

Appendix-G
Project Evaluation

**BASIN-WIDE BASIC IRRIGATION AND DRAINAGE MASTER PLAN STUDY
IN
THE KINGDOM OF CAMBODIA**

FINAL REPORT

APPENDIX-G PROJECT EVALUATION

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CHAPTER G1 OBJECTIVES AND EVALUATED PROJECTS

G1.1 Objectives

The objectives of the project evaluation in this stage are as follows:

- Comparison of the economic viability of 21 projects formulated in four river basins
- Examination of the financial impact of investment to irrigation system improvement on beneficiary farmers' capacity to pay in each project

The results of economic and financial evaluations are to be employed as one of comparison factors in the screening process in order to put priority order over the respective projects.

G1.2 Evaluated Projects

Aiming at formation of irrigation and drainage development projects in four river basins like Battambang, Moug Russey, Pursat and Boribo, possible development areas are delineated through the resources assessment of potential irrigation areas identified by the JICA inventory 2006 has been made under the present study coupled with reconfirmation of irrigation areas under on-going and/or promised projects. As a result, the following 21 projects in total are listed up as candidates for the future implementation.

List of Evaluated Projects

River Basin	Project Number/Code/Name	Proposed Area (ha)
Battambang	1. BTB-01 Kong Hort Rehabilitation (I)	10,040
	2. BTB-02 Kong Hort Rehabilitation (II)	2,733
	3. BTB-03 Sala Taon Weir Rehabilitation	10,400
	4. BTB-04 Ratanak-Battambang Weir Rehabilitation	580
Moug Russey	5. MRB-01 Bassac Reservoir Rehabilitation	3,500
	6. MRB-02 Ream Kon Rehabilitation	2,300
	7. MRB-03 Por Canal Rehabilitation	1,200
	8. MRB-04 Nikom Le/Dai Ta Chan Rehabilitation	600
Pursat	9. PRB-01 Beoung Preah Ponley Rehabilitation	8,500
	10. PRB-02 Dam Nak Ampil Extension	8,000
	11. PRB-03 Wat Loung Rehabilitation	3,940
	12. PRB-04 Wat Chre Rehabilitation	1,000
	13. PRB-05 Anlong Knouchi, Wat Leal, Kosh Khsach Water Harvesting & Recession Rice Rehabilitation	2,602
Boribo	14. BRB-01 Lum Hach Rehabilitation	3,700
	15. BRB-02 7th January Canal Rehabilitation	2,000
	16. BRB-03 Khvet Rehabilitation	250
	17. BRB-04 Ta Ram Rehabilitation	180
	18. BRB-05 Chak Teum, Trapeang Khlong & Don Pov Rehabilitation	980
	19. BRB-06 Teuk Laak, Trapeang Thlan Rehabilitation	230
	20. BRB-07 Toul Champey Rehabilitation	360
	21. BRB-08 Chan Keak Rehabilitation	110

Source: JICA Study Team

CHAPTER G2 ECONOMIC EVALUATION

G2.1 Economic Evaluation Procedures

G2.1.1 Evaluation Procedures

The both project benefit and cost are estimated based on the following conditions;

- All the prices are expressed in constant prices as of September 2007, and the foreign currency exchange rate is fixed at USD 1.00 = Riel 4,100;
- The project life is assumed to be 50 years starting from 2010, the proposed year for commencement of project implementation;
- Economic farm gate prices of internationally traded agricultural inputs and outputs are calculated in the form of export and import parity prices as shown in Table G2-1, citing the World Bank Commodity Price Forecasts as of August 2007;
- A standard conversion factor (SCF) is determined at 0.986 as the average value for the last six years between 2001 and 2006 for the adjustment of prices reflecting the market distortion, which is estimated based on the formula as mentioned below

$$SCF = (I + E) / [(I - I_s + I_t) + (E + E_s - E_t)]$$

Where, I = Total import value (CIF) to Cambodia,
E = Total export value (FOB) from Cambodia,
s = subsidy, and
t = tax;

- A shadow wage rate (SWR) is assumed to be 0.31 for the adjustment of labor costs reflecting the market distortion, which is defined as the ratio of the total annual labor force requirement for the proposed 21 irrigation project areas against the total annual labor force available in the same areas. Various relevant sources¹ are referred to for this calculation and the ratio calculated based on 2020 projected population is adjusted by multiplying by SCF (SWR = 8,102,121/26,430,987 x 0.986 = 0.3022);
- Financial construction cost is assumed to be composed of 70% for foreign currency portion and 30% for local currency portion. The foreign currency portion is further broken down into 35% for equipment cost and 65% for material cost, while the local currency portion is formed of 15% for equipment cost, 15% for material cost, 20% for common labor cost and 50% for skilled labor cost; and
- Conversion factors of financial construction cost to economic values are determined as 0.81 for material costs and 0.73 for equipment costs in the foreign currency portion as well as 0.86 for material costs and 0.78 for equipment costs in the local currency portion, all of which are estimated by excluding transfer payments such as taxes, duties, subsidies, interest, land acquisition cost, etc. included in the financial construction costs.

¹ Cambodia Statistical Yearbook 2006, NIS, Ministry of Planning; First Revision, Population Projection for Cambodia 1988 – 2020; and SEIRA Commune Database 2005, Ministry of Interior

G2.2 Economic Benefit

In the four river basins, irrigation and drainage benefits are expected to be derived from the increase in normal irrigated paddy field area coupled with the increase in paddy yield and cultivation area of secondary crops like mungbeans. The economic benefit is defined as the incremental net benefit between the present “Without Project” condition and the future “With Project” condition. In constructing proposed irrigation and drainage facilities, some part of existing paddy field will be acquired. Such change in the “right of way” area has been taken into account in formulating the future land use plan. In this regard, no production foregone as negative benefit is considered in estimating the annual economic benefit.

The incremental net benefit attributed to the proposed irrigation and drainage development, and the increase in irrigated paddy cultivation area and paddy production of 21 projects are estimated as presented in Table G2-5 based on the economic prices applied, economic crop budget under present/without project condition and economic crop budget under with project condition as shown in Tables G2-2, G2-3 and G2-4, respectively. The summary of the economic irrigation and drainage benefit is given in the following table.

Economic Irrigation and Drainage Benefit

Proposed Project			Increase in		Net Benefit		
			Irrigated Area*	Paddy product (ton)	(Million Riel)		
No./Code	Name	Area (ha)			Without Project	With Project	Increment
1. BTB-01	Kong Hort Rehabilitation (I)	10,040	10,031	17,844	3,634	14,356	10,722
2. BTB-02	Kong Hort Rehabilitation (II)	2,733	1,584	3,293	1,756	3,900	2,143
3. BTB-03	Salat On Weir Rehabilitation	10,400	7,781	16,875	4,122	14,860	10,738
	Salat On Weir Rehab. (Pump)**					12,665	8,543
4. BTB-04	Ratanak-Battambang Weir Rehab.	580	515	936	252	864	612
5. MRB-01	Bassac Reservoir Rehabilitation	3,500	3,500	5,801	1,583	5,291	3,708
6. MRB-02	Ream Kon Rehabilitation	2,300	2,250	3,822	1,041	3,466	2,425
7. MRB-03	Por Canal Rehabilitation	1,200	1,100	2,023	540	1,807	1,267
8. MRB-04	Nikom Le/Dai Ta Chan Rehab.	600	648	1,206	272	1,005	733
9. PRB-01	Beoung Preah Ponley Rehab.	8,500	8,102	18,511	4,825	15,244	10,419
10. PRB-02	Dam Nak Ampil Extension	8,000	4,783	12,259	7,193	15,379	8,186
11. PRB-03	Wat Loung Rehabilitation	3,940	3,690	7,624	2,446	7,274	4,828
12. PRB-04	Wat Chre Rehabilitation	1,000	932	2,063	586	1,871	1,285
13. PRB-05	Anlong Knouchi, Wat Leal, Kosh Khsach Water Harvesting & Recession Rice Rehabilitation	2,602	1,257	3,709	2,111	4,500	2,388
14. BRB-01	Lum Hach Rehabilitation	3,700	2,535	5,038	3,311	6,799	3,488
15. BRB-02	7th January Canal Rehabilitation	2,000	1,417	2,789	1,755	3,719	1,964
16. BRB-03	Khvet Rehabilitation	250	225	488	152	457	305
17. BRB-04	Ta Ram Rehabilitation	180	162	351	110	338	228
18. BRB-05	Chak Teum, Trapeang Khlong & Don Pov Rehabilitation	980	882	1,911	597	1,809	1,212
19. BRB-06	Teuk Laak, Trapeang Thlan Rehab.	230	207	449	140	400	260
20. BRB-07	Toul Champey Rehabilitation	360	324	702	219	630	410
21. BRB-08	Chan Keak Rehabilitation	110	82	206	71	195	124

Note: *, Annual paddy cropped area under normal irrigated condition for with project, and normal and supplemental irrigated conditions for without project.

***, Alternative case for construction of 5 pump stations instead of rehabilitation of weir

G2.3 Economic Cost

The economic investment cost items are composed of:

- Direct construction cost including preparatory works, weir and major intake structure, canals and related structures, dykes and miscellaneous works;
- Contractor's expense, and detailed design and supervision works;
- Physical contingencies; and
- FWUC level training & mobilization and agricultural & other support services.

The economic investment cost is estimated by applying relevant conversion factors to each cost components like materials, equipment, common labor and skilled labor of the both foreign and local currency portions. The annual O&M cost and major repairing cost are also converted to economic values in the same manner. The latter is allocated every 10 years. In the alternative case to construct 5 pumping stations instead of weir rehabilitation for Salat On Project, fuel cost required for pump operation is to be added to crop production cost for every crop season, as such cost should be charged to beneficiaries.

The estimated economic investment cost for the respective projects is presented in Table G2-6 and summarized in the following table.

Economic Investment, Annual O&M Cost and Major Repairing Costs

Project Code	Project Name	Proposed Project Area (ha)	Initial Investment Cost (M. Riel)	Annual O&M Cost (M. Riel)	Major Repairing Cost (M. Riel)
1. BTB-01	Kong Hort Rehabilitation (Phase I)	10,040	92,877	1,096	10,029
2. BTB-02	Kong Hort Rehabilitation (Phase II)	2,733	31,677	442	3,901
3. BTB-03	Salat On Weir Rehabilitation	10,400	198,831	1,594	16,180
	Salat On Weir Rehabilitation (Alternative)		142,031	1,318	12,848
4. BTB-04	Ratanak-Battambang Weir Rehab.	580	7,578	114	995
5. MRB-01	Bassac Reservoir Rehabilitation	3,500	25,331	328	2,936
6. MRB-02	Ream Kon Rehabilitation	2,300	18,238	218	1,985
7. MRB-03	Por Canal Rehabilitation	1,200	8,168	110	978
8. MRB-04	Nikom Le/Dai Ta Chan Rehabilitation	600	7,324	72	694
9. PRB-01	Beoung Preah Ponley Rehabilitation	8,500	64,305	834	7,475
10. PRB-02	Dam Nak Ampil Extension	8,000	58,430	752	6,744
11. PRB-03	Wat Loung Rehabilitation	3,940	29,080	392	3,487
12. PRB-04	Wat Chre Rehabilitation	1,000	10,066	102	961
13. PRB-05	Anlong Knouchi, Wat Leal, Kosh Khsach Water Harvest. & Recession Rice Rehab.	2,602	20,467	282	2,494
14. BRB-01	Lum Hach Rehabilitation	3,700	34,653	366	3,437
15. BRB-02	7th January Canal Rehabilitation	2,000	19,199	246	2,179
16. BRB-03	Khvet Rehabilitation	250	3,018	28	278
17. BRB-04	Ta Ram Rehabilitation	180	3,321	34	320
18. BRB-05	Chak Teum, Trapeang Khlong & Don Pov Rehabilitation	980	8,854	102	925
19. BRB-06	Teuk Laak, Trapeang Thlan Rehabilitation	230	2,440	34	300
20. BRB-07	Toul Champey Rehabilitation	360	2,383	34	275
21. BRB-08	Chan Keak Rehabilitation	110	1,221	16	143

G2.4 Economic Evaluation

In conducting economic evaluation, the economic cost and benefit stream is prepared for the project life period of 50 years, comprising the project investment cost, annual O&M cost and major repairing cost for the cost stream as well as annual irrigation and drainage benefit in the build-up and full swing stages for the benefit stream as presented in Table G2-7. The result of economic evaluation is expressed by the economic internal rate of return (EIRR), surplus between net present values of benefit and cost (B-C) at discount rate of 8% and benefit-cost ratio (B/C) as summarized in Table G2-8 as well as the following table.

Economic Internal Rate of Return and Net Present Value

Project Code	Project Name	EIRR (%)	Net Present Value (8% discount rate)			
			Benefit	Cost	B-C	B/C Ratio
			(Million Riel)			
1. BTB-01	Kong Hort Rehabilitation (Phase I)	8.7	97,520	91,673	5,847	1.06
2. BTB-02	Kong Hort Rehabilitation (Phase II)	3.3	21,901	35,373	-13,472	0.62
3. BTB-03	Salat On Weir Rehabilitation	2.7	99,184	186,699	-87,515	0.53
	Salat On Weir Rehabilitation (Alternative)	3.3	77,162	135,427	-58,561	0.57
4. BTB-04	Ratanak-Battambang Weir Rehab.	4.9	6,517	8,720	-2,203	0.75
5. MRB-01	Bassac Reservoir Rehabilitation	11.0	35,007	26,911	8,096	1.30
6. MRB-02	Ream Kon Rehabilitation	10.5	24,776	19,959	4,818	1.24
7. MRB-03	Por Canal Rehabilitation	12.4	12,945	9,132	3,814	1.42
8. MRB-04	Nikom Le/Dai Ta Chan Rehabilitation	7.6	7,488	7,787	-300	0.96
9. PRB-01	Beoung Preah Ponley Rehabilitation	11.9	89,127	63,227	25,900	1.41
10. PRB-02	Dam Nak Ampil Extension	11.1	74,452	57,258	17,194	1.30
11. PRB-03	Wat Loung Rehabilitation	11.4	42,514	30,939	11,575	1.37
12. PRB-04	Wat Chre Rehabilitation	9.4	12,244	10,676	1,569	1.15
13. PRB-05	Anlong Knouchi, Wat Leal, Kosh Khsach Water Harvesting & Recession Rice Rehab.	8.5	23,874	22,853	1,021	1.04
14. BRB-01	Lum Hach Rehabilitation	7.1	32,215	35,509	-3,294	0.91
15. BRB-02	7th January Canal Rehabilitation	7.3	19,635	21,083	-1,448	0.93
16. BRB-03	Khver Rehabilitation	7.8	3,117	3,193	-76	0.98
17. BRB-04	Ta Ram Rehabilitation	4.1	2,318	3,550	-1,232	0.65
18. BRB-05	Chak Teum, Trapeang Khlong & Don Pov Rehabilitation	11.0	12,382	9,606	2,776	1.29
19. BRB-06	Teuk Laak, Trapeang Thlan Rehabilitation	7.6	2,658	2,754	-96	0.97
20. BRB-07	Toul Champey Rehabilitation	13.9	4,192	2,684	1,509	1.56
21. BRB-08	Chan Keak Rehabilitation	7.1	1,262	1,368	-106	0.92

The prospected increase in paddy production in each proposed project area is calculated as presented in Table G2-9.

CHAPTER G3 FINANCIAL EVALUATION

G3.1 Financial Evaluation Procedure

The prospected impact of each proposed project on beneficiary farmers' capacity to pay is indicated by estimating farm budget based on 1-ha size of paddy field. The increase in net return between the present "Without Project" and future "With Project" conditions reveals that how much additional capacity to pay after deducting farming cost beneficiary farmers can expect to gain through participation to the proposed project.

G3.2 Increase in Financial Net Benefit

Based on financial crop budgets under the both conditions of present/without project as shown in Table G3-1 and with project as shown in Table G3-2, the increase in financial net benefit is estimated as presented in Table G3-3, and summarized in Table G3-4 and the following table.

Increase in Farmers' Capacity to Pay

Project Code	Project Name	Crop Intensity		Net Return per ha		Capacity to Pay	
		Without	With	Without	With	Increase	
		(%)	(%)	('000 Riel)		(Ratio)	
1. BTB-01	Kong Hort Rehabilitation (I)	100	101	87	849	762	8.8
2. BTB-02	Kong Hort Rehabilitation (II)	112	101	261	852	591	2.3
3. BTB-03	Salat On Weir Rehabilitation	104	104	111	849	738	6.7
	Salat On Weir Rehab. (Pump)				603	492	4.4
4. BTB-04	Ratanak-Battambang Weir Rehab.	107	101	139	896	757	5.5
5. MRB-01	Bassac Reservoir Rehabilitation	100	102	124	897	773	6.2
6. MRB-02	Ream Kon Rehabilitation	100	102	128	898	770	6.0
7. MRB-03	Por Canal Rehabilitation	100	102	134	897	763	5.7
8. MRB-04	Nikom Le/Dai Ta Chan Rehab.	100	112	127	1,017	890	7.0
9. PRB-01	Beoung Preah Ponley Rehab.	100	110	278	1,205	927	3.3
10. PRB-02	Dam Nak Ampil Extension	115	114	518	1,225	707	1.4
11. PRB-03	Wat Loung Rehabilitation	101	110	282	1,188	906	3.2
12. PRB-04	Wat Chre Rehabilitation	102	111	298	1,219	921	3.1
13. PRB-05	Anlong Knouchi, Wat Leal, Kosh Khsach Water Harvesting & Recession Rice Rehabilitation	107	118	483	1,216	733	1.5
14. BRB-01	Lum Hach Rehabilitation	110	105	490	1,217	727	1.5
15. BRB-02	7th January Canal Rehabilitation	109	105	476	1,217	741	1.6
16. BRB-03	Khvet Rehabilitation	100	104	331	1,212	881	2.7
17. BRB-04	Ta Ram Rehabilitation	100	106	331	1,219	888	2.7
18. BRB-05	Chak Teum, Trapeang Khlong & Don Pov Rehabilitation	100	105	331	1,217	886	2.7
19. BRB-06	Teuk Laak, Trapeang Thlan Rehab.	100	104	331	1,213	882	2.7
20. BRB-07	Toul Champey Rehabilitation	100	106	331	1,220	889	2.7
21. BRB-08	Chan Keak Rehabilitation	100	109	361	1,238	877	2.4

Tables

Table G2-1 Economic Farm Gate Price of Internationally Traded Goods (1/2)

Item	Import Parity Price			Export Parity Price		
	Operation	Unit	Price	Operation	Unit	Price
I. Rice/Paddy						
1. Forecasted 2015 World Price (in 2006 price) /a		US\$/ton	260		US\$/ton	260
2. Projected 2020 World Price (in 2006 price) /b		US\$/ton	251.6		US\$/ton	251.6
3. Quality Adjustment	x	%	90	x	%	90
4. CIF/FOB Price at Sihanouk Ville International Port /c	=	US\$/ton	226.4	=	US\$/ton	226.4
5. Port Charge, Handling and Warehousing	+	US\$/ton	12.9	-	US\$/ton	12.9
6. Price at Sihanouk Ville International Port	=	US\$/ton	239.3	=	Riel/kg	213.5
Equivalent in Riel / kg /d	=	Riel/kg	981	=	Riel/kg	875
7. Transportation Cost /e (Sihanouk Ville-Phnom Penh)	+	Riel/kg	30	-	Riel/kg	30
(Phnom Penh -Pursat)	+	Riel/kg	30	-	Riel/kg	30
8. Ex-Mill /Wholesale Price in Pursat	=	Riel/kg	1,041	=	Riel/kg	815
9. Milling Cost and Margin /f	-	Riel/kg	23	-	Riel/kg	23
10. Processing Ratio	x	%	64	x	%	64
11. By-Products through Processing /e	+	Riel/kg	70	+	Riel/kg	70
12. Millgate Paddy Price	=	Riel/kg	722	=	Riel/kg	577
13. Transport/Handling from Farmgate /d	-	Riel/kg	15	-	Riel/kg	15
14. Farmgate Price	=	Riel/kg	707	=	Riel/kg	562
17. Weighted average economic farm gate price		Riel/kg	635		Riel/kg	562
II. Maize						
1. Forecasted 2015 World Price (in 2006 price) /a		US\$/ton	130		US\$/ton	130
2. Projected 2020 World Price (in 2006 price) /b		US\$/ton	121.9		US\$/ton	121.9
3. International Shipping and Handling	+	US\$/ton	40.0			
4. CIF/FOB Price at Sihanouk Ville International Port	=	US\$/ton	161.9	=	US\$/ton	121.9
5. Port Charge, Handling and Warehousing	+	US\$/ton	12.9	-	US\$/ton	12.9
6. Price at Sihanouk Ville International Port	=	US\$/ton	174.8	=	Riel/kg	109.0
Equivalent in Riel / kg /d	=	Riel/kg	717	=	Riel/kg	447
7. Transportation Cost /e (Sihanouk Ville-Phnom Penh)	+	Riel/kg	30	-	Riel/kg	30
(Phnom Penh -Pursat)	+	Riel/kg	30	-	Riel/kg	30
8. Price in Pursat	=	Riel/kg	777	=	Riel/kg	387
9. Transport/Handling from Farmgate /e	-	Riel/kg	15	-	Riel/kg	15
10. Farmgate Price	=	Riel/kg	762	=	Riel/kg	372
17. Weighted average economic farm gate price		Riel/kg	570		Riel/kg	372

Note : /a ; Real price based on the World Bank, Prospects for the Global Economy, Aug. 2007

Rice : Thai, milled, 5% broken, FOB Bangkok

Maize : US No.2, Yellow, FOB Gulf Ports

/b ; The projected 2020 prices are adjusted by the factor of forecasted nominal price change rate between 2010 and 2015.

/c ; Assumed at the same price at Bangkok port in Thailand

/d ; Exchange rate : US\$ = Riel 4,100

/e ; Adjusted with SCF of 0.986

/f ; Rice bran : Riel 300 /kg of rice bran, 18% of paddy weight

Broken rice: Riel 320 /kg of broken rice, 5 % of paddy weight.

Table G2-1 Economic Farm Gate Price of Internationally Traded Goods (2/2)

Item	Import Parity Price		
	Operation	Unit	Price
III. Fertilizer			
(1) Urea			
1. Forecasted 2015 World Price (in 2006 price) /a		US\$/ton	225.0
2. Projected 2020 World Price (in 2006 price) /b		US\$/ton	194.0
3. International Shipping and Handling	+	US\$/ton	40.0
4. CIF/FOB Price at Sihanouk Ville International Port	=	US\$/ton	234.0
5. Port Charge, Handling and Warehousing	+	US\$/ton	12.9
6. Price at Sihanouk Ville International Port	=	US\$/ton	246.9
Equivalent in Riel / kg /c	=	Riel/kg	1,012
7. Transportation Cost /d (Sihanouk Ville-Pursat)	+	Riel/kg	60
8. Trade Price in Pursat	=	Riel/kg	1,072
9. Transport/Handling to Farmgate /d	+	Riel/kg	15
10. Farmgate Price	=	Riel/kg	1,087
Price of Nutrient (N) /e		Riel/kg	2,363
(2) DAP (Diammonium Phosphate)			
1. Forecasted 2015 World Price (in 2006 price) /a		US\$/ton	216
2. Projected 2020 World Price (in 2006 price) /b		US\$/ton	171.4
3. International Shipping and Handling	+	US\$/ton	45.0
4. CIF/FOB Price at Sihanouk Ville International Port	=	US\$/ton	216.4
5. Port Charge, Handling, Warehousing and Bagging	+	US\$/ton	12.9
6. Price at Sihanouk Ville International Port	=	US\$/ton	229.3
Equivalent in Riel / kg /c	=	Riel/kg	940
7. Transportation Cost /d (Kampong Som-Kampong Speu)	+	Riel/kg	60
8. Trade Price in Kampong Speu	=	Riel/kg	1,000
9. Transport/Handling to Farmgate /d	+	Riel/kg	15
10. Farmgate Price	=	Riel/kg	1,015
Price of Nutrient (P) /e		Riel/kg	2,207
Price of Nutrient (N) /e		Riel/kg	5,639
(3) Potassium Chloride (KCl)			
1. Forecasted 2015 World Price (in 2006 price) /a		US\$/ton	130.0
2. Projected 2020 World Price (in 2006 price) /b		US\$/ton	113.8
3. International Shipping and Handling	+	US\$/ton	40.0
4. CIF/FOB Price at Sihanouk Ville International Port	=	US\$/ton	153.8
5. Port Charge, Handling, Warehousing and Bagging	+	US\$/ton	12.9
6. Price at Sihanouk Ville International Port	=	US\$/ton	166.7
Equivalent in Riel / kg /c	=	Riel/kg	683
7. Transportation Cost /d (Kampong Som-Takeo)	+	Riel/kg	60
8. Trade Price in Takeo	=	Riel/kg	743
9. Transport/Handling to Farmgate /d	+	Riel/kg	15
10. Farmgate Price	=	Riel/kg	758
Price of Nutrient (K) /e		Riel/kg	1,263

Note : /a ; Real price based on the World Bank, Prospects for the Global Economy, Aug. 2007

Urea : Bagged, FOB Black Sea

DAP : Bulk, FOB US Gulf

KCl : Bulk, FOB Vancouver

/b ; The projected 2020 prices are adjusted by the factor of forecasted nominal price change rate between 2010 and 2015.

/c ; Exchange rate : US\$ = Riel 4,100

/c ; Adjusted with SCF of 0.986

/e ; Nutrient content is 46%, 46%(18-46-0), and 60%, respectively for Urea, DAP and KCL.

