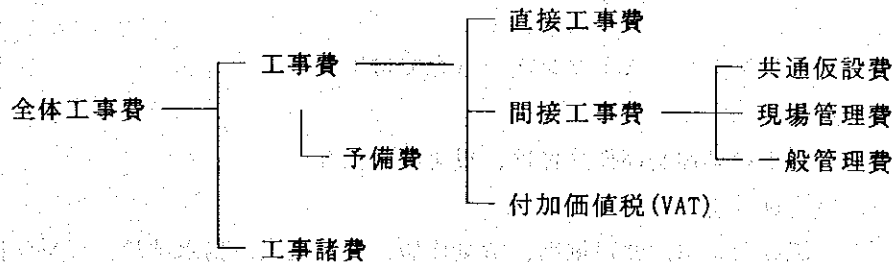


第4章 工事費の積算

4.1 工事費積算の条件

(1) 工事費の構成

工事費の構成は、下記の通りである。



1) 直接工事費

下記 (4) で述べる範囲の工事に係る直接工事費である。

2) 間接工事費

民間業者への請負工事とし、共通仮設費・現場管理費、及び一般管理費をそれぞれ直接工事費の10%ずつ計上するものとする。従って、間接工事費は直接工事費の20%となる。共通仮設費に含まれるものは、仮設費、運搬費、準備費、営繕費、間接労務費等々。現場管理費に含まれるものは、労務管理費、事務用品費、通信交通費、交際費、補償費、租税公課、保険料等であり、一般管理費には本支店経費、利益等が含まれる。

3) 付加価値税 (VAT)

直接工事費に間接工事費を加えた額の7%をVATとして計上する。

4) 予備費

予備費は、工事費の積算時と工事段階での価格差の相違による経費増や各種工事の実施段階で発生する不測の事態に対応するためのものである。予備費としては、工事の内容と実施予定時期から勘案して、直接工事費に間接工事費と付加価値税 (VAT) を加えた額の5%を計上する。

5) 工事諸費

工事諸費は、JICA事務所長が工事発注するにあたって必要とする諸経費であり、工事費の5%とする。

(2) 工事費積算の範囲

この工事費の積算には、供与資機材及び請負業者が行う工事を監理・監督する費用は含まれない。

(3) 施工単価

施工単価は、現地で調査・確認した材料価格、労務賃金、建設機械の単価を基に積み上げたもの、或いは現地業者より取り寄せた見積価格を参考に積み上げたものである。また、前年度事業として実施された「東部タイ農地保全計画モデルインフラ整備事業」の施工単価も参考にした。

(4) 工事の範囲

本工事に含まれる工事は、下記のとおりである。

a) パツンタニー A I センター (全て材工共)

1) 準備工

－ 工事の準備及び後片付け、現場の測量等

2) 給水施設工

－ 深井戸工 (深井戸掘削、電気検層、井戸仕上、揚水試験、ポンプ据付、配管工、受電工、試運転)

－ 給水塔工 (基礎工、給水塔設置)

－ 給水管工

3) パドック工

－ 土工、コンクリート舗装工、排水工、管理施設工 (牧柵、門扉、植栽)

4) 道路整備工

－ アプローチ道路工 (土工、アスファルト舗装工)

5) 堆肥舎工

－ 土工、コンクリート舗装工、排水工

－ 堆肥舎上屋工 (RC壁、スレート屋根)

b) チャイバダン酪農展示センター

(ポンプ設備及びその配管材と付属設備、パイプライン管材、バルブ、スプリンクラーは支給品。その他は全て材工共)

1) 準備工

－ 工事の準備及び後片付け、現場の測量等

2) 灌漑施設工

－ 深井戸工 (電気探査、井戸掘削、電気検層、井戸仕上、揚水試験、ポンプ据付工、配管工、受電工、試運転)

－ ため池工 (土工、階段工、表面遮水工)

－ 配水施設工 (土工、ポンプ据付工、ポンプ小屋工、パイプライン布設工、試運転)

3) 道路整備工

- 主要建物進入路工 (土工、アスファルト舗装工)
- 幹線道路工 (土工、アスファルト舗装工)
- 支線道路取付工 (土工、アスファルト舗装工)

4. 2 全体工事費

全体工事費は、次頁に示すとおりであり、その合計は6,852,000パートとなり、1995年1月時点の換算で27,408,000円となる。

タイ国中部酪農開発計画
モデルインフラ整備事業施設整備工事

全体工事費

単位：バーツ

工 種	数量	金額	備考
1. 直接工事費			
A. パツンタニーAIセンター			
1) 給水施設工	1 式	1,121,000	
2) パドック工	1ヶ所	543,000	
3) 堆肥舎工	1 棟	345,000	
4) 道路工	262 m	210,000	
小 計		2,219,000	
B. チャイバダン酪農展示センター			
1) 灌漑施設工	1 式	2,105,000	
2) 道路工	489 m	529,000	
小 計		2,634,000	
直接工事費計 (A+B)		4,853,000	
2. 間接工事費			
1) 共通仮設費・現場管理費	1 式	485,000	直接工事費の10%
2) 一般管理費		485,000	直接工事費の10%
間接工事費計		970,000	
3. 付加価値税 (VAT)	1 式	407,000	直・間工事費計の7%
工事費 (1 + 2 + 3)		6,230,000	

工 種	数 量	金 額	備 考
4. 予 備 費	1 式	311,000	工事費の5%
合計(1~4)		6,541,000	
5. 工 事 諸 費	1 式	311,000	工事費の5%
全体工事費(1~5)		6,852,000	

※ 対円換算額：

$$\text{現地通貨全体工事費} \quad \frac{6,852,000 \text{ Bt}}{1 \text{ US\$} = 25.00 \text{ Bt}} \times \frac{1 \text{ US\$} = 100.00 \text{ 円}}{1 \text{ US\$} = 25.00 \text{ Bt}} = \underline{27,408,000 \text{ 円}}$$

