道 11 号 線の橋梁改 修	取付道路工	120.5	
		下部工	89.9	
		法面保護工	90.7	
		橋梁上部工	105.2	
		仮設迂回路	73.7	
		その他	36.0	
	実施設計・施工監理		142.5	
合 計		1,508.5		

3-5-1-3 「カ」国側負担経費

概算事業費 約 39 千 US\$ (円換算 約 3.0 百万円)

表 3-5-2 カンボジア国側負担経費

費 目	概算事業費	
	千 US\$	円換算額 (百万円)
銀行手数料	10	0.8
住民への補償	20	1.5
用地取得費	9	0.7
合 計	39	3.0

3-5-1-4 積算条件

- ① 積算時点：2012(平成24)年3月
- ② 為替交換レート：1US\$=77.18円(2012(平成24)年3月閣議レート)
- ③ その他：積算は、日本政府の無償資金協力の制度を踏まえて行うこととする。

3-5-2 運営・維持管理費

本プロジェクトで改修される道路・排水施設、橋梁の定期点検・日常維持管理は所管のコンポ
ンチュナン州 DPWT およびプレイベン州 DPWT により実施される。

2-1-2 で述べた通りコンポ
ンチュナン市の道路・排水施設、国道11号線の橋梁の維持管理に必
要な年間の費用は、次の通りと見込まれる。

コンポ ンチュナン市の道路・排水施設の推定維持・管理費	： 7.0 千 US\$
国道11号線の橋梁の推定維持・管理費	： 3.5 千 US\$

第4章 プロジェクトの評価

4-1 プロジェクトの前提条件

4-1-1 事業実施のための前提条件

相手国側分担事業がスケジュールの通りに実施されること。
相手国側分担事業の詳細は 3-3 に示す。

4-1-2 プロジェクト全体計画達成のための外部条件

プロジェクトの効果を発現・持続するため「カ」国による施設の適切な維持管理が必要である。特にコンポンチュナン市内道路の排水施設が定期的に清掃されることが、施設が十分に機能するために必要である。また、国道 11 号線においては「カ」国政府および ADB 洪水緊急復旧計画による本プロジェクト対象以外の橋梁改修が実施され、国道 11 号線の全橋が改修されることにより援助の相乗効果が発現される。

4-2 プロジェクトの評価

4-2-1 妥当性

4-2-1-1 コンポンチュナン市道路・排水の改修

- ① 本プロジェクトの裨益対象は、コンポンチュナン州住民（約 54 万人）と多数である。
- ② 国道 5 号線はプノンペン都からバンコクに抜けるアジアハイウェイ 1 号線上にあり、重要な幹線道路である。
- ③ 損傷を受けた路面については、緊急仮補修がなされたものの、一時的な補修であり、耐久的な舗装により本格的に復旧する必要がある。
- ④ コンポンチュナン市の中心地域の道路改修および排水設備整備により今後の湛水による道路損傷が軽減される。
- ⑤ 対象道路の維持管理は「カ」国が、自国の資金と人材・技術で行うことができ、高度な技術を必要としない。
- ⑥ 本プロジェクトは、「カ」国の戦略的国家開発計画(2009 年～2013 年)の「交通インフラの改修・整備」に位置付けられる。

4-2-1-2 国道 11 号線上の橋梁の改修

- ① 本プロジェクトの裨益対象は、プレイベン州住民（約 106 万人）と多数である。
- ② 対象道路は国道 1 号線から国道 8 号線さらに国道 7 号線を結びプノンペン都を通らずにタイとベトナムを結ぶ重要な幹線道路である。
- ③ 今回の洪水の際には越流は確認されなかったものの床版付近まで水位が上がっており、かなり老朽化している橋梁が多いことから早急な架け替えが必要な状況にある。
- ④ ADB が洪水緊急復旧計画により木製 5 橋の架け替えを決定しており、残りの橋梁架け替えを日本が行う事は洪水分野での ADB との連携案件としても有効である。
- ⑤ 対象道路の維持管理は「カ」国が、自国の資金と人材・技術で行うことができ、高度な技術を必要としない。
- ⑥ 本プロジェクトは「カ」国の戦略的国家開発計画(2009 年～2013 年)の「交通インフラの改修・整備」に位置付けられる。

4-2-2 有効性

4-2-2-1 定量的効果

4-2-2-1-1 コンポンチュナン市の道路および道路排水施設の改修

期待される効果項目	現状の数値（2012年）	計画値（2017年）
① コンポンチュナン州 DPWT の道路排水関連維持管理費用（US\$/年）	約 20,000	約 7,000
② 道路路肩滞水期間（日/年）	およそ 50	ほぼ 0

4-2-2-1-2 国道 11 号線橋梁の改修

期待される効果項目	現状の数値（2012年）	計画値（2017年）
① プレイベン州 DPWT の橋梁道路関連維持管理費用（US\$/年）	約 8,000	約 3,500
② 走行速度の向上による旅行時間（国道 11 号線全線）（分）	約 120	約 80

4-2-2-2 定性的効果

4-2-2-2-1 コンポンチュナン市の道路および道路排水施設の改修

- ・ 舗装、道路排水施設設置により走行の快適性が向上される。
- ・ 歩道設置により交通安全性、歩行の快適性が向上される。
- ・ 排水路および流末整備により居住環境が向上される。

4-2-2-2-2 国道 11 号線橋梁の改修

- ・ 仮橋を永久橋に架け替えることによる通行安全性が確保され、幹線道路としての機能が強化される。
- ・ 洪水時の 2ヶ所のスピルウェイ区間での越流回数・期間が減少する。
(2000年及び2011年洪水時には水深 20cm 程度の越流があり、期間は合計で約 30 日間であったが、本プロジェクトの実施により、同規模の洪水が発生した場合でも越流の発生はほぼ解消される見込み。)

<<資 料>>

1. 調査団員氏名
2. 調査行程
3. 関係者(面会者)リスト
4. 討議議事録 (M/D)
5. テクニカル・ノート
6. 簡易 RAP
7. 技術資料

1. 調査団員氏名

1. 調査団員氏名

第一次現地調査（2012年1月23日～2012年2月1日）

No	氏名	担当	所属
1	林 宏之	総括	JICA経済基盤開発部 平和構築・都市・地域開発第二課 課長
2	田中 幸成	調査計画	JICA経済基盤開発部 平和構築・都市・地域開発第二課 調査役
3	玉置 隆一	業務主任／道路計画	(株)片平エンジニアリング・インターナショナル
4	大下 副武	副業務主任／橋梁設計	(株)片平エンジニアリング・インターナショナル
5	平岡 一幸	施工計画／積算	(株)片平エンジニアリング・インターナショナル

第二次現地調査（2012年2月13日～2012年3月13日）

No	氏名	担当	所属
1	田中 幸成	調査計画	JICA経済基盤開発部 平和構築・都市・地域開発第二課 調査役
2	玉置 隆一	業務主任／道路計画	(株)片平エンジニアリング・インターナショナル
3	大下 副武	副業務主任／橋梁設計	(株)片平エンジニアリング・インターナショナル
4	平岡 一幸	施工計画／積算	(株)片平エンジニアリング・インターナショナル
5	藤原 英勝	道路設計	(株)片平エンジニアリング・インターナショナル
6	河尻 達男	自然条件調査（地形・ 地質・気象・水文）	(株)片平エンジニアリング・インターナショナル
7	西野 健	環境社会配慮	(株)片平エンジニアリング・インターナショナル

概略設計説明調査（2012年7月21日～2012年7月28日）

No	氏名	担当	所属
1	田中 幸成	調査計画	JICA経済基盤開発部 平和構築・都市・地域開発第二課 主任調査役
2	玉置 隆一	業務主任／道路計画	(株)片平エンジニアリング・インターナショナル
3	大下 副武	副業務主任／橋梁設計	(株)片平エンジニアリング・インターナショナル

2. 調査行程

2. 調査行程

第一次現地調査（2012年1月23日～2012年2月1日）

日数	年/月/日	曜日	JICA		コンサルタント					
			林 宏之 (総括)	田中 幸成 (調査計画)	玉置 隆一 (業務主任)	大下 副武 (副業務主任・橋梁設計)	平岡 一幸 (施工計画・積算)			
1	2012/1/23	月	プノンペンにて政府諸機関との協議		10:45 成田発 15:45 バンコク着 18:25 バンコク発 19:40 プノンペン着					
2	2012/1/24	火	団内協議/在カ国日本国大使館への報告/国道118号線現地調査/MPWTとの協議							
3	2012/1/25	水	JICAカンボジア事務所への報告 / MOD署名		現地調査（コンポーンチュナン市）					
			20:40 プノンペン発 21:45 バンコク着 23:50 バンコク発							
4	2012/1/26	木	07:30 成田着		DPWTプレイベンと協議 現地調査：国道11号線					
5	2012/1/27	金	/					団内協議および現地調査資料収集・整理		
6	2012/1/28	土						DPWTコンポーンチュナンと協議 現地調査：コンポーンチュナン市		
7	2012/1/29	日						現地調査資料整理	現地調査：国道11号線	現地調査資料整理
8	2012/1/30	月						資料収集・整理	現地調査：コンポーンチュナン市	資料収集・整理
9	2012/1/31	火						MPWTへ報告 / JICAカンボジア事務所へ報告 20:40 プノンペン発 21:45 バンコク着 23:50 バンコク発		
10	2012/2/1	水						07:30 成田着		

MPWT: Ministry of Public Works and Transport (公共事業運輸省)

DPWT: Department of Public Works and Transport (公共事業運輸局)