Table G2-2 Summary of Financial and Economic Prices Applied

Particulars	Unit	Financial Price Applied /a	Conversion	Economic Price Applied
1. Farm Products				
Dry Paddy	(Riel/kg)	560	b	635
Mungbean	(Riel/kg)	1,500	c	1,479
Vegetable (Morning Glory)	(Riel/kg)	300	c	296
Vegetable (Cucumber)	(Riel/kg)	1,200	c	1,183
2. By-Products				
By-products of Paddy	(Riel/kg)	28	c	28
By-products of Mungbean	(Riel/kg)	30	c	30
3. Seeds				
Paddy (Present/Without)	(Riel/kg)	560	c	552
Paddy (With)	(Riel/kg)	900	c	887
Mungbean	(Riel/kg)	1,400	c	1,380
Vegetable (Morning Glory)	(Riel/kg)	6,000	c	5,916
Vegetable (Cucumber)	(Riel/kg)	16,000	c	15,776
4. Fertilizer				
Urea	(Riel/kg)	1,640	b	1,087
DAP	(Riel/kg)	1,630	b	1,015
KCL	(Riel/kg)	1,550	b	758
Compost	(Riel/ton)	30,000	d	9,067
5. Chemical				
	(Riel/litre)	5,250	d	1,587
6. Labor				
Hired labor	(Riel/manday)	6,400	d	1,934
Family labor	(Riel/manday)	0	d	1,934
7. Land Preparation				
Draft animal/Tractor				
-Direct sowing	(Riel/ha)	350,000	d	105,787
-Transplanting	(Riel/ha)	250,000	d	75,562
-Mungbean	(Riel/ha)	48,000	d	14,508
-Vegetable	(Riel/ha)	96,000	d	29,016
8. Pumping				
Supplemental irrigation	(Riel/ha)	30,000	e	24,600
Pumping-up irrigation	(Riel/ha)	233,700	f	200,982
9. Transportation				
Ox cart	(Riel/ton)	30,000	d	9,067
10. Miscellaneous				
5% of total of cost items 3 to	(Riel)			

Remarks:

/a ; Dec. 2005 prices

/b ; Economic price estimate based on the WB Commodity Markets Forecast

/c ; Financial prices are converted to economic value multiplying by SCF of

0.9860

/d ; Multiplied by shadow wage rate and SCF

0.3022

/e ; Average conversion factors of materials (50%) and equipment (50%)

0.8200

/f ; Conversion factor of materials

0.8600

Table G2-4 Economic Crop Budget of Rice under With Project Condition

Item	Unit	Early Wet Season			Wet Season Transplanting			Wet Season Direct Sowing			Dry Season		
		Normal irrigated area		Value	Normal irrigated area by pump		Value	Normal irrigated area		Price	Normal irrigated area by pump		Price
		Q'ty	Price (Riel)	('000 Riel)	Q'ty	Price (Riel)	('000 Riel)	Q'ty	Price (Riel)	('000 Riel)	Q'ty	Price (Riel)	('000 Riel)
1. Gross Income													
Paddy	kg	3,500	635	2,232	3,500	635	2,232	2,800	635	1,856	2,800	635	2,232
By-product (straw)	kg	3,500	28	98	3,500	28	98	2,800	28	78	2,800	28	98
2. Production Cost													
2.1 Inputs													
Seed	Riel			601			611						601
Manure (wet)	Riel			253			253						253
Fertilizer	kg	30	887	27	30	887	27	80	887	71	80	887	71
Urea	ton	1	9,067	5	1	9,067	5	1	9,067	5	1	9,067	5
DAP	kg	115	1,087	125	115	1,087	125	80	1,087	87	80	1,087	87
KCl	kg	65	1,015	66	65	1,015	66	50	1,015	51	50	1,015	51
Agro-chemicals	kg	40	758	30	40	758	30	20	758	15	20	758	15
2.2 Labor													
Hired labor	manday	0	1,587	0	0	1,587	0	0	1,587	0	0	1,587	0
Family labor	manday	213		222	222		222	14		27	14		27
Draft animal/Tractor	manday	11	1,934	23	12	1,934	23	103	1,934	199	56	1,934	108
2.3 Land preparation													
Pumping	Riel			76			76			106			106
Ox-cart	Riel			0			0			201			201
2.4 Miscellaneous													
2.5 Transportation													
2.6 Miscellaneous													
3. Net Return/Production Cost Ratio													
Net Return	Riel			1,720			1,499			1,338			1,720
Production Cost Ratio	Riel			2,86			1,82			2,58			2,86
1. Gross Income													
Paddy	kg	2,500	635	1,588	0	635	0	0	635	0	0	635	0
Mungbean	kg	0	1,479	0	700	1,479	1,035	500	1,479	740	0	1,479	0
Vegetable (morning glory)	kg	0	296	0	0	296	0	0	296	4,141	14,000	296	0
Vegetable (cucumber)	kg	0	1,183	0	0	1,183	0	0	1,183	0	0	1,183	0
By-product (straw)	kg	2,500	28	70	0	28	0	0	28	0	4,500	28	0
By-product (mungbean)	kg	0	30	0	700	30	21	500	30	15	0	30	0
2. Production Cost													
2.1 Inputs													
Seed	Riel			425			371			282			1,363
Manure (wet)	Riel			186			217			146			902
Fertilizer	kg	30	1,380	41	50	1,380	69	50	1,380	118	13.3	15,776	210
Urea	ton	1	9,067	9	2	9,067	18	1	9,067	91	20	9,067	181
DAP	kg	60	1,087	65	55	1,087	60	40	1,087	43	153	1,087	217
KCl	kg	40	1,015	41	50	1,015	51	25	1,015	25	153	1,015	281
Agro-chemicals	kg	40	758	30	25	758	19	0	758	0	0	758	0
2.2 Labor													
Hired labor	manday	0	1,587	0	0	1,587	0	0	1,587	0	0	1,587	13
Family labor	manday	204		204	18		116	16		103	290		328
Draft animal/Tractor	manday	22	1,934	43	18	1,934	35	16	1,934	87	45	1,934	106
2.3 Land preparation													
Pumping	Riel			161			161			203			222
Ox-cart	Riel			15			15			29			29
2.5 Transportation													
2.6 Miscellaneous													
3. Net Return/Production Cost Ratio													
Net Return	Riel			1,233			685			473			3,123
Production Cost Ratio	Riel			2,90			1,84			1,68			2,91

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (1/22)

**Battambang River Basin
Kong Hort Rehabilitation Project Phase I**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	<u>10,560</u>		<u>3,634</u>	<u>10,040</u>		<u>14,065</u>					
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0		3.0	0	3.5	0
Wet Season Transplanting											
- Normal irrigation area	0	1,435	0	1,707	1,710	2,920		3.0	0	3.5	5,975
- Supplemental irrigation area	2	843	2	0	0	0		2.0	4		
- Rainfed area	1,794	583	1,046	0	0	0		1.5	2,691		
Wet Season Direct Sowing											
- Normal irrigation area	0	868	0	8,333	1,338	11,145		2.0	0	2.8	23,332
- Supplemental irrigation area	7	540	4	0	0	0		1.5	11		
- Rainfed area	8,757	295	2,582	0	0	0		1.0	8,757		
Dry Season											
- Normal irrigation area		1,446	0	0	1,720	0		3.0	0	3.5	0
- Supplemental irrigation area	0	1,131	0	0	0	0		2.5	0		
- Rainfed area	0	881	0	0	0	0		2.0	0		
- Recession area	0	904	0	0	1,233	0		2.0	0	2.5	0
Upland Crops											
- Mungbean (recession area)	0	0	0	90	0	291					
- Mungbean (irrigated)	0	0	0	0	1,233	0					
- Morning Glory (irrigated)	0	0	0	20	685	14					
- Cucumber (irrigated)	0	0	0	0	3,123	0					
Total	10,560		3,634	10,130		14,356		11,463		29,307	17,844
Total Physical Area	(ha)	10,560			10,040						
Cropping Intensity	(%)	100			101						
NPV per ha	000 Riel	344			1,430						
Exchange rate (1 USD equiv.)	(Riel)	4,100			4,100						
NPV per ha	(USD)	84			349						

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (2/22)

**Battambang River Basin
Kong Hort Rehabilitation Project Phase II**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Value Per ha (Riel '000)	Total (Riel 'Million)	Planted Area (ha)	Net Production Value Per ha (Riel '000)	Total (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	<u>3,225</u>	<u>1,756</u>	<u>3,821</u>	<u>2,733</u>							
Early Wet Season											
- Normal irrigation area	5	1,446	7	0	1,720	0	3.0	15	3.5	0	
Wet Season Transplanting											
- Normal irrigation area	40	1,435	57	456	1,710	780	3.0	120	3.5	1,596	
- Supplemental irrigation area	98	843	83	0	0	0	2.0	196			
- Rainfed area	344	583	201	0	0	0	1.5	516			
Wet Season Direct Sowing											
- Normal irrigation area	196	868	170	2,229	1,338	2,981	2.0	392	2.8	6,241	
- Supplemental irrigation area	476	540	257	0	0	0	1.5	714			
- Rainfed area	1,682	295	496	0	0	0	1.0	1,682			
Dry Season											
- Normal irrigation area	236	1,446	341	0	1,720	0	3.0	708	3.5	0	
- Supplemental irrigation area	50	1,131	57	0	0	0	2.5	125			
- Rainfed area	50	881	44	0	0	0	2.0	100			
- Recession area	48	904	43	48	1,233	59	2.0	96	2.5	120	
Upland Crops	<u>0</u>	<u>0</u>	<u>79</u>	<u>20</u>							
- Mungbean (recession area)	0	0	0	0	1,233	0					
- Mungbean (irrigated)	0	0	0	0	685	0					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	20	3,961	79					
Total	3,225	1,756	3,900	2,753		2,143		4,664		7,957	3,293

Total Physical Area (ha) 2,884
 Cropping Intensity (%) 112
 NPV per ha 000 Riel 609
 Exchange rate (1 USD equiv.) (Riel) 4,100
 NPV per ha (USD) 149

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (4/22)

**Battambang River Basin
Sala Taon Weir Rehabilitation Project (Pump Station)**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	10,970		4,122	10,400		12,374					
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
Wet Season Transplanting											
- Normal irrigation area	20	1,435	29	1,768	1,499	2,651	3.0	60	3.5	6,188	
- Supplemental irrigation area	189	843	159	0	0	0	2.0	378			
- Rainfed area	1,630	583	950	0	0	0	1.5	2,445			
Wet Season Direct Sowing											
- Normal irrigation area	97	868	84	8,632	1,126	9,724	2.0	194	2.8	24,170	
- Supplemental irrigation area	276	540	149	0	0	0	1.5	414			
- Rainfed area	8,601	295	2,536	0	0	0	1.0	8,601			
Dry Season											
- Normal irrigation area	117	1,446	169	0	1,720	0	3.0	351	3.5	0	
- Supplemental irrigation area	40	1,131	45	0	0	0	2.5	100			
- Rainfed area	0	881	0	0	0	0	2.0	0			
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0	
Upland Crops	0		0	90		291					
- Mungbean (recession area)	0	0	0	0	1,233	0					
- Mungbean (irrigated)	0	0	0	20	685	14					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	70	3,961	277					
Total	10,970		4,122	10,490		12,665		12,543		30,358	17,815

Total Physical Area (ha) 10,560 10,040
 Cropping Intensity (%) 104 104
 NPV per ha (000 Riel) 390 1,261
 Exchange rate (1 USD equiv.) (Riel) 4,100 4,100
 NPV per ha (USD) 95 308

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (5/22)

**Battambang River Basin
Ratanak-Battambang Water Haesteving Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
<u>Rice</u>	634	252	813	580	1,720	813					
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	0
Wet Season Transplanting											
- Normal irrigation area	0	1,435	169	99	1,710	169	3.0	0	3.5	347	0
- Supplemental irrigation area	4	843	0	0	0	0	2.0	8			8
- Rainfed area	97	583	57	0	0	0	1.5	146			146
Wet Season Direct Sowing											
- Normal irrigation area	0	868	643	481	1,338	643	2.0	0	2.8	1,347	0
- Supplemental irrigation area	6	540	0	0	0	0	1.5	9			9
- Rainfed area	487	295	144	0	0	0	1.0	487			487
Dry Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	0
- Supplemental irrigation area	40	1,131	45	0	0	0	2.5	100			100
- Rainfed area	0	881	0	0	0	0	2.0	0			0
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0	0
Upland Crops											
- Mungbean (recession area)	0	0	52	13	0	52					
- Mungbean (irrigated)	0	0	0	0	1,233	0					
- Morning Glory (irrigated)	0	0	0	0	685	0					
- Cucumber (irrigated)	0	0	0	0	3,123	0					
Total	634	252	864	593	3,961	864		750		1,693	944
Total Physical Area	(ha)	594	580								
Cropping Intensity	(%)	107	102								
NPV per ha	000 Riel	424	1,490								
Exchange rate (1 USD equiv.)	(Riel)	4,100	4,100								
NPV per ha	(USD)	103	363								

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (6/22)

**Moung Ruessei River Basin
Bassac Reservoir Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
<u>Rice</u>	4,120		1,583	3,500		5,086					
<u>Early Wet Season</u>											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
<u>Wet Season Transplanting</u>											
- Normal irrigation area	0	1,435	0	1,085	1,710	1,856	3.0	0	3.5	3,798	
- Supplemental irrigation area	0	843	0	0	0	0	2.0	0			
- Rainfed area	1,277	583	745	0	0	0	1.5	1,916			
<u>Wet Season Direct Sowing</u>											
- Normal irrigation area	0	868	0	2,415	1,338	3,230	2.0	0	2.8	6,762	
- Supplemental irrigation area	0	540	0	0	0	0	1.5	0			
- Rainfed area	2,843	295	838	0	0	0	1.0	2,843			
<u>Dry Season</u>											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0			
- Rainfed area	0	881	0	0	0	0	2.0	0			
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0	
<u>Upland Crops</u>											
- Mungbean (recession area)	0	0	0	60	205	0					
- Mungbean (irrigated)	0	0	0	0	1,233	0					
- Morning Glory (irrigated)	0	0	0	10	685	7					
- Cucumber (irrigated)	0	0	0	0	3,123	0					
<u>Total</u>	4,120		1,583	3,560		5,291		4,759		10,560	5,801
Total Physical Area	(ha)	4,120			3,500						
Cropping Intensity	(%)	100			85						
NPV per ha	000 Riel)	384			1,512						
Exchange rate (1 USD equiv.)	(Riel)	4,100			4,100						
NPV per ha	(USD)	94			369						

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (7/22)

**Moung Ruessei River Basin
Ream Kon Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	2,670	1,041	3,340	2,300	1,720	3,340					
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
Wet Season Transplanting											
- Normal irrigation area	0	1,435	0	710	1,710	1,214	3.0	0	3.5	2,485	
- Supplemental irrigation area	12	843	10	0	0	0	2.0	24			
- Rainfed area	812	583	473	0	0	0	1.5	1,218			
Wet Season Direct Sowing											
- Normal irrigation area	0	868	0	1,580	1,338	2,113	2.0	0	2.8	4,424	
- Supplemental irrigation area	28	540	15	0	0	0	1.5	42			
- Rainfed area	1,808	295	533	0	0	0	1.0	1,808			
Dry Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0			
- Rainfed area	0	881	0	0	0	0	2.0	0			
- Recession area	10	904	9	10	1,233	12	2.0	20	2.5	25	
Upland Crops	0	0	0	40	0	126					
- Mungbean (recession area)	0	0	0	0	1,233	0					
- Mungbean (irrigated)	0	0	0	10	685	7					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	30	3,961	119					
Total	2,670	1,041	3,466	2,340	3,961	3,466		3,112		6,934	3,822

Total Physical Area (ha) 2,300
 Cropping Intensity (%) 100
 NPV per ha (000 Riel) 390
 Exchange rate (1 USD equiv.) (Riel) 4,100
 NPV per ha (USD) 95

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (8/22)

**Moung Ruessei River Basin
Por Canal Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit											
	Present Condition					With Project Condition					Incremental NPV (Riel 'Million)	
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)			
<u>Rice</u>	1,340		540	1,200		1,744						
Early Wet Season												
- Normal irrigation area	0	1,446	0	0	1,720	0						
Wet Season Transplanting												
- Normal irrigation area	0	1,435	0	372	1,710	636						
- Supplemental irrigation area	31	843	26	0	0	0						
- Rainfed area	384	583	224	0	0	0						
Wet Season Direct Sowing												
- Normal irrigation area	0	868	0	828	1,338	1,108						
- Supplemental irrigation area	69	540	37	0	0	0						
- Rainfed area	856	295	252	0	0	0						
Dry Season												
- Normal irrigation area	0	1,446	0	0	1,720	0						
- Supplemental irrigation area	0	1,131	0	0	0	0						
- Rainfed area	0	881	0	0	0	0						
- Recession area	0	904	0	0	1,233	0						
<u>Upland Crops</u>												
- Mungbean (recession area)	0	0	0	20	63	0						
- Mungbean (irrigated)	0	0	0	0	1,233	0						
- Morning Glory (irrigated)	0	0	0	5	685	3						
- Cucumber (irrigated)	0	0	0	0	3,123	0						
Total	1,340		540	1,220	3,961	1,807					1,267	
Total Physical Area	(ha)	1,340										
Cropping Intensity	(%)	100										
NPV per ha	000 Riel	403										
Exchange rate (1 USD equiv.)	(Riel)	4,100										
NPV per ha	(USD)	98										

1,200
102
1,506
4,100
367

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (9/22)

**Moung Ruessei River Basin
Nikom Le/Dai Ta Chan Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production					
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)	
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)		
<u>Rice</u>	700		272	660		975						
Early Wet Season												
- Normal irrigation area	0	1,446	0	60	1,720	103		3.5	210			
Wet Season Transplanting												
- Normal irrigation area	0	1,435	0	186	1,710	318		3.5	651			
- Supplemental irrigation area	4	843	3	0	0	0						
- Rainfed area	213	583	124	0	0	0						
Wet Season Direct Sowing												
- Normal irrigation area	0	868	0	414	1,338	554		2.8	1,159			
- Supplemental irrigation area	8	540	4	0	0	0						
- Rainfed area	475	295	140	0	0	0						
Dry Season												
- Normal irrigation area	0	1,446	0	0	1,720	0		3.5	0			
- Supplemental irrigation area	0	1,131	0	0	0	0						
- Rainfed area	0	881	0	0	0	0						
- Recession area	0	904	0	0	1,233	0		2.5	0			
<u>Upland Crops</u>												
- Mungbean (recession area)	0	0	0	10	0	30						
- Mungbean (irrigated)	0	0	0	0	1,233	0						
- Morning Glory (irrigated)	0	0	0	3	685	2						
- Cucumber (irrigated)	0	0	0	0	3,123	0		2.5	0			
Total	700		272	670		1,005				815	2,020	1,206
Total Physical Area	(ha)	700				600						
Cropping Intensity	(%)	100				112						
NPV per ha	000 Riel	389				1,675						
Exchange rate (1 USD equiv.)	(Riel)	4,100				4,100						
NPV per ha	(USD)	95				408						

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (10/22)

Pursat River Basin
Beoung Preah Ponley Rehabilitation Project

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	8,673		4,825	9,300		15,186					
Early Wet Season											
- Normal irrigation area	0	1,446	0	790	1,720	1,359	3.0	0	3.5	2,765	
Wet Season Transplanting											
- Normal irrigation area	23	1,435	33	6,545	1,710	11,195	3.0	69	3.5	22,908	
- Supplemental irrigation area	876	843	738	0	0	0	2.0	1,752			
- Rainfed area	5,756	583	3,356	0	0	0	1.5	8,634			
Wet Season Direct Sowing											
- Normal irrigation area	7	868	6	1,955	1,338	2,615	2.0	14	2.8	5,474	
- Supplemental irrigation area	262	540	142	0	0	0	1.5	393			
- Rainfed area	1,719	295	507	0	0	0	1.0	1,719			
Dry Season											
- Normal irrigation area	30	1,446	43	10	1,720	17	3.0	90	3.5	35	
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0			
- Rainfed area	0	881	0	0	0	0	2.0	0			
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0	
Upland Crops											
- Mungbean (recession area)	0	0	0	30	0	59					
- Mungbean (irrigated)	0	0	0	10	1,233	12					
- Morning Glory (irrigated)	0	0	0	10	685	7					
- Cucumber (irrigated)	0	0	0	0	3,123	0					
Total	8,673		4,825	9,330		15,244		12,671		31,182	18,511

Total Physical Area (ha) 8,643 8,500
 Cropping Intensity (%) 100 110
 NPV per ha (000 Riel) 558 1,793
 Exchange rate (1 USD equiv.) (Riel) 4,100 4,100
 NPV per ha (USD) 136 437

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (11/22)

Pursat River Basin
 Damnak Ampil Extension Project

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	9,220		7,193	8,755		14,296					
Early Wet Season											
- Normal irrigation area	0	1,446	0	740	1,720	1,273	3.5	2,590	3.5	2,590	
Wet Season Transplanting											
- Normal irrigation area	901	1,435	1,293	6,160	1,710	10,536	3.5	21,560	3.5	21,560	
- Supplemental irrigation area	1,257	843	1,060	0	0	0					
- Rainfed area	4,041	583	2,356	0	0	0					
Wet Season Direct Sowing											
- Normal irrigation area	269	868	234	1,840	1,338	2,461	2.8	5,152	2.8	5,152	
- Supplemental irrigation area	375	540	203	0	0	0					
- Rainfed area	1,207	295	356	0	0	0					
Dry Season											
- Normal irrigation area	1,170	1,446	1,692	15	1,720	26	3.5	53	3.5	53	
- Supplemental irrigation area	0	1,131	0	0	0	0					
- Rainfed area	0	881	0	0	0	0					
- Recession area	0	904	0	0	1,233	0	2.5	0	2.5	0	
Upland Crops											
- Mungbean (recession area)	0	0	0	325	1,233	1,083	2.0	0	2.0	0	
- Mungbean (irrigated)	0	0	0	15	685	19					
- Morning Glory (irrigated)	0	0	0	50	3,123	34					
- Cucumber (irrigated)	0	0	0	0	4,100	0					
Total	9,220		7,193	9,080		15,379					12,259
Total											17,096
Total											29,355
Total											8,186
Total Physical Area	(ha)	8,050			8,000						
Cropping Intensity	(%)	115			114						
NPV per ha	000 Riel	893			1,922						
Exchange rate (1 USD equiv.)	(Riel)	4,100			4,100						
NPV per ha	(USD)	218			469						

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (12/22)

Pursat River Basin
Wat Loung Rehabilitation Project

Crops	Incremental Economic Irrigation Benefit										
	Present Condition					With Project Condition					Incremental NPV (Riel 'Million)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)		
<u>Rice</u>	4,380		2,446	4,190		6,831					
Early Wet Season											
- Normal irrigation area	0	1,446	0	240	1,720	413					
Wet Season Transplanting											
- Normal irrigation area	35	1,435	50	3,034	1,710	5,190					
- Supplemental irrigation area	316	843	266	0	0	0					
- Rainfed area	2,988	583	1,742	0	0	0					
Wet Season Direct Sowing											
- Normal irrigation area	10	868	9	906	1,338	1,212					
- Supplemental irrigation area	94	540	51	0	0	0					
- Rainfed area	892	295	263	0	0	0					
Dry Season											
- Normal irrigation area	45	1,446	65	10	1,720	17					
- Supplemental irrigation area	0	1,131	0	0	0	0					
- Rainfed area	0	881	0	0	0	0					
- Recession area	0	904	0	0	1,233	0					
<u>Upland Crops</u>	0		0	160		443					
- Mungbean (recession area)	0	0	0	10	1,233	12					
- Mungbean (irrigated)	0	0	0	50	685	34					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	100	3,961	396					
Total	4,380		2,446	4,350		7,274					4,828
Total Physical Area	(ha)	4,335				3,940					
Cropping Intensity	(%)	101				110					
NPV per ha	000 Riel	564				1,846					
Exchange rate (1 USD equiv.)	(Riel)	4,100				4,100					
NPV per ha	(USD)	138				450					

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (13/22)

**Pursat River Basin
Wat Chre Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit										
	Present Condition					With Project Condition					Incremental NPV (Riel 'Million)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total (Riel 'Million)		
<u>Rice</u>	1,020	586	586	1,070	1,745	1,745					
<u>Early Wet Season</u>											
- Normal irrigation area	0	1,446	0	70	1,720	120					
<u>Wet Season Transplanting</u>											
- Normal irrigation area	15	1,435	22	770	1,710	1,317					
- Supplemental irrigation area	75	843	63	0	0	0					
- Rainfed area	679	583	396	0	0	0					
<u>Wet Season Direct Sowing</u>											
- Normal irrigation area	5	868	4	230	1,338	308					
- Supplemental irrigation area	23	540	12	0	0	0					
- Rainfed area	203	295	60	0	0	0					
<u>Dry Season</u>											
- Normal irrigation area	20	1,446	29	0	1,720	0					
- Supplemental irrigation area	0	1,131	0	0	0	0					
- Rainfed area	0	881	0	0	0	0					
- Recession area	0	904	0	0	1,233	0					
<u>Upland Crops</u>											
- Mungbean (recession area)	0	0	0	40	126	126					
- Mungbean (irrigated)	0	0	0	0	1,233	0					
- Morning Glory (irrigated)	0	0	0	10	685	7					
- Cucumber (irrigated)	0	0	0	0	3,123	0					
<u>Total</u>	1,020	586	586	1,110	1,871	1,871				1,285	

Increase in Paddy Production	
Present Condition	With Project Condition
Paddy Yield (ton/ha)	Paddy Yield (ton/ha)
Production (ton)	Production (ton)
Production Increase (ton)	Production Increase (ton)
3.0	3.5
0	245
3.0	3.5
45	2,695
2.0	
150	
1.5	
1,019	
2.0	2.8
10	644
1.5	
35	
1.0	
203	
3.0	3.5
60	0
2.5	
0	
2.0	
0	
2.0	2.5
0	0
1,521	3,584
	2,063

Total Physical Area (ha) 1,000 1,000
 Cropping Intensity (%) 102 111
 NPV per ha (Riel) 586 1,871
 Exchange rate (1 USD equiv.) (Riel) 4,100 4,100
 NPV per ha (USD) 143 456

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (14/22)

Pursat River Basin

Anlong Knouchi, Wat Leal, Kosh Khsach Water Harvesting & Recesson Rice Rehabilitation Project

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production			
	Present Condition			With Project Condition			Present Condition		With Project Condition	
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)
Rice	<u>2,789</u>		<u>2,111</u>	<u>2,926</u>		<u>4,247</u>				
Early Wet Season										
- Normal irrigation area	0	1,446	0	224	1,720	385	3.5	0	3.5	784
Wet Season Transplanting										
- Normal irrigation area	0	1,435	0	948	1,710	1,622	3.5	0	3.5	3,318
- Supplemental irrigation area	174	843	147	0	0	0		348		
- Rainfed area	783	583	457	0	0	0		1,175		
Wet Season Direct Sowing										
- Normal irrigation area	0	868	0	283	1,338	379	2.8	0	2.8	792
- Supplemental irrigation area	52	540	28	0	0	0		78		
- Rainfed area	234	295	69	0	0	0		234		
Dry Season										
- Normal irrigation area	0	1,446	0	100	1,720	172	3.5	0	3.5	350
- Supplemental irrigation area	72	1,131	81	0	0	0		180		
- Rainfed area	103	881	91	0	0	0		206		
- Recesson area	1,371	904	1,239	1,371	1,233	1,690	2.5	2,742	2.5	3,428
Upland Crops										
- Mungbean (recession area)	0	0	0	147	0	252				
- Mungbean (irrigated)	0	0	0	97	1,233	120				
- Morning Glory (irrigated)	0	0	0	20	685	14				
- Cucumber (irrigated)	0	0	0	0	3,123	0				
Total	2,789		2,111	3,073		4,500		4,963		8,672
										3,709
Total Physical Area	(ha)	2,614				2,602				
Cropping Intensity	(%)	107				118				
NPV per ha	000 Riel	808				1,729				
Exchange rate (1 USD equiv.)	(Riel)	4,100				4,100				
NPV per ha	(USD)	197				422				

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (15/22)

**Boribo River Basin
Lum Hach Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production			
	Present Condition			With Project Condition			Present Condition		With Project Condition	
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)
<u>Rice</u>	4,380		3,311	3,700		6,329				
Early Wet Season										
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0
Wet Season Transplanting										
- Normal irrigation area	380	1,435	545	3,700	1,710	6,329	3.0	1,140	3.5	12,950
- Supplemental irrigation area	405	843	341	0	0	0	2.0	810		
- Rainfed area	3,215	583	1,875	0	0	0	1.5	4,823		
Wet Season Direct Sowing										
- Normal irrigation area	0	868	0	0	1,338	0	2.0	0	2.8	0
- Supplemental irrigation area	0	540	0	0	0	0	1.5	0		
- Rainfed area	0	295	0	0	0	0	1.0	0		
Dry Season										
- Normal irrigation area	380	1,446	550	0	1,720	0	3.0	1,140	3.5	0
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0		
- Rainfed area	0	881	0	0	0	0	2.0	0		
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0
<u>Upland Crops</u>	0		0	160		470				
- Mungbean (recession area)	0	0	0	0	1,233	0				
- Mungbean (irrigated)	0	0	0	50	685	34				
- Morning Glory (irrigated)	0	0	0	0	3,123	0				
- Cucumber (irrigated)	0	0	0	110	3,961	436				
Total	4,380		3,311	3,860		6,799		7,913		12,950
										5,038

Total Physical Area (ha) 4,000 3,700
 Cropping Intensity (%) 110 104
 NPV per ha 000 Riel 828 1,837
 Exchange rate (1 USD equiv.) (Riel) 4,100 4,100
 NPV per ha (USD) 202 448

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (16/22)

**Boribo River Basin
7th January Canal Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition Paddy Yield (ton/ha)	With Project Condition Paddy Yield (ton/ha)	Present Condition Production (ton)	With Project Condition Production (ton)	Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)					
<u>Rice</u>	<u>2,360</u>		<u>1,755</u>	<u>2,000</u>		<u>3,421</u>					
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.5	0	0	0	
Wet Season Transplanting											
- Normal irrigation area	190	1,435	273	2,000	1,710	3,421	3.5	7,000	0	0	
- Supplemental irrigation area	203	843	171	0	0	0				406	
- Rainfed area	1,777	583	1,036	0	0	0				2,666	
Wet Season Direct Sowing											
- Normal irrigation area	0	868	0	0	1,338	0	2.8	0	0	0	
- Supplemental irrigation area	0	540	0	0	0	0				0	
- Rainfed area	0	295	0	0	0	0				0	
Dry Season											
- Normal irrigation area	190	1,446	275	0	1,720	0	3.5	570	0	0	
- Supplemental irrigation area	0	1,131	0	0	0	0				0	
- Rainfed area	0	881	0	0	0	0				0	
- Recession area	0	904	0	0	1,233	0	2.5	0	0	0	
<u>Upland Crops</u>	<u>0</u>		<u>0</u>	<u>100</u>		<u>298</u>					
- Mungbean (recession area)	0	0	0	0	1,233	0	2.5	0	0	0	
- Mungbean (irrigated)	0	0	0	30	685	21					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	70	3,961	277					
Total	2,360		1,755	2,100		3,719		4,212	7,000		2,789

Total Physical Area	(ha)	2,170	2,000
Cropping Intensity	(%)	109	105
NPV per ha	000 Riel	809	1,859
Exchange rate (1 USD equiv.)	(Riel)	4,100	4,100
NPV per ha	(USD)	197	454

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (17/22)

**Boribo River Basin
Khvet Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	250		152	250		428					
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	0
Wet Season Transplanting											
- Normal irrigation area	0	1,435	0	250	1,710	428	3.0	0	3.5	875	0
- Supplemental irrigation area	25	843	21	0	0	0	2.0	50			50
- Rainfed area	225	583	131	0	0	0	1.5	338			338
Wet Season Direct Sowing											
- Normal irrigation area	0	868	0	0	1,338	0	2.0	0	2.8	0	0
- Supplemental irrigation area	0	540	0	0	0	0	1.5	0			0
- Rainfed area	0	295	0	0	0	0	1.0	0			0
Dry Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	0
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0			0
- Rainfed area	0	881	0	0	0	0	2.0	0			0
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0	0
Upland Crops	0		0	10		30					
- Mungbean (recession area)	0	0	0	0	1,233	0					
- Mungbean (irrigated)	0	0	0	3	685	2					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	7	3,961	28					
Total	250		152	260		457		388		875	488
Total Physical Area	(ha)	250		260		250					
Cropping Intensity	(%)	100		104		104					
NPV per ha	000 Riel	609		1,830		1,830					
Exchange rate (1 USD equiv.)	(Riel)	4,100		4,100		4,100					
NPV per ha	(USD)	149		446		446					