タイ国中部酪農開発計画に係る
モデルインフラ整備事業施設整備工事

工事費明細書

単位：パーツ

工 種	数量	単位	金 額	内訳書	内 容
1. 直接工事費					
(A) パツツタニーAIセンター					
A ₁ 給水施設工			1,121,000	A-1	
1) 深井戸工	1	カ所	904,000	A-1-1	井戸：φ100mm d=300m ポンプ：水中モーターポンプ φ32mm Q=42l/min 1 unit
2) 給水塔工	1	カ所	195,000	A-1-2	V=5m ³ H=18m
3) 配水管工	1	式	22,000	A-1-3	φ1.5"=60m・φ0.75"=56m
A ₂ バドック工	1	カ所	543,000	A-2	700m ² うちコンクリート舗装=400m ²
A ₃ 堆肥舎工	1	カ所	345,000	A-3	50m ² (10m x 5m)
A ₄ 道路工			210,000	A-4	
1) 搾乳牛舎進入路	70	m	74,000	A-4-1	アスファルト舗装 W=4.0m
2) 精液処理棟雄牛舎進入路	44	m	18,000	A-4-2	ラテライト道路 W=3.5m
3) 堆肥舎進入路	148	m	118,000	A-4-3	ラテライト道路 W=5.0m
小 計			2,219,000		
(B) チャイバダン展示センター					
B ₁ 灌漑施設工			2,105,000	B-1	
1) 深井戸工	1	カ所	523,000	B-1-1	井戸：φ150mm d=80m ポンプ：水中モーターポンプ(支給) φ50mm Q=250l/min 1 unit
2) ため池工	1	カ所	1,306,000	B-1-2	V=4500m ³ ・表面遮水3100m ²
3) 配水施設工	1	式	276,000	B-1-3	材料支給(材料費含まず) φ100mm=210m φ80mm=480m ポンプ：φ65mm 1 unit
B ₂ 道路工			529,000	B-2	
1) 主要建物進入路工	180	m	181,000	B-2-1	アスファルト舗装 W=4.0m
2) 幹線道路工	294	m	333,000	B-2-2	アスファルト舗装 W=5.0m

工事費明細書

単位：パーツ

工 種	数量	単位	金 額	内訳書	内 容
3) 支線道路取付工	15	m	15,000	B-2-3	7x7x1m舗装 W=4.0m
小 計			2,634,000		
直接工事費計			4,853,000		
2. 間接工事費			970,000		
共通仮設費・現場管理費	1	式	485,000		直接工事費の10%
一般管理費	1	式	485,000		直接工事費の10%
直・間工事費計(1+2)			5,823,000		
3. 付加価値税(VAT)	1	式	407,000		直接・間接費の7%
工事費(1+2+3)			6,230,000		
4. 予備費	1	式	311,000		工事費の5%
合計(1~4)			6,541,000		
5. 工事諸費	1	式	311,000		工事費の5%
全体工事費(1~5)			6,852,000		

※ 対円換算額

$$\text{現地通貨全体工事費 } 6,852,000^{\text{Bt}} \times \frac{1 \text{ US\$} = 100.00 \text{ 円}}{1 \text{ US\$} = 25.00 \text{ Bt}} = \underline{27,408,000 \text{ 円}}$$

1) 深井戸工

工事費内訳書

一金、904,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
準備工	1	式		20,000		
井戸掘削 φ8"	300	m	1,700	510,000		
電気検層	1	式		17,000		
ケーシング設置 φ4"	288	m	500	144,000		G.S. pipe
スクリーン設置 φ4"	12	m	3,300	39,600		ステンレススチール
井戸仕上	1	式		35,000		
揚水試験	1	式		40,000		
水中モーターポンプ φ32mm	1	セット	32,000	32,000		40l/min, 100m
水中ケーブル	100	m	20	2,000		
ライザーパイプ	71	m	130	9,230		
吐出エルボ等付属品	1	セット	8,000	8,000		
コントロールボックス	1	セット	21,000	21,000		
据付	1	式		8,500		
計				886,330		
雑工	1	式		17,670		
合 計				904,000		

2) 給水塔工

工事費内訳書

一金、195,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
給水塔 シンポン型 Q=5m ³ , H=18m	1	基	105,000	105,000		
PCパイプ I-22 x 22 x 14.0m	16	本	3,000	48,000		
同上打設工	16	本	800	12,800		
掘 削 工	37.6	m ³	40	1,504		
埋戻し工	31.0	m ³	60	1,860		
基礎栗石工	1.1	m ³	450	495		
均しコンクリート工	0.5	m ³	1,200	600		
コンクリート工	4.6	m ³	1,600	7,360		
鉄 筋 工 φ6mm	60	kg	16	960		
φ9mm	120	kg	16	1,920		
φ12mm	120	kg	15	1,800		
アンカーボルト-φ25 x1200mm	55.5	kg	40	2,220		12本
型 枠 工	20	m ²	350	7,000		
計				191,519		
雑 工	1	式		3,481		
合 計				195,000		

3) 給水管工

工事費内訳書

一金、 22,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
GSPパイプ φ1.5"	60	m	85	5,100		
同上エルボ φ1.5"	10	個	35	350		
同上チーズ φ1.5" x 0.75"	1	個	80	80		
バルブ φ1.5"	1	個	700	700		
バルブ φ0.75"	2	個	450	900		
給水栓 φ0.75"	1	個	50	50		
PVCパイプ φ0.75"	56	m	20	1,120		
配管工 GSP-φ1.5"	60	m	160	9,600		
配管工 PVC-φ0.75"	56	m	70	3,920		
計				21,820		
雑 工	1	式		180		
合 計				22,000		

パドック工

工事費内訳書

一金、543,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
パドック工						
・土工				56,500		
基盤整正工 不陸整正・締固め	760.0	m ²	15	11,400		
切盛土工 普通土・場内流用	47.5	m ³	40	1,900		
盛土工 購入土：ラライト	180.0	m ³	240	43,200		
・舗装工				174,220		
表層工 コンクリート舗装 t=100mm	457.6	m ²	200	91,520		
鉄網工 φ6mm-200mm x 150mm	460.0	m ²	100	46,000		
路盤工 クラッシャーラン路盤 t=150mm	460.0	m ²	70	32,200		
縁止工 コンクリート 100mm x 250mm	30.0	m	150	4,500		
・排水工				74,300		
側溝工 コンクリートU形-400x300mm	100.0	m	720	72,000		
溝ふた L形鋼25x25/450x1.0m	4	枚	200	800		
沈砂槽工 RC管-φ1000mm	1	箇所	1,500	1,500		
・管理施設工				230,900		
飼槽・水槽工 コンクリート L=12.0m	1	箇所	18,000	18,000		
牧柵工 鋼管牧柵A型(標準)	134.0	m	1,370	183,500		
牧柵工 鋼管牧柵B型(飼槽)	12.0	m	800	9,600		
植樹工 トリネコ・φ10~20cm	11	本	1,800	19,800		Pterocarpens
計				535,920		
雑工	1	式		7,080		
合 計				543,000		