第二次現地調査（2012年2月13日～2012年3月13日）

日数	年/月/日	曜日	JICA		コンサルタント					
			田中 幸成 (調査計画)	玉置 隆一 (業務主任・ 道路計画)	大下 副武 (副業務主任・ 橋梁設計)	平岡 一幸 (施工計画・ 積算)	藤原 英勝 (道路設計)	河尻 達男 (自然条件調査)	西野 健 (環境社会配慮)	
1	2012/2/13	月					13:30 成田発 (OZ103) 16:10 羽着 19:10 羽発 (OZ739) 22:50 プンベン着			
2	2012/2/14	火		JICA現地事務所と打合せ MPWTと打合せ JICA専門家と打合せ	サイト調査 (コンボリューション)	JICA現地事務所と打合せ MPWTと打合せ		サイト調査 (コンボリューション)		
3	2012/2/15	水		サイト調査 (国道11号線)				サイト調査 (ブレイベン: 国道11号線)		
4	2012/2/16	木		サイト調査 (コンボリューション)		積算関連情報収集	サイト調査 (コンボリューション)	サイト調査 (ブレイベン: 国道11号線)	サイト調査 (コンボリューション)	サイト調査 (コンボリューション)
5	2012/2/17	金		MPWT/DPWT関連資料収集	サイト調査 (コンボリューション)					
6	2012/2/18	土		団内協議/収集資料整理・解析						
7	2012/2/19	日		収集資料整理・解析						
8	2012/2/20	月		資料収集	サイト調査 (コンボリューション)	資料収集	サイト調査 (コンボリューション)			
9	2012/2/21	火		現地調査・資料収集	サイト調査 (ブレイベン: 国道11号線)	現地調査・資料収集	サイト調査 (コンボリューション)	サイト調査 (国道11号線)	コンボリューション: 土地局、環境局と打合せ	
10	2012/2/22	水		団内協議/収集資料整理				団内協議/収集資料整理		
11	2012/2/23	木		MPWT (Road Infra. Dept.) と打合せ/収集資料整理		調達関連情報収集	収集資料整理			
12	2012/2/24	金		現地再委託契約/資料収集	橋梁設計案作成	同上	道路設計案作成	資料収集	サイト調査 (ブレイベン DPWTと打合せ)	
13	2012/2/25	土		MPWT用第二次現地調査中間報告作成				収集資料整理		
14	2012/2/26	日		収集資料整理						
15	2012/2/27	月		MPWTに第二次現地調査中間報告	橋梁設計案作成	サイト調査 (コンボリューション)	サイト調査 (コンボリューション→ブレイベン)	収集資料整理		
16	2012/2/28	火		収集資料整理	同上	積算関連情報収集	道路設計案作成	サイト調査 (コンボリューション)	同上	
17	2012/2/29	水		同上	11号線ADBコンクリートと打合せ情報収集	同上	同上	サイト調査 (国道11号線)	同上	
18	2012/3/1	木		同上	Technical Notes案作成	同上	同上	収集資料整理	同上	
19	2012/3/2	金		DPWTブレイベンと Technical Notes 協議		サイト (骨材生産) 調査 (国道11号線)	同上	同上	DPWTブレイベンと Technical Notes 協議	
20	2012/3/3	土		団内協議/収集資料整理		団内協議/サイト (骨材生産) 調査 (コンボリューション)	団内協議/収集資料整理			
21	2012/3/4	日		収集資料整理						
22	2012/3/5	月		11:45 成田発 (TG643) 16:45 バンコク着 18:25 バンコク発 (TG584) 19:40 プンベン着	MPWTと打合せ/収集資料整理	収集資料整理				
23	2012/3/6	火		JICAコンボリューション事務所と打合せ MPWT (局長) と協議 MPWT (副大臣) と協議	MPWT (局長) と協議 MPWT (副大臣) と協議	DPWTコンボリューションと Technical Notes 協議 MPWT (副大臣) と協議	MPWT (局長) と協議 MPWT (副大臣) と協議	DPWTコンボリューションと Technical Notes 協議 MPWT (副大臣) と協議		
24	2012/3/7	水		サイト調査 (コンボリューション)		Technical Notes作成	収集資料整理	サイト調査 (コンボリューション)	収集資料整理	Ministry of Environmetと打合せ
25	2012/3/8	木		サイト調査 (ブレイベン)	報告書作成	サイト調査 (ブレイベン)	収集資料整理			
				JICA現地事務所へ帰国報告			JICA現地事務所へ帰国報告	MPWTと打合せ	JICA現地事務所へ帰国報告	
26	2012/3/9	金		MPWTとテクニカルノート確認 20:40 プンベン発 (TG583) 21:45 バンコク着 23:50 バンコク発 (TG642)	MPWTとテクニカルノート確認/署名	収集資料整理/報告書作成				サイト調査 (国道11号線) 追加資料収集 (コンボリューション)
27	2012/3/10	土		7:00 成田着	収集資料整理/報告書作成					
28	2012/3/11	日		同上						
29	2012/3/12	月		同上 23:50 プンベン発 (OZ740)						
30	2012/3/13	火		6:50 羽着 9:00 羽発 (OZ102) 11:10 成田着						

概略設計説明調査 (2012年7月21日～2012年7月28日)

日数	年/月/日	曜日	JICA	コンサルタント	
			田中 幸成 (調査計画)	玉置 隆一 (業務主任・ 道路計画)	大下 副武 (副業務主任・ 橋梁設計)
1	2012/7/21	土	/	11:00 成田発(JL717) 15:40 バンコク着 18:15 バンコク発(TG584) 19:25 フノンペン着	
2	2012/7/22	日		サイト現況調査(コンホンチェン)	
3	2012/7/23	月		DPWTコンホンチェンと協議 ・準備調査報告書(案)説明 ・プロジェクト実施に際してのカ国側負担事項につき確認 サイト状況調査(国道11号線) DPWTフノンペンと協議 ・準備調査報告書(案)説明 ・プロジェクト実施に際してのカ国側負担事項につき確認	
4	2012/7/24	火		11:00 MPWT(Mr. Phalla)と協議 ・準備調査報告書(案)説明 ・プロジェクト実施に際してのカ国側負担事項につき確認、等 16:40 ナイロビ発(EK720) 22:40 トゥクハイ着	
5	2012/7/25	水		03:05 トゥクハイ発(EK384) 12:25 バンコク着 13:40 バンコク発(PG933) 14:50 フノンペン着	
				11:00 MPWT: Road Infra. Dept(Mr. Nay Chamng)と面会 ・準備調査報告書(案)説明 ・11号線のADB橋梁工事に関する情報収集 16:30 MPWTと協議	
6	2012/7/26	木		09:00 MPWTと報告書(案)/MD(案)につき協議 10:30 MEFと簡易RAPにつき協議 14:00 ADBと11号線橋梁改修につき情報交換 15:00 MPWTとMD(案)につき協議 16:00 MEFと簡易RAP/MD(案)につき最終確認	
7	2012/7/27	金		08:00 JICAカンボジア事務所へ帰国報告 09:00 MPWTおよびMEFとMD最終確認 10:00 EOJへ帰国報告 15:00 MD署名(MPWT/JICA)	
			19:30 フノンペン発(PG936) 20:40 バンコク着 22:25 バンコク発(NH714)	20:25 フノンペン発(TG585) 21:30 バンコク着 23:10 バンコク発(JL718)	
8	2012/7/28	土	06:40 成田着	07:25 成田着	

EOJ: 日本国大使館

MPWT: 公共事業運輸省

DPWT: 公共事業運輸局

MEF: 経済財政省

MD: 討議議事録

3. 関係者(面会者)リスト

第一次現地調査（2012年1月23日～2012年2月1日）

氏名	所属
黒木 雅文	在カンボジア日本国大使館 特命全権大使
玉光 慎一	在カンボジア日本国大使館 一等書記官
大總 学	在カンボジア日本国大使館 二等書記官
桑野 忠生	M. P. W. T. チーフアドバイザー/道路建設・維持管理
Mr. H. E. Tauch Chankosal	M. P. W. T. Under Secretary of State
Mr. Chhim Phalla	M. P. W. T. Director of International Cooperation Department
Mr. Kong Sophal	M. P. W. T. Deputy Director of International Cooperation Department
Mr. Chou Kolla	D. P. W. T. Kampong Chnang Deputy Director
Mr. Ly Chanrithy	D. P. W. T. Kampong Chnang Chief of Department
Mr. Meas Kang	D. P. W. T. Prey Veng Deputy Director
Mr. Chea Mo	D. P. W. T. Prey Veng Deputy Director
Mr. Kry Rathat	D. P. W. T. Prey Veng Chief of Department

第二次現地調査（2012年2月13日～2012年3月13日）

氏名	所属
桑野 忠生	M.P.W.T. チーフアドバイザー/道路建設・維持管理
Mr. Tauch Chankosal	M.P.W.T. Secretary of State
Mr. Chhim Phalla	M.P.W.T. International Cooperation Department Director
Mr. Kong Sopal	M.P.W.T. International Cooperation Department Deputy Director
Mr. Heng Salpiseth	M.P.W.T. International Cooperation Department Officer
Mr. Nay Chamnang	M.P.W.T. Deputy Director of Road Infrastructure Department
Mr. Chao Sopheale Pibal	M.P.W.T. Technical Chief Officer
Mr. Noun Cham Rong,	D.P.W.T Prey Veng Director
Mr. Meas Kang	D.P.W.T Prey Veng Deputy Director
Mr. Chea Mo	D.P.W.T Prey Veng Deputy Director
Mr. Kry Rather	D.P.W.T Prey Veng Engineer
Mr. Heng Seing Hy	Environmental Department Prey Veng
Mr. Cheng Nhann	Kampong Chhnang Province Vice Governor
Mr. Hay Monorom	Kampong Chhnang Province Mayor
Mr. Yin Bothorn	D.P.W.T Kampong Chhnang Deputy Director
Mr. York Sophon	Kampong Chhnang Provincial Post Director
Mr. Kuch Dara	Cambodia Telecom Branch Director
Mr. Chay Leaphea	D.P.W.T Kampong Chhnang Deputy Director
Mr. Ly Chanrithy	D.P.W.T Prey Veng Chief Officer
Mr. Keov vet	D.P.W.T Prey Veng Officer
Mr. Or Sovanreak	Electricity Kampong Chhnang
Mr. Cheun Vuth	Environmental Department Kampong Chhnang

概略設計説明調査（2012年7月21日～2012年7月28日）

氏名	所属
Mr. Yoshihiro Higuchi	Embassy of Japan Minister
Mr. Tomohiro Iizuka	Second Secretary Embassy of Japan Secretary
Mr. Tadao Kuwano	M.P.W.T. Chief Advisor/Road Construction and Maintenance
Mr. Tauch Chankosal	M.P.W.T. Secretary of State
Mr. Chhim Phalla	M.P.W.T. International Cooperation Department Director
Mr. Kong Sophal	M.P.W.T. International Cooperation Department Deputy Director
Mr. Nay Chamnang	M.P.W.T. Deputy Director of Road Infrastructure Department (In charge of ADB Bridges on N.R. No.11 Constructon)
Mr. Meas Kang	D.P.W.T Prey Veng Deputy Director
Mr. Kry Rathet	D.P.W.T Prey Veng Engineer
Mr. Yim Vanna	D.P.W.T Kampong Chhnang Deputy Director
Mr. Ly Chanrithy	D.P.W.T Kampong Chhnang Chief Officer
Mr. Sim Samnang	M.E.F. Deputy Director
Mr. Nhean Vannak	M.E.F. Deputy Chief
Mr. Heng Honglth	M.E.F. Deputy Chief
Mr. Chantha Kim	A.D.B. Programs Officer Cambodia Resident Mission
Mr. Nida Ouk	A.D.B. Senior Project Officer (Infrastructure) Cambodia Resident Mission

4. 討議議事録 (M/D)

第一次現地調査（2012年1月23日～2012年2月1日）

**Minutes of Discussions
on the Preparatory Survey
on the Project for Flood Disaster Rehabilitation and Mitigation
in the Kingdom of Cambodia**


The Government of Japan (hereinafter referred to as "GOJ") decided to conduct a Preparatory Survey on the Project for Flood Disaster Rehabilitation and Mitigation (hereinafter referred to as "the Project") and entrusted the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Royal Government of Cambodia (hereinafter referred to as "GOC") the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Mr. Hiroyuki Hayashi, Director for Peace Building and Urban and Regional Development Division 2, Economic Infrastructure Department, JICA, and is scheduled to stay in Cambodia from 21st to 25th January, 2012.