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (18/22)

**Boribo River Basin
Ta Ram Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Value Per ha (Riel '000) (Riel 'Million)	Total (Riel 'Million)	Planted Area (ha)	Net Production Value Per ha (Riel '000) (Riel 'Million)	Total (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	180	110	308	180	1,720	308	3.0	0	3.5	0	
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
Wet Season Transplanting											
- Normal irrigation area	0	1,435	0	180	1,710	308	3.0	0	3.5	630	
- Supplemental irrigation area	18	843	15	0	0	0	2.0	36			
- Rainfed area	162	583	95	0	0	0	1.5	243			
Wet Season Direct Sowing											
- Normal irrigation area	0	868	0	0	1,338	0	2.0	0	2.8	0	
- Supplemental irrigation area	0	540	0	0	0	0	1.5	0			
- Rainfed area	0	295	0	0	0	0	1.0	0			
Dry Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0			
- Rainfed area	0	881	0	0	0	0	2.0	0			
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0	
Upland Crops	0	0	30	10	1,233	30	2.0	0			
- Mungbean (recession area)	0	0	0	0	1,233	0					
- Mungbean (irrigated)	0	0	0	3	685	2					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	7	3,961	28					
Total	180	110	338	190	338	228		279		630	351

Total Physical Area (ha) 180
 Cropping Intensity (%) 100
 NPV per ha 000 Riel 609
 Exchange rate (1 USD equiv.) (Riel) 4,100
 NPV per ha (USD) 149

180
106
1,876
4,100
458

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (19/22)

Boribo River Basin
Chak Teum, Trapeang Khong & Don Poy Rehabilitation Project

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	980	597	1,676	980	1,720	1,676					
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
Wet Season Transplanting											
- Normal irrigation area	0	1,435	0	980	1,710	1,676	3.0	0	3.5	3,430	
- Supplemental irrigation area	98	843	83	0	0	0	2.0	196			
- Rainfed area	882	583	514	0	0	0	1.5	1,323			
Wet Season Direct Sowing											
- Normal irrigation area	0	868	0	0	1,338	0	2.0	0	2.8	0	
- Supplemental irrigation area	0	540	0	0	0	0	1.5	0			
- Rainfed area	0	295	0	0	0	0	1.0	0			
Dry Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0			
- Rainfed area	0	881	0	0	0	0	2.0	0			
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0	
Upland Crops											
- Mungbean (recession area)	0	0	0	50	1,233	133					
- Mungbean (irrigated)	0	0	0	0	685	14					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	30	3,961	119					
Total	980	597	1,809	1,030	1,809	1,212		1,519		3,430	1,911

Total Physical Area (ha) 980
 Cropping Intensity (%) 100
 NPV per ha (Riel) 609
 Exchange rate (1 USD equiv.) (Riel) 4,100
 NPV per ha (USD) 149

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (20/22)

Boribo River Basin
Teuk Laak & Trapeang Thlan Rehabilitation Project

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production			
	Present Condition			With Project Condition			Present Condition		With Project Condition	Paddy
	Planted Area (ha)	Net Production Value Per ha (Riel '000)	Total (Riel 'Million)	Planted Area (ha)	Net Production Value Per ha (Riel '000)	Total (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Production Increase (ton)	
<u>Rice</u>	230	140	393	230	1,720	393				
Early Wet Season										
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	0	
Wet Season Transplanting										
- Normal irrigation area	0	1,435	393	230	1,710	393	3.0	0	805	
- Supplemental irrigation area	23	843	19	0	0	0	2.0	46		
- Rainfed area	207	583	121	0	0	0	1.5	311		
Wet Season Direct Sowing										
- Normal irrigation area	0	868	0	0	1,338	0	2.0	0	0	
- Supplemental irrigation area	0	540	0	0	0	0	1.5	0	0	
- Rainfed area	0	295	0	0	0	0	1.0	0	0	
Dry Season										
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	0	
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0	0	
- Rainfed area	0	881	0	0	0	0	2.0	0	0	
- Recession area	0	904	0	0	1,233	0	2.0	0	0	
Upland Crops	0	0	7	10	1,233	7				
- Mungbean (recession area)	0	0	0	0	1,233	0				
- Mungbean (irrigated)	0	0	7	10	685	7				
- Morning Glory (irrigated)	0	0	0	0	3,123	0				
- Cucumber (irrigated)	0	0	0	0	3,961	0				
Total	230	140	400	240	1,720	400		357	805	449
Total Physical Area	(ha)	230		230		230				
Cropping Intensity	(%)	100		104		104				
NPV per ha	000 Riel	609		1,740		1,740				
Exchange rate (1 USD equiv.)	(Riel)	4,100		4,100		4,100				
NPV per ha	(USD)	149		424		424				

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (21/22)

**Boribo River Basin
Toul Champey Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Value Per ha (Riel '000) (Riel 'Million)	Total (Riel 'Million)	Planted Area (ha)	Net Production Value Per ha (Riel '000) (Riel 'Million)	Total (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
<u>Rice</u>	360	219	616	360	1,720	616	3.0	0	3.5	0	
Early Wet Season	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
Wet Season Transplanting	0	1,435	616	360	1,710	616	3.0	0	3.5	1,260	
- Normal irrigation area	36	843	30	0	0	0	2.0	72			
- Supplemental irrigation area	324	583	189	0	0	0	1.5	486			
- Rainfed area											
Wet Season Direct Sowing	0	868	0	0	1,338	0	2.0	0	2.8	0	
- Normal irrigation area	0	540	0	0	0	0	1.5	0			
- Supplemental irrigation area	0	295	0	0	0	0	1.0	0			
- Rainfed area											
Dry Season	0	1,446	0	0	1,720	0	3.0	0	3.5	0	
- Normal irrigation area	0	1,131	0	0	0	0	2.5	0			
- Supplemental irrigation area	0	881	0	0	0	0	2.0	0			
- Rainfed area	0	904	0	0	1,233	0	2.0	0	2.5	0	
- Recession area	0	0	0	0	0	0	2.0	0			
<u>Upland Crops</u>	0	0	14	20	1,233	14					
- Mungbean (recession area)	0	0	0	0	1,233	0					
- Mungbean (irrigated)	0	0	14	20	685	14					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	0	3,961	0					
Total	360	219	630	380	630	410		558		1,260	702
Total Physical Area	(ha)	360		360		360					
Cropping Intensity	(%)	100		106		106					
NPV per ha	000 Riel)	609		1,749		1,749					
Exchange rate (1 USD equiv.)	(Riel)	4,100		4,100		4,100					
NPV per ha	(USD)	149		426		426					

Table G2-5 Economic Irrigation Benefit and Increase in Paddy Production (22/22)

**Boribo River Basin
Chan Keak Rehabilitation Project**

Crops	Incremental Economic Irrigation Benefit						Increase in Paddy Production				
	Present Condition			With Project Condition			Present Condition		With Project Condition		Paddy Production Increase (ton)
	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Planted Area (ha)	Net Production Per ha (Riel '000)	Total Value (Riel 'Million)	Paddy Yield (ton/ha)	Production (ton)	Paddy Yield (ton/ha)	Production (ton)	
Rice	110		71	110		188					
Early Wet Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	0
Wet Season Transplanting											
- Normal irrigation area	0	1,435	0	110	1,710	188	3.0	0	3.5	385	0
- Supplemental irrigation area	28	843	24	0	0	0	2.0	56			
- Rainfed area	82	583	48	0	0	0	1.5	123			
Wet Season Direct Sowing											
- Normal irrigation area	0	868	0	0	1,338	0	2.0	0	2.8	0	0
- Supplemental irrigation area	0	540	0	0	0	0	1.5	0			
- Rainfed area	0	295	0	0	0	0	1.0	0			
Dry Season											
- Normal irrigation area	0	1,446	0	0	1,720	0	3.0	0	3.5	0	0
- Supplemental irrigation area	0	1,131	0	0	0	0	2.5	0			
- Rainfed area	0	881	0	0	0	0	2.0	0			
- Recession area	0	904	0	0	1,233	0	2.0	0	2.5	0	0
Upland Crops											
- Mungbean (recession area)	0	0	0	10	1,233	7					
- Mungbean (irrigated)	0	0	0	10	685	7					
- Morning Glory (irrigated)	0	0	0	0	3,123	0					
- Cucumber (irrigated)	0	0	0	0	3,961	0					
Total	110		71	120		195		179		385	206
Total Physical Area	(ha)	110		110		110					
Cropping Intensity	(%)	100		109		109					
NPV per ha	000 Riel	649		1,772		1,772					
Exchange rate (1 USD equiv.)	(Riel)	4,100		4,100		4,100					
NPV per ha	(USD)	158		432		432					

Table G2-6 Conversion of Financial Cost to Economic Cost (1/22)

Battambang River Basin
Kong Hort Rehabilitation Project Phase I

Description	Financial Cost										Economic Cost											
	Total		F/C		L/C		Material		Labor		Total		F/C		L/C		Material		Labor		Total	
	USD	Equivalent	Material	Equipment	Labor	Skilled	Total	Material	Equipment	Labor	Skilled	Total	F	Consul	Labor	Skilled	Total	Material	Equipment	Labor	Skilled	Total
	000	Million																				
1. Preparatory Works	5,548	825	1,532	0	3,883	250	250	333	832	1,664	668.2	1,118.3	0.0	1,786.5	214.7	194.7	100.6	507.6	1,017.6	5,547.6	2,804.1	0.51
2. Direct Cost	73,202	17,934	33,307	0	51,241	3,294	3,294	4,392	10,980	21,961	14,526.9	24,314.0	0.0	38,840.9	2,833	2,569	1,328	6,698	13,428	73,201.7	52,268.7	0.71
1. Weir & major intake structures	3,300	3,315	6,156	0	9,471	609	609	812	2,030	4,059	2,685.0	4,494.0	0.0	7,179.0	523.6	474.9	245.4	1,238.0	2,481.9	13,530.0	9,660.9	0.71
2. Canals & related structures	13,124	53,808	13,183	24,483	0	37,666	2,421	2,421	3,229	8,071	16,143	17,872.5	0.0	28,550.8	2,082.4	1,888.7	975.8	4,923.5	9,870.4	53,808.4	38,421.2	0.71
3. Dykes	77	316	77	144	0	221	14	19	47	95	62.7	104.9	0.0	167.6	12.2	11.1	5.7	28.9	57.9	315.7	225.5	0.71
4. Miscellaneous works	5,548	1,359	2,524	0	3,883	250	250	333	832	1,664	1,100.9	1,842.6	0.0	2,943.5	214.7	194.7	100.6	507.6	1,017.6	5,547.6	3,961.1	0.71
3. Contractor's Expenses	70,455	17,261	32,057	0	49,318	3,170	3,170	4,227	10,568	21,136	1,489.9	2,247.4	0.0	3,737.3	308.5	253.8	50.8	517.3	1,130.4	70,455.0	4,867.7	0.07
4. Administration Cost	27,738	6,796	12,621	0	19,417	1,248	1,248	1,664	4,161	8,321	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27,738.2	0.0	0.00
5. Consulting Services	27,738	0	0	19,417	19,417	0	0	0	8,321	8,321	0.0	0.0	19,416.7	19,416.7	0.0	0.0	0.0	5,076.1	5,076.1	27,738.2	24,492.8	0.88
Total	42,817	79,517	19,417	143,276	7,962	7,962	7,962	10,617	34,863	61,404	16,685.0	27,679.7	19,416.7	63,781.4	3,356	3,018	1,479	12,799	20,652	204,680.7	84,433.3	0.41
6. Physical Contingencies	4,282	7,952	1,942	14,328	796	796	796	1,062	3,486	6,140	1,668.5	2,768.0	1,941.7	6,378.1	335.6	301.8	147.9	1,279.9	2,065.2	20,468.0	8,443.3	0.41
GRAND TOTAL	47,098	87,468	21,358	157,604	8,759	8,759	8,759	11,678	38,349	67,545	18,353.5	30,447.7	21,358.4	70,159.5	3,691.7	3,319.7	1,626.8	14,078.9	22,717.1	225,148.7	92,876.6	0.41

Equipment and Materials

Financial	Conversion Factor	Economic %
Overhead cost and miscellaneous	0.10	0.60
Company Tax /1	1.40	1.40
Minimum Tax /2	1.00	1.00
Profit	7.00	0.70
VAT	10.00	10.00
	25.4	13.7
Factor for Materials	0.86	
Factor for Equipment	0.78	

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

import tariff	7.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

/B ; Excluding the following transfer payment

import tariff	15.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

Major repairing cost	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.35	0.65	0.00	0.00	0.70
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	0.30
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor	0.686	Economic Cost (MR)	10,029.7
Financial Cost ('000\$)	3,566	Economic Cost (T\$)	2,446.3

Annual O&M cost

Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.15	0.15	0.60	0.10
L/C	0.15	0.15	0.60	0.10
Conversion Factor	0.488	Economic Cost (MR)	1,096.4	
Financial Cost ('000\$)	548	Economic Cost (T\$)	267.4	

Total	Riel (ml.)	225,149	92,877
	US\$('000)	56,287	23,219

Target Area	Riel('000)/ha	13,482	5,561
	US\$('000)/ha	3.37	1.39

FWUC	1,077	3,797.5	5 years
Agri	115.75	408.1	5 years

Year	Invest	FWUC	Agri	Total	Build-up
1	4,898.6			4,898.6	
2	30,792.3	759.5		31,551.8	
3	30,792.3	759.5	81.6	31,633.4	0.6
4	13,196.7	759.5	81.6	14,037.8	0.7
5	13,196.7	759.5	81.6	14,037.8	0.7
6		759.5	81.6	841.1	0.8
7			81.7	81.7	0.9
8					1.0

Table G2-6 Conversion of Financial Cost to Economic Cost (2/22)

Battambang River Basin
Kong Hort Rehabilitation Project Phase II

(Unit: Riel; Million)

Description	Financial Cost										Economic Cost																
	Total					F/C					L/C					F/C					L/C						
	USD Equivalent Riel	Material	Equipment	Labor	Total	Material	Equipment	Labor	Total	Material	Equipment	Labor	Total	Material	Equipment	Labor	Total	Material	Equipment	Labor	Total	Material	Equipment	Labor	Total	Construction Conversion Factor	Conversion Factor
000 Million		/A	/B	F/C	L/C																				Financial	Economic	
	1,902	211	393	0	1,332	86	86	114	285	571	171.3	286.7	0.0	458.0	73.6	66.8	34.5	174.1	349.0	1,902.2	807.0	0.42					
2.. Direct Cost	25,100	6,150	11,421	0	17,570	1,130	1,130	1,506	3,765	7,530	4,981.1	8,336.9	0.0	13,318.0	971	881	455	2,297	4,604	25,100.0	17,922.4	0.71					
1. Weir & major intake structures	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Canals & related structures	4,210	17,261	4,229	7,854	0	12,083	777	1,036	2,589	5,178	3,425.4	5,733.2	0.0	9,158.6	668.0	605.9	313.0	1,579.4	3,166.3	17,261.0	12,324.9	0.71					
3. Dykes	1,448	5,937	1,455	2,701	0	4,156	267	356	891	1,781	1,178.2	1,971.9	0.0	3,150.1	229.8	208.4	107.7	543.2	1,089.1	5,936.8	4,239.2	0.71					
4. Miscellaneous works	1,902	466	866	0	1,332	86	86	114	285	571	377.5	631.8	0.0	1,009.3	73.6	66.8	34.5	174.1	349.0	1,902.2	1,358.3	0.71					
3. Contractor's Expenses	24,158	5,919	10,992	0	16,911	1,087	1,087	1,449	3,624	7,247	510.9	770.6	0.0	1,281.5	105.8	87.0	17.4	177.4	387.6	24,158.2	1,669.1	0.07					
4. Administration Cost	9,511	2,330	4,328	0	6,658	428	428	571	1,427	2,853	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9,511.1	0.0	0.00					
5. Consulting Services	9,511	0	0	6,658	6,658	0	0	0	2,853	2,853	0.0	0.0	0.0	6,657.8	0.0	0.0	0.0	1,740.5	1,740.5	9,511.1	8,398.3	0.88					
Total	14,610	27,133	6,658	49,128	2,730	2,730	3,640	11,954	21,055	5,663.3	9,394.2	6,657.8	21,715.3	1,151	1,035	507	4,389	7,082	70,182.6	28,796.8	0.41						
6. Physical Contingencies	1,461	2,713	666	4,913	273	273	364	1,195	2,106	566.3	939.4	665.8	2,171.5	115.1	103.5	50.7	438.9	708.2	7,018.3	2,879.7	0.41						
GRAND TOTAL	16,071	29,846	7,324	54,041	3,003	3,003	4,004	13,149	23,160	6,229.6	10,333.6	7,323.6	23,886.8	1,265.9	1,138.4	557.8	4,827.6	7,789.7	77,200.9	31,676.5	0.41						

Equipment and Materials

	Financial %	Conversion Factor	Economic %
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
Factor for Materials		0.86	
Factor for Equipment		0.78	

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

	Import tariff	Company tax	Minimum tax	VAT
	7.0 %	1.4 %	1.0 %	10.0 %

/B ; Excluding the following transfer payment

	Import tariff	Company tax	Minimum tax	VAT
	15.0 %	1.4 %	1.0 %	10.0 %

Major repairing cost			
Material	Equipment	Labor	Total
Share	0.35	0.65	0.00
F/C	0.25	0.45	0.00
Share	0.15	0.15	0.10
L/C	0.05	0.05	0.03

Conversion Factor		Economic Cost (MR)	
Financial Cost ('000\$)	0.686	Financial Cost ('000\$)	3,901.1
	1.387	Economic Cost ('\$)	951.5

Annual O&M cost

Material				Labor				Total	
Share	Material	Equipment	Labor	Common	Skilled	Labor	Skilled	Labor	Total
Share	0.15	0.15	0.15	0.60	0.10	0.10	0.10	1.00	
L/C	0.15	0.15	0.15	0.60	0.10	0.10	0.10	1.00	
Conversion Factor	0.488			Economic Cost (MR)		442.2			
Financial Cost ('000\$)	221			Economic Cost ('\$)		107.8			

Total	Riel (mil.)	US\$('000)
	77,201	31,677
	19,300	7,919

Target Area	
(ha)	Riel('000)/ha
16,700	4,623
	US\$('000)/ha
	1.16

FWUC	
Agri	Agri
365	1,287.0
31.42	110.8

Year	Invest	FWUC	Agri	Total	Build-up
1	2,799.4	321.7		3,121.2	
2	28,877.1	321.7	27.7	29,226.5	
3		321.8	27.7	349.5	0.7
4		321.8	27.7	349.5	0.8
5		27.7	27.7	27.7	0.9
6					1.0
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (3/22)

Battambang River Basin
Sala Taon Weir Rehabilitation Project

Description	Financial Cost										Economic Cost															
	Total					F/C					L/C					F/C					L/C					
	USD Equivalent Riel		Material Equipment		Labor		Total		Material Equipment		Labor		Total		Material Equipment		Labor		Total		Material Equipment		Labor		Total	
	000	Million																								
1. Preparatory Works	11,875	1,774	3,295	0	8,313	534	534	713	1,781	3,563	1,437.0	2,405.1	0.0	3,842.1	459.6	416.8	215.4	1,086.6	2,178.4	11,875.3	6,020.5	0.51				
2. Direct Cost	156,695	38,390	71,296	0	109,687	7,051	7,051	9,402	23,504	47,009	31,096.1	52,046.4	0.0	83,142.5	6,064	5,500	2,842	14,338	28,743	156,695.5	111,885.9	0.71				
1. Weir & major intake structures	93,070	22,802	42,347	0	65,149	4,188	4,188	5,584	13,961	27,921	18,469.7	30,913.2	0.0	49,382.9	3,601.8	3,266.8	1,687.8	8,315.9	17,072.3	93,070.0	66,455.2	0.71				
2. Canals & related structures	12,622	51,750	12,679	23,546	0	36,225	2,329	3,105	7,763	15,525	10,269.8	17,188.8	0.0	27,438.6	2,002.7	1,816.4	938.5	4,735.1	9,492.7	51,750.2	36,951.3	0.71				
3. Dykes	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
4. Miscellaneous works	11,875	2,909	5,403	0	8,313	534	534	713	1,781	3,563	2,356.6	3,944.4	0.0	6,301.0	459.6	416.8	215.4	1,086.6	2,178.4	11,875.3	8,479.4	0.71				
3. Contractor's Expenses	150,816	36,950	68,621	0	105,571	6,787	6,787	9,049	22,622	45,245	3,189.2	4,810.7	0.0	7,999.9	660.3	543.2	108.7	1,107.4	2,419.6	150,815.8	10,419.5	0.07				
4. Administration Cost	59,376	14,547	27,016	0	41,563	2,672	2,672	3,563	8,906	17,813	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59,376.3	0.0	0.00				
5. Consulting Services	59,376	0	0	41,563	41,563	0	0	0	17,813	17,813	0.0	0.0	0.0	41,563.4	0.0	0.0	0.0	0.0	10,865.9	10,865.9	59,376.3	52,429.3	0.88			
Total	91,661	170,228	41,563	306,697	17,044	17,044	22,726	74,627	131,442	35,722.3	59,262.2	41,563.4	136,548	7,184	6,460	3,166	27,398	44,207	438,139.0	180,755.2	0.41					
6. Physical Contingencies	9,166	17,023	4,156	30,670	1,704	1,704	2,273	7,463	13,144	3,572.2	5,926.2	4,156.3	13,654.8	718.4	646.0	316.6	2,739.8	4,420.7	43,813.9	18,075.5	0.41					
GRAND TOTAL	108,828	187,251	45,720	337,367	18,749	18,749	24,998	82,090	144,586	39,294.5	65,188.4	45,719.7	150,202.7	7,902.4	7,106.0	3,482.4	30,137.3	48,628.0	481,952.9	198,830.7	0.41					

Equipment and Materials

Financial	Conversion Factor	Economic Factor
Overhead cost and miscellaneous	6.00	0.10
Company Tax /1	1.40	1.00
Minimum Tax /2	1.00	1.00
Profit	7.00	0.10
VAT	10.00	1.00
	25.4	13.7
Factor for Materials		0.86
Factor for Equipment		0.78

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff	7.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

/B ; Excluding the following transfer payment

Import tariff	15.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

Major repairing cost

Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.35	0.65	0.00	0.00
F/C	0.25	0.45	0.00	0.70
Share	0.15	0.15	0.60	0.10
L/C	0.05	0.05	0.18	0.03

Conversion Factor 0.686 Economic Cost (MR) 16,180.9
Financial Cost ('000\$) 5,753 Economic Cost (T\$) 3,946.6

Annual O&M cost

Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.15	0.15	0.60	0.10
L/C	0.15	0.15	0.60	0.10

Conversion Factor 0.488 Economic Cost (MR) 1,594.6
Financial Cost ('000\$) 797 Economic Cost (T\$) 388.9

Total Riel (mil.) 481,953
US\$('000) 120,488

Target Area

(ha) 16,700
Riel('000)/ha 28,859
US\$('000)/ha 7.21

FWUC 2237 5 years
Agri 118.59 5 years

Year	Invest	FWUC	Agri	Total Build-up
1	10,485.9			10,485.9
2	65,920.7	1,577.5		67,498.2
3	65,920.7	1,577.5	83.6	67,581.9
4	28,251.7	1,577.5	83.6	29,912.9
5	28,251.7	1,577.6	83.6	29,913.0
6		1,577.6	83.6	1,661.3
7			83.7	83.7
8				1.0

Table G2-6 Conversion of Financial Cost to Economic Cost (4/22)

**Battambang River Basin
Sala Taon Weir Rehabilitation Project by Construction of 5 Pump Stations as Alternative Case**

Description	Financial Cost										Economic Cost										Construction Conversion Factor				
	Total					F/C					L/C					Material Equipment							Total Cost		
	USD		Riel		Total	Material Equipment		Labor		F Consult		Labor		Common		Skilled		Labor		Skilled		Financial		Economic	
	000	Million	000	Million	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1. Preparatory Works	8,554	744	2,907	0	5,988	385	385	513	1,283	2,566	602.9	2,121.8	0.0	2,724.7	331.0	300.2	155.1	782.7	1,569.0	8,553.6	4,293.7	0.50			
2. Direct Cost	112,866	16,982	62,024	0	79,006	5,079	5,079	6,772	16,930	33,860	13,755.5	45,277.5	0.0	59,033.0	4,368	3,862	2,047	10,327	20,703	112,865.8	79,736.3	0.71			
1. Pump Station & Regulator	12,820	52,562	2,208	34,586	0	36,793	2,365	3,154	7,884	15,769	1,788.2	25,247.6	0.0	27,035.8	2,034.1	1,844.9	953.2	4,809.4	9,641.6	52,562.0	36,677.4	0.70			
2. Canals & related structures	12,622	51,750	12,679	23,546	0	36,225	2,329	3,105	7,763	15,525	10,269.8	17,188.8	0.0	27,458.6	2,002.7	1,816.4	938.5	4,735.1	9,492.7	51,750.2	36,951.3	0.71			
3. Dykes	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Miscellaneous works	8,554	2,096	3,892	0	5,988	385	385	513	1,283	2,566	1,697.5	2,841.1	0.0	4,538.6	331.0	300.2	155.1	782.7	1,569.0	8,553.6	6,107.6				
3. Contractor's Expenses	108,631	26,615	49,427	0	76,042	4,888	4,888	6,518	16,295	32,589	1,338.1	4,244.1	0.0	5,582.2	475.6	391.2	78.3	797.6	1,742.7	108,630.7	73,249.9	0.07			
4. Administration Cost	42,768	10,478	19,459	0	29,938	1,925	1,925	2,566	6,415	12,830	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42,768.0	0.0	0.00			
5. Consulting Services	42,768	0	0	29,938	29,938	0	0	0	12,830	12,830	0.0	0.0	0.0	29,937.6	29,937.6	0.0	0.0	7,826.5	7,826.5	42,768.0	37,764.1	0.88			
Total	54,819	133,817	29,938	220,910	12,277	12,277	16,369	53,753	94,676	15,696.5	51,643.4	29,937.6	97,277.5	5,174	4,653	2,280	19,734	31,842	315,586.1	129,119.0	0.41				
6. Physical Contingencies	5,482	13,382	2,994	22,091	1,228	1,228	1,637	5,375	9,468	15,697.3	5,164.3	2,993.8	9,727.8	517.4	465.3	228.0	1,973.4	3,184.2	31,538.6	12,912.0	0.41				
GRAND TOTAL	60,301	147,199	32,931	243,001	13,505	13,505	18,006	59,128	104,143	17,266.2	56,807.7	32,931.4	107,005.3	5,691.8	5,118.2	2,508.2	21,707.4	35,025.7	347,144.7	142,031.0	0.41				

Equipment and Materials

Financial	%	Conversion Factor	Economic %
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
Factor for Materials			0.86
Factor for Equipment			0.78

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff	7.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

/B ; Excluding the following transfer payment

Import tariff	15.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

Material	Equipment	Labor	Skilled	Total
Share	0.35	0.65	0.00	0.00
F/C	0.25	0.45	0.00	0.00
Share	0.15	0.15	0.60	0.10
L/C	0.05	0.05	0.18	0.03

Conversion Factor	0.686	Economic Cost (MR)	12,848.0
Financial Cost ('000\$)	4,568	Economic Cost ('\$)	3,133.6

Annual O&M cost

Material	Equipment	Labor	Skilled	Total
Share	0.15	0.15	0.60	0.10
L/C	0.15	0.15	0.60	0.10
Conversion Factor	0.488	Economic Cost (MR)	1,318.5	
Financial Cost ('000\$)	659	Economic Cost ('\$)	321.6	

Total	Riel (mil.)	347,145
	US\$('000)	86,786

Target Area

(ha)	16,700
Riel('000)/ha	20,787
US\$('000)/ha	5.20

FWUC	2237	7,887.7
Agri	118.59	418.1

Year	Invest	FWUC	Agri	Total	Build-up
1	7,552.8			7,552.8	
2	47,067.4	1,577.5		48,644.9	
3	47,067.4	1,577.5	83.6	48,728.5	
4	20,171.7	1,577.5	83.6	21,833.0	0.6
5	20,171.7	1,577.6	83.6	21,833.0	0.7
6		1,577.6	83.6	1,661.3	0.8
7			83.7	83.7	0.9
8					1.0

Table G2-6 Conversion of Financial Cost to Economic Cost (5/22)

**Battambang River Basin
Ratanak-Battambang Water Harvesting Rehabilitation Project**

(Unit : Riels, Million)