堆肥舎工

工事費内訳書

一金、345,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
堆肥舎工						
・土工				50,503		
基盤整正工 不陸整正・締固め	172.2	m ²	15	2,583		
切盛土工 普通土・場内流用	220.0	m ³	40	8,800		
盛土工 購入土：ラライト	163.0	m ³	240	39,120		
・舗装工				45,140		
表層工 セメントコンクリート版 t=100mm	122.0	m ²	200	24,400		17°の・舎内床
鉄網工 φ6mm-200mm x 150mm	122.0	m ²	100	12,200		〃
路盤工 クラッシュラン路盤 t=150mm	122.0	m ²	70	8,540		〃
・排水工				20,532		
側溝工 コンクリートU形-150x150mm	9.6	m	630	6,048		グレーチングふた付
側溝工 コンクリートU形-200x200mm	10.0	m	260	2,600		
側溝工 コンクリートU形-400x300mm	11.2	m	720	8,064		
側溝工 碎石雨受け-600x200mm	12.0	m	55	660		
管きょ工 RCP-φ200mm	9.0	m	240	2,160		
接続枠工 500x500x1000・箱形	1	箇所	1,000	1,000		
・堆肥舎工						
上屋工 RC構造・スレート葺き	1	式		221,701	A-3-1	10.0m x 5.0m
計				337,876		
雑工	1	式		7,124		
合 計				345,000		

上屋工 RC構造・スレート葺き

No. A-3-1

工事費内訳書

一金、221,701/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
上屋工						
・土 工						
根切り	52.3	m ³	70	3,661		
埋戻し(根切り土使用)	37.0	m ³	50	1,850		
残土処分(場内処分)	15.3	m ³	50	765		
割栗地業	4.4	m ³	350	1,540		
小 計				7,816		
・躯体工事						
捨てコンクリート	1.5	m ³	1,200	1,800		
コンクリート	23.0	m ³	1,600	36,800		
型 枠	176.6	m ²	350	61,810		
鉄 筋	3.5	t	15,000	52,500		
鉄 骨	1.78	t	13,000	23,140		
鉄骨加工組立	1.78	t	8,000	14,240		
小 計				190,290		
・仕上工事						
屋根、波型スレート	87.0	m ²	165	14,355		
斬、曲げスレート	12.0	m ²	95	1,140		
鉄骨OP	80.0	m ²	70	5,600		
コンクリート金こて押工	50.0	m ²	50	2,500		
小 計				23,595		
計				221,701		

道路工

工事費内訳書

一金、210,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	内訳書	備 考
道路工						
1) 搾乳牛舎進入路工	1	式		74,000	A-4-1	
2) 精液処理棟雄牛舎進入路工	1	式		18,000	A-4-2	
3) 堆肥舎進入路工	1	式		118,000	A-4-3	
合 計				210,000		

1) 搾乳牛舎進入路工

(アスファルト舗装: 工事延長 L=70.0m 舗装幅 W=4.0m)

工事費内訳書

一金、 74,000 / パーツ

単位: パーツ

名 称	数 量	単 位	単 価	金 額	内訳書	備 考
搾乳牛舎進入路工						
・土 工				7,360		
掘削捨土/場内 L=50m以内	40.0	m ³	40	1,600		
盛土/購入土:ラテライト	24.0	m ³	240	5,760		
・舗装工				64,610		
アスファルトコンクリート表層 t=40mm	281.0	m ²	150	42,150		人力施工
粒調採石上層路盤 t=100mm	281.0	m ²	60	16,860		
クワッシャー下層路盤 t=150mm	80.0	m ²	70	5,600		
・舗装雑工						
切盛土/普通土・場内流用	12.7	m ³	60	762		
計				72,732		
・雑 工	1	式		1,268		
合 計				74,000		

2) 精液処理棟雄牛舎進入路工
 (ラテライト道路: 工事延長 L=44.3m 全幅 W=3.5m)

工事費内訳書

一金、 18,000/パーツ

単位: パーツ

名称	数量	単位	単価	金額	内訳書	備考
精液処理棟雄牛舎進入路工						
・土工						
掘削捨土/場内 L=50m以内	55.4	m ³	40	2,216		
盛土/購入土:ラテライト	65.3	m ³	240	15,672		
計				17,888		
・雑工	1	式		112		
合計				18,000		

3) 堆肥舎進入路路工
(ラテライト道路: 工事延長 L=148.0m 道路全幅 W=5.0m)

工事費内訳書

一金、 118,000 / パーツ

単位: パーツ

名 称	数 量	単 位	単 価	金 額	内訳書	備 考
堆肥舎進入路路工						
・土工				110,260		
基盤整正/表土鋤取	740.0	m ²	5	3,700		
盛土/購入土:ラテライト	444.0	m ³	240	106,560		
・排水工				6,090		
側溝/V形土側溝 d=30cm	65.0	m	20	1,300		
管きょ/RCP-φ400mm	7.0	m	470	3,290		
沈砂樹/RCP-φ1000mm	1	箇所	1,500	1,500		
計				116,350		
・雑工	1	式		1,650		
合 計				118,000		

灌漑施設工

工事費内訳書

一金、 2, 105, 000 / パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	内訳書	備 考
灌漑施設工						
1) 深井戸工	1	式		523,000	B-1-1	
2) ため池工	1	式		1,306,000	B-1-2	
3) 配水施設工	1	式		276,000	B-1-3	
合 計				2,105,000		

1) 深井戸工

工事費内訳書

一、 523,000 / パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
準備工	1	式		25,000		
電気探査	1	式		25,000		
井戸掘削 φ12"						
土砂層	30	m	800	24,000		
軟岩層	25	m	2,500	62,500		
硬岩層	25	m	5,000	125,000		
電気検層	1	式		12,000		
ケーシング設置 φ6"	70	m	1,200	84,000		G.S. pipe
スクリーン設置 φ6"	10	m	5,000	50,000		ステンレスチール
井戸仕上	1	式		25,000		
揚水試験	1	式		40,000		
水中モーターポンプ据付	1	式		12,000		
据付雑材	1	式		5,000		
電力引込	170	m	200	34,000		
計				513,000		
雑工	1	式		10,000		
合 計				523,000		