The Team held discussions with the officials concerned of GOC and conducted field survey. As a result, both parties confirmed the main items described in the Attachment. The Team will proceed to further works and prepare the Preparatory Survey Report.

Phnom Penh, 25th January, 2012


Hiroyuki Hayashi
Leader
Preparatory Survey Team
Japan International Cooperation Agency


H. E. TRIN IV TER
Minister
Ministry of Public Works and Transport (MPWT)
Kingdom of Cambodia

ATTACHMENT

1. Purpose of the Project

The purpose of the project is to rehabilitate or replace infrastructure which have damaged by the flood in 2011 or contributed to urgent rehabilitation/retrieval of damaged infrastructure caused by flood.

2 Objectives and Schedule of the Survey

- (1) Cambodian side understood that the purpose of the Survey is to draft the most appropriate outline design and cost estimation of the Project as Japan's Grant Aid upon explanation by the Team.
- (2) Cambodian side agreed with the schedule of the Study explained by the Team as attached Annex 1.

3. Japan's Grant Aid Scheme

- (1) Cambodian side understood the Japan's Grant Aid scheme explained by the Team, as described in Annex 2.
- (2) Cambodian side confirmed to take necessary measures, as described in Annex 3, for smooth implementation of the Project. The Team supplemented that the detail will be further investigated thorough the Study.
- (3) It should be noted that implementation of the Preparatory Survey does not imply any decision or commitment by JICA to extend its grant for the project at this stage.

4. Project Components

- (1) As the results of a series of discussion, Cambodian side finally requested candidate components shown as below and in Annex 4;
 - 1) Rehabilitation of drainage system and roads on NR No.5 around Kampong Chhnang city, and other drainage system and roads(section) damaged by the flood within the southern part of NR No.5 which is approximately 140 km from Prek Kdam Bridge to Pursat, if necessary,
 - 2) Rehabilitation of the bridges along NR No.11 except the bridges committed and completed by Asian Development Bank (ADB) and GOC, and,
 - 3) Reconstruction of road in total 300 m long damaged by the flood on NR No. 118 including the

river bank protection.

- (2) Cambodian side explained that NR No.6 including 6A should be excluded from the candidate projects because the road will be improved under the Chinese loan project.
- (3) Bridges of bypass road in Siem Reap should be excluded of the Project, because the road is toll road and managed by the Apsara Authority including operation and maintenance.
- (4) Cambodian side confirmed that official request of the Project should submit to Embassy of Japan not later than 10th February, 2012.

5. Responsible and Implementing Organizations

Cambodian side explained that the responsible and implementing organization for the Project is Ministry of Public Works and Transport (hereinafter referred to as "MPWT"). MPWT confirmed its responsibility for necessary arrangements and undertakings during the Project. The organization chart of MPWT is as shown in Annex 5.

6. Environmental and Social Considerations

- (1) The Team explained the Project is to be categorized as "Category B" according to the JICA Environmental and Social Considerations Guideline (hereinafter referred to as "the JICA Guideline"), since the purpose of the Project should be limited within rehabilitation, retrieval, and replace of the existing road and bridge in principle, its negative impacts on the social and environment consideration can be minimized and mitigated through designing of the Project.
- (2) Cambodian side understands the Project needs to follow the JICA guideline.

7. Inception Report

The Team explained the contents of Inception Report and Cambodian side received it.

8. Other relevant issues

(1) Request for Equipment for emergency road rehabilitation

Cambodian side explained that machinery and equipment are very important and essential for rehabilitation and improvement of road and bridge as soon as possible after flood, and the number of equipment for emergency road rehabilitation is shorted. Therefore Cambodian side requested it to JICA as the letter dated on 20th January, 2012.

The Team confirmed it and requested MPWT to submit further information in written such as the

implementation and operation system, role of the implementation unit, budget. The letter is shown in Annex 6.

Annex 1 Schedule of the Survey

Annex 2 Japan's Grant Aid Scheme

Annex 3 Major Undertakings to be taken by Each Government

Annex 4 Project Component

Annex 5 Organization Chart of MPWT

Annex 6 Letter dated on 20th January, 2012

Schedule of the Survey

Description	2012						
	January	February	March	April	May	June	July
Preparation of Survey	□						
1st Field Survey / Determination of Components		■					
1st Analysis		□					
2nd Field Survey		■					
2nd Analysis / Preparation of Draft Report			□				
Explanation of Draft Report							■
Submission of the Survey Report							△

Note □ : Activity in Japan ■ : Activity in Cambodia

- (1) The 2nd Field Survey will be dispatched to conduct a more detailed survey for outline design of the components from the middle of February to the middle of March, 2012.
- (2) JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around by the middle of July, 2012.
- (3) JICA will prepare and submit the final report around the end of July, 2012.

JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures :

- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the



6

implementation of the Project.

- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the

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for

necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.



(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

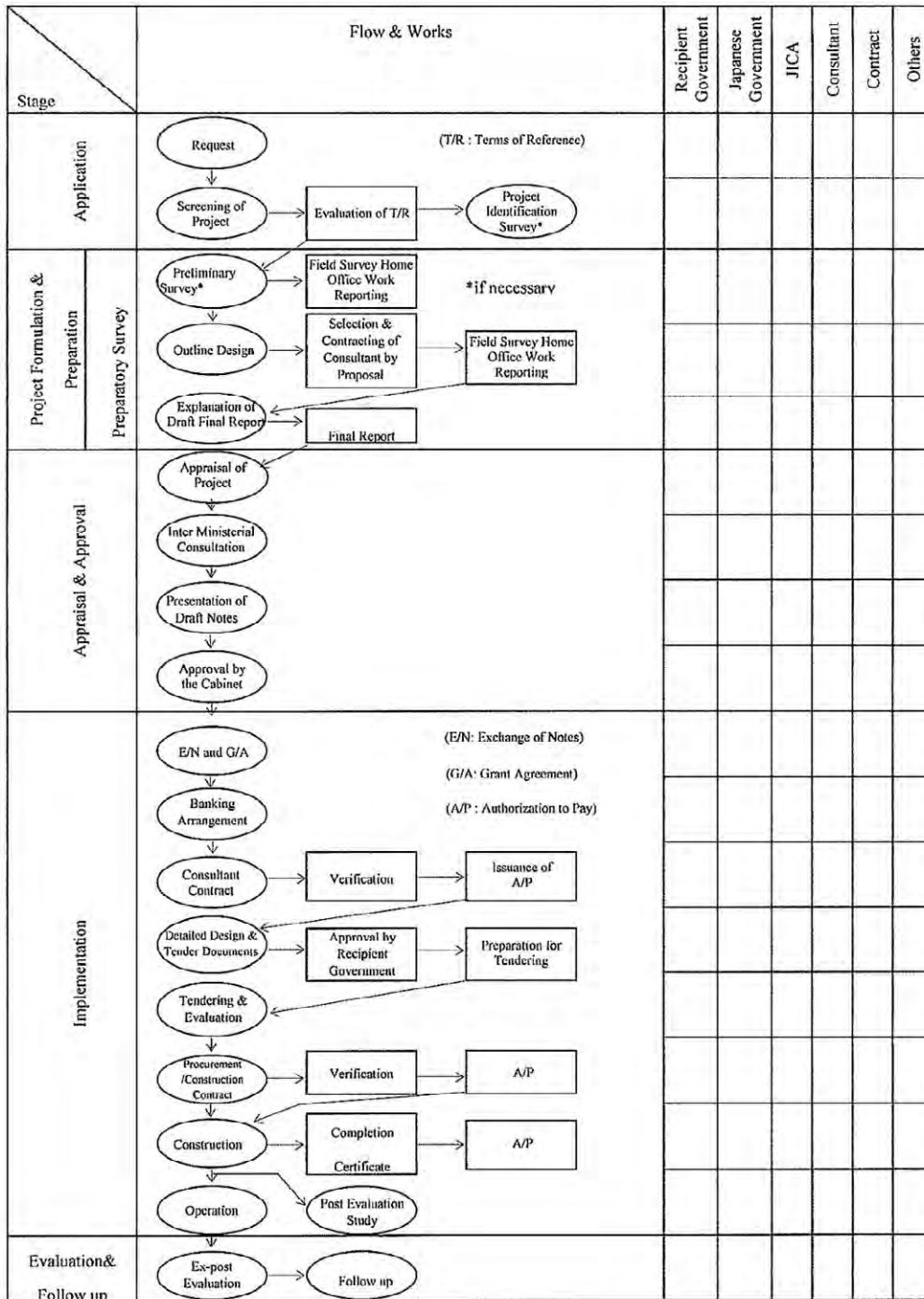
(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

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FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