Description	Financial Cost										Economic Cost															
	Total					F/C					L/C					Total					Construction Conversion Factor					
	USD Equivalent		Material Equipment			Labor		Total		Material Equipment		Labor		Total		Material Equipment		Labor		Total		Financial		Economic		
	Riel	Million	8	14	0	323	21	21	21	274	365	913	1,826	1,207.8	2,021.6	0.0	3,229.4	236	214	111	557	1,117	6,086.5	4,346.1	0.71	
0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
154	631	155	287	0	442	28	38	28	28	38	95	189	125.3	209.7	0.0	335.0	24.4	22.2	11.5	57.8	115.9	631.4	450.9	0.71		
1,218	4,994	1,223	2,272	0	3,496	225	300	225	300	749	1,498	1,658.7	991.0	1,658.7	0.0	2,649.7	193.3	175.3	90.6	456.9	916.1	4,993.8	3,565.8	0.71		
461	113	210	0	323	21	21	21	21	21	28	69	138	91.5	153.2	0.0	244.7	17.9	16.2	8.4	42.2	84.7	461.3	329.4	0.71		
5,858	1,435	2,665	0	4,101	264	264	264	264	264	351	879	1,757	123.9	186.9	0.0	310.8	25.6	21.1	4.2	43.0	93.9	5,858.1	404.7	0.07		
2,306	565	1,049	0	1,614	104	104	104	104	104	138	346	692	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,306.3	0.0	0.00		
2,306	0	0	1,614	1,614	0	0	0	0	0	0	692	692	0.0	0.0	1,614.4	1,614.4	0.0	0.0	0.0	422.1	422.1	2,306.3	2,036.5	0.88		
Total	3,499	6,499	1,614	11,913	662	662	662	662	662	883	2,899	5,106	1,338.0	2,219.0	1,614.4	5,171.4	279	251	123	1,064	1,717	17,018.5	6,888.8	0.40		
6. Physical Contingencies	350	650	161	1,191	66	66	66	66	66	88	290	511	133.8	221.9	161.4	517.1	27.9	25.1	12.3	106.4	171.7	1,701.9	688.8	0.40		
GRAND TOTAL	3,849	7,148	1,776	13,104	728	728	728	728	728	971	3,189	5,616	1,471.8	2,440.9	1,775.8	5,688.5	307.0	276.1	135.4	1,170.6	1,889.1	18,720.4	7,377.6	0.40		

Equipment and Materials

	Financial	Conversion Factor	Economic
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
		Factor for Materials	0.86
		Factor for Equipment	0.78

/1 : 20% of the Profit
/2 : 1% of Turnover

/A : Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

/B : Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

Major repairing cost	Material	Equipment	Labor	Skilled	Total
Share	0.35	0.65	0.00	0.00	1.00
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	0.95
L/C	0.05	0.05	0.18	0.03	0.30
Conversion Factor	0.686 Economic Cost (MR)				995.7
Financial Cost ('000\$)	354 Economic Cost ('\$)				242.8

Annual O&M cost

Material	Equipment	Labor	Skilled	Total
Share	0.15	0.15	0.60	0.90
L/C	0.15	0.15	0.60	0.90
Conversion Factor	0.488 Economic Cost (MR)			114.0
Financial Cost ('000\$)	57 Economic Cost ('\$)			27.8

Total Riel (mil.) 18,720
US\$('000) 4,680

Target Area

(ha) 16,700
Riel('000)/ha 1,121
US\$('000)/ha 0.28

Year	Invest	FWUC	Agri	Total	Build-up
1	678.8	136.3	815.2		
2	6,898.8	136.3	11.8	7,046.9	
3		136.4	11.8	148.3	0.8
4		11.9	11.9	11.9	0.9
5					1.0
6					
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (6/22)

Moung Ruessei River Basin
Bassac Reservoir Rehabilitation Project

(Unit : Riel, Million)

Description	Financial Cost										Economic Cost																
	Total					F/C					L/C					P/C					Total						
	USD Equivalent Riel		Material		Labor		Total		Material		Equipment		Labor		Total		Material		Equipment		Labor		Total		Construction Conversion Factor		
	000	Million																							Financial	Economic	
				Conversion Factor				/A		/B		F Consul				/A		/B		F Consul							
1. Preparatory Works	1,513	226	420	0	1,059	68	68	91	227	454	183.1	306.4	0.0	489.5	58.5	53.1	27.4	138.4	277.4	1,512.9	766.9	0.51					
2. Direct Cost	19,963	4,891	9,083	0	13,974	898	898	1,198	2,994	5,989	3,961.6	6,630.6	0.0	10,592.2	773	701	362	1,827	3,662	19,962.9	14,253.9	0.71					
1. Weir & major intake structures	300	301	560	0	861	55	55	74	185	369	244.1	408.5	0.0	652.6	47.6	43.2	22.3	112.5	225.6	1,230.0	878.2	0.71					
2. Canals & related structures	4,200	17,220	4,219	7,835	0	12,054	775	1,033	2,583	5,166	3,417.3	5,719.6	0.0	9,136.9	666.4	604.4	312.3	1,575.6	3,158.7	17,220.0	12,295.6	0.71					
3. Dykes	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
4. Miscellaneous works	1,513	371	688	0	1,059	68	68	91	227	454	300.2	502.5	0.0	802.7	58.5	53.1	27.4	138.4	277.4	1,512.9	1,080.1	0.71					
3. Contractor's Expenses	19,214	4,707	8,742	0	13,450	865	865	1,153	2,882	5,764	406.3	612.9	0.0	1,019.2	84.1	69.2	13.9	141.1	308.3	19,213.8	1,327.5	0.07					
4. Administration Cost	7,565	1,853	3,442	0	5,295	340	340	454	1,135	2,269	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7,564.5	0.0	0.00					
5. Consulting Services	7,565	0	0	5,295	5,295	0	0	0	2,269	2,269	0.0	0.0	5,295.2	5,295.2	0.0	0.0	0.0	1,384.3	1,384.3	7,564.5	6,679.5	0.88					
Total	11,678	21,687	5,295	39,073	2,171	2,171	2,895	9,507	16,746	4,551.0	7,549.9	5,295.2	17,396.1	915	823	403	3,490	5,632	55,818.6	23,027.8	0.41						
6. Physical Contingencies	1,168	2,169	530	3,907	217	217	290	951	1,675	2,389	455.1	755.0	529.5	1,739.6	91.5	82.3	40.3	349.0	563.2	5,581.9	2,302.8	0.41					
GRAND TOTAL	12,845	21,856	5,825	42,980	2,389	2,389	3,185	10,458	18,420	5,006.1	8,304.9	5,824.7	19,135.7	1,006.6	905.3	443.6	3,839.3	6,194.9	61,400.5	25,330.6	0.41						

Equipment and Materials

	Financial	Conversion Factor	Economic
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
Factor for Materials			0.86
Factor for Equipment			0.78

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff 7.0 %
Company tax 1.4 %
Minimum tax 1.0 %
VAT 10.0 %

/B ; Excluding the following transfer payment

Import tariff 15.0 %
Company tax 1.4 %
Minimum tax 1.0 %
VAT 10.0 %

Major repairing cost			
Material	Equipment	Labor	Total
Share	0.35	0.65	0.00
F/C	0.25	0.45	0.00
Share	0.15	0.15	0.10
L/C	0.05	0.05	0.18

Conversion Factor		Economic Cost (MR)	
Financial Cost ('000\$)	1.044	Economic Cost (T\$)	716.2

Annual O&M cost

Material				Labor				Total	
Share	L/C	Conversion Factor	Financial Cost ('000\$)	Share	L/C	Conversion Factor	Financial Cost ('000\$)	Share	L/C
0.15	0.15	0.60	1.00	0.15	0.15	0.60	1.00	0.488	328.1
0.05	0.05	0.18	0.30	0.05	0.05	0.18	0.30	1.64	80.0

Total Riel (mil.) 61,401
US\$('000) 15,350

Target Area (ha) 16,700
Riel('000)/ha 3,677
US\$('000)/ha 0.92

FWUC 298
Agri 42.37

Year	Invest	FWUC	Agri	Total Build-up
1	2,226.5			2,226.5
2	11,552.1	350.2		11,902.3
3	11,552.1	350.2	49.8	11,952.1
4		350.3	49.8	400.1
5			49.8	49.8
6				0.9
7				1.0
8				

Table G2-6 Conversion of Financial Cost to Economic Cost (7/22)

Moung Ruessei River Basin
Ream Kon Rehabilitation Project

Description	Financial Cost										Economic Cost										
	Total					F/C					L/C					Total					
	USD Equivalent		Material Equipment			Labor		Total		Material Equipment		Labor		Total		Material Equipment		Labor		Total	
	Riel	Million	F. Consu	Labor	Skilled	Common	Skilled	Conversion Factor	/A	/B	F. Consu	Labor	Skilled	Common	Skilled	Material	Labor	Skilled	Common	Skilled	
1. Preparatory Works	1,089	163	302	0	763	49	49	65	327	131.8	220.6	0.0	352.4	38.2	19.8	99.7	199.9	1,089.3	552.3	0.51	
2. Direct Cost	14,373	3,521	6,540	0	10,061	647	647	862	4,312	2,852.4	4,774.1	0.0	7,626.5	556	504	261	1,315	2,637	14,373.3	10,263.1	0.71
1. Weir & major intake structures	600	2,460	603	1,119	0	1,722	111	148	369	488.2	817.1	0.0	1,305.3	95.2	86.3	44.6	225.1	451.2	2,460.0	1,756.5	0.71
2. Canals & related structures	2,640	10,824	2,652	4,925	0	7,577	487	487	1,624	2,148.0	3,595.2	0.0	5,743.2	418.9	379.9	196.3	990.4	1,985.5	10,824.0	7,728.7	0.71
3. Dykes	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Miscellaneous works	1,089	267	496	0	763	49	49	65	327	216.2	361.8	0.0	578.0	42.2	38.2	19.8	99.7	199.9	1,089.3	777.9	0.71
3. Contractor's Expenses	13,834	3,389	6,294	0	9,684	623	623	830	4,150	292.5	441.3	0.0	733.8	60.6	49.8	10.0	101.6	222.0	13,834.0	955.8	0.07
4. Administration Cost	5,446	1,334	2,478	0	3,813	245	245	327	1,634	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5,446.4	0.0	0.00
5. Consulting Services	5,446	0	0	3,813	3,813	0	0	0	1,634	0.0	0.0	3,812.5	3,812.5	0.0	0.0	0.0	996.7	996.7	5,446.4	4,809.2	0.88
Total	8,408	15,615	3,813	28,133	1,563	1,563	2,085	6,845	12,057	3,276.7	5,436.0	3,812.5	12,525.2	659	592	291	2,513	4,055	40,189.4	16,380.4	0.41
6. Physical Contingencies	841	1,562	381	2,813	156	156	209	685	1,206	327.7	543.6	381.3	1,252.5	65.9	59.2	29.1	251.3	405.5	4,019.0	1,658.0	0.41
GRAND TOTAL	9,249	17,176	4,194	30,946	1,720	1,720	2,293	7,530	13,263	3,604.4	5,979.6	4,193.8	13,777.7	725.0	651.6	319.6	2,764.5	4,460.7	44,208.4	18,238.4	0.41

Equipment and Materials

Financial	Conversion Factor	Economic %
Overhead cost and miscellaneous	6.00	0.10
Company Tax /1	1.40	1.00
Minimum Tax /2	1.00	1.00
Profit	7.00	0.10
VAT	10.00	1.00
	25.4	13.7
Factor for Materials	0.86	
Factor for Equipment	0.78	

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

/B ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

Major repairing cost

Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.35	0.65	0.00	0.00
F/C	0.25	0.45	0.00	0.70
Share	0.15	0.15	0.60	0.10
L/C	0.05	0.05	0.18	0.03

Conversion Factor 0.686 Economic Cost (MR) 1,985.7
Financial Cost ('000\$) 706 Economic Cost (T\$) 484.3

Annual O&M cost

Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.15	0.15	0.60	0.10
L/C	0.15	0.15	0.60	1.00
Conversion Factor	0.488	Economic Cost (MR)	218.1	
Financial Cost ('000\$)	109	Economic Cost (T\$)	53.2	

Total Riel (mil.) 44,208 18,238
US\$('000) 11,052 4,560

Target Area (ha) 16,700
Riel('000)/ha 2,647 1,092
US\$('000)/ha 0.66 0.27

FWUC 213 751.0 3 years
Agri 25.63 90.4 3 years

Year	Invest	FWUC	Agri	Total	Build-up
1	1,603.1	250.3	30.1	1,853.4	
2	16,635.3	250.3	30.1	16,915.8	0.8
3		250.4	30.2	30.2	0.9
4					1.0
5					
6					
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (8/22)

Moung Ruessei River Basin
Por Canal Rehabilitation Project

Description	Financial Cost										Economic Cost										Conversion Factor	L/C	Labor	Skilled	Total	Construction Conversion Factor				
	Total					F/C					Material Equipment					Labor										Total Cost				
	USD Equivalent		Riel		Million	Material Equipment		Labor		F Consol		Material Equipment		Labor		F Consol		Material Equipment		Labor						Financial		Economic		
	73	135	0	341	22	22	29	73	146	59.0	98.8	0.0	157.8	18.9	17.1	8.8	44.6	89.4	487.8	247.2						0.51				
1. Preparatory Works	488	73	135	0	341	22	22	29	73	146	59.0	98.8	0.0	157.8	18.9	17.1	8.8	44.6	89.4	487.8	247.2	0.51								
2. Direct Cost	6,437	1,577	2,929	0	4,506	290	290	386	966	1,931	1,277.4	2,138.0	0.0	3,415.4	249	226	117	589	1,181	6,436.9	4,596.0	0.71								
1. Weir & major intake structures	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
2. Canals & related structures	1,451	5,949	1,438	2,707	0	4,164	268	268	357	892	1,180.6	1,976.0	0.0	3,156.6	230.2	208.8	107.9	544.3	1,091.2	5,949.1	4,247.8	0.71								
3. Dykes	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
4. Miscellaneous works	488	120	222	0	341	22	22	29	73	146	96.8	162.0	0.0	238.8	18.9	17.1	8.8	44.6	89.4	487.8	348.2	0.71								
3. Contractor's Expenses	6,195	1,518	2,819	0	4,337	279	279	372	929	1,859	131.0	197.6	0.0	328.6	27.1	22.3	4.5	45.5	99.4	6,195.4	428.0	0.07								
4. Administration Cost	2,439	598	1,110	0	1,707	110	110	146	366	732	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,439.1	0.0	0.00								
5. Consulting Services	2,439	0	0	1,707	1,707	0	0	0	732	732	0.0	0.0	1,707.4	1,707.4	0.0	0.0	0.0	446.4	446.4	2,439.1	2,153.8	0.88								
Total	3,765	6,993	1,707	12,599	700	700	934	3,066	5,400	14,674	2,434.4	1,707.4	5,609.2	295	265	130	1,125	1,816	17,998.4	7,423.0	0.41									
6. Physical Contingencies	377	699	171	1,260	70	70	93	307	540	1,467	243.4	170.7	560.9	29.5	26.5	13.0	112.5	181.6	1,799.9	742.5	0.41									
GRAND TOTAL	4,142	7,692	1,878	13,859	770	770	1,027	3,372	5,940	16,141	2,677.8	1,878.1	6,170.1	324.6	291.8	143.0	1,237.9	1,997.4	19,798.3	8,167.5	0.41									

Equipment and Materials

	Financial	Conversion Factor	Economic	%
Overhead cost and miscellaneous	6.00	0.10	0.60	0.60
Company Tax /1	1.40	1.00	1.40	1.40
Minimum Tax /2	1.00	1.00	1.00	1.00
Profit	7.00	0.10	0.70	0.70
VAT	10.00	1.00	10.00	10.00
	25.4		13.7	
Factor for Materials	0.86			
Factor for Equipment	0.78			

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

/B ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

Major repairing cost

	Material	Equipment	Labor	Skilled	Total
Share	0.35	0.65	0.00	0.00	0.70
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	0.30
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 978.8
Financial Cost ('000\$) 348 Economic Cost ('\$) 238.7

Annual O&M cost

	Material	Equipment	Labor	Skilled	Total
Share	0.15	0.15	0.60	0.10	1.00
L/C	0.15	0.15	0.60	0.10	1.00

Conversion Factor 0.488 Economic Cost (MR) 110.0
Financial Cost ('000\$) 55 Economic Cost ('\$) 26.8

Total Riel (mil.) 19,798 8,168
US\$('000) 4,950 2,042

Target Area
(ha) 16,700
Riel('000)/ha 1,186 489
US\$('000)/ha 0.30 0.12

FWJUC 97 342.0 3 years
Agri 14.04 49.5 3 years

Year	Invest	FWJUC	Agri	Total	Build-up
1	717.9	114.0		831.9	
2	7,449.6	114.0	16.5	7,580.1	0.8
3		114.0	16.5	130.5	0.9
4			16.5	16.5	1.0
5					
6					
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (9/22)

Moung Ruessei River Basin
Nikom Le/Dal Ta Chan Rehabilitation Project

(Unit : Riel; Million)

Description	Financial Cost										Economic Cost													
	Total		F/C		L/C		Material		Labor		Total		F/C		L/C		Material		Labor		Total			
	USD	Riel	Material	Equipment	Labor	Common	Skilled	Conversion	Factor	Total	Material	Equipment	Labor	Common	Skilled	Total	Material	Equipment	Labor	Common	Skilled	Total		
	000	Million																						
1. Preparatory Works	437	5,555	65	121	0	306	20	20	20	26	66	131	52.9	88.6	0.0	141.5	16.9	15.4	7.9	40.0	80.2	437.4	221.7	0.51
2. Direct Cost	5,771	5,771	1,414	2,626	0	4,040	260	260	346	346	866	1,731	1,145.4	1,917.0	0.0	3,062.4	223	203	105	528	1,059	5,771.5	4,121.1	0.71
1. Weir & major intake structures	540	2,214	542	1,007	0	1,550	100	100	133	133	332	664	439.4	735.4	0.0	1,174.8	85.7	77.7	40.2	202.6	406.2	2,214.0	1,581.0	0.71
2. Canals & related structures	761	3,120	764	1,420	0	2,184	140	140	187	187	468	936	619.2	1,036.3	0.0	1,655.5	120.7	109.5	56.6	285.5	572.3	3,120.1	2,227.8	0.71
3. Dykes	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Miscellaneous works	437	437	107	199	0	306	20	20	26	26	66	131	86.8	145.3	0.0	232.1	16.9	15.4	7.9	40.0	80.2	437.4	312.3	0.71
3. Contractor's Expenses	5,555	5,555	1,361	2,527	0	3,888	250	250	333	333	833	1,666	117.5	177.2	0.0	294.7	24.3	20.0	4.0	40.8	89.1	5,554.9	383.8	0.07
4. Administration Cost	2,187	2,187	536	995	0	1,531	98	98	131	131	328	656	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,187.0	0.0	0.00
5. Consulting Services	2,187	2,187	0	0	1,531	1,531	0	0	0	0	656	656	0.0	0.0	1,530.9	1,530.9	0.0	0.0	0.0	400.2	400.2	2,187.0	1,931.1	0.88
Total	3,376	6,270	338	627	153	1,130	63	63	84	84	275	484	131.6	218.3	153.1	503.0	26.5	23.8	11.7	100.9	162.8	16,137.8	6,657.7	0.41
6. Physical Contingencies	3,714	6,897	3,714	6,897	1,684	12,426	691	691	921	921	3,024	5,325	1,447.4	2,401.1	1,684.0	5,532.5	291.0	261.8	128.3	1,110.0	1,791.0	17,751.5	7,323.5	0.41
GRAND TOTAL																								

Equipment and Materials

	Financial	Conversion	Economic
	%	Factor	%
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	16.00	1.00	16.00
	25.4		13.7
Factor for Materials			0.86
Factor for Equipment			0.78

/1 : 20% of the Profit
/2 : 1% of Turnover

/A : Excluding the following transfer payment

Import tariff 7.0 %
Company tax 1.4 %
Minimum tax 1.0 %
VAT 10.0 %

/B : Excluding the following transfer payment

Import tariff 15.0 %
Company tax 1.4 %
Minimum tax 1.0 %
VAT 10.0 %

Major repairing cost	Material	Equipment	Labor	Labor	Total
	Share	Share	Common	Skilled	
	0.35	0.65	0.00	0.00	
F/C	0.25	0.45	0.00	0.00	0.70
L/C	0.15	0.15	0.60	0.10	
	0.05	0.05	0.18	0.03	0.30
Conversion Factor	0.686		Economic Cost (MR)		694.7
Financial Cost ('000\$)	247		Economic Cost ('\$)		169.4

Annual O&M cost

Material	Equipment	Labor	Labor	Total	
Share	Share	Common	Skilled		
0.15	0.15	0.60	0.10		
0.15	0.15	0.60	0.10	1.00	
Conversion Factor	0.488		Economic Cost (MR)		72.0
Financial Cost ('000\$)	36		Economic Cost ('\$)		17.6

Total Riel (mil.) 17,751
US\$(000) 4,438

Target Area

(ha) 16,700
Rise(000)/ha 439
US\$(000)/ha 0.27

Year	Invest	FWUC	Agri	Total	Build-up
1	643.7	98.7		742.4	
2	6,679.8	98.7	11.9	6,790.4	0.8
3		98.8	11.9	110.7	0.9
4		12.0	12.0	12.0	1.0
5					
6					
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (10/22)

Pursat River Basin
Beoung Preah Ponleay Rehabilitation Project

Description	Financial Cost										Economic Cost										Construction Conversion Factor Total Cost Financial Economic		
	Total		F/C		L/C		Material Equipment		Labor		Total		F/C		L/C		Material Equipment		Labor			Total	
	USD	Equivalent	Material	Equipment	Labor	Total	Material	Equipment	Labor	Total	F	C	Material	Equipment	Labor	Total	Material	Equipment	Labor	Total		Common	Skilled
	000	Million																					
1. Preparatory Works	3,841	568	1,055	0	2,689	173	173	230	576	1,152	460.4	770.5	0.0	1,230.9	148.7	134.8	69.7	351.5	704.7	3,841.4	1,935.6	0.50	0.71
2. Direct Cost	50,688	12,419	23,063	0	35,482	2,281	2,281	3,041	7,603	15,206	10,059.0	16,836.0	0.0	26,895.0	1,962	1,779	919	4,638	9,298	50,688.0	36,193.0	0.71	0.71
1. Weir & major intake structures	720	2,952	723	1,343	0	2,066	133	177	443	886	585.8	980.5	0.0	1,566.3	114.2	103.6	53.5	270.1	541.4	2,952.0	2,107.7	0.71	0.71
2. Canals & related structures	10,596	43,444	19,767	0	30,411	1,955	1,955	2,607	6,517	13,033	8,621.4	14,429.8	0.0	23,051.2	1,681.3	1,524.9	787.8	3,975.1	7,969.1	43,443.6	31,020.3	0.71	0.71
3. Dykes	110	451	110	205	0	316	20	27	68	135	89.5	149.8	0.0	239.3	17.5	15.8	8.2	41.3	82.8	451.0	322.1	0.71	0.71
4. Miscellaneous works	3,841	941	1,748	0	2,689	173	173	230	576	1,152	762.3	1,275.9	0.0	2,038.2	148.7	134.8	69.7	351.5	704.7	3,841.4	2,742.9	0.71	0.71
3. Contractor's Expenses	48,786	11,953	22,198	0	34,150	2,195	2,195	2,927	7,318	14,636	1,031.7	1,556.2	0.0	2,587.9	213.6	175.7	35.2	358.2	782.7	48,786.0	3,370.6	0.07	0.07
4. Administration Cost	19,207	4,706	8,739	0	13,445	864	864	1,152	2,881	5,762	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19,207.1	0.0	0.00	0.00
5. Consulting Services	19,207	0	0	13,445	13,445	0	0	0	5,762	5,762	0.0	0.0	13,445.0	13,445.0	0.0	0.0	0.0	3,514.9	3,514.9	19,207.1	16,959.9	0.88	0.88
Total	29,645	55,055	13,445	99,211	5,514	5,514	7,351	24,141	42,519	11,551.1	19,162.7	13,445.0	44,158.8	2,324	2,090	1,024	8,863	14,300	141,729.7	58,459.1	0.41	0.41	
6. Physical Contingencies	2,965	5,506	1,345	9,921	551	551	735	2,414	4,252	1,155.1	1,916.3	1,344.5	4,415.9	232.4	209.0	102.4	886.3	1,430.0	14,173.0	5,845.9	0.41	0.41	
GRAND TOTAL	32,610	60,561	14,789	109,132	6,065	6,065	8,086	26,555	46,771	12,706.2	21,079.0	14,789.5	48,574.7	2,556.4	2,298.6	1,126.5	9,748.9	15,730.3	155,902.7	64,305.0	0.41	0.41	

Equipment and Materials

	Financial	Conversion Factor	Economic	%
Overhead cost and miscellaneous	6.00	0.10	0.60	
Company Tax /1	1.40	1.00	1.40	
Minimum Tax /2	1.00	1.00	1.00	
Profit	7.00	0.10	0.70	
VAT	10.00	1.00	10.00	
	25.4		13.7	
Factor for Materials			0.86	
Factor for Equipment			0.78	

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff	7.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

/B ; Excluding the following transfer payment

Import tariff	15.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

Major repairing cost

	Material	Equipment	Labor	Skilled	Total
Share	0.35	0.65	0.00	0.00	
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 7,475.9
Financial Cost ('000\$) 2,658 Economic Cost (T\$) 1,823.4

Annual O&M cost

	Material	Equipment	Labor	Skilled	Total
Share	0.15	0.15	0.60	0.10	
L/C	0.15	0.15	0.60	0.10	1.00
Conversion Factor	<u>0.488</u> Economic Cost (MR) <u>834.3</u>				
Financial Cost ('000\$)	<u>417</u> Economic Cost (T\$) <u>203.5</u>				

Total Riel (ml.) 155,903
US\$(000) 38,976

Target Area

(ha) 16,700
Riel(000)/ha 9,335
US\$(000)/ha 2.33

FWUC 755
Agri 95.84
5 years
5 years

Year	Invest	FWUC	Agri	Total	Build-up
1	3,392.0			3,392.0	
2	15,228.3	532.4		15,760.7	
3	15,228.3	532.4	67.6	15,828.3	0.6
4	15,228.3	532.4	67.6	15,828.3	0.7
5	15,228.3	532.4	67.6	15,828.3	0.8
6	532.4		67.5	600.0	0.9
7			67.5	67.5	1.0
8					1.0

Table G2-6 Conversion of Financial Cost to Economic Cost (11/22)

Pursat River Basin
Dannak Ampil Extension Project

Description	Financial Cost												Economic Cost												Construction Conversion Factor	
	Total				F/C				L/C				Material				Labor				Total		Financial	Economic		
	USD Equivalent		Riel		Material		Equipment		Labor		Total		Material		Equipment		Labor		Total							
	000	Million	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	Factor	Factor				
1. Preparatory Works	3,490	521	968	0	2,443	157	157	209	523	1,047	422.3	706.8	0.0	1,129.1	135.1	122.5	63.3	319.3	640.2	3,489.8	1,769.3	0.51				
2. Direct Cost	46,048	11,282	20,932	0	32,233	2,072	2,072	2,763	6,907	13,814	9,138.1	15,294.7	0.0	24,432.8	1,782	1,616	835	4,213	8,447	46,047.8	32,879.5	0.71				
1. Weir & major intake structures	780	3,198	784	1,455	0	2,239	144	192	480	959	634.6	1,062.2	0.0	1,696.8	123.8	112.2	58.0	292.6	586.6	3,198.0	2,283.4	0.71				
2. Canals & related structures	9,600	39,360	9,643	17,909	0	27,552	1,771	1,771	2,362	5,904	7,811.0	13,073.4	0.0	20,884.4	1,523.2	1,381.5	713.8	3,601.4	7,219.9	39,360.0	28,104.3	0.71				
3. Dykes	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
4. Miscellaneous works	3,490	855	1,588	0	2,443	157	157	209	523	1,047	692.5	1,159.1	0.0	1,851.6	135.1	122.5	63.3	319.3	640.2	3,489.8	2,491.8	0.71				
3. Contractor's Expenses	44,320	10,858	20,166	0	31,024	1,994	1,994	2,659	6,648	13,296	937.2	1,413.7	0.0	2,350.9	194.0	159.6	32.0	325.4	711.0	44,319.9	3,061.9	0.07				
4. Administration Cost	17,449	4,275	7,939	0	12,214	785	785	1,047	2,617	5,235	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17,448.8	0.0	0.00				
5. Consulting Services	17,449	0	0	12,214	12,214	0	0	0	5,235	5,235	0.0	0.0	12,214.1	12,214.1	0.0	0.0	0.0	3,193.1	3,193.1	17,448.8	15,407.2	0.88				
Total	26,936	50,025	12,214	90,128	5,009	5,009	5,009	6,678	21,931	38,626	10,497.6	17,415.2	12,214.1	40,126.9	2,111	1,898	930	8,051	12,991	128,755.0	53,117.9	0.41				
6. Physical Contingencies	2,694	5,003	1,221	9,013	501	501	501	668	2,193	3,863	1,049.8	1,741.5	1,221.4	4,012.7	211.1	189.8	93.0	805.1	1,299.1	12,875.4	5,311.8	0.41				
GRAND TOTAL	29,630	55,027	13,436	99,141	5,510	5,510	5,510	7,346	24,124	42,489	11,547.4	19,156.7	13,435.5	44,139.6	2,322.3	2,088.1	1,023.4	8,856.2	14,290.1	141,630.4	58,429.7	0.41				