2) ため池工

工事費内訳書

一金、1,306,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
ため池工						
・土工				714,065		
掘削工/普通土	1,975	m ³	40	79,000		
掘削工/転石・硬岩	1,019	m ³	240	244,560		
盛土工/流用土：普通土	1,580	m ³	60	94,800		
盛土工/購入土：ラテライト	705	m ³	180	126,900		
残土処理工/場内捨土処分	1,019	m ³	20	20,380		
法面整形工	1,142	m ²	20	22,840		
底面整形工	1,600	m ²	15	24,000		
張芝工	1,847	m ²	55	101,585		
・表面遮水工						
シート張り工 t=1.2mm	3,118	m ²	180	561,240		
・階段工				5,375		
基礎栗石	0.9	m ³	450	405		
コンクリート工	0.3	m ³	1,600	480		
鉄筋工	10	kg	15	150		
型枠工	12.4	m ²	350	4,340		
小計				1,280,680		
雑工	1	式		25,320		
合計				1,306,000		

3) 配水施設工

工事費内訳書

一金、276,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
・土 工				10,400		
盛土工/	100	m ³	60	6,000		
張芝工/	80	m ²	55	4,400		
・関連構造物工				15,919		
基礎栗石	0.9	m ³	450	405		
均しコンクリート工	0.3	m ³	1,200	360		
コンクリート工	0.8	m ³	1,600	1,280		
鉄筋工	26.3	kg	15	394		
型枠工	1.4	m ²	350	490		
ブロック積工/空洞コンクリートブロック	13.8	m ²	350	4,830		
屋根工/ 造・スレート葺き	6.8	m ²	1,200	8,160		
・設備工				239,940		
遠心力ポンプ据付 /材料支給	1	式		7,500		バルブ取付含
配管工 GSP 80A/材料支給	6	m	250	1,500		
管布設工 GSP 100A /材料支給	210	m	280	58,800		
管布設工 GSP 80A /材料支給	480	m	250	120,000		
掘削工	350	m ³	40	14,000		
埋戻し工	350	m ³	60	21,000		
配管用雑材料	1	式		11,140		
バルブボックス	6	個	1,000	6,000		
・送水テスト	1	式		5,000		
計				271,259		
雑 工	1	式		4,741		
合 計				276,000		

道 路 工工 事 費 内 訳 書

— 金 1,829,000 / パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	内訳書	備 考
道 路 工						
1) 主要建物進入路工	1	式		181,000	B-2-1	
2) 幹線道路工	1	式		333,000	B-2-2	
3) 支線道路取付工	1	式		15,000	B-2-3	
合 計				529,000		

1) 主要建物進入路工

(アスファルト舗装：総延長 L=180.0m 舗装幅 W=4.0m)

工事費内訳書一金、181,000/パーツ

単位：パーツ

名 称	数 量	単 位	単 価	金 額	単価表	備 考
主要建物進入路						
・土工				16,500		
基盤整正/表土鋤取	720.0	m ²	5	3,600		
切盛土/普通土・場内流用	216.0	m ³	60	12,900		
・舗装工				151,008		
浸透式アスファルト表層 t=40mm	726.0	m ²	100	72,600		人力施工
粒調採石上層路盤 t=80mm	726.0	m ²	48	34,848		
クワッシャー下層路盤 t=120mm	726.0	m ²	60	43,560		
・舗装雑工						
切盛土/普通土・場内流用	172.8	m ³	60	10,368		
計				177,876		
雑工	1	式		3,124		
合 計				181,000		

**BID DOCUMENTS
(DRAFT)**

FOR

THE MODEL INFRASTRUCTURE WORKS

FOR

**THE DAIRY FARMING DEVELOPMENT PROJECT
IN
THE CENTRAL REGION OF THE KINGDOM OF THAILAND**

JAPAN INTERNATIONAL COOPERATION AGENCY

THAILAND OFFICE

CONTENTS

- * Invitation for Bids
- * Instruction to Bidders
- * Proposal
- * Terms and Conditions of the Contract
- * Pledge Agreement
- * Contract
- * Technical Specifications
- * Drawings
- * Bill of Quantities

(LETTER HEAD OF JICA THAILAND OFFICE)

INVITATION FOR BIDS

DATED _____, 1995.

To: _____

DEAR Sir,

I have the pleasure to inform you that the Japan International Cooperation Agency, Thailand Office (hereinafter referred to as "the JICA") invites you to participate in the bids for The Model Infrastructure Works for the Dairy Farming Development Project in the Central Region of the Kingdom of Thailand (hereinafter referred to as "the Project"). The Project has two work sites in Pathum Thailand Province and in Lopburi Province.

You are kindly requested to join the pre-bidding meeting which will be held on _____, 1995 at _____ o'clock p.m. / a.m., at the JICA Thailand office.

Following documents will be provided to the bidders in the pre-bidding meeting:

1. Instruction to Bidders
2. Form of Proposal
3. Terms and Conditions of the Contract
4. Form of Pledge Agreement
5. Contract (draft)
6. Technical Specifications
7. Drawings
8. Bill of Quantities

Thanking you,

Resident Representative of JICA
Thailand Office

IB-03 BASIS ON WHICH BIDS ARE REQUESTED

The form of the Contract to be awarded is on fixed unit price basis of payment to the Contractor, as specifically set forth in these Contract Documents. Bids are requested on the above basis and a proposal which is on any other basis will not be considered.

Bids prices shall be made in Thai Baht and the Contractor shall be paid in Thai Baht.

IB-04 BID SECURITY

The original, but not the copies of each bid, shall be accompanied by a proposal bond in an amount equivalent to ten (10)% of the total bid price in the form of cash or certified check, as a guarantee that the successful bidder will, within ten (10) days from receipt of the notice of award, enter into Contract with the JICA, and complete faithful performance of the work specified in these Contract documents. In case the successful bidder fails for any reason to execute such contract within the stipulated time, the bid security shall be forfeited to the JICA as liquidated damages.

The bid securities will be returned without interest after the successful bidder has signed the Contract.