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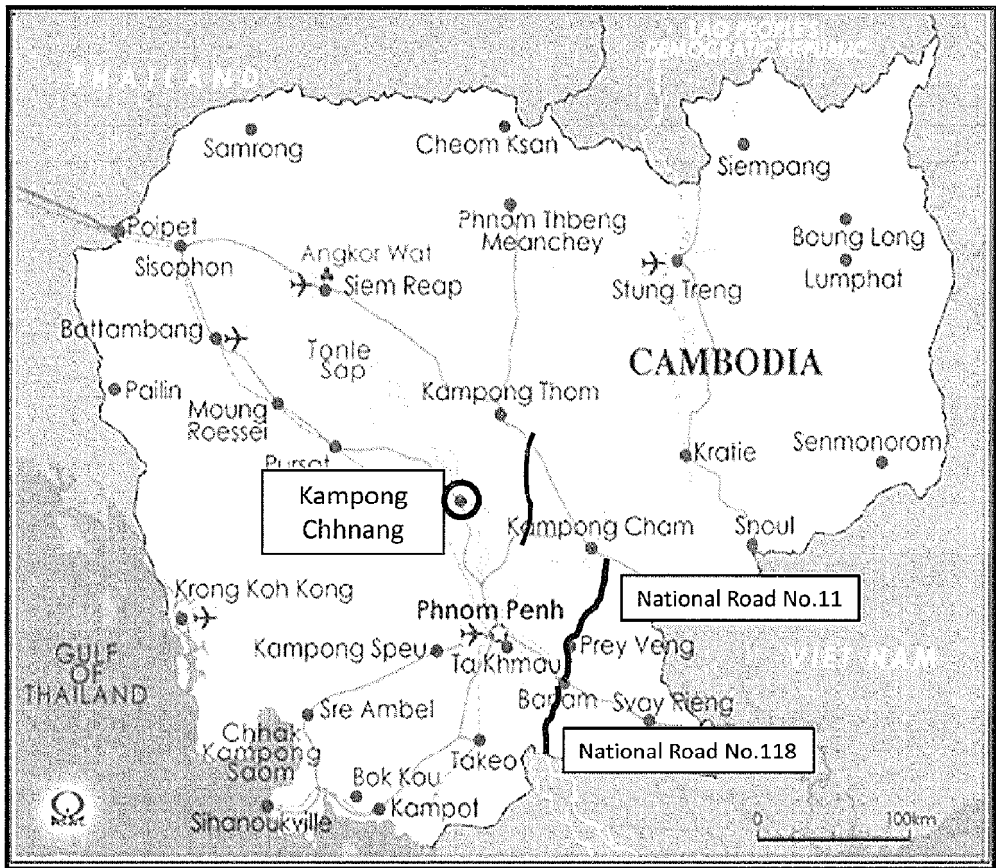
Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure a lot of land necessary for the implementation of the Project and to clear the site;		●
2	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
3	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		●
4	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
5	To ensure that the Facilities be maintained and used properly and effectively for the implementation of the Project		●
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
7	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
8	To give due environmental and social consideration in the implementation of the Project.		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

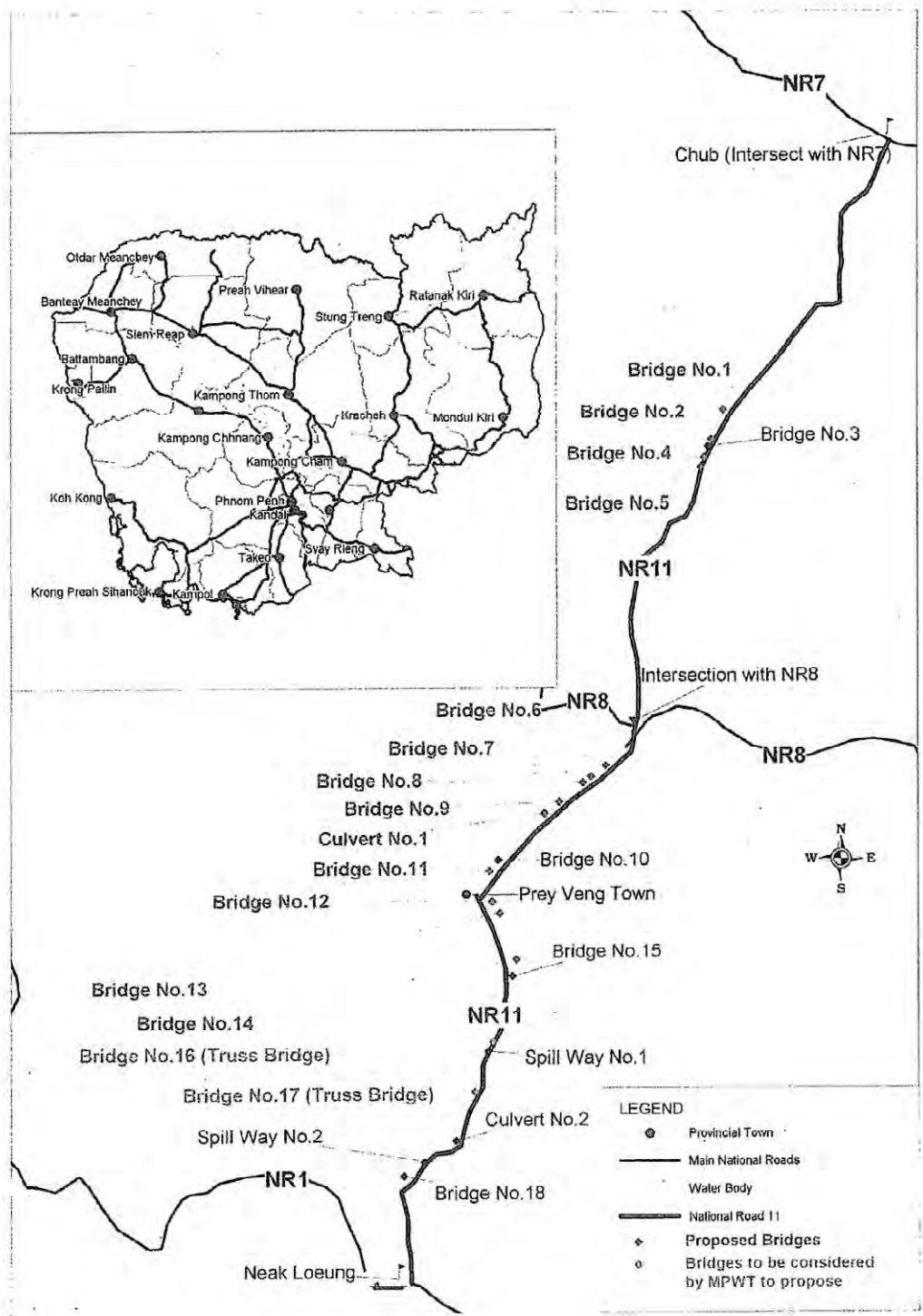
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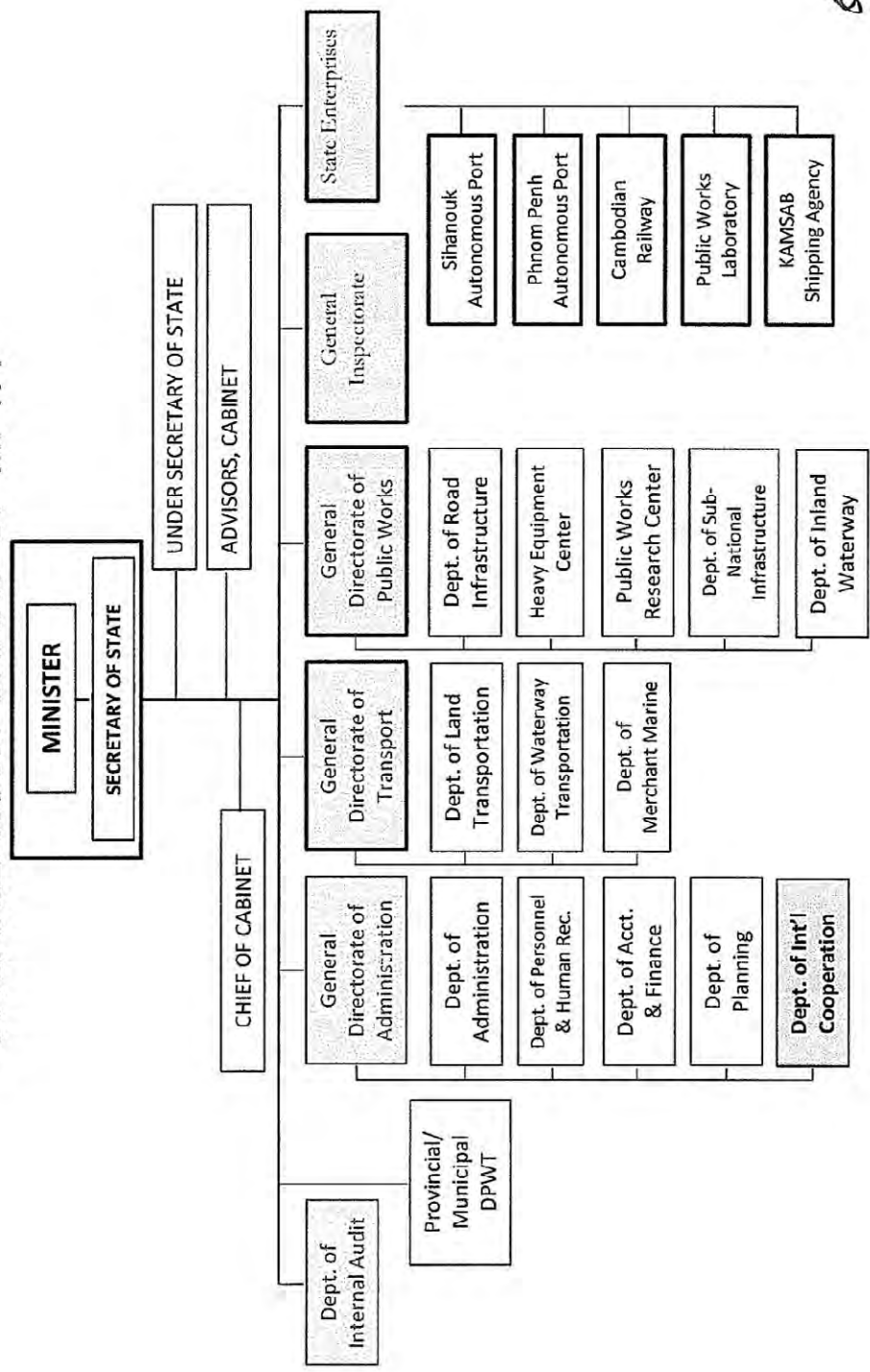
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ORGANIZATION CHART OF MPWT



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ANNEX 6

KINGDOM OF CAMBODIA
Nation Religion King

ព្រះរាជាណាចក្រកម្ពុជា



MINISTRY OF PUBLIC WORKS
AND TRANSPORT

No. 2.65.07 MPWT

Phnom Penh, P.R., January 2012

Attn: Mr. Yasujiro Suzuki,
Chief Representative of JICA Cambodia Office

SUBJECT : Request for Construction Equipment from JICA for the Emergency Flood Rehabilitation Works.