Equipment and Materials

	Financial		Conversion		Economic	
	%	%	Factor	Factor	%	%
Overhead cost and miscellaneous	6.00	0.10	0.10	0.60		
Company Tax /1	1.40	1.00	1.00	1.40		
Minimum Tax /2	1.00	1.00	1.00	1.00		
Profit	7.00	0.10	0.10	0.70		
VAT	10.00	1.00	1.00	10.00		
	25.4	13.7				
Factor for Materials		0.86				
Factor for Equipment		0.78				

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff

Company tax

Minimum tax

VAT

/B ; Excluding the following transfer payment

Import tariff

Company tax

Minimum tax

VAT

Major repairing cost

	Material		Equipment		Labor		Total
	Share	F/C	Share	F/C	Share	F/C	
Share	0.35	0.65	0.45	0.55	0.00	0.00	0.70
F/C	0.25	0.45	0.15	0.60	0.10	0.10	0.30
L/C	0.05	0.05	0.18	0.03	0.03	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 6,744.6
Financial Cost ('000\$) 2,398 Economic Cost (T\$) 1,645.0

Annual O&M cost

Year	Invest		FWUC		Total
	Invest	FWUC	Invest	FWUC	
1	3,081.4	485.1	3,081.4	485.1	3,081.4
2	13,837.1	485.1	13,837.1	485.1	14,322.1
3	13,837.1	485.1	13,837.1	485.1	14,387.9
4	13,837.1	485.2	13,837.1	485.2	14,388.0
5	13,837.1	485.2	13,837.1	485.2	14,388.0
6	65.8	65.8	65.8	65.8	551.0
7	65.7	65.7	65.7	65.7	65.7
8	1.0	1.0	1.0	1.0	1.0

Table G2-6 Conversion of Financial Cost to Economic Cost (12/22)

Pursat River Basin
Wat Loung Rehabilitation Project

(Unit : Riels, Million)

Description	Financial Cost										Economic Cost																												
	Total					F/C					L/C					Material Equipment					Labor					Total													
	USD	Equivalent	Riel	000	Million	Material	Equipment	Labor	Skilled	Total	Material	Equipment	Labor	Skilled	Total	Material	Equipment	Labor	Skilled	Total	Material	Equipment	Labor	Skilled	Total	Material	Equipment	Labor	Skilled	Total	Material	Equipment	Labor	Skilled	Total				
1. Preparatory Works	1,737	259	482	0	1,216	78	78	104	261	521	210.2	351.8	0.0	562.0	67.2	61.0	31.5	158.9	318.6	1,736.8	880.6	0.51																	
2. Direct Cost	22,917	5,615	10,427	0	16,042	1,031	1,031	1,375	3,438	6,875	4,548.0	7,612.0	0.0	12,160.0	887	804	416	2,097	4,204	22,917.4	16,363.8	0.71																	
1. Weir & major intake structures	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Canals & related structures	5,166	21,181	5,189	9,637	0	14,826	953	953	3,177	6,354	4,203.3	7,035.1	0.0	11,238.4	819.7	743.4	384.1	1,938.0	3,885.2	21,180.6	15,123.6	0.71																	
3. Dykes	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Miscellaneous works	1,737	426	790	0	1,216	78	78	104	261	521	344.7	576.9	0.0	921.6	67.2	61.0	31.5	158.9	318.6	1,736.8	1,240.2	0.71																	
3. Contractor's Expenses	22,057	5,404	10,036	0	15,440	993	993	1,323	3,309	6,617	466.4	703.6	0.0	1,170.0	96.6	79.4	15.9	162.0	353.9	22,057.5	1,523.9	0.07																	
4. Administration Cost	8,684	2,128	3,951	0	6,079	391	391	521	1,303	2,605	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8,684.0	0.0	0.00																	
5. Consulting Services	8,684	0	0	6,079	6,079	0	0	0	2,605	2,605	0.0	0.0	6,078.8	6,078.8	0.0	0.0	0.0	1,589.2	1,589.2	8,684.0	7,668.0	0.88																	
Total	13,406	24,897	6,079	44,856	2,493	2,493	3,324	10,915	19,224	5,224.6	8,667.4	6,078.8	19,970.8	1,051	945	463	4,007	6,466	64,079.8	26,436.3	0.41																		
6. Physical Contingencies	1,341	2,490	608	4,486	249	249	332	1,092	1,922	522.5	866.7	607.9	1,997.1	105.1	94.5	46.3	400.7	646.6	6,408.0	2,643.7	0.41																		
GRAND TOTAL	14,747	27,386	6,687	49,341	2,742	2,742	3,656	12,006	21,146	7,112.1	1,039.3	509.3	4,407.7	7,112.1	70,487.8	29,080.0	0.41																						

Equipment and Materials

	Financial	Conversion	Economic
	%	Factor	%
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4	13.7	
Factor for Materials		0.86	
Factor for Equipment		0.78	

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

/B ; Excluding the following transfer payment
Import tariff 15.0 %
Company tax 1.4 %
Minimum tax 1.0 %
VAT 10.0 %

Major repairing cost			
Material	Equipment	Labor	Total
Share	0.35	0.65	0.00
F/C	0.25	0.45	0.00
Share	0.15	0.15	0.10
L/C	0.05	0.05	0.18
			0.03
			0.30

Conversion Factor	0.686	Economic Cost (MR)	3,487.6
Financial Cost (1000\$)	1,240	Economic Cost (T\$)	850.6

Annual O&M cost

Material			
Material	Equipment	Labor	Total
Share	0.15	0.15	0.60
L/C	0.15	0.15	0.10
			1.00
Conversion Factor	0.488	Economic Cost (MR)	392.2
Financial Cost (1000\$)	196	Economic Cost (T\$)	95.6

Total	Riel (mil.)	70,488	29,080
	US\$(1000)	17,622	7,270

Target Area	(ha)	16,700
Riel(1000)/ha		4,221
US\$(1000)/ha		1.06

FWUC	342	1,205.9	4 years
Agri	45.7	161.1	4 years

Year	Invest	FWUC	Agri	Total	Increment
1	2,556.0			2,556.0	
2	13,262.0	301.5		13,563.5	
3	13,262.0	301.5	40.3	13,603.8	
4		301.4	40.3	341.7	0.7
5		301.4	40.3	341.7	0.8
6		40.2	40.2	40.2	0.9
7					1.0
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (14/22)

Pursat River Basin
Antlong Khouch, Wat Leap, Kosh Khisach Water Harvesting and Recession Rice Project

Description	Financial Cost										Economic Cost															
	Total		F/C		L/C		Material Equipment		Labor		Total		F/C		L/C		Material Equipment		Labor		Total					
	USD	Equivalent Riel	Material	Equipment	Labor	Common	Skilled	Total	Material	Equipment	Labor	Common	Skilled	Total	Material	Equipment	Labor	Common	Skilled	Total	Material	Equipment	Labor	Common	Skilled	Total
	000	Million	/A	/B	Conversion Factor	/A	/B	Conversion Factor	/A	/B	Conversion Factor	/A	/B	Conversion Factor	/A	/B	Conversion Factor	/A	/B	Conversion Factor	/A	/B	Conversion Factor	/A	/B	Conversion Factor
1. Preparatory Works	1,226	155	287	0	859	55	74	184	368	125.3	209.7	0.0	335.0	47.5	43.0	22.2	112.2	224.9	1,226.5	559.9	0.46					
2. Direct Cost	16,183	3,965	7,363	0	11,328	728	971	2,427	4,855	3,211.6	5,375.3	0.0	8,586.9	626	568	293	1,481	2,968	16,183.3	11,555.3	0.71					
1. Weir & major intake structures	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
2. Canals & related structures	3,080	12,628	3,094	5,746	0	8,840	568	1,894	3,788	2,506.0	4,194.4	0.0	6,700.4	488.7	443.2	229.0	1,155.5	2,316.4	12,628.0	9,016.8	0.71					
3. Dykes	568	2,329	571	1,060	0	1,630	105	140	699	462.2	775.5	0.0	1,235.7	90.1	81.7	42.2	213.1	427.1	2,328.8	1,662.8	0.71					
4. Miscellaneous works	1,226	300	558	0	859	55	74	184	368	243.4	407.4	0.0	650.8	47.5	43.0	22.2	112.2	224.9	1,226.5	875.7	0.71					
3. Contractor's Expenses	15,576	3,816	7,087	0	10,903	701	935	2,336	4,673	329.4	496.8	0.0	826.2	68.2	56.1	11.2	114.4	249.9	15,576.0	1,076.1	0.07					
4. Administration Cost	6,132	1,502	2,790	0	4,293	276	368	920	1,840	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6,132.3	0.0	0.00					
5. Consulting Services	6,132	0	0	4,293	4,293	0	0	1,840	1,840	0.0	0.0	4,292.6	4,292.6	0.0	0.0	0.0	1,222.2	1,122.2	6,132.3	5,414.8	0.88					
Total	9,438	17,528	4,293	31,675	1,760	1,760	2,347	7,707	13,575	3,666.3	6,081.8	4,292.6	14,040.7	742	667	327	2,830	4,565	45,230.3	18,606.1	0.41					
6. Physical Contingencies	944	1,753	429	3,168	176	176	235	771	1,358	366.6	608.2	429.3	1,404.1	74.2	66.7	32.7	283.0	456.5	4,525.0	1,860.6	0.41					
GRAND TOTAL	10,382	19,281	4,722	34,843	1,936	1,936	2,582	8,478	14,933	4,032.9	6,690.0	4,721.9	15,444.8	816.2	733.7	359.5	3,112.6	5,021.9	49,775.3	20,466.7	0.41					

Equipment and Materials

	Financial	Economic	Conversion Factor	%
Overhead cost and miscellaneous	6.00	0.10	0.10	0.60
Company Tax /1	1.40	1.00	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00	1.00
Profit	7.00	0.10	0.10	0.70
VAT	10.00	1.00	1.00	10.00
	25.4	13.7		
Factor for Materials	0.86			
Factor for Equipment	0.78			

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff	7.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

/B ; Excluding the following transfer payment

Import tariff	15.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

Major repairing cost		Material : equipment		Labor		Skilled		Total	
Share	0.35	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.70
F/C	0.25	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	0.10	0.10	0.10	0.30	0.30
L/C	0.05	0.05	0.18	0.03	0.03	0.03	0.03	0.30	0.30
Conversion Factor	0.686	Economic Cost (MR)	2,494.8						
Financial Cost ('000\$)	887	Economic Cost (T\$)	608.5						

Annual O&M cost

Material : equipment		Labor		Skilled		Total	
Share	0.15	0.15	0.60	0.10	0.10	0.10	1.00
L/C	0.15	0.15	0.60	0.10	0.10	0.10	1.00
Conversion Factor	0.488	Economic Cost (MR)	282.1				
Financial Cost ('000\$)	141	Economic Cost (T\$)	68.8				

Year	Invest	FWUC	Agri	Total	Increment
1	1,804.9	211.6		2,016.5	
2	18,661.8	211.6	30.2	18,903.6	
3		211.6	30.1	241.7	0.7
4		211.6	30.1	241.7	0.8
5			30.2	30.2	0.9
6					1.0
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (15/22)

Boribo River Basin
Lum Hach Rehabilitation Project

(Unit : Riel; Million)

Description	Financial Cost										Economic Cost															
	Total					F/C					L/C					L/C					Construction Conversion Factor					
	USD Equivalent Riel		Material Equipment		Labor	Total	Material Equipment		Labor	Total	Material Equipment		Labor	Total	Material Equipment		Labor	Total	Material Equipment		Labor	Total	Financial		Economic	
	000	Million					F	C																		
1. Preparatory Works	2,070		309	574	0	1,449	93	93	124	310	621	0.81	0.73	1.00	0.86	0.78	0.30	0.61								
2. Direct Cost	27,309		6,691	12,426	0	19,116	1,229	1,229	1,639	4,096	8,193	5.419.5	9.070.8	0.0	14,490.3	1,057	959	495	2,499	5,010	27,309.2	19,499.8	0.71			
1. Weir & major intake structures	2,130		8,733	3,974	0	6,113	393	393	524	1,310	2,620	1,733.1	2,900.7	0.0	4,633.8	338.0	306.5	158.4	799.1	1,602.0	8,733.0	6,235.8	0.71			
2. Canals & related structures	4,026		16,507	4,044	7,511	0	11,555	743	743	990	2,476	3,275.7	5,482.7	0.0	8,738.4	638.8	579.4	299.3	1,510.4	3,027.9	16,506.6	11,786.3	0.71			
3. Dykes	0		0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
4. Miscellaneous works	2,070		507	942	0	1,449	93	93	124	310	621	410.7	687.4	0.0	1,098.1	80.1	72.6	37.5	189.4	379.6	2,069.6	1,477.7	0.71			
3. Contractor's Expenses	26,285		6,440	11,959	0	18,399	1,183	1,183	1,577	3,943	7,885	555.8	838.4	0.0	13,942	115.1	94.7	19.0	193.0	421.8	26,284.5	18,116.0	0.07			
4. Administration Cost	10,348		2,535	4,708	0	7,244	466	466	621	1,532	3,104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10,348.2	0.0	0.00			
5. Consulting Services	10,348		0	0	7,244	7,244	0	0	0	3,104	3,104	0.0	0.0	0.0	7,243.8	7,243.8	0.0	0.0	1,893.7	1,893.7	10,348.2	9,137.5	0.88			
Total	15,975		29,668	7,244	53,452	2,971	2,971	3,961	3,961	13,006	22,908	6,225.7	10,328.4	7,243.8	23,797.9	1,252	1,126	552	4,775	7,705	76,359.9	31,502.5	0.41			
6. Physical Contingencies	1,598		2,967	724	5,345	297	297	396	396	1,301	2,291	622.6	1,032.8	724.4	2,379.8	125.2	112.6	55.2	477.5	770.5	7,636.0	3,150.3	0.41			
GRAND TOTAL	17,572		32,635	7,968	58,797	3,268	3,268	4,357	4,357	14,307	25,199	6,848.3	11,361.2	7,968.2	26,177.7	1,377.3	1,238.4	606.9	5,252.5	8,475.1	83,995.9	34,652.8	0.41			

Contractor Expenses

	Financial %	Economic %
Overhead cost and miscellaneous	6.00	0.10
Company Tax /1	1.40	1.00
Minimum Tax /2	1.00	1.00
Profit	7.00	0.10
VAT	10.00	1.00
	25.4	13.7
Factor for Materials	0.86	
Factor for Equipment	0.78	

/1 : 20% of the Profit
/2 : 1% of Turnover

Equipment and Materials

	Financial %	Economic %
Import tariff	7.0 %	15.0 %
Company tax	1.4 %	1.4 %
Minimum tax	1.0 %	1.0 %
VAT	10.0 %	10.0 %

/A ; Excluding the following transfer payment

/B ; Excluding the following transfer payment

Major repairing cost

	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.35	0.65	0.00	0.00	0.70
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	0.30
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 3,437.0
Financial Cost ('000\$) 1,222 Economic Cost (T\$) 838.3

Annual O&M cost

	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.15	0.15	0.60	0.10	1.00
L/C	0.15	0.15	0.60	0.10	1.00

Conversion Factor 0.488 Economic Cost (MR) 366.1
Financial Cost ('000\$) 183 Economic Cost (T\$) 89.3

Total Riel (mil.) 83,996 34,653
US\$('000) 20,999 8,663

Target Area

(ha) 16,700
Riel('000)/ha 5,030 2,075
US\$('000)/ha 1.26 0.52

FWUC

FWUC 402 1,417.5 4 years
Agri 44.16 155.7 4 years

Year	Invest	FWUC	Agri	Total	Build-up
1	3,045.8			3,045.8	
2	15,803.5	354.4		16,157.8	
3	15,803.5	354.4	38.9	16,196.8	0.7
4		354.4	38.9	393.3	0.8
5		354.4	38.9	393.3	0.9
6		354.4	38.8	388	0.9
7					1.0
8					1.0

Table G2-6 Conversion of Financial Cost to Economic Cost (16/22)

Boribo River Basin
7th January Canal Rehabilitation Project

Description	Financial Cost										Economic Cost										Conversion Factor		Conversion Factor			
	Total USD Equivalent Riel	F/C		L/C		Material Equipment		Labor		Total		Conversion Factor	/A	/B	F/C		L/C		Material Equipment		Labor		Total		Financial	Economic
		F	C	L	C	M	E	L	L	T	F				C	L	C	M	E	L	L	T				
	000 Million																									
1. Preparatory Works	1,086	162	301	0	760	49	49	65	163	326	131.4	219.9	0.0	351.3	42.0	38.1	19.7	99.3	199.1	1,085.6	550.4	0.51				
2. Direct Cost	14,324	3,510	6,518	0	10,027	645	645	859	2,149	4,297	2,842.7	4,757.9	0.0	7,600.6	554	503	260	1,311	2,628	14,324.5	10,228.2	0.71				
1. Weir & major intake structures	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Canals & related structures	3,229	13,239	3,244	6,024	0	9,267	596	596	794	1,986	2,627.3	4,397.3	0.0	7,024.6	512.3	464.7	240.1	1,211.4	2,428.5	13,238.9	9,453.1	0.71				
3. Dykes	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Miscellaneous works	1,086	266	494	0	760	49	49	65	163	326	215.4	360.6	0.0	576.0	42.0	38.1	19.7	99.3	199.1	1,085.6	775.1	0.71				
3. Contractor's Expenses	13,787	3,378	6,273	0	9,651	620	620	827	2,068	4,136	291.6	439.8	0.0	731.4	60.4	49.7	9.9	101.2	221.2	13,787.0	952.6	0.07				
4. Administration Cost	5,428	1,330	2,470	0	3,800	244	244	326	814	1,628	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5,427.9	0.0	0.00				
5. Consulting Services	5,428	0	0	3,800	3,800	0	0	0	1,628	1,628	0.0	0.0	3,799.6	3,799.6	0.0	0.0	0.0	993.3	993.3	5,427.9	4,792.9	0.88				
Total		11,889	22,079	3,800	38,064	2,203	2,203	2,937	8,971	16,313	6,108.4	10,175.5	3,799.6	20,083.5	1,211.0	1,093.4	549.2	3,815.2	6,668.8	40,053.0	16,524.1	0.41				
6. Physical Contingencies		1,189	2,208	380	3,806	220	220	294	897	1,631	610.8	1,017.6	380.0	2,008.4	121.1	109.3	54.9	381.5	666.9	5,437.7	2,675.3	0.49				
GRAND TOTAL		13,078	24,287	4,180	41,871	2,423	2,423	3,231	9,868	17,945	6,719.2	11,193.1	4,179.6	22,091.9	1,332.1	1,202.7	604.1	4,196.7	7,335.7	45,490.7	19,199.4	0.42				

Equipment and Materials

	Financial %	Conversion Factor	Economic %
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
Factor for Materials	0.86		
Factor for Equipment	0.78		

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

/B ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

Major repairing cost

	Material	Equipment	Labor	Skilled	Total
Share	0.35	0.65	0.00	0.00	
F/C	0.25	0.45	0.00	0.00	0.70
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 2,179.8
Financial Cost ('000\$) 775 Economic Cost ('\$) 531.7

Annual O&M cost

	Material	Equipment	Labor	Skilled	Total
Share	0.15	0.15	0.60	0.10	1.00
L/C	0.15	0.15	0.60	0.10	1.00
Conversion Factor	0.488	Economic Cost (MR)	246.1		
Financial Cost ('000\$)	123	Economic Cost ('\$)	60.0		

Total Riel (mil.) 45,491
US\$('000) 11,373

Target Area (ha) 16,700
Riel('000)/ha 2,724
US\$('000)/ha 0.68

FWUC 211 744.0 4 years
Agri 24.27 85.6 4 years

Year	Invest	FWUC	Agri	Total	Build-up
1	1,597.6	186.0	21.3	1,783.6	
2	17,601.8	186.0	21.4	17,809.1	0.7
3		186.0	21.4	207.4	0.8
4		186.0	21.3	213	0.9
5					1.0
6					
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (17/22)

**Boribo River Basin
Khvet Rehabilitation Project**

(Unit : Riels; Million)

Description	Financial Cost										Economic Cost															
	Total					F/C					L/C					L/C										
	USD Equivalent		Material		F/C	Material		Equipment		Labor	Total		Material		Equipment		Labor	Total		Material		Equipment		Labor	Total	
	000	Million	Riel	Million	F Consol	000	Million	Riel	Million	F Consol	000	Million	Riel	Million	F Consol	000	Million	Riel	Million	F Consol	000	Million	Riel	Million	F Consol	000
1. Preparatory Works	180		27	50	0	126	8	8	8	11	27	54	21.8	36.5	0.0	58.3	7.0	6.3	3.3	16.5	33.1	180.2	91.4	0.51		
2. Direct Cost	2,378		583	1,082	0	1,664	107	107	143	357	713	471.9	789.9	0.0	1,261.8	92	84	43	218	436	2,377.8	1,698.2	0.71			
1. Weir & major intake structures	250		251	466	0	718	46	46	62	154	308	203.4	340.5	0.0	543.9	39.7	36.0	18.6	93.8	188.1	1,025.0	732.0	0.71			
2. Canals & related structures	286		1,173	287	534	0	821	53	70	176	352	232.7	389.5	0.0	622.2	45.4	41.2	21.3	107.3	215.2	1,172.6	837.4	0.71			
3. Dykes	0		0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
4. Miscellaneous works	180		44	82	0	126	8	8	11	27	54	35.8	59.9	0.0	95.7	7.0	6.3	3.3	16.5	33.1	180.2	128.8	0.71			
3. Contractor's Expenses	2,289		561	1,041	0	1,602	103	103	137	343	687	48.4	73.0	0.0	121.4	10.0	8.2	1.7	16.8	36.7	2,288.6	158.1	0.07			
4. Administration Cost	901		221	410	0	631	41	41	54	135	270	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	901.0	0.0	0.00			
5. Consulting Services	901		0	0	631	631	0	0	0	270	270	0.0	0.0	0.0	630.7	630.7	0.0	0.0	0.0	164.9	901.0	795.6	0.88			
Total	1,391		2,583	631	4,654	259	259	345	345	1,132	1,995	542.1	899.4	630.7	2,072.2	109	98	48	416	671	6,648.6	2,743.3	0.41			
6. Physical Contingencies	139		258	63	465	26	26	35	35	113	200	54.2	89.9	63.1	207.2	10.9	9.8	4.8	41.6	67.1	664.9	274.3	0.41			
GRAND TOTAL	1,530		2,841	694	5,119	285	285	379	379	1,246	2,194	596.3	989.3	693.8	2,279.4	120.0	107.8	53.0	457.4	738.2	7,313.5	3,017.6	0.41			

Equipment and Materials

	Financial	Conversion	Economic
	%	Factor	%
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
Factor for Materials		0.86	
Factor for Equipment		0.78	

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff 7.0 %
Company tax 1.4 %
Minimum tax 1.0 %
VAT 10.0 %

/B ; Excluding the following transfer payment

Import tariff 15.0 %
Company tax 1.4 %
Minimum tax 1.0 %
VAT 10.0 %

Major repairing cost

	Material	Equipment	Labor	Skilled	Total
Share	0.35	0.65	0.00	0.00	0.00
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	0.10
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 278.4
Financial Cost ('000\$) 99 Economic Cost (T\$) 67.9

Annual O&M cost

	Material	Equipment	Labor	Skilled	Total
Share	0.15	0.15	0.60	0.10	1.00
L/C	0.15	0.15	0.60	0.10	1.00
Conversion Factor	0.488 Economic Cost (MR)			28.0	
Financial Cost ('000\$)	14 Economic Cost (T\$)			6.8	

Total Riel (mil.) 7,314
US\$('000) 1,828

Target Area (ha) 16,700
Riel('000)/ha 438
US\$('000)/ha 0.11

FWUC 34
Agri 7.06

Invest FWUC 40.0
Agri 2,752.4

Year	Invest	FWUC	Agri	Total	Build-up
1	265.2	40.0	8.3	305.2	
2	2,752.4	40.0	8.3	2,800.7	
3	39.9	39.9	8.3	48.2	0.8
4	8.3	8.3	8.3	8.3	0.9
5	8.3	8.3	8.3	8.3	1.0
6					
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (18/22)

**Boribo River Basin
Ta Ram Rehabilitation Project**

(Unit : Riels; Million)

Description	Financial Cost										Economic Cost															
	Total					F/C					L/C					F/C					L/C					
	USD Equivalent		Material		Equipment		Labor		Total		Material		Equipment		Labor		Total		Material		Equipment		Labor		Total	
	Riel	Million	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C
1. Preparatory Works	199	25	46	0	139	9	9	9	12	30	60	20.1	33.6	0.0	53.7	7.7	7.0	3.6	18.2	36.5	199.0	90.2	0.45			
2. Direct Cost	2,626	643	1,195	0	1,838	118	118	118	158	394	788	521.1	872.4	0.0	1,393.5	102	92	48	240	482	2,626.2	1,875.2	0.71			
1. Weir & major intake structures	250	1,025	251	466	0	718	46	46	62	154	308	203.4	340.5	0.0	543.9	39.7	36.0	18.6	93.8	188.1	1,025.0	732.0	0.71			
2. Canals & related structures	244	1,000	245	455	0	700	45	45	60	150	300	198.5	332.3	0.0	530.8	38.7	35.1	18.1	91.5	183.4	1,000.4	714.2	0.71			
3. Dykes	98	402	98	183	0	281	18	18	24	60	121	79.7	133.5	0.0	213.2	15.5	14.1	7.3	36.8	73.7	401.8	286.9	0.71			
4. Miscellaneous works	199	49	91	0	139	9	9	9	12	30	60	39.5	66.1	0.0	105.6	7.7	7.0	3.6	18.2	36.5	199.0	142.1	0.71			
3. Contractor's Expenses	2,528	619	1,150	0	1,769	114	114	114	152	379	758	53.4	80.6	0.0	134.0	11.1	9.1	1.8	18.6	40.6	2,527.7	174.6	0.07			
4. Administration Cost	995	244	453	0	697	45	45	45	60	149	299	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	995.2	0.0	0.00			
5. Consulting Services	995	0	0	697	697	0	0	0	0	299	299	0.0	0.0	0.0	696.6	696.6	0.0	0.0	182.1	182.1	995.2	878.7	0.88			
Total		1,531	2,844	697	5,140	286	286	286	381	1,251	2,203	594.6	986.6	696.6	2,277.8	120	108	53	459	741	7,343.3	3,018.7	0.41			
6. Physical Contingencies		153	284	70	514	29	29	29	38	125	220	59.5	98.7	69.7	227.8	12.0	10.8	5.3	45.9	74.1	734.3	301.9	0.41			
GRAND TOTAL		1,684	3,128	766	5,654	314	314	314	419	1,376	2,423	654.1	1,085.3	766.3	2,505.6	132.4	119.1	58.3	505.1	815.0	8,077.6	3,320.6	0.41			

Equipment and Materials

Financial	Conversion Factor	Economic
Overhead cost and miscellaneous	6.00	0.10
Company Tax /1	1.40	1.00
Minimum Tax /2	1.00	1.00
Profit	7.00	0.10
VAT	10.00	1.00
	25.4	13.7
Factor for Materials	0.86	
Factor for Equipment	0.78	

/1 : 20% of the Profit
/2 : 1% of Turnover

/A : Excluding the following transfer payment
import tariff
Company tax
Minimum tax
VAT

/B : Excluding the following transfer payment
import tariff
Company tax
Minimum tax
VAT

Major repairing cost

Material	Equipment	Labor	Skilled	Total
Share	0.35	0.65	0.00	0.00
F/C	0.25	0.45	0.00	0.70
Share	0.15	0.15	0.60	0.10
L/C	0.05	0.05	0.18	0.30
Conversion Factor	0.686	Economic Cost (MR)	320.6	
Financial Cost ('000\$)	114	Economic Cost (T\$)	78.2	

Annual O&M cost

Material	Equipment	Labor	Skilled	Total
Share	0.15	0.15	0.60	0.10
L/C	0.15	0.15	0.60	1.00
Conversion Factor	0.488	Economic Cost (MR)	34.0	
Financial Cost ('000\$)	17	Economic Cost (T\$)	8.3	

Total Riel (mil.) 8,078 3,321
US\$(000) 2,019 830

Target Area (ha) 16,700
Riel(000)/ha 484
US\$(000)/ha 0.12

FWUC 37 130.5 3 years
Agri 6.61 23.3 3 years

Year	Invest	FWUC	Agri	Total	Build-up
1	292.9	43.5	7.8	336.4	336.4
2	3,027.7	43.5	7.8	3,079.0	3,079.0
3		43.5	7.8	51.3	0.8
4			7.7	7.7	0.9
5					1.0
6					
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (19/22)