IB-05 WITHDRAWAL OF BIDS

A bidder will be allowed to withdraw his bid prior to the time set for the opening of bids if he communicates his purpose in writing to the JICA, Thailand Office, and his bid shall be returned to him unopened. No bid can be withdrawn for any reason whatsoever after the opening of bids has been made.

IB-06 BIDDER'S RESPONSIBILITY

The bidders shall be responsible for having taken steps to carefully examine all of the Contract Documents and also to have fully informed themselves as to all conditions, locality and otherwise, affecting the carrying out of the Contract Works. Failure to do so will be at the Bidder's risk.

IB-07 DATA TO BE SUBMITTED WITH PROPOSAL

All proposal shall contain the following documents:

- a) A construction schedule showing the detailed proposal plan of operation and construction of each main item in the Bill of Quantities from start to completion of the Contract work. The schedule shall be in a bar chart form with weeks shown as the least unit of time and each main item on a separate horizontal line. The schedule shall also show expected monthly accomplishment and financial requirements based on the Bill of Quantities.
- b) A list of equipment proposed to be used for the performance of the Contract Work. This list shall specifically enumerate the number, type and capacity.

IB-08 INTERPRETATION OF CONTRACT DOCUMENTS

If the prospective Bidder is in doubt as to the true meaning of any part of the Contract Document, the Bidder may submit to the JICA Thailand office, a written request for interpretation allowing sufficient time for a reply to reach him before submission of his bid. Any interpretation of the proposed documents will be made only by a supplemental notice duly issued.

IB-09 OPENING OF BIDS

The opening of Bids will be schedule at _____ o'clock p.m. / a.m. ,Thailand standard Time on _____,1995 at the JICA Thailand office. Attendance for Bidders is desirable.

IB-10 COMPARISON OF BIDS

In making its selection, the JICA will not be bound to award a Contract to the bidder submitting the Bid with lowest indicated cost, but will that into consideration the bid prices, unbalanced bid, guaranteed completion time and other relevant consideration.

IB-11 AWARD OF CONTRACT

Promptly after the opening of the bids the JICA will undertake a detailed study and appraisal of the proposal submitted. The Contract will be awarded to the Bidder whose proposal is considered to be the most advantageous to the JICA. The JICA reserves the right to reject any and all bids received.

IB-12 BID DOCUMENTS

Bid documents shall include the following;

- a) Invitation for Bids
- b) Instruction to Bidders
- c) Proposal
- d) Teams and conditions of the contract
- e) Pledge Agreement
- f) Contract
- g) Technical Specifications
- h) Drawings
- i) Bill of Quantities

PROPOSAL

To:

The Resident Representative
Japan International Cooperation Agency, Thailand Office
1674/1, New Petchburi Road, Bangkok 10310

P-01 BILL OF QUANTITIES AND BID PRICES

The undersigned Bidder having carefully examined in their entirety the Contract Documents for The Model Infrastructure Works for the Dairy Farming Development Project in the Central Region of The Kingdom of Thailand, hereby offers and proposes to perform all of the construction and services, to furnish all equipments, materials supplies, labor and other items described in the Contract Documents, all for the unit and lump sum prices stated in words and figures in the following quantities:

Bid Price: _____ Baht

(in words)

(_____ Baht)

(in figures)

- Bill of Quantities to be attached herein.

P-02 GUARANTEE OF COMPLETION

The undersigned Bidder guarantees to effect the commencement, prosecution and completion of the Contract Works.

P-03 BID SECURITY

The undersigned Bidder hereby certifies that all statements herein are made or behalf of _____

Dated this _____ day of _____

Name _____
Title _____
Firm's Name _____
Firm's Address _____

Witness

TERMS AND CONDITIONS OF THE CONTRACT

Section 1 General Information

1.1 Objective

According to the Record of Discussion signed, technical cooperation concerning the Dairy Farming Development Project in the Central Region of the Kingdom of Thailand (hereinafter referred to as "the Project") is being carried out.

The objectives of the Model Infrastructure Works are to provide the demonstration farm facilities which are the essentials for the implementation of the Project.

1.2 Location of the site

The project has two work sites as follows;

Pathum Thani AI Centre: 80 Tiwanon Road, Bang Ka Dee Sub-district, Muang District, Pathum Thani 12000

Dairy Demonstration Centre: at Chai Badan Land Settlement Cooperative Unit, Tha-Luang District, Lopburi Province 15230

1.3 Major Work to be done in the Model Infrastructure Works

<u>Item</u>	<u>Quantity</u>	<u>Specification</u>
< Pathum Thani AI Centre >		
1. Water Supply Facilities		
1) Deep Well	1 No.	Drilling dia: 200 mm Well dia: 100 mm Depth: 300 m Design yield: 31 l/min
Pump for well	1 unit	Submersible pump 32 mm x 2.2 kw
2) Elevated Water Tank	1 set	V 5 cu.m x H 18 m
3) Water Supply Pipe	56 m 60 m	PVC 20 mm GSP 40 mm

- 2. Paddock 1 No. 700 sq.m (pavement: 400 sq.m)
- 3. Manure Deposit Shed 1 No. 5 m x 10 m
- 4. Road
 - 1) Approach to Milking Cow Shed 70 m Asphalt pavement of 4.0 m wide
 - 2) Approach to Semen Collecting Building 44 m Laterite, 3.5 m wide
 - 3) Approach to Manure Deposit Shed 148 m Laterite, 5.0 m wide

< Chai Badan Dairy Demonstration Centre >

1. Irrigation Facilities

- 1) Deep Well 1 No. Drilling dia: 300 mm
Well dia: 150 mm
Depth: 80 m
Design Yield: 250 l/min
Pump for well 1 unit (Supplied by JICA)
Submersible pump, 50 mm x 2.2 kw
- 2) Farm Pond 1 No. V=4,500 cu.m (area of full water level = 50 m sq. = 2,500 sq.m), lined by flexible PVC membrane liner (t=1.2 mm)
- 3) Water Distribution Facilities
Pump for Irrigation 1 unit (Supplied by JICA)
Volute pump, 80/65 mm x 22 kw
Pipe line (sprinkler irrigation system) 210 m (Supplied by JICA) GSP 100 mm
480 m (Supplied by JICA) GSP 80 mm

2. Road

- 1) Approaches to major buildings (6 nos.) 180 m Asphalt pavement of 4.0 m wide
- 2) Main road 294 m Asphalt pavement of 5.0 m wide
- 3) Junctions of lateral roads R1, R2 & L1 15 m Asphalt pavement of 4.0 m wide

1.4 Collaboration

The JICA assists the DLD's and the CPD's activities through the project type technical cooperation scheme according to the Record of Discussion. Prior to or during the course of the Works, the Contractor shall make the good relation within the related Organizations*) for the satisfactory implementation of the Works as to secure full collaboration.