Dear Sir,

This request for additional equipment is prepared in accordance with the Record of Discussion (R/D) between the Ministry of Public Works and Transport of the Royal Government of Cambodia and Japan International Cooperation Agency on 11 May 2009 for the Project for Strengthening of Construction Quality Control and in accordance with Annex III of R/D.

In relation to the above subject, we would like to bring your attention to the following background and information as follows:

Every year, since 2007 the Ministry of Economy and Finance (MEF) has provided the national budget to the Ministry of Public Works and Transport (MPWT) for the emergency works with the amount of approx eight percent (08%) of the Budget Category No. 61 (as shown in Appendix 1).

The emergency works such as collapse of bridge structure(s), damage of the roads etc., are unpredictable and they may occur in various places throughout the country.

As you may aware, this year Cambodia faced a high flood causing severe damages to many sections of the transport infrastructures. Therefore, MPWT really needs to conduct the emergency works aiming at restoring the ordinary traffic flow which are obstructed due to the damages to the road sections and/or bridges.

In general the emergency works are usually implemented by the Provincial Department of Public Works and Transport of the particular provinces where the damage sections are located. However, in some cases, the ability for effective implementation of the emergency rehabilitation of the Provincial Departments of Public Works and Transport is restricted due to their limited and insufficient technical capability and human resources.

In this consideration, we would like to establish the Special Working Team for implementation the flood emergency rehabilitation works from the Road Infrastructure Department (RID) under the direct supervision of General Directorate of Public Works (see organization chart is in the Appendix 2) with the support from the Strengthening Construction Quality Control (SCQC) Project which is financed by JICA.

For effectiveness and efficiency in implementation of the Works of this Special Working Team, several facilities such as construction equipment, office facilities and transport facilities etc., must be

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Corner Norodom Blvd. & St. 106
Phnom Penh, Cambodia

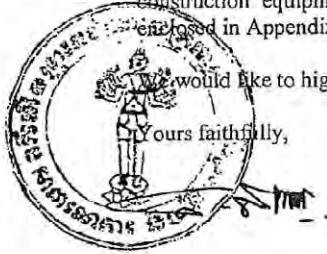
Tel: (855) 23-428 158
Fax: (855) 23-884 213

supported. At the same time, the construction equipment can also be utilized in the actual work execution in appointed pilot projects of SCQC Project (JICA).

Therefore, we would like to request for your kind consideration for the possibility in supplying the construction equipment for this emergency working team. The List of Requested Equipment is enclosed in Appendix 3.

We would like to highly appreciate for your kind support and cooperation.

Yours faithfully,



Tauch Chankosal
Secretary of State

cc:

- H.E Tram Iv Tek, Minister, MPWT
- H.E Lim Sidenine, Secretary of State, MPWT
- H.E. Kem Borey, Director General of Public Works, MPWT
- Mr. Tadao Kuwano JICA Expert for MPWT
- Ministry of Foreign Affair and International Cooperation
- Council Development of Cambodia
- Embassy of Japan in Cambodia
- File



Corner Norodom Blvd. & St. 106
Phnom Penh, Cambodia

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Appendix 1

National Budget for the Emergency Works

Type of Work	Yearly Budget (Million US\$)				
	2007	2008	2009	2010	2011
Emergency Works	1.58	1.90	2.38	2.85	3.65

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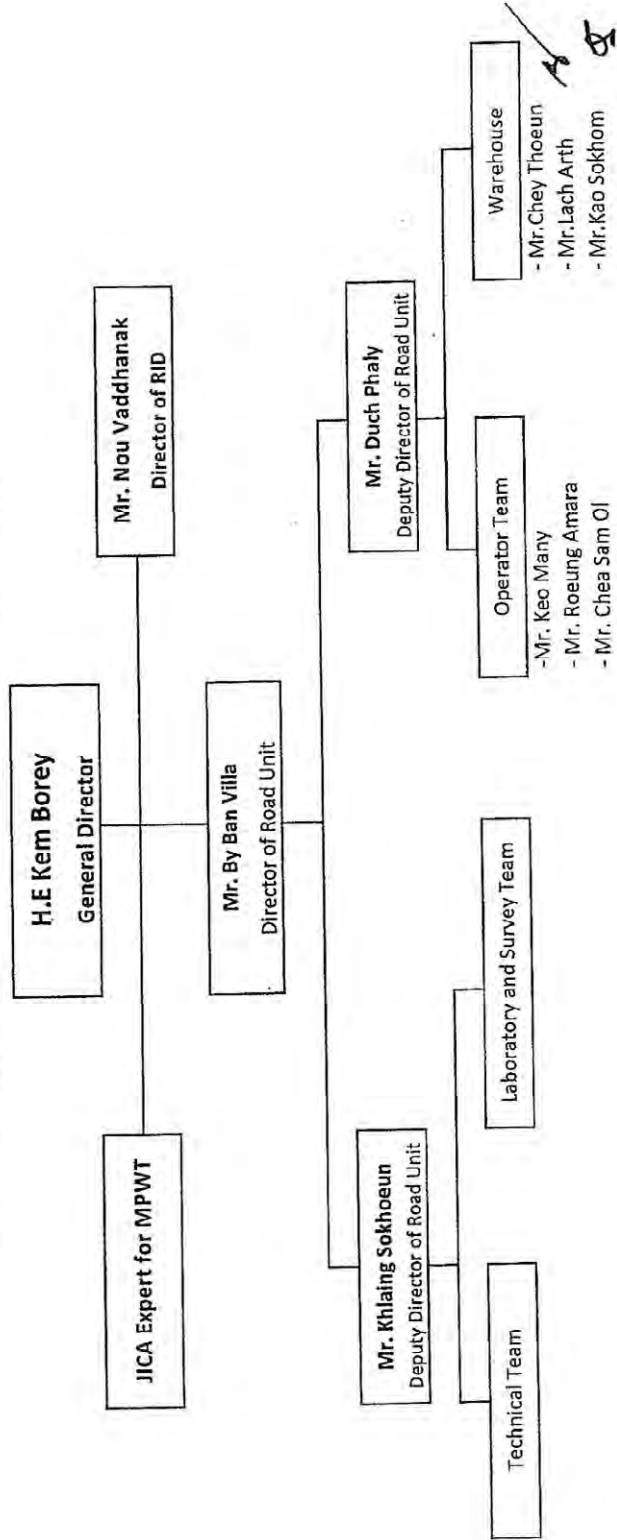


KINGDOM OF CAMBODIA
Nation Religion King
ព្រះមហាក្សត្រ នាយករដ្ឋមន្ត្រី

Ministry of Public Works and Transport
General Directorate of Public Works

Appendix 2

ORGANIZATION CHART OF EMERGENCY FLOOD UNIT





Kingdom Of Cambodia

Nation Religion King

នគរ ធិបតី ជាតិ

Ministry of Public Works and Transport

General Directorate of Public works

Appendix 3

List of Equipment to be Supplied to The Emergency Flood Unit

No.	Description	Unit	Step			Total	Remarks
			I	II	III		
1	Excavator	Nos.	1	1	1	3	1st Priority (for step I)
2	Wheel Excavator	Nos.	1	-	1	2	5th Priority (for step I)
3	Motor Grader, Blade 14 Feet	Nos.	-	1	1	2	
4	Motor Grader, Blade 12 Feet	Nos.	1	-	1	2	2nd Priority (for step I)
5	Compactor Roller	Nos.	1	1	2	4	3rd Priority (for step I)
6	3 Wheel Roller	Nos.	R	2	2	4	
7	Pneumatic Roller	Nos.	R	2	2	4	
8	Bulldozer D4	Nos.	-	1	-	1	
9	Bulldozer D5	Nos.	1	-	1	2	4th Priority (for step I)
10	Bulldozer D6	Nos.	-	1	-	1	
11	Crane Truck (5T)	Nos.	1	1	-	2	6th Priority (for step I)
12	Crane Truck (30T)	Nos.	R	-	1	1	
13	Wheel Loader	Nos.	R	1	1	2	
14	Dump Truck	Nos.	R	4	6	10	
15	Water Truck	Nos.	R	1	1	2	
16	Trailer	Nos.	R	1	-	1	
17	Distributor Trailer	Nos.	R	1	-	1	
18	Broom Tractor	Set	R	1	-	1	
19	Air Compressor	Set	R	1	1	2	
20	Generator	Set	R	1	-	1	
	Total :	Nos.	6	21	21	48	

Note:

R: To be Rented from The Private Company for Implementation in the Step I.

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SPECIFICATION AND PRICE OF EQUIPMENT

No.	Description	Mark	Model	Qty	Unit	Unit Price (USD)	Remarks
1	Bulldozer (D4)	KOMATSU	D37EX/PX-22	1	Unit	140,000.00	
2	Bulldozer (D5)	KOMATSU	D51EX/PX-22	1	Unit	180,000.00	4th Priority (for step I)
3	Bulldozer (D6)	KOMATSU	D61EX/PX-15	1	Unit	230,000.00	
4	Wheel Excavator, Bucket capacity 0.86m ³	KOMATSU	PW148-8	1	Unit	336,000.00	5th Priority (for step I)
5	Excavator, Blade 0.7m ³	KOMATSU	PC200-B	1	Unit	125,000.00	1st Priority (for step I)
6	Motor Grader, Blade 12Feet	KOMATSU	GD511A-1	1	Unit	184,500.00	2nd Priority (for step I)
7	Motor Grader, Blade 14Feet	KOMATSU	GD555-3A	1	Unit	268,000.00	
8	Compactor Roller	SAKAI	Operation weight 2.5Tons	1	Unit	75,000.00	3rd Priority (for step I)
9	Pneumatic Roller, Operating Weight 12.5Tons	DYNAPAC	CP224	1	Unit	110,000.00	
10	Tree Wheel Roller, Weight 13Tons	DYNAPAC	CS142	1	Unit	144,000.00	
11	Wheel Loader	KOMATSU	BLADE 1.3M ³	1	Unit	65,000.00	
12	Water Truck, Tank Capacity 1000L-1500L	HINO	CLW5060	1	Unit	90,000.00	
13	Distributor Trailer	BRAND NEW	TANK Capacity: 8,000L	1	Unit	130,000.00	

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14	Dump truck, 20Tons	HINO	YC3250FS2PK	1	Unit	120,000.00	
15	Trailer, Load 25Tons-35Tons	HINO	YC4185H2PE4	1	Unit	150,000.00	
16	Crane truck, 5Tons	DAYU	QLY5Z	1	Unit	70,000.00	6th Priority (for step I)
17	Crane truck, 30Tons	TADANO	TL-300E	1	Unit	300,000.00	
18	Air Compressor	DENYO	DIS 555B	1	Unit	18,900.00	
19	Silent Generator, 60KVA	DENYO	P1144e	1	Unit	12,000.00	
20	Broom Tractor	Kubota		1	Unit	28,000.00	

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**Minutes of Discussions
on the Preparatory Survey
on the Project for Flood Disaster Rehabilitation and Mitigation
in the Kingdom of Cambodia
(Explanation on Draft Final Report)**

In January 2012, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Preparatory Survey Team on the project for flood disaster rehabilitation and mitigation (hereinafter referred to as "the Project") to the Royal Government of Cambodia, and through discussion, field surveys and technical examination of the results in Japan, JICA prepared a draft final report of the study.