Boribo River Basin
Chak Teum, Trapeang Khlong & Don Poy Rehabilitation Project

Description	Financial Cost												Economic Cost												Construction Conversion Factor	
	Total			F/C			L/C			Material			Equipment			Labor			L/C			Total				
	USD Equivalent Riel	Million	000	Material	Equipment	Total	F	C	L	A	B	/A	/B	F	C	L	Common	Skilled	Total	Common	Skilled	Total	Financial	Economic		
1. Preparatory Works	501	73	135	0	351	23	23	23	30	75	150	58.8	98.4	0.0	157.2	19.4	17.6	9.1	45.8	91.9	500.9	249.1	0.50			
2. Direct Cost	6,610	1,619	3,008	0	4,627	297	297	297	397	991	1,983	1,311.7	2,195.6	0.0	3,507.3	256	232	120	605	1,213	6,609.9	4,719.9	0.71			
1. Weir & major intake structures	250	1,025	251	466	0	718	46	46	62	154	308	203.4	340.5	0.0	543.9	39.7	36.0	18.6	93.8	188.1	1,025.0	732.0	0.71			
2. Canals & related structures	1,195	4,900	1,200	2,229	0	3,430	220	220	294	735	1,470	972.3	1,627.4	0.0	2,599.7	189.6	172.0	88.9	448.3	898.8	4,899.5	3,498.5	0.71			
3. Dykes	45	185	45	84	0	129	8	8	11	28	55	36.6	61.3	0.0	97.9	7.1	6.5	3.3	16.9	33.8	184.5	131.7	0.71			
4. Miscellaneous works	501	123	228	0	351	23	23	23	30	75	150	99.4	166.4	0.0	265.8	19.4	17.6	9.1	45.8	91.9	500.9	357.7	0.71			
3. Contractor's Expenses	6,362	1,559	2,895	0	4,453	286	286	286	382	934	1,909	134.5	202.9	0.0	337.4	27.9	22.9	4.6	46.7	102.1	6,361.9	439.5	0.07			
4. Administration Cost	2,505	614	1,140	0	1,753	113	113	113	150	376	751	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,504.7	0.0	0.00			
5. Consulting Services	2,505	0	0	1,753	1,753	0	0	0	0	751	751	0.0	0.0	1,753.3	1,753.3	0.0	0.0	0.0	458.4	458.4	2,504.7	2,211.7	0.88			
Total	5,484	10,184	1,753	17,564	1,016	1,016	1,016	1,016	1,355	4,140	7,528	2,816.7	4,692.5	1,753.3	9,262.5	538.9	504.7	253.5	1,760.5	3,077.6	18,482.2	7,620.2	0.41			
6. Physical Contingencies	548	1,018	175	1,756	102	102	102	102	136	414	753	281.7	469.3	175.3	926.3	55.9	50.5	25.4	176.1	307.8	2,509.2	1,234.1	0.49			
GRAND TOTAL	6,032	11,203	1,929	19,321	1,118	1,118	1,118	1,118	1,491	4,554	8,280	3,098.4	5,161.8	1,928.6	10,188.8	614.8	555.2	278.9	1,936.6	3,385.4	20,991.4	8,854.3	0.42			

Equipment and Materials

Financial	Conversion Factor	Economic %
Overhead cost and miscellaneous	0.10	0.60
Company Tax /1	1.00	1.40
Minimum Tax /2	1.00	1.00
Profit	0.10	0.70
VAT	1.00	10.00
	25.4	13.7
Factor for Materials		0.86
Factor for Equipment		0.78

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff
Company tax
Minimum tax
VAT

/B ; Excluding the following transfer payment

Import tariff 15.0 %
Company tax 1.4 %
Minimum tax 1.0 %
VAT 10.0 %

Major repairing cost

Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.35	0.65	0.00	0.00
F/C	0.25	0.45	0.00	0.70
Share	0.15	0.15	0.60	0.10
L/C	0.05	0.05	0.18	0.03

Conversion Factor 0.686 Economic Cost (MR) 925.3
Financial Cost ('000\$) 329 Economic Cost (T\$) 225.7

Annual O&M cost

Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.15	0.15	0.60	0.10
L/C	0.15	0.15	0.60	0.10
Conversion Factor	0.488	Economic Cost (MR)	102.0	
Financial Cost ('000\$)	51	Economic Cost (T\$)	24.9	

Total Riel (mil.) 20,991 8,854
US\$('000) 5,248 2,214

Target Area
Riel('000)/ha 16,700
US\$('000)/ha 0.31 0.13

FWUC 98 345.5 3 years
Agri 12.68 44.7 3 years

Year	Invest	FWUC	Agri	Total Build-up
1	737.2	115.2		852.4
2	8,117.1	115.2	14.9	8,247.2
3		115.1	14.9	130.0
4			14.9	14.9
5				0.9
6				1.0
7				
8				

Table G2-6 Conversion of Financial Cost to Economic Cost (20/22)

Boribo River Basin
Teuk Laak & Trapeang Thlan Rehabilitation Project

(Unit : Riels, Million)

Description	Financial Cost										Economic Cost																	
	Total					F/C					L/C					P/C					Total							
	USD Equivalent		Material		Total	Equipment		Labor	Total		Material		Equipment	Labor		Total	F Consult		Labor	Total		Material		Equipment	Labor		Total	
	000	Million	/A	/B	Conversion Factor	/A	/B	Conversion Factor	Common	Skilled	Common	Skilled	Common	Skilled	Common	Skilled	Common	Skilled	Common	Skilled	Common	Skilled	Common	Skilled	Common	Skilled	Common	Skilled
1. Preparatory Works	147	16	29	0	103	7	7	9	22	44	12.7	21.2	0.0	33.9	5.7	5.1	2.7	13.4	26.9	146.6	60.8	0.41						
2. Direct Cost	1,934	474	880	0	1,354	87	87	116	290	580	383.9	642.5	0.0	1,026.4	75	68	35	177	355	1,934.2	1,381.1	0.71						
1. Weir & major intake structures	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
2. Canals & related structures	312	1,279	313	582	0	895	58	58	77	192	384	233.9	424.9	0.0	678.8	49.5	44.9	23.2	117.0	234.6	1,279.2	913.4	0.71					
3. Dykes	124	508	125	231	0	356	23	23	31	76	153	100.9	168.9	0.0	269.8	19.7	17.8	9.2	46.5	93.2	508.4	363.0	0.71					
4. Miscellaneous works	147	36	67	0	103	7	7	9	22	44	29.1	48.7	0.0	77.8	5.7	5.1	2.7	13.4	26.9	146.6	104.7	0.71						
3. Contractor's Expenses	1,862	456	847	0	1,303	84	84	112	279	558	39.4	59.4	0.0	98.8	8.2	6.7	1.3	13.7	29.9	1,861.6	1,28.7	0.07						
4. Administration Cost	733	180	333	0	513	33	33	44	110	220	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	732.9	0.0	0.00						
5. Consulting Services	733	0	0	513	513	0	0	0	220	220	0.0	0.0	513.0	513.0	0.0	0.0	0.0	0.0	134.1	134.1	732.9	647.1	0.88					
Total		1,125	2,090	513	3,786	210	210	281	921	1,622	436.0	723.1	513.0	1,672.1	89	80	39	338	546	5,408.2	2,217.7	0.41						
6. Physical Contingencies		113	209	51	379	21	21	28	92	162	43.6	72.3	51.3	167.2	8.9	8.0	3.9	33.8	54.6	540.8	221.8	0.41						
GRAND TOTAL		1,238	2,299	564	4,164	231	231	309	1,013	1,785	479.6	795.4	564.3	1,859.3	97.7	87.6	43.0	371.9	600.2	5,949.0	2,439.5	0.41						

Equipment and Materials

	Financial	Conversion Factor	Economic
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
Factor for Materials			0.86
Factor for Equipment			0.78

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment

Import tariff	7.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

/B ; Excluding the following transfer payment

Import tariff	15.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

Major repairing cost

	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.35	0.65	0.00	0.00	0.00
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	0.10
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 300.9
Financial Cost ('000\$) 107 Economic Cost (T\$) 73.4

Annual O&M cost

	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.15	0.15	0.60	0.10	1.00
L/C	0.15	0.15	0.60	0.10	1.00
Conversion Factor	0.488 Economic Cost (MR)			34.0	
Financial Cost ('000\$)	17 Economic Cost (T\$)			8.3	

Total Riel (mil.) 5,949
US\$('000) 1,487

Target Area (ha) 16,700

Riel('000)/ha 356
US\$('000)/ha 0.09

FWUC 29
Agri 7.53

Year	Invest	FWUC	Agri	Total	Build-up
1	215.7	34.1	249.8		
2	2,223.8	34.1	8.9	2,266.7	
3		34.0	8.9	42.8	0.8
4			8.8	8.8	0.9
5					1.0
6					
7					
8					

Table G2-6 Conversion of Financial Cost to Economic Cost (21/22)

**Boribo River Basin
Toul Champey Rehabilitation Project**

(Unit : Riels, Million)

Description	Financial Cost										Economic Cost																					
	Total					F/C					L/C					Total					Construction Conversion Factor											
	USD Equivalent		Material			Equipment			Labor			F Consul			Conversion Factor		Material			Equipment			Labor			Total		Financial		Economic		
	Riel	Million													/A	/B	/A	/B	Common	Skilled	Common	Skilled	Common	Skilled	Common	Skilled	Financial	Economic	Factors			
1. Preparatory Works	135		17	32	0	95	6	6	6	8	8	20	41	0.81	0.73	1.00	0.86	0.78	0.30	0.61	2.5	12.4	24.8	135.2	62.5	0.46						
2. Direct Cost	1,783		437	811	0	1,248	80	80	107	268	535	593.3	593.3	353.9	593.3	0.0	946.2	69	63	32	163	327	1,783.4	1,273.3	0.71							
1. Weir & major intake structures	0		0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
2. Canals & related structures	347		349	647	0	996	64	64	85	213	427	472.5	472.5	282.3	472.5	0.0	754.8	55.1	49.9	25.8	130.2	261.0	1,422.7	1,015.8	0.71							
3. Dykes	55		55	103	0	158	10	10	14	34	68	74.9	74.9	44.8	74.9	0.0	119.7	8.7	7.9	4.1	20.6	41.3	225.5	161.0	0.71							
4. Miscellaneous works	135		33	61	0	95	6	6	8	20	41	26.8	26.8	26.8	44.9	0.0	71.7	5.2	4.7	2.5	12.4	24.8	135.2	96.5	0.71							
3. Contractor's Expenses	1,716		421	781	0	1,202	77	77	103	257	515	54.7	54.7	36.3	54.7	0.0	91.0	7.5	6.2	1.2	12.6	27.5	1,716.4	118.5	0.07							
4. Administration Cost	676		166	307	0	473	30	30	41	101	203	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	675.8	0.0	0.00							
5. Consulting Services	676		0	0	473	473	0	0	0	203	203	0.0	0.0	0.0	0.0	0.0	473.0	0.0	0.0	0.0	123.7	123.7	675.8	596.7	0.88							
Total	1,477		2,744	473	4,739	274	274	366	1,117	2,031	2,031	758.2	1,262.9	473.0	473.0	2,494.1	150.7	135.9	68.5	475.1	830.2	4,986.5	2,051.0	0.41								
6. Physical Contingencies	148		274	47	474	27	27	37	112	203	203	75.8	126.3	47.3	249.4	15.1	13.6	6.9	47.5	85.0	677.0	332.4	0.49									
GRAND TOTAL	1,625		3,018	520	5,213	302	302	402	1,229	2,234	2,234	894.0	1,389.2	520.3	2,743.5	165.8	149.5	75.4	522.6	913.2	5,663.5	2,383.4	0.42									

Equipment and Materials

	Financial	Conversion Factor	Economic
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
Factor for Materials	0.86		0.78
Factor for Equipment	0.78		

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/B ; Excluding the following transfer payment

import tariff	7.0 %
Company tax	1.4 %
Minimum tax	1.0 %
VAT	10.0 %

Major repairing cost

	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.35	0.65	0.00	0.00	0.70
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	0.30
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 275.6
Financial Cost ('000\$) 98 Economic Cost ('B) 67.2

Annual O&M cost

	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.15	0.15	0.60	0.10	1.00
L/C	0.15	0.15	0.60	0.10	1.00
Conversion Factor	0.488 Economic Cost (MR)				34.0
Financial Cost ('000\$)	17 Economic Cost ('B)				8.3

Total Riel (mil.) 5,663
US\$('000) 1,416

Target Area

Riel('000)/ha 16,700
US\$('000)/ha 339
143
0.08 0.04
FWUC 28
Agri 7.53
3 years
3 years

Year	Invest	FWUC	Agri	Total
1	198.9	32.9	8.9	231.8
2	2,184.5	32.9	8.9	2,226.3
3	32.8	32.8	8.9	41.7
4	9.0	9.0	9.0	0.9
5				1.0
6				
7				
8				

Table G2-6 Conversion of Financial Cost to Economic Cost (22/22)

**Boribo River Basin
Chan Keak Rehabilitation Project**

(Unit : Riels, Million)

Description	Financial Cost										Economic Cost																
	Total					F/C					L/C					F/C					L/C						
	USD Equivalent		Material Equipment			Labor		Total		Material Equipment		Labor		Total		Material Equipment		Labor		Total		Material Equipment		Labor		Total	
	Riel	Million																									
	000	Million																									
1. Preparatory Works	70	6.2	11.5	0.0	48.7	3.1	3.1	4.2	10.4	20.9	5.0	8.4	0.0	13.4	2.7	2.4	1.3	6.4	12.8	69.6	26.2	0.38					
2. Direct Cost	918	225	418	0	643	41	41	55	138	275	182.2	305.0	0.0	487.2	36	32	17	84	168	918.3	655.5	0.71					
1. Weir & major intake structures	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
2. Canals & related structures	123	504	123.6	229.5	0.0	353.0	22.7	30.3	75.6	151.3	100.1	167.5	0.0	267.6	19.5	17.7	9.1	46.1	92.4	504.3	360.0	0.71					
3. Dykes	84	344	84.4	156.7	0.0	241.1	15.5	20.7	51.7	103.3	68.3	114.4	0.0	182.7	13.3	12.1	6.2	31.5	63.1	344.4	245.8	0.71					
4. Miscellaneous works	70	17.1	31.7	0.0	48.7	3.1	3.1	4.2	10.4	20.9	13.8	23.1	0.0	36.9	2.7	2.4	1.3	6.4	12.8	69.6	49.7	0.71					
3. Contractor's Expenses	884	216.5	402.1	0.0	618.7	39.8	39.8	53.0	132.6	265.2	18.7	28.2	0.0	46.9	3.9	3.2	0.6	6.5	14.2	883.8	61.1	0.07					
4. Administration Cost	348	85.3	158.3	0.0	243.6	15.7	15.7	20.9	52.2	104.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	348.0	0.0	0.00					
5. Consulting Services	348	0.0	0.0	243.6	243.6	0.0	0.0	0.0	104.4	104.4	0.0	0.0	243.6	243.6	0.0	0.0	0.0	63.7	63.7	348.0	307.3	0.88					
Total		757.9	1,407.6	243.6	2,440.2	141.2	141.2	188.3	575.1	1,045.8	388.1	646.6	243.6	1,278.3	77.6	70.0	35.1	244.6	427.3	2,567.7	1,050.1	0.41					
6. Physical Contingencies		75.8	140.8	24.4	244.0	14.1	14.1	18.8	57.5	104.6	38.8	64.7	24.4	127.8	7.8	7.0	3.5	24.5	42.7	348.6	170.5	0.49					
GRAND TOTAL		833.7	1,548.4	268.0	2,684.2	155.3	155.3	207.1	632.6	1,150.4	426.9	711.3	268.0	1,406.1	85.4	77.0	38.6	269.1	470.0	2,916.3	1,220.6	0.42					

Equipment and Materials

	Financial	Conversion Factor	Economic %
Overhead cost and miscellaneous	6.00	0.10	0.60
Company Tax /1	1.40	1.00	1.40
Minimum Tax /2	1.00	1.00	1.00
Profit	7.00	0.10	0.70
VAT	10.00	1.00	10.00
	25.4		13.7
Factor for Materials			0.86
Factor for Equipment			0.78

/1 ; 20% of the Profit
/2 ; 1% of Turnover

/A ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

/B ; Excluding the following transfer payment
Import tariff
Company tax
Minimum tax
VAT

Major repairing cost

	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.35	0.65	0.00	0.00	
F/C	0.25	0.45	0.00	0.00	0.70
Share	0.15	0.15	0.60	0.10	
L/C	0.05	0.05	0.18	0.03	0.30

Conversion Factor 0.686 Economic Cost (MR) 143.4
Financial Cost ('000\$) 51 Economic Cost (T\$) 35.0

Annual O&M cost

	Material	Equipment	Labor Common	Labor Skilled	Total
Share	0.15	0.15	0.60	0.10	1.00
L/C	0.15	0.15	0.60	0.10	1.00
Conversion Factor	0.488 Economic Cost (MR)				16.0
Financial Cost ('000\$)	8 Economic Cost (T\$)				3.9

Total Riel (mil.) 2,916
US\$('000) 729

Target Area (ha) 16,700
Riel('000)/ha 175
US\$('000)/ha 0.04

FWUC 14
Agri 6.23

Year	Invest	FWUC	Agri	Total	Build-up
1	102.4	16.5		118.9	
2	1,118.2	16.5	7.3	1,141.9	
3		16.5	7.3	23.8	0.8
4			7.3	7.3	0.9
5					1.0
6					
7					
8					

Table G2-7 Economic Cost and Benefit Stream (1/22)

Battambang River Basin : Kong Hort Rehabilitation Project Phase I

EIRR : 8.7%		Net Present Value (Riel Million) (8.00 % discount rate)				Benefit	Cost	B/C Ratio
						97,520	91,673	1.06
Year in Order	Year	Initial Investment	Economic Cost	Total	Economic Benefit	Total	Net Cash Flow	(Unit: Riel Million)
1	2010	4,898.6		4,898.6		0.0	-4,898.6	
2	2011	31,551.8		31,551.8		0.0	-31,551.8	
3	2012	31,633.4		31,633.4		0.0	-31,633.4	
4	2013	14,037.8	131.6	14,169.4	6,433.3	6,433.3	-7,736.1	
5	2014	14,037.8	263.1	14,301.0	7,505.5	7,505.5	-6,795.4	
6	2015	841.1	657.8	1,499.0	9,650.0	9,650.0	8,151.0	
7	2016	81.7	877.1	958.8	10,722.2	10,722.2	9,763.4	
8	2017		1,096.4	1,096.4	10,722.2	10,722.2	9,625.8	
9	2018		1,096.4	1,096.4	10,722.2	10,722.2	9,625.8	
10	2019		1,096.4	1,096.4	10,722.2	10,722.2	9,625.8	
11	2020		1,096.4	1,096.4	10,722.2	10,722.2	9,625.8	
12	2021		1,096.4	1,096.4	10,722.2	10,722.2	9,625.8	
13	2022		1,096.4	1,096.4	10,722.2	10,722.2	9,625.8	
14	2023		1,096.4	1,096.4	10,722.2	10,722.2	9,625.8	
15	2024		1,096.4	11,126.1	10,722.2	10,722.2	-403.9	
16	2025		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
17	2026		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
18	2027		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
19	2028		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
20	2029		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
21	2030		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
22	2031		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
23	2032		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
24	2033		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
25	2034		1,096.4	11,126.1	10,722.2	10,722.2	-403.9	
26	2035		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
27	2036		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
28	2037		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
29	2038		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
30	2039		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
31	2040		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
32	2041		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
33	2042		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
34	2043		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
35	2044		1,096.4	11,126.1	10,722.2	10,722.2	-403.9	
36	2045		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
37	2046		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
38	2047		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
39	2048		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
40	2049		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
41	2050		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
42	2051		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
43	2052		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
44	2053		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
45	2054		1,096.4	11,126.1	10,722.2	10,722.2	-403.9	
46	2055		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
47	2056		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
48	2057		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
49	2058		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	
50	2059		1,096.4	10,964.0	10,722.2	10,722.2	9,625.8	

Table G2-7 Economic Cost and Benefit Stream (2/22)

Battambang River Basin : Kong Hort Rehabilitation Project Phase II

EIRR : 3.3%		Net Present Value (Riel Million) (8.00 % discount rate)				Benefit	Cost	B/C Ratio
						21,901	35,373	0.62
Year in Order	Year	Initial Investment	Economic Cost	Total	Economic Benefit	Total	Net Cash Flow	(Unit: Riel Million)
1	2010	3,121.2		3,121.2		0.0	-3,121.2	
2	2011	29,226.5		29,226.5		0.0	-29,226.5	
3	2012	349.5	110.6	460.1	1,714.7	1,714.7	1,254.6	
4	2013	349.5	221.1	570.6	1,929.1	1,929.1	1,358.4	
5	2014	27.7	331.7	359.3	2,143.4	2,143.4	1,784.1	
6	2015		442.2	442.2	2,143.4	2,143.4	1,701.2	
7	2016		442.2	442.2	2,143.4	2,143.4	1,701.2	
8	2017		442.2	442.2	2,143.4	2,143.4	1,701.2	
9	2018		442.2	442.2	2,143.4	2,143.4	1,701.2	
10	2019		442.2	442.2	2,143.4	2,143.4	1,701.2	
11	2020		442.2	442.2	2,143.4	2,143.4	1,701.2	
12	2021		442.2	4,343.3	2,143.4	2,143.4	-2,199.9	
13	2022		442.2	442.2	2,143.4	2,143.4	1,701.2	
14	2023		442.2	442.2	2,143.4	2,143.4	1,701.2	
15	2024		442.2	442.2	2,143.4	2,143.4	1,701.2	
16	2025		442.2	442.2	2,143.4	2,143.4	1,701.2	
17	2026		442.2	442.2	2,143.4	2,143.4	1,701.2	
18	2027		442.2	442.2	2,143.4	2,143.4	1,701.2	
19	2028		442.2	442.2	2,143.4	2,143.4	1,701.2	
20	2029		442.2	442.2	2,143.4	2,143.4	1,701.2	
21	2030		442.2	442.2	2,143.4	2,143.4	1,701.2	
22	2031		442.2	4,343.3	2,143.4	2,143.4	-2,199.9	
23	2032		442.2	442.2	2,143.4	2,143.4	1,701.2	
24	2033		442.2	442.2	2,143.4	2,143.4	1,701.2	
25	2034		442.2	442.2	2,143.4	2,143.4	1,701.2	
26	2035		442.2	442.2	2,143.4	2,143.4	1,701.2	
27	2036		442.2	442.2	2,143.4	2,143.4	1,701.2	
28	2037		442.2	442.2	2,143.4	2,143.4	1,701.2	
29	2038		442.2	442.2	2,143.4	2,143.4	1,701.2	
30	2039		442.2	442.2	2,143.4	2,143.4	1,701.2	
31	2040		442.2	442.2	2,143.4	2,143.4	1,701.2	
32	2041		442.2	4,343.3	2,143.4	2,143.4	-2,199.9	
33	2042		442.2	442.2	2,143.4	2,143.4	1,701.2	
34	2043		442.2	442.2	2,143.4	2,143.4	1,701.2	
35	2044		442.2	442.2	2,143.4	2,143.4	1,701.2	
36	2045		442.2	442.2	2,143.4	2,143.4	1,701.2	
37	2046		442.2	442.2	2,143.4	2,143.4	1,701.2	
38	2047		442.2	442.2	2,143.4	2,143.4	1,701.2	
39	2048		442.2	442.2	2,143.4	2,143.4	1,701.2	
40	2049		442.2	442.2	2,143.4	2,143.4	1,701.2	
41	2050		442.2	442.2	2,143.4	2,143.4	1,701.2	
42	2051		442.2	4,343.3	2,143.4	2,143.4	-2,199.9	
43	2052		442.2	442.2	2,143.4	2,143.4	1,701.2	
44	2053		442.2	442.2	2,143.4	2,143.4	1,701.2	
45	2054		442.2	442.2	2,143.4	2,143.4	1,701.2	
46	2055		442.2	442.2	2,143.4	2,143.4	1,701.2	
47	2056		442.2	442.2	2,143.4	2,143.4	1,701.2	
48	2057		442.2	442.2	2,143.4	2,143.4	1,701.2	
49	2058		442.2	442.2	2,143.4	2,143.4	1,701.2	
50	2059		442.2	442.2	2,143.4	2,143.4	1,701.2	

Table G2-7 Economic Cost and Benefit Stream (3/22)

Battambang River Basin :		Sala Taon Weir Rehabilitation Project		EIRR : 2.7%		Net Present Value (Riel Million)		Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)		99,184		186,699		0.53					
Year in Order	Year	Economic Cost			Economic Benefit			Net Cash Flow					
		Initial Investment	Annual O&M	Major Repairing	Total	Irrigation	Production Foregone	Total	Net Cash Flow				
1	2010	10,485.9			10,485.9			0.0	-10,485.9				
2	2011	67,498.2			67,498.2			0.0	-67,498.2				
3	2012	67,581.9			67,581.9			0.0	-67,581.9				
4	2013	29,912.9	255.1		30,168.0	7,516.6		7,516.6	-22,651.4				
5	2014	29,913.0	510.3		30,423.3	8,590.4		8,590.4	-21,832.9				
6	2015	1,661.3	765.4		2,426.7	9,664.2		9,664.2	7,237.5				
7	2016	83.7	1,275.7		1,359.4	10,738.0		10,738.0	9,378.6				
8	2017		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
9	2018		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
10	2019		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
11	2020		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
12	2021		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
13	2022		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
14	2023		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
15	2024		1,594.6	16,180.9	17,775.5	10,738.0		10,738.0	-7,037.5				
16	2025		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
17	2026		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
18	2027		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
19	2028		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
20	2029		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
21	2030		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
22	2031		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
23	2032		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
24	2033		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
25	2034		1,594.6	16,180.9	17,775.5	10,738.0		10,738.0	-7,037.5				
26	2035		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
27	2036		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
28	2037		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
29	2038		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
30	2039		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
31	2040		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
32	2041		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
33	2042		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
34	2043		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
35	2044		1,594.6	16,180.9	17,775.5	10,738.0		10,738.0	-7,037.5				
36	2045		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
37	2046		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
38	2047		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
39	2048		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
40	2049		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
41	2050		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
42	2051		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
43	2052		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
44	2053		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
45	2054		1,594.6	16,180.9	17,775.5	10,738.0		10,738.0	-7,037.5				
46	2055		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
47	2056		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
48	2057		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
49	2058		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				
50	2059		1,594.6		1,594.6	10,738.0		10,738.0	9,143.4				

Table G2-7 Economic Cost and Benefit Stream (4/22)

Battambang River Basin :		Sala Taon Weir Rehabilitation Project (Pump Station Plan)		EIRR : 3.3%		Net Present Value (Riel Million)		Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)		77,162		135,427		0.57					
Year in Order	Year	Economic Cost			Economic Benefit			Net Cash Flow					
		Initial Investment	Annual O&M	Major Repairing	Total	Irrigation	Production Foregone	Total	Net Cash Flow				
1	2010	7,552.8			7,552.8			0.0	-7,552.8				
2	2011	48,644.9			48,644.9			0.0	-48,644.9				
3	2012	48,728.5			48,728.5			0.0	-48,728.5				
4	2013	21,832.9	211.0		22,043.8	5,125.8		5,125.8	-16,918.0				
5	2014	21,833.0	421.9		22,254.9	5,980.1		5,980.1	-16,274.8				
6	2015	1,661.3	632.9		2,294.1	6,834.4		6,834.4	4,540.3				
7	2016	83.7	1,054.8		1,138.5	8,543.0		8,543.0	7,404.5				
8	2017		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
9	2018		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
10	2019		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
11	2020		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
12	2021		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
13	2022		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
14	2023		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
15	2024		1,318.5	12,848.0	14,166.5	8,543.0		8,543.0	-5,623.5				
16	2025		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
17	2026		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
18	2027		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
19	2028		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
20	2029		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
21	2030		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
22	2031		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
23	2032		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
24	2033		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
25	2034		1,318.5	12,848.0	14,166.5	8,543.0		8,543.0	-5,623.5				
26	2035		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
27	2036		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
28	2037		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
29	2038		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
30	2039		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
31	2040		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
32	2041		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
33	2042		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
34	2043		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
35	2044		1,318.5	12,848.0	14,166.5	8,543.0		8,543.0	-5,623.5				
36	2045		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
37	2046		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
38	2047		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
39	2048		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
40	2049		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
41	2050		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
42	2051		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
43	2052		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
44	2053		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
45	2054		1,318.5	12,848.0	14,166.5	8,543.0		8,543.0	-5,623.5				
46	2055		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
47	2056		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
48	2057		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
49	2058		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				
50	2059		1,318.5		1,318.5	8,543.0		8,543.0	7,224.5				