*) DLD : Department of Livestock Development, Ministry of Agriculture and Cooperatives

CPD : Cooperatives promotion Department, Ministry of
Agriculture and Cooperatives

Section 2: Submission of Notices

2.1 Work schedule

The Contractor shall submit the Work Schedule in following items before the commencement of the Works at the work site. If the Contractor intends to change the Work schedule, the approval from the Engineer to be appointed by the JICA (hereinafter called "the Engineer") shall be obtained prior to the modification of the schedule.

Pathum Thani AI Center

1. Mobilization & demobilization
2. Water supply facilities
 - 1) Deep well
 - 2) Elevated water tank & water supply pipe
3. Paddock
4. Roads
5. Manure deposit shed

Chai Badan Dairy Demonstration Centre

1. Mobilization & demobilization
2. Irrigation facilities
 - 1) Deep Well
 - 2) Farm pond
 - 3) Water distribution facilities
3. Roads

Also the Contractor shall submit the machineries scheme including the numbers, kind of machineries and using period of them.

2.2 Notices

The JICA and the Contractor shall submit the notices to each other as necessary, in accordance with Article 19 of the Contract within reasonable time except that special articles are provided in Terms and Conditions of the Contract.

Section 3 Field Test and Inspection

The field tests in accordance with the Technical Specification and the demands from the Engineer shall be the responsibility for the Contractor. The charges for such field test shall be included in the total amount of the construction cost, and the Contractor is not entitled to claim any amount of the field test charges.

Section 4 Modification of Plan

In case the JICA estimate the cost for the modification in accordance with Article 14 of the Contract, and if there are two portions, one for the increase and the other for the decrease of the construction cost resulting from such modification, the JICA shall have the right to offset them in the payment and pay or claim the difference between the increase and decrease of the construction cost as the case may be.

Section 5 Release from the Works

After the final acceptance of the Works by the JICA, the Contractor shall remove its own temporary facilities, warehouses, construction roads, electric wiring, surplus material debris and so forth which were provided by the Contractor within ten (10) days. Upon approval of the Engineer for the removal of the abovementioned facilities etc. the Contractor will be released from its responsibility of the Works but remains responsible under one (1) year guarantee of the Works as specified in Article 11 of the Contract.

Section 6 General Obligations of the Contractor

6.1 Temporary office and residence

In case the Contractor intends to build the temporary office, residence and so forth, the Contractor shall submit the plan to the Engineer for approval at least seven(7) days in advance of the commencement of the Works.

The Contractor is required to always keep the buildings and facilities in good condition and to make proper drainage and sanitary system. Should the Contractor build them outside of the site, the Contractor shall arrange with the owner of the such land and at its own expense.

6.2 Fuel storage

In area of temporary office and residence, the fuel tank capacity shall not exceed 1,000 liters and shall be far away from the housing area.

Fuel storage and transportation shall be done with care and shall have a good system of fire prevention, if storage license is required, the Contractor shall arrange for obtaining it.

6.3 Other facilities

All necessary facilities for the Works and the Contractor's convenience shall be provided and maintained in good condition by the Contractor.

Section 7 General Text

The Contractor shall implement the Works in accordance with the Contract Documents in broad sense such as the Contract in narrow sense, Terms and Conditions of the Contract, Technical Specifications. Should the evens occur that the both parties can not reach agreement on the interpretation of the above-mentioned Contract Documents in broad sense, both parties shall negotiate with sincerity and good faith for settlement of any disagreement, failing with decision of the JICA shall prevail.

PLEDGE AGREEMENT

To the Japan International Cooperation Agency, Thailand Office

Date _____

We _____, the Contractor hereby agree that all equipment, materials and supplies brought to the job sites under the Contract made with the security for our execution of the Works, and shall not be removed at any time without prior approval of the Japan International Cooperation Agency, Thailand Office (called "the JICA") in writing.

We further agree that should there be any loss or damage to pledged equipment, materials and supplies kept at the job sites, the JICA shall bear no responsibility whatsoever for such loss or damage.

Name _____
Title _____
Firm's Name _____
Firm's Address _____

FOR

CONTRACT

(DRAFT)

FOR

THE MODEL INFRASTRUCTURE WORKS

FOR

THE DAIRY FARMING DEVELOPMENT

IN

THE CENTRAL REGION OF THE KINGDOM OF THAILAND

JAPAN INTERNATIONAL COOPERATION AGENCY

THAILAND OFFICE

CONTRACT

THE MODEL INFRASTRUCTURE WORKS
FOR
THE DAIRY FARMING DEVELOPMENT PROJECT
IN
THE CENTRAL REGION OF THE KINGDOM THAILAND

This Contract is executed on the _____ day of _____ at the Japan International Cooperation Agency, Thailand Office between the Japan International Cooperation Agency, Thailand Office, by _____, Resident Representative as its authorized representative of the JICA Thailand office, hereinafter referred to as "the JICA" of the one part, and _____ whose office is situated at _____ Tel. _____ Represented by _____ Nationality _____ Title _____ hereinafter referred to as "the Contractor", of the other part.

Both parties mutually agree under the terms of this Contract as follows:-

Article 1 Purpose of Agreement and Contract Price

The JICA agrees to employ the Contractor and the Contractor agrees to perform the Works for the Model Infrastructure Works for the Dairy Farming Development Project in the Central Region of The Kingdom of Thailand for the total amount of _____ Baht (_____ Baht), hereinafter referred to as "the Contract Price".

The following documents shall form integral part of this Contract:-

1. Terms and Conditions of the Contract
2. Pledge agreement
3. Technical specifications
4. Drawings
5. Bill of Quantities

Article 2 Performance Bond

As a security for the faithful performance of the Works under this Contract, the Contractor has on the execution of this Contract deposited a preformation bond with the JICA in cash or in lieu thereof a Bank Guarantee issued by The Bank of _____ bearing the number _____ and dated on _____ in the amount of _____ Baht(_____ Bath) which represents five (5) percent of the Contract Price, the name of the issuing bank and the form of the bank guarantee are to be approved by the JICA.