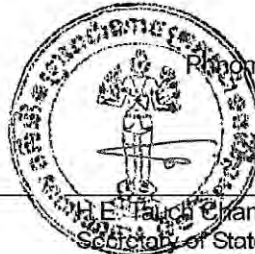
In order to explain and consult with the Royal Government of Cambodia on the components of the draft final report, JICA sent to Cambodia the Explanation Team (hereinafter referred to as "the Team"), headed by Mr. Yukinari TANAKA, Assistant Director for Peace Building and Urban and Regional Development Division 2, Economic Infrastructure Department, JICA from 22nd to 27th July, 2012.

As a result of discussions with the concerned officials of the Royal Government of Cambodia, both sides confirmed the main items described in the attached sheets.

Phnom Penh, July 27th, 2012

田中幸成

Yukinari TANAKA
Leader
Outline Design Explanation Team
Japan International Cooperation Agency



H.E. Jauch Chankosal
Secretary of State
Ministry of Public Works and Transport
(MPWT)
Kingdom of Cambodia

(Handwritten signature)

H.E. Nhean Leng
Under Secretary of State
Ministry of Economy and Finance (MEF) *(Handwritten initials)*
Kingdom of Cambodia

ATTACHMENT

1. Components of the Draft Final Report

(1) Cambodian side agreed and accepted in principle the components of the Draft Final Report of the preparatory Survey (hereinafter referred to as "the Report") explained by the Team. The list of components is shown in ANNEX 1.

(2) Concerning the Improvement of Bridges along National Road No.11, Japanese side agreed to demolish all existing bridges and culverts in response to the request from Cambodian side from the view point of the securing of overall construction schedule.

(3) Both sides confirmed that additional information shall be described in a Final Report in the process of finalization, if necessary.

2. Cost Estimation

The Team explained the project cost estimation as attached in ANNEX 2. Both sides confirmed that the project cost is highly confidential for securing fairness of tender procedure and should never be duplicated or released to any third parties until relevant contracts are awarded by the implementing agency.

3. Schedule of the Survey

The Team will complete the Survey and send the final report in English to the Royal Government of Cambodia around the end of August, 2012.

4. Environmental and Social Considerations

(1) Environmental checklist

MPWT and the Team confirmed information on environmental and social considerations including major impacts and relevant mitigation measures are summarized in the Environmental Checklist attached as ANNEX 3. MPWT confirmed they will inform JICA of any major changes which affect environmental and social considerations made for the Project by revising it in a timely manner.

(2) Monitoring and Report of the monitoring results

(i) MPWT, MEF and the Team confirmed environmental monitoring will be conducted by MPWT in accordance with the Environmental Monitoring Plan described in the

Report.

- (ii) MPWT and MEF confirmed that the results of environmental monitoring will be provided to JICA as a part of Monthly Progress Report by filling in the monitoring form attached as ANNEX 4 until the completion of the Project, provided that there is no outstanding issue regarding the environmental and social considerations during operation of the Project.
- (iii) In case JICA finds that there is a need for improvement in a situation with respect to environmental considerations after the agreed monitoring period. JICA may request to extend the period of monitoring and reporting until JICA confirms the issues have been properly addressed in accordance with the agreement between MPWT and JICA.
- (iv) MPWT, MEF and the Team confirmed internal monitoring proposed in the Abbreviated Resettlement Planning (ARP) will be conducted by MPWT. MPWT agreed that progress of land acquisition and implementation of ARP will be monitored and reported to JICA on a monthly basis as a part of Monthly Progress Report by filling in the ANNEX 5.
- (v) In case there is a remaining issue that needs to be addressed, JICA may request to extend the period of monitoring and reporting until JICA confirms the issues have been properly addressed and solved in accordance with the agreement between MPWT and JICA.

(3) Disclosure of Environmental Monitoring Result

The Team requested MPWT and MEF to disclose the environmental monitoring results to local project stakeholders, and MPWT and MEF agreed to disclose the environmental monitoring results of ANNEX 4 in their filed offices. MPWT and MEF agreed JICA's disclosure of provided environmental monitoring results based on ANNEX 4 in the environmental monitoring form on its website.

(4) Schedule of the preparation for Abbreviated Resettlement Planning (ARP)

Both sides confirmed the progress and schedule of the preparation for ARP (ANNEX 6) as the below;

- Public consultation will have completed by the end of October, 2012.

- Detailed Measurement Survey and Replacement Cost Survey will have completed by the middle of October, 2012.
- Draft updated ARP should be submitted to Japanese side through JICA Cambodia office by the end of November, 2012.
- Japanese side will confirm ARP by end of November, 2012.

(5) Grievance Committee

Cambodia side confirmed that the Grievance Committee would be set up by the end of September, 2012. The copy of the member list of the Grievance Committee will be provided to JICA Cambodia office by the middle of October, 2012.

5. Undertakings to be taken by the Cambodian side for the Project

(1) The Cambodian side confirmed that the following undertakings should be taken by the Cambodian side at the Cambodian expenses.

- (i) Implementation of ARP and Land Acquisition before the construction period
- (ii) Environmental monitoring as mentioned in Article 4 during the construction period
- (iii) Necessary arrangement for traffic and navigation control at necessary sections during the construction period
- (iv) Securing and clearance of the temporary yard for construction works during the construction period
- (v) Relocation and/or removal of existing utilities (power lines, water lines, etc.) from the Project site within three weeks after the request from a consultant or a contractor

(2) The Cambodian side will secure sufficient budget in a timely manner for smooth implementation of the Project.

(3) The Team handed copies of revised draft drawings showing the affected area by the Project to the Cambodian side for the purpose of smooth implementation of the above mentioned undertakings to be taken by the Cambodian side.

6. Demining and Clearance

Both sides agreed that Cambodia side implements the demining and clearance activities

for the land mines and Unexploded Ordnance (UXO) in order not to delay the Project.

7. Other Relevant Issues

JICA will conduct an ex-post evaluation on the Project in three years.

ANNEX 1: The list of components

ANNEX 2: The Project Cost Estimation (CONFIDENTIAL)

ANNEX 3: Environmental Checklist

ANNEX 4: Monitoring Form for Environment

ANNEX 5: Internal Monitoring Form (land acquisition, resettlement)

ANNEX 6: Implementation Schedule of ARP



ANNEX 1

The list of components

Components	Detail of Components																																								
<p>Roads and Drainage Facilities in Kampong Chhnang City</p>	<p><u>National Road No.5 City Center Section</u> Road Section Length: 2.2km Road Pavement: Asphalt Concrete Surface Course (50mm thick) Asphalt Concrete Binder Course (50mm thick) Bituminous Treatment Base Course (80mm thick) Mechanical Stabilized Base Course (200mm thick) Crusher-Run Sub-Base Course (300mm thick) Sidewalk Pavement: Ceramic Tile Surfacing Drainage Facilities: Concrete Pipes (300mm), Side Ditches, Catch Basins, Manholes Ancillary Facilities: Road markings, Gabions</p> <p><u>Streets and Drainage Ways</u> Total Street Length : 2.4km Street Pavement : Asphalt Concrete Surface Course (50mm thick) Bituminous Treatment Base Course (50mm thick) Crusher-Run Sub-Base Course (250mm thick) Public Market: Interlocking Block Pavement Drainage Ways Total Length : 2.6km Drainage Way Surfacing: Aggregate Surfacing (200mm thick) Drainage Facilities: Concrete Pipes (300~1750mm), Catch Basins, Manholes, Ditches Ancillary Facilities: Road Markings</p>																																								
<p>Bridges along National Road No.11</p>	<p style="text-align: center;">Bridge List</p> <table border="1" data-bbox="620 1048 1217 1417"> <thead> <tr> <th>Bridge No.</th> <th>Bridge Name</th> <th>Bridge Length (m)</th> <th>No. of Span</th> </tr> </thead> <tbody> <tr> <td>BR-4</td> <td>Kbal Boeung</td> <td>33.0</td> <td>3</td> </tr> <tr> <td>BR-5</td> <td>Snate</td> <td>40.0</td> <td>4</td> </tr> <tr> <td>BR-7</td> <td>Sam Puthor II</td> <td>44.0</td> <td>4</td> </tr> <tr> <td>BR-8</td> <td>Mebon</td> <td>50.0</td> <td>5</td> </tr> <tr> <td>BR-9</td> <td>Tkov I</td> <td>44.0</td> <td>4</td> </tr> <tr> <td>Clv-1</td> <td>Tkov II</td> <td>20.0</td> <td>2</td> </tr> <tr> <td>BR-11</td> <td>Ek Ream</td> <td>33.0</td> <td>3</td> </tr> <tr> <td>Clv-2</td> <td>Rom Lech</td> <td>44.0</td> <td>4</td> </tr> <tr> <td colspan="2" style="text-align: center;">Total of 8 Bridges</td> <td>308.0</td> <td>29</td> </tr> </tbody> </table> <p>Carriageway Width: 10.0 m Superstructure Type: RC Slab (Integral Type) Foundation Type: Precast Pile (400 mm x 400 mm) Bridge Approach Road Pavement: Asphalt Concrete Surface Course (50 mm thick) Asphalt Concrete Binder Course (50mm thick) Bituminous Treatment Base Course (80mm thick) Mechanical Stabilized Base Course (150mm thick) Crusher-Run Sub-Base Course (250mm thick) Cement Treatment Upper Subgrade (400mm thick) Slope Protection: Sodding, Grouted Riprap Riverbed Protection: Boulders, Gabion Mattresses Ancillary facilities: Guide Posts, Guardrails, Road Markings</p>	Bridge No.	Bridge Name	Bridge Length (m)	No. of Span	BR-4	Kbal Boeung	33.0	3	BR-5	Snate	40.0	4	BR-7	Sam Puthor II	44.0	4	BR-8	Mebon	50.0	5	BR-9	Tkov I	44.0	4	Clv-1	Tkov II	20.0	2	BR-11	Ek Ream	33.0	3	Clv-2	Rom Lech	44.0	4	Total of 8 Bridges		308.0	29
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ANNEX 2

The Project Cost Estimation

Items		Cost Estimated (Million Japanese Yen)	
Construction Cost	Improvement of roads and drainage facilities in Kampong Chhnang City	850.0	1,366.0
	Improvement of bridges along National Road No.11	516.0	
Consultant Fee (Detailed design & construction supervision)			142.5
Total			1,508.5

Notes:

- (1) The cost estimates in the above table are provisional.
- (2) The Total Cost of the Project JPY 1,508.5 million is equivalent to USD 19.55 million at the current exchange rate USD 1.0=JPY 77.18.