Table G2-7 Economic Cost and Benefit Stream (5/22)

Battambang River Basin : Ratanak-Battambang Weir Rehabilitation Project

EIRR : 4.9%		Net Present Value (Riel Million)		Benefit	Cost	B/C Ratio		
		(8.00 % discount rate)		6,517	8,720	0.75		
Year in Order	Year	Economic Cost			Economic Benefit		Net Cash Flow	
		Initial Investment	Annual O&M	Major Repairing	Total	Irrigation		Production Foregone
1	2010	815.2			815.2			-815.2
2	2011	7,046.9			7,046.9	306.1	306.1	-6,740.9
3	2012	148.3	34.2		182.5	489.7	489.7	307.2
4	2013	11.9	68.4		80.3	550.9	550.9	470.6
5	2014		114.0		114.0	612.1	612.1	498.1
6	2015		114.0		114.0	612.1	612.1	498.1
7	2016		114.0		114.0	612.1	612.1	498.1
8	2017		114.0		114.0	612.1	612.1	498.1
9	2018		114.0		114.0	612.1	612.1	498.1
10	2019		114.0		114.0	612.1	612.1	498.1
11	2020		114.0		114.0	612.1	612.1	498.1
12	2021		114.0	995.7	1,109.7	612.1	612.1	-497.6
13	2022		114.0		114.0	612.1	612.1	498.1
14	2023		114.0		114.0	612.1	612.1	498.1
15	2024		114.0		114.0	612.1	612.1	498.1
16	2025		114.0		114.0	612.1	612.1	498.1
17	2026		114.0		114.0	612.1	612.1	498.1
18	2027		114.0		114.0	612.1	612.1	498.1
19	2028		114.0		114.0	612.1	612.1	498.1
20	2029		114.0		114.0	612.1	612.1	498.1
21	2030		114.0		114.0	612.1	612.1	498.1
22	2031		114.0	995.7	1,109.7	612.1	612.1	-497.6
23	2032		114.0		114.0	612.1	612.1	498.1
24	2033		114.0		114.0	612.1	612.1	498.1
25	2034		114.0		114.0	612.1	612.1	498.1
26	2035		114.0		114.0	612.1	612.1	498.1
27	2036		114.0		114.0	612.1	612.1	498.1
28	2037		114.0		114.0	612.1	612.1	498.1
29	2038		114.0		114.0	612.1	612.1	498.1
30	2039		114.0		114.0	612.1	612.1	498.1
31	2040		114.0		114.0	612.1	612.1	498.1
32	2041		114.0	995.7	1,109.7	612.1	612.1	-497.6
33	2042		114.0		114.0	612.1	612.1	498.1
34	2043		114.0		114.0	612.1	612.1	498.1
35	2044		114.0		114.0	612.1	612.1	498.1
36	2045		114.0		114.0	612.1	612.1	498.1
37	2046		114.0		114.0	612.1	612.1	498.1
38	2047		114.0		114.0	612.1	612.1	498.1
39	2048		114.0		114.0	612.1	612.1	498.1
40	2049		114.0		114.0	612.1	612.1	498.1
41	2050		114.0		114.0	612.1	612.1	498.1
42	2051		114.0	995.7	1,109.7	612.1	612.1	-497.6
43	2052		114.0		114.0	612.1	612.1	498.1
44	2053		114.0		114.0	612.1	612.1	498.1
45	2054		114.0		114.0	612.1	612.1	498.1
46	2055		114.0		114.0	612.1	612.1	498.1
47	2056		114.0		114.0	612.1	612.1	498.1
48	2057		114.0		114.0	612.1	612.1	498.1
49	2058		114.0		114.0	612.1	612.1	498.1
50	2059		114.0		114.0	612.1	612.1	498.1

Table G2-7 Economic Cost and Benefit Stream (6/22)

Moung Ruessai River Basin : Bassac Reservoir Rehabilitation Project

EIRR : 11.0%		Net Present Value (Riel Million)		Benefit	Cost	B/C Ratio		
		(8.00 % discount rate)		35,007	26,911	1.30		
Year in Order	Year	Economic Cost			Economic Benefit		Net Cash Flow	
		Initial Investment	Annual O&M	Major Repairing	Total	Irrigation		Production Foregone
1	2010	2,226.5			2,226.5			-2,226.5
2	2011	11,902.3			11,902.3			-11,902.3
3	2012	11,952.1			11,952.1			-11,952.1
4	2013	400.1	98.4		498.6	2,966.2	2,966.2	2,467.7
5	2014	49.8	196.9		246.7	3,337.0	3,337.0	3,090.4
6	2015		328.1		328.1	3,707.8	3,707.8	3,379.7
7	2016		328.1		328.1	3,707.8	3,707.8	3,379.7
8	2017		328.1		328.1	3,707.8	3,707.8	3,379.7
9	2018		328.1		328.1	3,707.8	3,707.8	3,379.7
10	2019		328.1		328.1	3,707.8	3,707.8	3,379.7
11	2020		328.1		328.1	3,707.8	3,707.8	3,379.7
12	2021		328.1		328.1	3,707.8	3,707.8	3,379.7
13	2022		328.1	2,936.4	3,264.5	3,707.8	3,707.8	443.3
14	2023		328.1		328.1	3,707.8	3,707.8	3,379.7
15	2024		328.1		328.1	3,707.8	3,707.8	3,379.7
16	2025		328.1		328.1	3,707.8	3,707.8	3,379.7
17	2026		328.1		328.1	3,707.8	3,707.8	3,379.7
18	2027		328.1		328.1	3,707.8	3,707.8	3,379.7
19	2028		328.1		328.1	3,707.8	3,707.8	3,379.7
20	2029		328.1		328.1	3,707.8	3,707.8	3,379.7
21	2030		328.1		328.1	3,707.8	3,707.8	3,379.7
22	2031		328.1		328.1	3,707.8	3,707.8	3,379.7
23	2032		328.1	2,936.4	3,264.5	3,707.8	3,707.8	443.3
24	2033		328.1		328.1	3,707.8	3,707.8	3,379.7
25	2034		328.1		328.1	3,707.8	3,707.8	3,379.7
26	2035		328.1		328.1	3,707.8	3,707.8	3,379.7
27	2036		328.1		328.1	3,707.8	3,707.8	3,379.7
28	2037		328.1		328.1	3,707.8	3,707.8	3,379.7
29	2038		328.1		328.1	3,707.8	3,707.8	3,379.7
30	2039		328.1		328.1	3,707.8	3,707.8	3,379.7
31	2040		328.1		328.1	3,707.8	3,707.8	3,379.7
32	2041		328.1		328.1	3,707.8	3,707.8	3,379.7
33	2042		328.1	2,936.4	3,264.5	3,707.8	3,707.8	443.3
34	2043		328.1		328.1	3,707.8	3,707.8	3,379.7
35	2044		328.1		328.1	3,707.8	3,707.8	3,379.7
36	2045		328.1		328.1	3,707.8	3,707.8	3,379.7
37	2046		328.1		328.1	3,707.8	3,707.8	3,379.7
38	2047		328.1		328.1	3,707.8	3,707.8	3,379.7
39	2048		328.1		328.1	3,707.8	3,707.8	3,379.7
40	2049		328.1		328.1	3,707.8	3,707.8	3,379.7
41	2050		328.1		328.1	3,707.8	3,707.8	3,379.7
42	2051		328.1		328.1	3,707.8	3,707.8	3,379.7
43	2052		328.1	2,936.4	3,264.5	3,707.8	3,707.8	443.3
44	2053		328.1		328.1	3,707.8	3,707.8	3,379.7
45	2054		328.1		328.1	3,707.8	3,707.8	3,379.7
46	2055		328.1		328.1	3,707.8	3,707.8	3,379.7
47	2056		328.1		328.1	3,707.8	3,707.8	3,379.7
48	2057		328.1		328.1	3,707.8	3,707.8	3,379.7
49	2058		328.1		328.1	3,707.8	3,707.8	3,379.7
50	2059		328.1		328.1	3,707.8	3,707.8	3,379.7

Table G2-7 Economic Cost and Benefit Stream (7/22)

Moung Ruessei River Basin : Ream Kon Rehabilitation Project

EIRR : 10.5%		Net Present Value (Riel Million)		Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)		24,776		19,959		1.24	
Year in Order	Year	Economic Cost			Economic Benefit			Net Cash Flow	
		Initial Investment	Annual O&M	Major Repairing	Total	Irrigation	Production Foregone	Total	(Unit: Riel Million)
1	2010	1,853.4			1,853.4			0.0	-1,853.4
2	2011	16,915.8			16,915.8			0.0	-16,915.8
3	2012	280.6	65.4		346.0	1,939.8	1,939.8	1,939.8	1,593.8
4	2013	30.2	130.9		161.1	2,182.3	2,182.3	2,182.3	2,021.2
5	2014		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
6	2015		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
7	2016		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
8	2017		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
9	2018		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
10	2019		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
11	2020		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
12	2021		218.1	1,985.7	2,203.8	2,424.8	2,424.8	2,424.8	2,210.0
13	2022		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
14	2023		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
15	2024		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
16	2025		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
17	2026		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
18	2027		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
19	2028		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
20	2029		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
21	2030		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
22	2031		218.1	1,985.7	2,203.8	2,424.8	2,424.8	2,424.8	2,210.0
23	2032		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
24	2033		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
25	2034		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
26	2035		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
27	2036		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
28	2037		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
29	2038		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
30	2039		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
31	2040		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
32	2041		218.1	1,985.7	2,203.8	2,424.8	2,424.8	2,424.8	2,210.0
33	2042		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
34	2043		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
35	2044		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
36	2045		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
37	2046		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
38	2047		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
39	2048		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
40	2049		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
41	2050		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
42	2051		218.1	1,985.7	2,203.8	2,424.8	2,424.8	2,424.8	2,210.0
43	2052		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
44	2053		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
45	2054		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
46	2055		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
47	2056		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
48	2057		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
49	2058		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7
50	2059		218.1		218.1	2,424.8	2,424.8	2,424.8	2,206.7

Table G2-7 Economic Cost and Benefit Stream (8/22)

Moung Ruessei River Basin : Por Canal Rehabilitation Project

EIRR : 12.4%		Net Present Value (Riel Million)		Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)		12,945		9,132		1.42	
Year in Order	Year	Economic Cost			Economic Benefit			Net Cash Flow	
		Initial Investment	Annual O&M	Major Repairing	Total	Irrigation	Production Foregone	Total	(Unit: Riel Million)
1	2010	831.9			831.9			0.0	-831.9
2	2011	7,580.1			7,580.1			0.0	-7,580.1
3	2012	130.5	33.0		163.5	1,013.5	1,013.5	1,013.5	850.0
4	2013	16.5	66.0		82.5	1,140.2	1,140.2	1,140.2	1,057.7
5	2014		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
6	2015		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
7	2016		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
8	2017		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
9	2018		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
10	2019		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
11	2020		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
12	2021		110.0	978.8	1,088.8	1,266.9	1,266.9	1,266.9	178.1
13	2022		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
14	2023		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
15	2024		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
16	2025		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
17	2026		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
18	2027		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
19	2028		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
20	2029		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
21	2030		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
22	2031		110.0	978.8	1,088.8	1,266.9	1,266.9	1,266.9	178.1
23	2032		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
24	2033		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
25	2034		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
26	2035		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
27	2036		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
28	2037		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
29	2038		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
30	2039		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
31	2040		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
32	2041		110.0	978.8	1,088.8	1,266.9	1,266.9	1,266.9	178.1
33	2042		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
34	2043		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
35	2044		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
36	2045		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
37	2046		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
38	2047		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
39	2048		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
40	2049		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
41	2050		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
42	2051		110.0	978.8	1,088.8	1,266.9	1,266.9	1,266.9	178.1
43	2052		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
44	2053		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
45	2054		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
46	2055		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
47	2056		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
48	2057		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
49	2058		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9
50	2059		110.0		110.0	1,266.9	1,266.9	1,266.9	1,156.9

Table G2-7 Economic Cost and Benefit Stream (9/22)

Moung Ruessei River Basin :		Nikom Le/Dai Ta Chan Rehabilitation Project		Net Present Value (Riel Million)		Benefit	Cost	B/C Ratio
EIRR : 7.6%		(8.00 % discount rate)				7,488	7,787	0.96
Year in Order	Year	Economic Cost			Economic Benefit		Total	Net Cash Flow
		Initial Investment	Annual O&M	Major Repairing	Irrigation	Production Foregone		
1	2010	742.4				0.0	0.0	-742.4
2	2011	6,790.4				0.0		-6,790.4
3	2012	110.7	21.6		586.2	586.2	586.2	453.9
4	2013	12.0	43.2		659.5	659.5	659.5	604.3
5	2014		72.0		732.8	732.8	732.8	660.8
6	2015		72.0		732.8	732.8	732.8	660.8
7	2016		72.0		732.8	732.8	732.8	660.8
8	2017		72.0		732.8	732.8	732.8	660.8
9	2018		72.0		732.8	732.8	732.8	660.8
10	2019		72.0		732.8	732.8	732.8	660.8
11	2020		72.0		732.8	732.8	732.8	660.8
12	2021		72.0	694.7	732.8	732.8	732.8	-33.9
13	2022		72.0		732.8	732.8	732.8	660.8
14	2023		72.0		732.8	732.8	732.8	660.8
15	2024		72.0		732.8	732.8	732.8	660.8
16	2025		72.0		732.8	732.8	732.8	660.8
17	2026		72.0		732.8	732.8	732.8	660.8
18	2027		72.0		732.8	732.8	732.8	660.8
19	2028		72.0		732.8	732.8	732.8	660.8
20	2029		72.0		732.8	732.8	732.8	660.8
21	2030		72.0		732.8	732.8	732.8	660.8
22	2031		72.0	694.7	732.8	732.8	732.8	-33.9
23	2032		72.0		732.8	732.8	732.8	660.8
24	2033		72.0		732.8	732.8	732.8	660.8
25	2034		72.0		732.8	732.8	732.8	660.8
26	2035		72.0		732.8	732.8	732.8	660.8
27	2036		72.0		732.8	732.8	732.8	660.8
28	2037		72.0		732.8	732.8	732.8	660.8
29	2038		72.0		732.8	732.8	732.8	660.8
30	2039		72.0		732.8	732.8	732.8	660.8
31	2040		72.0		732.8	732.8	732.8	660.8
32	2041		72.0	694.7	732.8	732.8	732.8	-33.9
33	2042		72.0		732.8	732.8	732.8	660.8
34	2043		72.0		732.8	732.8	732.8	660.8
35	2044		72.0		732.8	732.8	732.8	660.8
36	2045		72.0		732.8	732.8	732.8	660.8
37	2046		72.0		732.8	732.8	732.8	660.8
38	2047		72.0		732.8	732.8	732.8	660.8
39	2048		72.0		732.8	732.8	732.8	660.8
40	2049		72.0		732.8	732.8	732.8	660.8
41	2050		72.0		732.8	732.8	732.8	660.8
42	2051		72.0	694.7	732.8	732.8	732.8	-33.9
43	2052		72.0		732.8	732.8	732.8	660.8
44	2053		72.0		732.8	732.8	732.8	660.8
45	2054		72.0		732.8	732.8	732.8	660.8
46	2055		72.0		732.8	732.8	732.8	660.8
47	2056		72.0		732.8	732.8	732.8	660.8
48	2057		72.0		732.8	732.8	732.8	660.8
49	2058		72.0		732.8	732.8	732.8	660.8
50	2059		72.0		732.8	732.8	732.8	660.8

Table G2-7 Economic Cost and Benefit Stream (10/22)

Pursat River Basin :		Beoung Preah Ponley Rehabilitation Project		Net Present Value (Riel Million)		Benefit	Cost	B/C Ratio
EIRR : 11.9%		(8.00 % discount rate)				89,127	63,227	1.41
Year in Order	Year	Economic Cost			Economic Benefit		Total	Net Cash Flow
		Initial Investment	Annual O&M	Major Repairing	Irrigation	Production Foregone		
1	2010	3,392.0				0.0	0.0	-3,392.0
2	2011	15,760.7				0.0		-15,760.7
3	2012	15,828.3				0.0		-15,828.3
4	2013	15,828.3	175.2		3,125.7	3,125.7	3,125.7	-12,877.7
5	2014	15,828.3	292.0		5,209.6	5,209.6	5,209.6	-10,910.7
6	2015	600.0	584.0		7,293.4	7,293.4	7,293.4	6,109.3
7	2016	67.5	750.9		9,377.2	9,377.2	9,377.2	8,558.8
8	2017		834.3		10,419.1	10,419.1	10,419.1	9,584.8
9	2018		834.3		10,419.1	10,419.1	10,419.1	9,584.8
10	2019		834.3		10,419.1	10,419.1	10,419.1	9,584.8
11	2020		834.3		10,419.1	10,419.1	10,419.1	9,584.8
12	2021		834.3		10,419.1	10,419.1	10,419.1	9,584.8
13	2022		834.3		10,419.1	10,419.1	10,419.1	9,584.8
14	2023		834.3		10,419.1	10,419.1	10,419.1	9,584.8
15	2024		834.3	7,475.9	8,310.2	8,310.2	8,310.2	2,108.9
16	2025		834.3		10,419.1	10,419.1	10,419.1	9,584.8
17	2026		834.3		10,419.1	10,419.1	10,419.1	9,584.8
18	2027		834.3		10,419.1	10,419.1	10,419.1	9,584.8
19	2028		834.3		10,419.1	10,419.1	10,419.1	9,584.8
20	2029		834.3		10,419.1	10,419.1	10,419.1	9,584.8
21	2030		834.3		10,419.1	10,419.1	10,419.1	9,584.8
22	2031		834.3		10,419.1	10,419.1	10,419.1	9,584.8
23	2032		834.3		10,419.1	10,419.1	10,419.1	9,584.8
24	2033		834.3		10,419.1	10,419.1	10,419.1	9,584.8
25	2034		834.3		10,419.1	10,419.1	10,419.1	9,584.8
26	2035		834.3	7,475.9	8,310.2	8,310.2	8,310.2	2,108.9
27	2036		834.3		10,419.1	10,419.1	10,419.1	9,584.8
28	2037		834.3		10,419.1	10,419.1	10,419.1	9,584.8
29	2038		834.3		10,419.1	10,419.1	10,419.1	9,584.8
30	2039		834.3		10,419.1	10,419.1	10,419.1	9,584.8
31	2040		834.3		10,419.1	10,419.1	10,419.1	9,584.8
32	2041		834.3		10,419.1	10,419.1	10,419.1	9,584.8
33	2042		834.3		10,419.1	10,419.1	10,419.1	9,584.8
34	2043		834.3		10,419.1	10,419.1	10,419.1	9,584.8
35	2044		834.3	7,475.9	8,310.2	8,310.2	8,310.2	2,108.9
36	2045		834.3		10,419.1	10,419.1	10,419.1	9,584.8
37	2046		834.3		10,419.1	10,419.1	10,419.1	9,584.8
38	2047		834.3		10,419.1	10,419.1	10,419.1	9,584.8
39	2048		834.3		10,419.1	10,419.1	10,419.1	9,584.8
40	2049		834.3		10,419.1	10,419.1	10,419.1	9,584.8
41	2050		834.3		10,419.1	10,419.1	10,419.1	9,584.8
42	2051		834.3		10,419.1	10,419.1	10,419.1	9,584.8
43	2052		834.3		10,419.1	10,419.1	10,419.1	9,584.8
44	2053		834.3		10,419.1	10,419.1	10,419.1	9,584.8
45	2054		834.3	7,475.9	8,310.2	8,310.2	8,310.2	2,108.9
46	2055		834.3		10,419.1	10,419.1	10,419.1	9,584.8
47	2056		834.3		10,419.1	10,419.1	10,419.1	9,584.8
48	2057		834.3		10,419.1	10,419.1	10,419.1	9,584.8
49	2058		834.3		10,419.1	10,419.1	10,419.1	9,584.8
50	2059		834.3		10,419.1	10,419.1	10,419.1	9,584.8

Table G2-7 Economic Cost and Benefit Stream (11/22)

Pursat River Basin :				Damrak Ampil Extension Project			
EIRR : 11.1%				Net Present Value (Riel Million)			
				(8.00 % discount rate)			
				Benefit			
				Cost			
				B/C Ratio			
Year in Order	Year	Initial Investment	Economic Cost	Economic Benefit	Total	Net Cash Flow	
1	2010	3,081.4			3,081.4	-3,081	1.30
2	2011	14,322.1			14,322.1	-14,322	
3	2012	14,387.9			14,387.9	-14,388	
4	2013	14,478.3	90.3	4,911.5	4,911.5	-9,567	
5	2014	14,388.0	270.8	5,730.1	5,730.1	-8,929	
6	2015	551.0	451.4	7,367.3	7,367.3	6,365	
7	2016	65.7	601.8	8,185.9	8,185.9	7,518	
8	2017		752.3	8,185.9	8,185.9	7,434	
9	2018		752.3	8,185.9	8,185.9	7,434	
10	2019		752.3	8,185.9	8,185.9	7,434	
11	2020		752.3	8,185.9	8,185.9	7,434	
12	2021		752.3	8,185.9	8,185.9	7,434	
13	2022		752.3	8,185.9	8,185.9	7,434	
14	2023		752.3	8,185.9	8,185.9	7,434	
15	2024		752.3	8,185.9	8,185.9	7,434	
16	2025		752.3	8,185.9	8,185.9	7,434	
17	2026		752.3	8,185.9	8,185.9	7,434	
18	2027		752.3	8,185.9	8,185.9	7,434	
19	2028		752.3	8,185.9	8,185.9	7,434	
20	2029		752.3	8,185.9	8,185.9	7,434	
21	2030		752.3	8,185.9	8,185.9	7,434	
22	2031		752.3	8,185.9	8,185.9	7,434	
23	2032		752.3	8,185.9	8,185.9	7,434	
24	2033		752.3	8,185.9	8,185.9	7,434	
25	2034		752.3	8,185.9	8,185.9	7,434	
26	2035		752.3	8,185.9	8,185.9	7,434	
27	2036		752.3	8,185.9	8,185.9	7,434	
28	2037		752.3	8,185.9	8,185.9	7,434	
29	2038		752.3	8,185.9	8,185.9	7,434	
30	2039		752.3	8,185.9	8,185.9	7,434	
31	2040		752.3	8,185.9	8,185.9	7,434	
32	2041		752.3	8,185.9	8,185.9	7,434	
33	2042		752.3	8,185.9	8,185.9	7,434	
34	2043		752.3	8,185.9	8,185.9	7,434	
35	2044		752.3	8,185.9	8,185.9	7,434	
36	2045		752.3	8,185.9	8,185.9	7,434	
37	2046		752.3	8,185.9	8,185.9	7,434	
38	2047		752.3	8,185.9	8,185.9	7,434	
39	2048		752.3	8,185.9	8,185.9	7,434	
40	2049		752.3	8,185.9	8,185.9	7,434	
41	2050		752.3	8,185.9	8,185.9	7,434	
42	2051		752.3	8,185.9	8,185.9	7,434	
43	2052		752.3	8,185.9	8,185.9	7,434	
44	2053		752.3	8,185.9	8,185.9	7,434	
45	2054		752.3	8,185.9	8,185.9	7,434	
46	2055		752.3	8,185.9	8,185.9	7,434	
47	2056		752.3	8,185.9	8,185.9	7,434	
48	2057		752.3	8,185.9	8,185.9	7,434	
49	2058		752.3	8,185.9	8,185.9	7,434	
50	2059		752.3	8,185.9	8,185.9	7,434	

Table G2-7 Economic Cost and Benefit Stream (12/22)

Pursat River Basin :				Wat Loung Rehabilitation Project			
EIRR : 11.4%				Net Present Value (Riel Million)			
				(8.00 % discount rate)			
				Benefit			
				Cost			
				B/C Ratio			
Year in Order	Year	Initial Investment	Economic Cost	Economic Benefit	Total	Net Cash Flow	
1	2010	2,556.0			2,556.0	-2,556.0	1.37
2	2011	13,563.5			13,563.5	-13,563.5	
3	2012	13,603.8			13,603.8	-13,603.8	
4	2013	341.7	94.1	1,448.3	1,448.3	1,448.3	
5	2014	341.7	188.3	2,896.5	2,896.5	2,896.5	
6	2015	40.2	313.8	4,344.8	4,344.8	4,344.8	
7	2016		353.0	4,827.5	4,827.5	4,827.5	
8	2017		392.2	4,827.5	4,827.5	4,827.5	
9	2018		392.2	4,827.5	4,827.5	4,827.5	
10	2019		392.2	4,827.5	4,827.5	4,827.5	
11	2020		392.2	4,827.5	4,827.5	4,827.5	
12	2021		392.2	4,827.5	4,827.5	4,827.5	
13	2022		3,487.6	4,827.5	4,827.5	4,827.5	
14	2023		392.2	4,827.5	4,827.5	4,827.5	
15	2024		392.2	4,827.5	4,827.5	4,827.5	
16	2025		392.2	4,827.5	4,827.5	4,827.5	
17	2026		392.2	4,827.5	4,827.5	4,827.5	
18	2027		392.2	4,827.5	4,827.5	4,827.5	
19	2028		392.2	4,827.5	4,827.5	4,827.5	
20	2029		392.2	4,827.5	4,827.5	4,827.5	
21	2030		392.2	4,827.5	4,827.5	4,827.5	
22	2031		392.2	4,827.5	4,827.5	4,827.5	
23	2032		3,487.6	4,827.5	4,827.5	4,827.5	
24	2033		392.2	4,827.5	4,827.5	4,827.5	
25	2034		392.2	4,827.5	4,827.5	4,827.5	
26	2035		392.2	4,827.5	4,827.5	4,827.5	
27	2036		392.2	4,827.5	4,827.5	4,827.5	
28	2037		392.2	4,827.5	4,827.5	4,827.5	
29	2038		392.2	4,827.5	4,827.5	4,827.5	
30	2039		392.2	4,827.5	4,827.5	4,827.5	
31	2040		392.2	4,827.5	4,827.5	4,827.5	
32	2041		392.2	4,827.5	4,827.5	4,827.5	
33	2042		3,487.6	4,827.5	4,827.5	4,827.5	
34	2043		392.2	4,827.5	4,827.5	4,827.5	
35	2044		392.2	4,827.5	4,827.5	4,827.5	
36	2045		392.2	4,827.5	4,827.5	4,827.5	
37	2046		392.2	4,827.5	4,827.5	4,827.5	
38	2047		392.2	4,827.5	4,827.5	4,827.5	
39	2048		392.2	4,827.5	4,827.5	4,827.5	
40	2049		392.2	4,827.5	4,827.5	4,827.5	
41	2050		392.2	4,827.5	4,827.5	4,827.5	
42	2051		392.2	4,827.5	4,827.5	4,827.5	
43	2052		3,487.6	4,827.5	4,827.5	4,827.5	
44	2053		392.2	4,827.5	4,827.5	4,827.5	
45	2054		392.2	4,827.5	4,827.5	4,827.5	
46	2055		392.2	4,827.5	4,827.5	4,827.5	
47	2056		392.2	4,827.5	4,827.5	4,827.5	
48	2057		392.2	4,827.5	4,827.5	4,827.5	
49	2058		392.2	4,827.5	4,827.5	4,827.5	
50	2059		392.2	4,827.5	4,827.5	4,827.5	

Table G2-7 Economic Cost and Benefit Stream (13/22)