The JICA will return the Performance Bond in cash or the Bank Guarantee to the Contractor after final acceptance of the Works by the JICA as stipulated in Article 15 of this Contract, provided that the completed Works shall not show any defect or damage caused through the fault of the Contractor, or through the fault of any new Contractor in the case of termination of Contract by the JICA under Article 4.

Should the Contractor be in default, the JICA shall have the right to demand payment from all or any or any part of the Performance Bond. In addition, the Contractor shall remain liable for the full loss sustained by the JICA.

Article 13 Payment

The JICA agrees to effect payments for the Works to the Contractor in the following manner:-

- a. Advance Payment, to be effected upon the bringing of part of equipment and materials required for the Works and having stored at the job site by the contractor, and upon the verification of those facts by the Engineer to be appointed by the JICA (hereinafter referred to as "the Engineer"). The amount of _____ Baht (_____ Baht) which corresponds to Thirty (30) percent of the Contract Price, shall be paid upon signing of this Contract at the request of the Contractor.
- b. Interim Payment, to be effected according to the progress of the Works satisfactorily executed by the Contractor and accepted by the Engineer. The amount of _____ Baht (_____ Baht) which corresponds to Forty (40) percent of the Contract Price, shall be requested for the payment once during the course of construction at the request of the Contractor.
- c. Final payment, to be effected upon the satisfactory completion of the Works by the Contractor and accepted by the Engineer. The remainder of _____ Baht (_____ Baht) which corresponds to Thirty (30) percent of the Contract Price, shall be paid after the Final Certificate to be issued by the JICA for payment to the Contractor.

Payment under (b) and (c) shall be effected within ten (10) days after the respective acceptance of the Works by the Engineer.

Taxes payable by the Contractor, if any, shall be deducted at source by the JICA on each payment.

It is expressly understood that payments by the JICA do not mean acceptance responsibilities under this Contract.

Article 4 Completion Time

The Contractor agrees to commence the Works at the site within ten (10) days from the date of signing of this Contract (commencement date) and the Contractor agrees to satisfactorily complete the Works within _____ days (completion time) from the date hereof which will become due on _____, 1996 (completion date).

If the Contractor fails to commence the Works by the above commencement date, or should in the course of the construction may event occur which may reasonably cause the JICA to believe that the Contractor will not be able to complete the Works on the completion date, or should the Contractor fail to complete the Works by the completion date, or should the Contractor fail to meet any of the Contract requirement, the JICA shall have the right to terminate this Contract by giving written notice to the Contractor.

However, in case that the Contractor fails to complete the Works by the completion date, or to meet any of the Contract requirement, if the Engineer thinks that the Contractor has the ability for completion of the Works within reasonably extended period, the Contractor may be permitted by the JICA to continue the Works beyond the completion date but within the extended time.

Article 5: Penalty

In case that the Contractor is in default as mentioned in Article 4 the Contractor agrees to be responsible to the JICA as follow:-

5.1 In case of the termination by the default of commencement for the Works, the Contractor shall pay a penalty of Baht
(Baht) per day counting from the commencement date until the new Contract is completely executed with a new Contractor for this Works, the period of which is included the time spent for finding the new Contractor and executing the new Contract etc.

5.2 In case the JICA thinks that the Contractor will not be able to complete the Works within the completion time and thereby terminates this Contract, the Contractor shall pay a penalty of Baht
(Baht) per day counting the number of days in the same manner as prescribed in 5.1 above. However, the JICA may reduce such number of days according to the ratio between the completed Works and the total Works as may be decided by the Engineer.

5.3 In case the Contractor fails to complete the Works by the completion date or to meet any Contract requirement, the Contractor shall pay a penalty of Baht
(Baht) per day counting from the date following the completion date until the Works satisfactorily completed and accepted by the Engineer.

Article 6 Compensation

If the JICA sustains any losses as direct or indirect damages caused by the Contractor's failure, the Contractor shall compensate the JICA for such losses. The parties agree that time is essential for the completion of the Works.

Article 7 The JICA's right for default

The JICA has the sole and absolute right to decide whether to terminate the Contract, to impose only the penalty on the Contractor or to claim the compensation for the damage as stated in Article 5 or Article 6. The money due to the JICA exercising its right under this article shall be retained and deducted from any money due to the Contractor but yet unpaid including from the performance bond. If the total amount of the loss is larger than the money above-mentioned, the Contractor agrees that the JICA has the right to retain the construction equipment, materials and supplies etc. and demand payment of the balance from such equipment etc. or proceeds of sale thereof.

Article 8 Contractor's responsibility on termination of this Contract

After the contract has been terminated in accordance with the foregoing Article 4, the JICA shall have the right to employ another Contractor (hereinafter referred to as "the New Contractor") to carry on the remaining parts of the Works, and the payment for the Contractor that fail to complete the work shall be made out of the necessary Contract price for the remaining Works. Should the remaining amount after payment of the advance and interim payment from the Contract price, be insufficient to effect payment to the New Contractor, the difference between such remaining amount and actual cost estimated by the JICA for the satisfactory completion Works carried out by the New Contractor, shall be deemed as direct loss sustained by the JICA, and the Contractor shall pay such difference to the JICA within ten (10) days from the date of request by the JICA, failing which interest at the rate of eighteen (18) percent per annum shall be charged thereon.

Article 9 The Engineer

The Engineer, authorized to act on behalf of the JICA will be appointed by the JICA and the Engineer is entitled to do all things that the JICA may do so. The Engineer shall control and supervise the Works all the times whether it is in the preparation of implementation of the Works and the Contractor shall promptly furnish all necessary facilities for proper inspections of the Works in accordance with the Engineer's direction. At any moment the Engineer can direct the Contractor to stop the Works, if necessary and the Contractor shall have no claim on the JICA for extension of the completion time due to such suspension of the Works under this Article.

The inspection will not be deemed as the acceptance of the Works, and the Contractor shall not be relieved from his responsibility to meet the Contract requirements by the fact that the Engineer exercises their duties. Should it be found that the Works have not been satisfactorily performed in the faithful manner, the Contractor shall correct any part of the Works indicated by the Engineer within the period specified by the Engineer.