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Environmental Checklist National Road No.11

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
1 Permits and Explanation	(1) EIA and Environmental Permits	① Have EIA reports been officially completed? ② Have EIA reports been approved by authorities of the host country's government? ③ Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? ④ In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	① ② ③ EIA report is not need for the project by Sub-Decree on Environmental Impact Assessment Process(1999). ④ MPWT will get approval of Environmental Management Plan.
	(2) Explanation to the Public	① Are contents of the project and the potential impacts adequately explained to the public based on appropriate procedures, including information disclosure? Is understanding obtained from the public? ② Are proper responses made to comments from the public and regulatory authorities?	① ② The project plan is not completed.
	(1) Air Quality	① Is there a possibility that air pollutants emitted from various sources, such as vehicle traffic will affect ambient air quality? Does ambient air quality comply with the country's ambient air quality standards? ② Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	① This project will not cause increase of traffic volume since the project is reconstruction of existing bridges. ② There are no industrial areas near the route.
2 Mitigation Measures	(2) Water Quality	① Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? ② Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater? ③ Do effluents from various facilities, such as stations and parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas that do not comply with the country's ambient water quality standards?	① There is no possibility of soil runoff and water quality degradation in the project area since the project is reconstruction of existing bridges. ② The surface runoff water from roads is designed to be drained to river which will not contaminate water sources. ③ There is no facility near the project area.
	(4) Noise and Vibration	① Do noise and vibrations from vehicle comply with the country's standards?	① During construction period, generation of noise and vibration can be minimized by the followings: using low noise heavy machineries and construction vehicles, construction with noise and vibration equipment undertaken from 08:00 am to 05:00 pm, making public announcement of construction plan prior to construction.

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Environmental Checklist National Road No. 11

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
3 Natural Environment	(1) Protected Areas	<ol style="list-style-type: none"> 1. Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas? 2. Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? 3. Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? 4. If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? 5. Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? 6. Is there a possibility that installation of roads will cause impacts, such as destruction of forests, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? 7. In cases where the project site is located at undeveloped areas, is there a possibility that the project will adversely affect surface water and groundwater flows? 	<ol style="list-style-type: none"> 1. There are no protected areas in the site. 2. There are no ecological valuable habitats in the site. 3. The protected habitats of endangered species designated by the country's laws or international treaties and conventions have not been identified in the site. 4. No significant ecological impact is anticipated. 5. Since the road is existing road, no disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock is anticipated. If there will be migration route around the site traffic sign will be installed. 6. Since the project is reconstruction of existing bridges, it will not cause destruction of forest and wetland and disturbance of ecosystems and introduction of exotic species. 7. No significant development which will result in extensive loss of natural environment is anticipated.
	(3) Hydrology	<ol style="list-style-type: none"> 1. Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows? 	<ol style="list-style-type: none"> 1. Reconstruction of existing bridges will not cause any significant adverse affect on surface water and groundwater flows.
	(4) Topography and Geology	<ol style="list-style-type: none"> 1. Is there a soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? 2. Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? 3. Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff? 	<ol style="list-style-type: none"> 1. There is not soft ground which may cause slope failure or landslide on the route. 2. There is no possibility of slope failure, landslide or soil runoff since the cutting and filling slopes are protected with riprap or turfing.
	(1) Resettlement	<ol style="list-style-type: none"> 1. Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? 2. Is adequate explanation on relocation and compensation given to affected persons prior to resettlement? 3. Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? 4. Does the resettlement plan pay particular attention to vulnerable groups or persons, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous people? 5. Are agreements with the affected persons obtained prior to resettlement? 6. Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? 7. Is a plan developed to monitor the impacts of resettlement? 	<ol style="list-style-type: none"> 1. Some small wooden house located in the right of way are necessary to be removed from the construction area where the temporary detours will be constructed during the construction. The plan will be made to minimize the impact. 2. Adequate socialization on reasonable compensation will be given to the affected persons prior to the removal of houses by a committee in accordance with Cambodia regulations and laws and JICA Guidelines for Environmental and Social Consideration. 3. Agreement between the affected persons the committee will be made prior to the removal of houses. 4. The committee to consult with the affected persons will be established by a representative from DPWT and other representatives from concerned ministries institutions. 5. Yes internal monitoring form was developed.

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Environmental Checklist - National Road No.11

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(2) Living and Livelihood	<p>1. Where roads or railways are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts?</p> <p>2. Is there a possibility that the project will adversely affect the living conditions of inhabitants other than the affected inhabitants? Are adequate measures considered to reduce the impacts, if necessary?</p> <p>3. Is there a possibility that diseases, including communicable diseases, such as HIV will be introduced due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary?</p> <p>4. Is there a possibility that the project will adversely affect road traffic in the surrounding areas (e.g. by causing increases in traffic congestion and traffic accidents)?</p> <p>5. Is there a possibility that roads and railways will impede the movement of inhabitants?</p> <p>6. Is there a possibility that structures associated with roads (such as bridges) will cause a sun shading and radio interference?</p>	<p>(1)-(2) No adverse impact on transportation, livelihood and socioeconomic conditions in the area is anticipated by the project since the project is reconstruction of existing bridges.</p> <p>(3) No significant possibility of communicable disease is anticipated. HIV awareness-rising through education and workshop for workers will be taken in the project.</p> <p>(6) The project will not cause sun shading and radio interference.</p>
	(3) Heritage	<p>1. Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage sites? Are adequate measures considered to protect these sites in accordance with the country's laws?</p>	<p>1. There are no archeological, historical cultural and religious heritage in the site.</p>
	(4) Landscape	<p>1. Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?</p>	<p>1. There is no possibility of adverse affect on local landscape by the reconstruction of existing bridges.</p>
	(5) Ethnic Minorities and Indigenous People	<p>1. Where ethnic minorities and indigenous peoples are living in the rights-of-way, are considerations given to reduce the impacts on culture and lifestyle of ethnic minorities and indigenous people?</p> <p>2. Does the project comply with the country's laws for rights of ethnic minorities and indigenous people?</p>	<p>(1)-(2) There is no ethnic minorities and indigenous people having unique culture and lifestyle in the site.</p>

Environmental Checklist - National Road No.11

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
		<p>① Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?</p> <p>② If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?</p> <p>③ If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?</p> <p>(1) Impacts during Construction</p> <p>④ If necessary, is health and safety education (e.g., traffic safety, public health) provided for project personnel, including workers?</p>	<p>① Yes. Adequate measures such as periodical water spray and sheet cover on truck will be employed to reduce dust. Equipment will be maintained in good condition by proper maintenance.</p> <p>② No significant adverse affect on natural environment (ecosystem) is anticipated by the construction. The surrounding of the construction site will be restored as before.</p> <p>③ Some small houses in the right of way are probably necessary to be removed from the site during the construction. Adequate socialization on reasonable compensation will be given to the affected persons prior to the removal of houses by the committee.</p> <p>④ The contractor will provided health and safety education for project personnel including workers.</p>
5 Others		<p>① Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?</p> <p>② Are the items, methods and frequencies included in the monitoring program judged to be appropriate?</p> <p>③ Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?</p> <p>(2) Monitoring</p> <p>④ Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?</p>	<p>①②③④ Yes. MPWT will develop Environmental Management Plan by the country's laws or international. MPWT/DPWT shall establish a fund and an office with qualified technical staff, appropriate equipment, methodologies and a well-prepared schedule for monitoring environmental quality in close collaboration with relevant institutions in order to mitigate negative socio-economic and environmental resource impact to a minimum level by the country's laws or international.</p>
6 Note	<p>Reference to Checklist of Other Sectors</p> <p>Note on Using Environmental Checklist</p>	<p>① Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation).</p> <p>② Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).</p> <p>③ If necessary, the impacts to trans boundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as trans boundary waste treatment, acid rain, destruction of the ozone layer, or global warming).</p>	

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are made, if necessary.
 In cases where local environmental regulations are set to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience)

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

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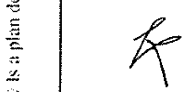
Environmental Checklist Kampong Chhnang

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
1 Permits and Explanation	(1) EIA and Environmental Permits	1. Have EIA reports been officially completed? 2. Have EIA reports been approved by authorities of the host country's government? 3. Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? 4. In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	1. 2. 3. EIA report is not need for the project by Sub-Decree on Environmental Impact Assessment Process(1999). 4. MPWT will get approval of Environmental Management Plan.
	(2) Explanation to the Public	1. Are contents of the project and the potential impacts adequately explained to the public based on appropriate procedures, including information disclosure? Is understanding obtained from the public? 2. Are proper responses made to comments from the public and regulatory authorities?	1. 2. The project plan is not completed.
	(1) Air Quality	1. Is there a possibility that air pollutants emitted from various sources, such as vehicle traffic, will affect ambient air quality? Does ambient air quality comply with the country's ambient air quality standards? 2. Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	1. This project will not cause increase of traffic volume since the project is improvement of existing road and drainage facilities. 2. There are no industrial areas near the route.
2 Mitigation Measures	(2) Water Quality	1. Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? 2. Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater? 3. Do effluents from various facilities, such as stations and parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas that do not comply with the country's ambient water quality standards?	1. There is no possibility of soil runoff and water quality degradation in the project area since the project is improvement of existing road and drainage facilities. 2. The surface runoff water from roads is designed to be drained to river which will not contaminate water sources. 3. There is no facility near the project area.
	(4) Noise and Vibration	1. Do noise and vibrations from vehicle comply with the country's standards?	1. During construction period, generation of noise and vibration can be minimized by the followings: using low noise heavy machineries and construction vehicles, construction with noise and vibration equipment undertaken from 08:00 am to 05:00 pm, making public announcement of construction plan prior to construction.

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Environmental Checklist - Kampong Chhnang

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
	(1) Protected Areas	<p>① Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?</p> <p>② Does the project site encompass primaxial forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)?</p> <p>③ Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?</p> <p>④ If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem?</p> <p>⑤ Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock?</p> <p>⑥ Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered?</p> <p>⑦ In cases where the project site is located at undeveloped areas, is there a possibility that the</p>	<p>① There are no protected areas in the site. There is Tonle Sap Multiple Management Use Area about 10km upstream of Tonle Sap river from the project site. But there is no possibility to affect the protected areas</p> <p>② There are no ecological valuable habitats in the site</p> <p>③ The protected habitats of endangered species designated by the country's laws or international treaties and conventions have not been identified in the site</p> <p>④ No significant ecological impact is anticipated.</p> <p>⑤ Since the road is existing road in the city, no disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock is anticipated</p> <p>⑥ Since the project is improvement of existing road and drainage facilities, it will not cause destruction of forest and wetland and disturbance of ecosystems and introduction of exotic species.</p> <p>⑦ No significant development which will result in extensive loss of natural environment is anticipated.</p>
3 Natural Environment	(2) Ecosystem	<p>① Is there a possibility that alteration of topographic features and installation of structures, such as tunnels, will adversely affect surface water and groundwater flows?</p>	<p>① Improvement of existing road and drainage facilities will not cause any significant adverse affect on surface water and groundwater flows.</p>
	(3) Hydrology	<p>① Is there a soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed?</p> <p>② Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides?</p> <p>③ Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?</p>	<p>① There is not soft ground which may cause slope failure or landslide on the route.</p> <p>②③ There is no possibility of slope failure, landslide or soil runoff</p>
	(4) Topography and Geology	<p>① Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?</p> <p>② Is adequate explanation on relocation and compensation given to affected persons prior to resettlement?</p> <p>③ Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?</p> <p>④ Does the resettlement plan pay particular attention to vulnerable groups or persons, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous people?</p> <p>⑤ Are agreements with the affected persons obtained prior to resettlement?</p> <p>⑥ Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?</p> <p>⑦ Is a plan developed to monitor the impacts of resettlement?</p>	<p>① Temporary shops located in the right of way are necessary to be removed from the construction area. And land acquisition necessary. The plan will be made to minimize the impact.</p> <p>②③④ Adequate socialization on land acquisition and reasonable compensation will be given to the affected persons prior to the land acquisition and removal of temporary shops by a committee in accordance with Cambodia regulations and laws and JICA Guidelines for Environmental and Social Consideration</p> <p>⑤ Agreement between the affected persons the committee will be made prior to the land acquisition and removal of temporary shops.</p> <p>⑥ The committee to consult with the affected persons will be established by a representative from DPWT and other representatives from concerned ministries/institutions.</p> <p>⑦ Yes internal monitoring form was developed</p>
4 Social Environment	(1) Resettlement		


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Environmental Checklist Kampong Chhnang

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(2) Living and Livelihood	<p>① Where roads or railways are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts?</p> <p>② Is there a possibility that the project will adversely affect the living conditions of inhabitants other than the affected inhabitants? Are adequate measures considered to reduce the impacts, if necessary?</p> <p>③ Is there a possibility that diseases, including communicable diseases, such as HIV will be introduced due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary?</p> <p>④ Is there a possibility that the project will adversely affect road traffic in the surrounding areas (e.g., by causing increases in traffic congestion and traffic accidents)?</p> <p>⑤ Is there a possibility that roads and railways will impede the movement of inhabitants?</p> <p>⑥ Is there a possibility that structures associated with roads (such as bridges) will cause a sun shading and radio interference?</p>	<p>① 2/3/5: No adverse impact on transportation, livelihood and socioeconomic conditions in the area is anticipated by the project since the project is improvement of existing road and drainage facilities</p> <p>③ No significant possibility of communicable disease is anticipated. HIV awareness-raising through education and workshop for workers will be taken in the project.</p> <p>⑥ The project will not cause sun shading and radio interference</p>
	(3) Heritage	<p>① Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage sites? Are adequate measures considered to protect these sites in accordance with the country's laws?</p>	<p>① There are no archeological, historical, cultural and religious heritage in the site.</p>
	(4) Landscape	<p>① Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?</p>	<p>① There is no possibility of adverse affect on local landscape by the improvement of existing road and drainage facilities</p>
	(5) Ethnic Minorities and Indigenous People	<p>① Where ethnic minorities and indigenous peoples are living in the rights-of-way, are considerations given to reduce the impacts on culture and lifestyle of ethnic minorities and indigenous people?</p> <p>② Does the project comply with the country's laws for rights of ethnic minorities and indigenous people?</p>	<p>① ② There is no ethnic minorities and indigenous people having unique culture and lifestyle in the site.</p>

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Environmental Checklist Kampong Chhnang

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
5 Others	(1) Impacts during Construction	① Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? ② If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? ③ If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts? ④ If necessary, is health and safety education (e.g., traffic safety, public health) provided for project personnel, including workers?	① Yes: Adequate measures such as periodical water spray and sheet cover on track will be employed to reduce dust. Equipment will be maintained in good condition by proper maintenance. ② No significant adverse effect on natural environment (ecosystem) is anticipated by the construction. The surrounding of the construction site will be restored as before. ③ Some small temporary shops in the right of way are probably necessary to be removed from the site during the construction. Adequate socialization on reasonable compensation will be given to the affected persons prior to the removal of shops by the committee. ④ The contractor will provided health and safety education for project personnel including workers
	(2) Monitoring	① Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? ② Are the items, methods and frequencies included in the monitoring program judged to be appropriate? ③ Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? ④ Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	① ② ③ ④ Yes: MPWT will develop Environmental Management Plan by the country's laws or international. MPWT/DPWT shall establish a fund and an office with qualified technical staff, appropriate equipment, methodologies and a well-prepared schedule for monitoring environmental quality in close collaboration with relevant institutions in order to mitigate negative socio-economic and environmental resource impact to a minimum level by the country's laws or international
6 Note	Reference to Checklist of Other Sectors	① Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation). ② Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).	
	Note on Using Environmental Checklist	① If necessary, the impacts to trans boundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as trans boundary waste treatment, acid rain, destruction of the ozone layer, or global warming)	

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are made, if necessary.
 In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).
 2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located

ANNEX 4

Monitoring Form for Environment

During the construction of the project facilities, the following environmental items will be monitored by the Consultant and reported to DPWT and JICA Cambodia Office monthly.

Monitoring Item	Monitoring Method	Monitoring Result
<p>1. Air and noise pollution mitigation</p> <p>To water routinely on the dusty roads, install dust-collector of plant if necessary, secure distance of base camp from residential area, regulate vehicle speed slower than 40 km/hr and ban overtime work. To clear and vegetate the area where camps were.</p>	<p>To survey air and noise pollution level by field observation and by interview to surrounding local people who complain on deterioration of ambient air quality and increase of the noise level by field observation with surrounding local people.</p>	<p><u>Visual observation</u> Ambient air quality: Noise level:</p> <p><u>Local people's complain</u> on air pollution: on noise:</p> <p>Evaluation:</p>
<p>2. Riverwater pollution prevention</p> <p>To treat polluted water properly, discharge muddy water after clearing, install septic tanks for every camps and treat rubbish properly and not to dump directly to river.</p>	<p>To survey riverwater quality by observation of sampled water visually. To investigate treatment system of polluted water arisen from the Project. To interview to local people who reside downstream of bridge site on riverwater pollution.</p>	<p>Visual observation of sample water:</p> <p>Riverwater pollution mitigation/treatment measures:</p> <p>Local people's complain:</p>
<p>3. Soil pollution prevention</p> <p>To store fuel and oil in a storage, collect waste oil then send to oil treatment plant, collect spilled oil immediately before it discharges to the river by rainwater and treat toxic and hazardous substances in accordance with law and regulation.</p>	<p>To investigate on waste oil and toxic and hazardous substance treatment methods whether they are treated properly or not.</p>	<p>Evaluation:</p>
<p>4. Traffic control and safety</p> <p>To install flag man for transporting heavy equipments, hold safety campaign for students, install warning signs and traffic safety signs and regulate max driving speed to be 40 km/hr.</p>	<p>To survey on traffic disturbance and traffic accidents occurred by hearing at around the sites.</p>	<p>Occurence of Traffic disturbance: Traffic accident:</p> <p>Evaluation:</p>

Monitored by:

Regident Engineer
Consultant

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ANNEX 5

Internal Monitoring Form (Land Acquisition, Resettlement)

Preparation of Resettlement Sites (where necessary)

No.	Explanation of the site (e.g. Area, no. of resettlement HH, etc.)	Status (Completed (date) / not complete)	Details (e.g. Site selection, identification of candidate sites, discussion with PAPs, Development of the site, etc.)	Expected Date of Completion
1				
2				

Public Consultation

No.	Date	Place	Contents of the consultation / main comments and answers
1			
2			

Resettlement Activities	Planned Total	Unit	Progress in Quantity			Progress in %		Expected Date of Completion	Responsible Organization
			During this month	Till the Last Month	Up to this month	During this month	Up to this month		
Preparation									
Establishment of Committee		-							
Implementation of Census Survey		-							
Approval of Relocation		-	Date of Approval:						
Finalization of PAPs List		No. of PAPs							
Progress of Compensation Payment		No. of HHs							
Kampong Chhnang		No. of HHs							
National Road No.11		No. of HHs							
Progress of Relocation of People		No. of HHs							
Kampong Chhnang		No. of HHs							
National Road No.11		No. of HHs							
Progress of Land Acquisition		km ²							
National Road No.11		km ²							

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ANNEX 6

Implementation Schedule of ARP

Activities	2012							2013
	June	July	Aug	Sep	Oct	Nov	Dec	Jan
ARP Preparation	■	■						
Grant Agreement			■					
Set up Grievance Committee				■				
Detailed Design & Tendering			■	■	■	■		
Public Consultation			■		■			
Detailed Measurement Survey & Replacement Cost Study				■	■			
ARP Updating following Detailed Design					■	■		
JICA Approval of Updated ARP						■		
Implementation of the Approved Updated ARP							■	
Commencement of Construction								■

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