Article 10 Prohibition for the equipment removal

Should the Contractor fail to complete the Works during the completion time or the Engineer thinks that the Contractor will not be able to satisfactorily complete the Works, any equipment and materials brought to the site for use on the Works shall not be removed without the prior approval of the Engineer in writing.

Article 11 Rectification of the defective construction

For a further period of One (1) year after satisfactory completion and final acceptance of the Works by the JICA, whether completed by the Contractor or by the New Contractor in case of termination of Contract under Article 4, any damage to the Works which is caused by the Contractor's fault, either because of defective workmanship or the use of inferior materials or any other cause, shall be made good as necessary by the Contractor to the satisfaction of the JICA at no extra cost.

In case of the termination of the Contract, the JICA may decide which part of the Works should come under the Contractor's responsibility, and requests the Contractor to make good of the damaged Works. Should the Contractor fail to do so within period specified after receipt of written request to do so from the JICA, the JICA shall have the right to employ another Contractor to carry out such work and the Contractor agrees to bear all expenses incurred.

Article 12 Discrepancies among the Contract Documents

If, prior to or during the course of the Works, any discrepancies are found in the drawings and/or the Technical Specifications etc. attached to this Contract, the Contractor shall follow the ruling given by the Engineer at no additional cost to the JICA.

Article 13 Construction Method and Temporary Works

The construction method including implementation schedule and plan of the temporary works such as installation of temporary facilities, offices, ware houses, construction road, electric wiring, etc. shall be submitted by the Contractor and approved by the Engineer at least seven (7) days in advance of the commencement of the Works.

Should the cost of the above temporary works be estimated in the Bill of Quantities in this Contract, the Contractor is not entitled to claim any amount of charges for the temporary works.

Article 14 Modification of Plant

If the Engineer finds it necessary to make modification of construction design and/or materials and so forth during the course of construction, the JICA has the right to order the modification of the Works to the Contractor, and such order shall be made in writing from the Engineer to the Contractor.

The JICA agrees to adjust upwards or downwards the necessary expense for such modification to the Contractor, which will be estimated by unit price in the Bill of Quantities of this Contract in case of modification of quantities of construction works. In the case of additional works which are not quoted by unit price in the Bill of Quantities of this Contract, the Engineer will make estimation thereof and the JICA will pay to the Contractor for such additional works accordingly. But if the Contractor does not agree to such estimation, the Contractor is then entitled to negotiate with the JICA. Also the extension of the completion time due to the modification shall be given by the JICA who shall have the sole right to decide the number of days of such extension.

Article 15 Acceptance of the Works

When the entire Works have been completed, the Contractor shall submit the invoice in written form indicating the Works actually completed to the Engineer. If there are compliance with drawings or Technical Specifications, the JICA shall accept the Works as the final acceptance of satisfactory completion Works within ten (10) days after the receipt of the written form and it shall be deemed that the final acceptance has been made on such date of the receipt of the written form.

On the other hand, should non-compliance with drawings or Technical Specifications or defects be found in the Works executed by the Contractor, the Engineer will have the right not to accept the Works and to order the rectification of the Works. If the required period for the rectification of the Works is beyond the completion date, the Contractor shall not be relieved from its responsibility to pay the penalty as stipulated under Clause 5.3, and after the completion of rectification of the Works, then the final acceptance will be made in the same manner as described in the first paragraph of this Article.

During the course of construction, whether in the completion time or of extended time specified in the last paragraph of Article 4, the JICA has the right to accept a part of the Works already completed in the written form which each other for the maintenance and usage of the accepted part of the Works, and the Contractor is not entitled to request the extension of the completion time due to any interruption caused by the use of such accepted Works by the JICA, or any delay in repairing such accepted Works.

Article 16 Construction Engineer

The Contractor shall appoint a construction engineer at his own expense for the supervision of the Works performance, who shall be authorized to act on behalf of the Contractor, and the instructions given to him shall be deemed as given to the Contractor. The construction engineer shall stay at the job site all the time and shall not leave without obtaining the prior approval of the Engineer. If the Contractor replaces the construction engineer, the Contractor shall obtain the prior approval from the Engineer in writing.

Article 17 Replacement of Labor, Engineer and Foreman

The Engineer may request the Contractor to remove any of the Contractor's labors, foremen or engineers if it appears to the Engineer that such labor, foreman or engineer is incompetent for his job or is not suitable or is not capable of handing his workmen or staff, and the Contractor shall promptly replace any such labor, foreman or engineer. No extra cost or claim for extension of time will be allowed because of such replacement.

Article 18 Sub-Contractor

The Contractor shall not sub-contract or assign any portion of the Works under this Contract without obtaining the prior approval of the JICA who has the sole right to decide which portion of the Works may be sub-contracted or assigned to the sub-contractor. However, the Contractor shall be fully responsible for the Works done by the sub-contractor.

Article 19 Notice

All notices required by this Contract shall be effective only at the time of receipt thereof, and only when received by the parties concerned at following address:-

The JICA: Japan International Cooperation Agency, Thailand Office
1674/1, New Petchburi Road, Bangkok 10310, Thailand

The Contractor: _____

All Notices required by the terms of this Contract shall be made in writing in English Language, and delivered by registered mail or hand delivery.

Article 20 Dispute

In the event of any dispute arising from the interpretation and performance of the terms of this Contract, both parties agree to make the best attempt with sincerity and in good faith to negotiate and amicably settle such dispute, failing which the parties agree to refer such dispute to arbitration under Thai Commercial Arbitration Rules and Regulation, Bangkok, by 2 arbitrators, each of which is to be appointed by each party. If either party fails to appoint its arbitrator within seven (7) days or should the arbitrators fail, within fifteen (15) days after their appointment, to agree upon the decision of the dispute or not decision is reached on the appointment of an umpire, then the dispute shall be brought before the Court of Thailand for decision under the laws and procedures of the Kingdom of Thailand.

This Contract is executed in duplicate of the same tenor, one of the original copy to be kept by the JICA and the other original copy to be kept by the Contractor. Both the JICA and the Contractor have set their signatures and affixed the seals thereto in the presence of the witnesses.

_____ **JICA**

Mr. _____
Resident Representative,
Japan International Cooperation Agency, Thailand Office.

_____ **Contractor**

_____ **Witness**

_____ **Witness**