Pursat River Basin : Wat Chre Rehabilitation Project

EIRR : 9.4%		Net Present Value (Riel Million)		Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)		12,244		10,676		1.15	
Year in Order	Year	Initial Investment	Economic Cost	Total	Economic Benefit	Total	Net Cash Flow	(Unit: Riel Million)	
			Annual O&M	Major Repairing	Irrigation	Production Foregone			
1	2010	934.5			934.5	0.0	-934.5		
2	2011	9,338.0			9,338.0	0.0	-9,338.0		
3	2012	109.2	25.5		134.7	385.4	250.6		
4	2013	109.3	51.0		160.3	770.7	610.4		
5	2014	12.4	76.5		88.9	1,156.1	1,067.2		
6	2015		102.0		102.0	1,284.5	1,182.5		
7	2016		102.0		102.0	1,284.5	1,182.5		
8	2017		102.0		102.0	1,284.5	1,182.5		
9	2018		102.0		102.0	1,284.5	1,182.5		
10	2019		102.0		102.0	1,284.5	1,182.5		
11	2020		102.0		102.0	1,284.5	1,182.5		
12	2021		102.0	961.9	1,063.9	1,284.5	220.6		
13	2022		102.0		102.0	1,284.5	1,182.5		
14	2023		102.0		102.0	1,284.5	1,182.5		
15	2024		102.0		102.0	1,284.5	1,182.5		
16	2025		102.0		102.0	1,284.5	1,182.5		
17	2026		102.0		102.0	1,284.5	1,182.5		
18	2027		102.0		102.0	1,284.5	1,182.5		
19	2028		102.0		102.0	1,284.5	1,182.5		
20	2029		102.0		102.0	1,284.5	1,182.5		
21	2030		102.0		102.0	1,284.5	1,182.5		
22	2031		102.0	961.9	1,063.9	1,284.5	220.6		
23	2032		102.0		102.0	1,284.5	1,182.5		
24	2033		102.0		102.0	1,284.5	1,182.5		
25	2034		102.0		102.0	1,284.5	1,182.5		
26	2035		102.0		102.0	1,284.5	1,182.5		
27	2036		102.0		102.0	1,284.5	1,182.5		
28	2037		102.0		102.0	1,284.5	1,182.5		
29	2038		102.0		102.0	1,284.5	1,182.5		
30	2039		102.0		102.0	1,284.5	1,182.5		
31	2040		102.0		102.0	1,284.5	1,182.5		
32	2041		102.0	961.9	1,063.9	1,284.5	220.6		
33	2042		102.0		102.0	1,284.5	1,182.5		
34	2043		102.0		102.0	1,284.5	1,182.5		
35	2044		102.0		102.0	1,284.5	1,182.5		
36	2045		102.0		102.0	1,284.5	1,182.5		
37	2046		102.0		102.0	1,284.5	1,182.5		
38	2047		102.0		102.0	1,284.5	1,182.5		
39	2048		102.0		102.0	1,284.5	1,182.5		
40	2049		102.0		102.0	1,284.5	1,182.5		
41	2050		102.0		102.0	1,284.5	1,182.5		
42	2051		102.0	961.9	1,063.9	1,284.5	220.6		
43	2052		102.0		102.0	1,284.5	1,182.5		
44	2053		102.0		102.0	1,284.5	1,182.5		
45	2054		102.0		102.0	1,284.5	1,182.5		
46	2055		102.0		102.0	1,284.5	1,182.5		
47	2056		102.0		102.0	1,284.5	1,182.5		
48	2057		102.0		102.0	1,284.5	1,182.5		
49	2058		102.0		102.0	1,284.5	1,182.5		
50	2059		102.0		102.0	1,284.5	1,182.5		

Table G2-7 Economic Cost and Benefit Stream (14/22)

Pursat River Basin : On Tapoung/Boueng Khmar Water Harvesting & Recession Rice Rehabilitation Project

EIRR : 8.5%		Net Present Value (Riel Million)		Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)		23,874		22,853		1.04	
Year in Order	Year	Initial Investment	Economic Cost	Total	Economic Benefit	Total	Net Cash Flow	(Unit: Riel Million)	
			Annual O&M	Major Repairing	Irrigation	Production Foregone			
1	2010	2,016.5			2,016.5	0.0	-2,016.5		
2	2011	18,903.6			18,903.6	0.0	-18,903.6		
3	2012	241.7	70.5		312.2	1,671.7	1,359.4		
4	2013	241.7	141.1		382.7	1,910.5	1,527.7		
5	2014	30.2	211.6		241.8	2,149.3	1,907.5		
6	2015		282.1		282.1	2,388.1	2,106.0		
7	2016		282.1		282.1	2,388.1	2,106.0		
8	2017		282.1		282.1	2,388.1	2,106.0		
9	2018		282.1		282.1	2,388.1	2,106.0		
10	2019		282.1		282.1	2,388.1	2,106.0		
11	2020		282.1		282.1	2,388.1	2,106.0		
12	2021		282.1	2,494.8	2,776.9	2,388.1	-388.8		
13	2022		282.1		282.1	2,388.1	2,106.0		
14	2023		282.1		282.1	2,388.1	2,106.0		
15	2024		282.1		282.1	2,388.1	2,106.0		
16	2025		282.1		282.1	2,388.1	2,106.0		
17	2026		282.1		282.1	2,388.1	2,106.0		
18	2027		282.1		282.1	2,388.1	2,106.0		
19	2028		282.1		282.1	2,388.1	2,106.0		
20	2029		282.1		282.1	2,388.1	2,106.0		
21	2030		282.1		282.1	2,388.1	2,106.0		
22	2031		282.1	2,494.8	2,776.9	2,388.1	-388.8		
23	2032		282.1		282.1	2,388.1	2,106.0		
24	2033		282.1		282.1	2,388.1	2,106.0		
25	2034		282.1		282.1	2,388.1	2,106.0		
26	2035		282.1		282.1	2,388.1	2,106.0		
27	2036		282.1		282.1	2,388.1	2,106.0		
28	2037		282.1		282.1	2,388.1	2,106.0		
29	2038		282.1		282.1	2,388.1	2,106.0		
30	2039		282.1		282.1	2,388.1	2,106.0		
31	2040		282.1		282.1	2,388.1	2,106.0		
32	2041		282.1	2,494.8	2,776.9	2,388.1	-388.8		
33	2042		282.1		282.1	2,388.1	2,106.0		
34	2043		282.1		282.1	2,388.1	2,106.0		
35	2044		282.1		282.1	2,388.1	2,106.0		
36	2045		282.1		282.1	2,388.1	2,106.0		
37	2046		282.1		282.1	2,388.1	2,106.0		
38	2047		282.1		282.1	2,388.1	2,106.0		
39	2048		282.1		282.1	2,388.1	2,106.0		
40	2049		282.1		282.1	2,388.1	2,106.0		
41	2050		282.1		282.1	2,388.1	2,106.0		
42	2051		282.1	2,494.8	2,776.9	2,388.1	-388.8		
43	2052		282.1		282.1	2,388.1	2,106.0		
44	2053		282.1		282.1	2,388.1	2,106.0		
45	2054		282.1		282.1	2,388.1	2,106.0		
46	2055		282.1		282.1	2,388.1	2,106.0		
47	2056		282.1		282.1	2,388.1	2,106.0		
48	2057		282.1		282.1	2,388.1	2,106.0		
49	2058		282.1		282.1	2,388.1	2,106.0		
50	2059		282.1		282.1	2,388.1	2,106.0		

Table G2-7 Economic Cost and Benefit Stream (15/22)

Borbo River Basin : Lum Hach Rehabilitation Project

EIRR : 7.1%		Net Present Value (Riel Million)				Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)								(Unit: Riel Million)	
Year in Order	Year	Initial Investment	Annual O&M	Major Repairing	Total	Irrigation	Economic Benefit Total	Total	Net Cash Flow		
1	2010	3,045.8			3,045.8			0.0	-3,045.8		0.91
2	2011	16,157.8			16,157.8			0.0	-16,157.8		
3	2012	16,196.8			16,196.8			0.0	-16,196.8		
4	2013	393.3	91.5		484.8	2,441.4		2,441.4	2,441.4		
5	2014	393.3	183.1		576.3	2,790.2		2,790.2	2,213.8		
6	2015	38.8	274.6		313.4	3,138.9		3,138.9	2,825.5		
7	2016		366.1		366.1	3,487.7		3,487.7	3,121.6		
8	2017		366.1		366.1	3,487.7		3,487.7	3,121.6		
9	2018		366.1		366.1	3,487.7		3,487.7	3,121.6		
10	2019		366.1		366.1	3,487.7		3,487.7	3,121.6		
11	2020		366.1		366.1	3,487.7		3,487.7	3,121.6		
12	2021		366.1		366.1	3,487.7		3,487.7	3,121.6		
13	2022		366.1	3,437.0	3,803.1	3,487.7		3,487.7	-315.4		
14	2023		366.1		366.1	3,487.7		3,487.7	3,121.6		
15	2024		366.1		366.1	3,487.7		3,487.7	3,121.6		
16	2025		366.1		366.1	3,487.7		3,487.7	3,121.6		
17	2026		366.1		366.1	3,487.7		3,487.7	3,121.6		
18	2027		366.1		366.1	3,487.7		3,487.7	3,121.6		
19	2028		366.1		366.1	3,487.7		3,487.7	3,121.6		
20	2029		366.1		366.1	3,487.7		3,487.7	3,121.6		
21	2030		366.1		366.1	3,487.7		3,487.7	3,121.6		
22	2031		366.1		366.1	3,487.7		3,487.7	3,121.6		
23	2032		366.1	3,437.0	3,803.1	3,487.7		3,487.7	-315.4		
24	2033		366.1		366.1	3,487.7		3,487.7	3,121.6		
25	2034		366.1		366.1	3,487.7		3,487.7	3,121.6		
26	2035		366.1		366.1	3,487.7		3,487.7	3,121.6		
27	2036		366.1		366.1	3,487.7		3,487.7	3,121.6		
28	2037		366.1		366.1	3,487.7		3,487.7	3,121.6		
29	2038		366.1		366.1	3,487.7		3,487.7	3,121.6		
30	2039		366.1		366.1	3,487.7		3,487.7	3,121.6		
31	2040		366.1		366.1	3,487.7		3,487.7	3,121.6		
32	2041		366.1		366.1	3,487.7		3,487.7	3,121.6		
33	2042		366.1	3,437.0	3,803.1	3,487.7		3,487.7	-315.4		
34	2043		366.1		366.1	3,487.7		3,487.7	3,121.6		
35	2044		366.1		366.1	3,487.7		3,487.7	3,121.6		
36	2045		366.1		366.1	3,487.7		3,487.7	3,121.6		
37	2046		366.1		366.1	3,487.7		3,487.7	3,121.6		
38	2047		366.1		366.1	3,487.7		3,487.7	3,121.6		
39	2048		366.1		366.1	3,487.7		3,487.7	3,121.6		
40	2049		366.1		366.1	3,487.7		3,487.7	3,121.6		
41	2050		366.1		366.1	3,487.7		3,487.7	3,121.6		
42	2051		366.1		366.1	3,487.7		3,487.7	3,121.6		
43	2052		366.1	3,437.0	3,803.1	3,487.7		3,487.7	-315.4		
44	2053		366.1		366.1	3,487.7		3,487.7	3,121.6		
45	2054		366.1		366.1	3,487.7		3,487.7	3,121.6		
46	2055		366.1		366.1	3,487.7		3,487.7	3,121.6		
47	2056		366.1		366.1	3,487.7		3,487.7	3,121.6		
48	2057		366.1		366.1	3,487.7		3,487.7	3,121.6		
49	2058		366.1		366.1	3,487.7		3,487.7	3,121.6		
50	2059		366.1		366.1	3,487.7		3,487.7	3,121.6		

Table G2-7 Economic Cost and Benefit Stream (16/22)

Borbo River Basin : 7th January Canal Rehabilitation Project

EIRR : 7.3%		Net Present Value (Riel Million)				Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)								(Unit: Riel Million)	
Year in Order	Year	Initial Investment	Annual O&M	Major Repairing	Total	Irrigation	Economic Benefit Production Foregone	Total	Net Cash Flow		
1	2010	1,783.6			1,783.6			0.0	-1,783.6		0.93
2	2011	17,809.1			17,809.1			0.0	-17,809.1		
3	2012	207.4	61.5		268.9	1,374.9		1,374.9	1,374.9		
4	2013	207.4	123.1		330.4	1,571.3		1,571.3	1,240.8		
5	2014	21.3	184.6		205.9	1,767.7		1,767.7	1,561.8		
6	2015		246.1		246.1	1,964.1		1,964.1	1,718.0		
7	2016		246.1		246.1	1,964.1		1,964.1	1,718.0		
8	2017		246.1		246.1	1,964.1		1,964.1	1,718.0		
9	2018		246.1		246.1	1,964.1		1,964.1	1,718.0		
10	2019		246.1		246.1	1,964.1		1,964.1	1,718.0		
11	2020		246.1		246.1	1,964.1		1,964.1	1,718.0		
12	2021		246.1	2,179.8	2,425.9	1,964.1		1,964.1	-461.8		
13	2022		246.1		246.1	1,964.1		1,964.1	1,718.0		
14	2023		246.1		246.1	1,964.1		1,964.1	1,718.0		
15	2024		246.1		246.1	1,964.1		1,964.1	1,718.0		
16	2025		246.1		246.1	1,964.1		1,964.1	1,718.0		
17	2026		246.1		246.1	1,964.1		1,964.1	1,718.0		
18	2027		246.1		246.1	1,964.1		1,964.1	1,718.0		
19	2028		246.1		246.1	1,964.1		1,964.1	1,718.0		
20	2029		246.1		246.1	1,964.1		1,964.1	1,718.0		
21	2030		246.1		246.1	1,964.1		1,964.1	1,718.0		
22	2031		246.1	2,179.8	2,425.9	1,964.1		1,964.1	-461.8		
23	2032		246.1		246.1	1,964.1		1,964.1	1,718.0		
24	2033		246.1		246.1	1,964.1		1,964.1	1,718.0		
25	2034		246.1		246.1	1,964.1		1,964.1	1,718.0		
26	2035		246.1		246.1	1,964.1		1,964.1	1,718.0		
27	2036		246.1		246.1	1,964.1		1,964.1	1,718.0		
28	2037		246.1		246.1	1,964.1		1,964.1	1,718.0		
29	2038		246.1		246.1	1,964.1		1,964.1	1,718.0		
30	2039		246.1		246.1	1,964.1		1,964.1	1,718.0		
31	2040		246.1		246.1	1,964.1		1,964.1	1,718.0		
32	2041		246.1	2,179.8	2,425.9	1,964.1		1,964.1	-461.8		
33	2042		246.1		246.1	1,964.1		1,964.1	1,718.0		
34	2043		246.1		246.1	1,964.1		1,964.1	1,718.0		
35	2044		246.1		246.1	1,964.1		1,964.1	1,718.0		
36	2045		246.1		246.1	1,964.1		1,964.1	1,718.0		
37	2046		246.1		246.1	1,964.1		1,964.1	1,718.0		
38	2047		246.1		246.1	1,964.1		1,964.1	1,718.0		
39	2048		246.1		246.1	1,964.1		1,964.1	1,718.0		
40	2049		246.1		246.1	1,964.1		1,964.1	1,718.0		
41	2050		246.1		246.1	1,964.1		1,964.1	1,718.0		
42	2051		246.1	2,179.8	2,425.9	1,964.1		1,964.1	-461.8		
43	2052		246.1		246.1	1,964.1		1,964.1	1,718.0		
44	2053		246.1		246.1	1,964.1		1,964.1	1,718.0		
45	2054		246.1		246.1	1,964.1		1,964.1	1,718.0		
46	2055		246.1		246.1	1,964.1		1,964.1	1,718.0		
47	2056		246.1		246.1	1,964.1		1,964.1	1,718.0		
48	2057		246.1		246.1	1,964.1		1,964.1	1,718.0		
49	2058		246.1		246.1	1,964.1		1,964.1	1,718.0		
50	2059		246.1		246.1	1,964.1		1,964.1	1,718.0		

Table G2-7 Economic Cost and Benefit Stream (1/22)

Boribo River Basin :		Kivet Rehabilitation Project				Net Present Value (Riel Million)		Benefit	Cost	B/C Ratio
EIRR : 7.8%		(8.00 % discount rate)						3,117	3,193	0.98
Year in Order	Year	Economic Cost			Economic Benefit		Total	Net Cash Flow		
		Initial Investment	Annual O&M	Major Repairing	Irrigation	Production Foregone				
1	2010	305.2			305.2	0.0	0.0	-305.2		
2	2011	2,800.7			2,800.7	0.0	244.1	-2,800.7		
3	2012	48.2	8.4		56.6		244.1	187.5		
4	2013	8.3	16.8		25.1		274.6	249.5		
5	2014		28.0		28.0		305.1	277.1		
6	2015		28.0		28.0		305.1	277.1		
7	2016		28.0		28.0		305.1	277.1		
8	2017		28.0		28.0		305.1	277.1		
9	2018		28.0		28.0		305.1	277.1		
10	2019		28.0		28.0		305.1	277.1		
11	2020		28.0		28.0		305.1	277.1		
12	2021		28.0	278.4	306.4		305.1	-1.3		
13	2022		28.0		28.0		305.1	277.1		
14	2023		28.0		28.0		305.1	277.1		
15	2024		28.0		28.0		305.1	277.1		
16	2025		28.0		28.0		305.1	277.1		
17	2026		28.0		28.0		305.1	277.1		
18	2027		28.0		28.0		305.1	277.1		
19	2028		28.0		28.0		305.1	277.1		
20	2029		28.0		28.0		305.1	277.1		
21	2030		28.0		28.0		305.1	277.1		
22	2031		28.0	278.4	306.4		305.1	-1.3		
23	2032		28.0		28.0		305.1	277.1		
24	2033		28.0		28.0		305.1	277.1		
25	2034		28.0		28.0		305.1	277.1		
26	2035		28.0		28.0		305.1	277.1		
27	2036		28.0		28.0		305.1	277.1		
28	2037		28.0		28.0		305.1	277.1		
29	2038		28.0		28.0		305.1	277.1		
30	2039		28.0		28.0		305.1	277.1		
31	2040		28.0		28.0		305.1	277.1		
32	2041		28.0	278.4	306.4		305.1	-1.3		
33	2042		28.0		28.0		305.1	277.1		
34	2043		28.0		28.0		305.1	277.1		
35	2044		28.0		28.0		305.1	277.1		
36	2045		28.0		28.0		305.1	277.1		
37	2046		28.0		28.0		305.1	277.1		
38	2047		28.0		28.0		305.1	277.1		
39	2048		28.0		28.0		305.1	277.1		
40	2049		28.0		28.0		305.1	277.1		
41	2050		28.0		28.0		305.1	277.1		
42	2051		28.0	278.4	306.4		305.1	-1.3		
43	2052		28.0		28.0		305.1	277.1		
44	2053		28.0		28.0		305.1	277.1		
45	2054		28.0		28.0		305.1	277.1		
46	2055		28.0		28.0		305.1	277.1		
47	2056		28.0		28.0		305.1	277.1		
48	2057		28.0		28.0		305.1	277.1		
49	2058		28.0		28.0		305.1	277.1		
50	2059		28.0		28.0		305.1	277.1		

Table G2-7 Economic Cost and Benefit Stream (18/22)

Boribo River Basin :		Ta Ram Rehabilitation Project				Net Present Value (Riel Million)		Benefit	Cost	B/C Ratio
EIRR : 4.1%		(8.00 % discount rate)						2,318	3,550	0.65
Year in Order	Year	Economic Cost			Economic Benefit		Total	Net Cash Flow		
		Initial Investment	Annual O&M	Major Repairing	Irrigation	Production Foregone				
1	2010	336.4			336.4	0.0	0.0	-336.4		
2	2011	3,079.0			3,079.0		182.4	-3,079.0		
3	2012	51.3	10.2		61.5		189.0	120.9		
4	2013	7.7	20.4		28.1		189.0	160.9		
5	2014		34.0		34.0		228.0	194.0		
6	2015		34.0		34.0		228.0	194.0		
7	2016		34.0		34.0		228.0	194.0		
8	2017		34.0		34.0		228.0	194.0		
9	2018		34.0		34.0		228.0	194.0		
10	2019		34.0		34.0		228.0	194.0		
11	2020		34.0		34.0		228.0	194.0		
12	2021		34.0	320.6	354.6		228.0	-126.6		
13	2022		34.0		34.0		228.0	194.0		
14	2023		34.0		34.0		228.0	194.0		
15	2024		34.0		34.0		228.0	194.0		
16	2025		34.0		34.0		228.0	194.0		
17	2026		34.0		34.0		228.0	194.0		
18	2027		34.0		34.0		228.0	194.0		
19	2028		34.0		34.0		228.0	194.0		
20	2029		34.0		34.0		228.0	194.0		
21	2030		34.0		34.0		228.0	194.0		
22	2031		34.0	320.6	354.6		228.0	-126.6		
23	2032		34.0		34.0		228.0	194.0		
24	2033		34.0		34.0		228.0	194.0		
25	2034		34.0		34.0		228.0	194.0		
26	2035		34.0		34.0		228.0	194.0		
27	2036		34.0		34.0		228.0	194.0		
28	2037		34.0		34.0		228.0	194.0		
29	2038		34.0		34.0		228.0	194.0		
30	2039		34.0		34.0		228.0	194.0		
31	2040		34.0		34.0		228.0	194.0		
32	2041		34.0	320.6	354.6		228.0	-126.6		
33	2042		34.0		34.0		228.0	194.0		
34	2043		34.0		34.0		228.0	194.0		
35	2044		34.0		34.0		228.0	194.0		
36	2045		34.0		34.0		228.0	194.0		
37	2046		34.0		34.0		228.0	194.0		
38	2047		34.0		34.0		228.0	194.0		
39	2048		34.0		34.0		228.0	194.0		
40	2049		34.0		34.0		228.0	194.0		
41	2050		34.0		34.0		228.0	194.0		
42	2051		34.0	320.6	354.6		228.0	-126.6		
43	2052		34.0		34.0		228.0	194.0		
44	2053		34.0		34.0		228.0	194.0		
45	2054		34.0		34.0		228.0	194.0		
46	2055		34.0		34.0		228.0	194.0		
47	2056		34.0		34.0		228.0	194.0		
48	2057		34.0		34.0		228.0	194.0		
49	2058		34.0		34.0		228.0	194.0		
50	2059		34.0		34.0		228.0	194.0		

Table G2-7 Economic Cost and Benefit Stream (19/22)

Boribo River Basin : Chak Teun, Trpean Khlong & Don Poy Rehabilitation Project

EIRR : 11.0%

		Net Present Value (Riel Million)		Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)		12,382		9,606		1.29	
								(Unit: Riel Million)	
Year in Order	Year	Economic Cost			Economic Benefit		Total	Net Cash Flow	
		Initial Investment	Annual O&M	Major Repairing	Irrigation	Production Foregone			
1	2010	852.4			852.4	0.0	-852.4		
2	2011	8,247.2			8,247.2	0.0	-8,247.2		
3	2012	130.0	30.6		160.6	969.4	808.9		
4	2013	14.9	61.2		76.1	1,090.6	1,014.5		
5	2014		102.0		102.0	1,211.8	1,109.8		
6	2015		102.0		102.0	1,211.8	1,109.8		
7	2016		102.0		102.0	1,211.8	1,109.8		
8	2017		102.0		102.0	1,211.8	1,109.8		
9	2018		102.0		102.0	1,211.8	1,109.8		
10	2019		102.0		102.0	1,211.8	1,109.8		
11	2020		102.0		102.0	1,211.8	1,109.8		
12	2021		102.0	925.3	1,027.3	1,211.8	184.5		
13	2022		102.0	102.0	1,211.8	1,211.8	1,109.8		
14	2023		102.0	102.0	1,211.8	1,211.8	1,109.8		
15	2024		102.0	102.0	1,211.8	1,211.8	1,109.8		
16	2025		102.0	102.0	1,211.8	1,211.8	1,109.8		
17	2026		102.0	102.0	1,211.8	1,211.8	1,109.8		
18	2027		102.0	102.0	1,211.8	1,211.8	1,109.8		
19	2028		102.0	102.0	1,211.8	1,211.8	1,109.8		
20	2029		102.0	102.0	1,211.8	1,211.8	1,109.8		
21	2030		102.0	102.0	1,211.8	1,211.8	1,109.8		
22	2031		102.0	925.3	1,027.3	1,211.8	184.5		
23	2032		102.0	102.0	1,211.8	1,211.8	1,109.8		
24	2033		102.0	102.0	1,211.8	1,211.8	1,109.8		
25	2034		102.0	102.0	1,211.8	1,211.8	1,109.8		
26	2035		102.0	102.0	1,211.8	1,211.8	1,109.8		
27	2036		102.0	102.0	1,211.8	1,211.8	1,109.8		
28	2037		102.0	102.0	1,211.8	1,211.8	1,109.8		
29	2038		102.0	102.0	1,211.8	1,211.8	1,109.8		
30	2039		102.0	102.0	1,211.8	1,211.8	1,109.8		
31	2040		102.0	102.0	1,211.8	1,211.8	1,109.8		
32	2041		102.0	925.3	1,027.3	1,211.8	184.5		
33	2042		102.0	102.0	1,211.8	1,211.8	1,109.8		
34	2043		102.0	102.0	1,211.8	1,211.8	1,109.8		
35	2044		102.0	102.0	1,211.8	1,211.8	1,109.8		
36	2045		102.0	102.0	1,211.8	1,211.8	1,109.8		
37	2046		102.0	102.0	1,211.8	1,211.8	1,109.8		
38	2047		102.0	102.0	1,211.8	1,211.8	1,109.8		
39	2048		102.0	102.0	1,211.8	1,211.8	1,109.8		
40	2049		102.0	102.0	1,211.8	1,211.8	1,109.8		
41	2050		102.0	102.0	1,211.8	1,211.8	1,109.8		
42	2051		102.0	925.3	1,027.3	1,211.8	184.5		
43	2052		102.0	102.0	1,211.8	1,211.8	1,109.8		
44	2053		102.0	102.0	1,211.8	1,211.8	1,109.8		
45	2054		102.0	102.0	1,211.8	1,211.8	1,109.8		
46	2055		102.0	102.0	1,211.8	1,211.8	1,109.8		
47	2056		102.0	102.0	1,211.8	1,211.8	1,109.8		
48	2057		102.0	102.0	1,211.8	1,211.8	1,109.8		
49	2058		102.0	102.0	1,211.8	1,211.8	1,109.8		
50	2059		102.0	102.0	1,211.8	1,211.8	1,109.8		

Table G2-7 Economic Cost and Benefit Stream (20/22)

Boribo River Basin : Teak Laak & Trapeang Thlan Rehabilitation Project

EIRR : 7.6%

		Net Present Value (Riel Million)		Benefit		Cost		B/C Ratio	
		(8.00 % discount rate)		2,658		2,754		0.97	
								(Unit: Riel Million)	
Year in Order	Year	Economic Cost			Economic Benefit		Total	Net Cash Flow	
		Initial Investment	Annual O&M	Major Repairing	Irrigation	Production Foregone			
1	2010	249.8			249.8	0.0	-249.8		
2	2011	2,266.7			2,266.7	0.0	-2,266.7		
3	2012	42.8	10.2		53.0	208.1	155.0		
4	2013	8.8	20.4		29.2	234.1	204.9		
5	2014		34.0		34.0	260.1	226.1		
6	2015		34.0		34.0	260.1	226.1		
7	2016		34.0		34.0	260.1	226.1		
8	2017		34.0		34.0	260.1	226.1		
9	2018		34.0		34.0	260.1	226.1		
10	2019		34.0		34.0	260.1	226.1		
11	2020		34.0		34.0	260.1	226.1		
12	2021		34.0	300.9	334.9	260.1	-74.8		
13	2022		34.0	34.0	34.0	260.1	226.1		
14	2023		34.0	34.0	34.0	260.1	226.1		
15	2024		34.0	34.0	34.0	260.1	226.1		
16	2025		34.0	34.0	34.0	260.1	226.1		
17	2026		34.0	34.0	34.0	260.1	226.1		
18	2027		34.0	34.0	34.0	260.1	226.1		
19	2028		34.0	34.0	34.0	260.1	226.1		
20	2029		34.0	34.0	34.0	260.1	226.1		
21	2030		34.0	34.0	34.0	260.1	226.1		
22	2031		34.0	300.9	334.9	260.1	-74.8		
23	2032		34.0	34.0	34.0	260.1	226.1		
24	2033		34.0	34.0	34.0	260.1	226.1		
25	2034		34.0	34.0	34.0	260.1	226.1		
26	2035		34.0	34.0	34.0	260.1	226.1		
27	2036		34.0	34.0	34.0	260.1	226.1		
28	2037		34.0	34.0	34.0	260.1	226.1		
29	2038		34.0	34.0	34.0	260.1	226.1		
30	2039		34.0	34.0	34.0	260.1	226.1		
31	2040		34.0	34.0	34.0	260.1	226.1		
32	2041		34.0	300.9	334.9	260.1	-74.8		
33	2042		34.0	34.0	34.0	260.1	226.1		
34	2043		34.0	34.0	34.0	260.1	226.1		
35	2044		34.0	34.0	34.0	260.1	226.1		
36	2045		34.0	34.0	34.0	260.1	226.1		
37	2046		34.0	34.0	34.0	260.1	226.1		
38	2047		34.0	34.0	34.0	260.1	226.1		
39	2048		34.0	34.0	34.0	260.1	226.1		
40	2049		34.0	34.0	34.0	260.1	226.1		
41	2050		34.0	34.0	34.0	260.1	226.1		
42	2051		34.0	300.9	334.9	260.1	-74.8		
43	2052		34.0	34.0	34.0	260.1	226.1		
44	2053		34.0	34.0	34.0	260.1	226.1		
45	2054		34.0	34.0	34.0	260.1	226.1		
46	2055		34.0	34.0	34.0	260.1	226.1		
47	2056		34.0	34.0	34.0	260.1	226.1		
48	2057		34.0	34.0	34.0	260.1	226.1		
49	2058		34.0	34.0	34.0	260.1	226.1		
50	2059		34.0	34.0	34.0	260.1	226.1		

Table G2-7 Economic Cost and Benefit Stream (21/22)

Boribo River Basin : Tonl Champey Rehabilitation Project

EIRR : 13.9%		Net Present Value (Riel Million) (8.00 % discount rate)		Benefit	Cost	B/C Ratio	
				4,192	2,684	1.56	
Year in Order	Year	Economic Cost			Economic Benefit		Net Cash Flow
		Initial Investment	Annual O&M	Major Repairing	Total	Irrigation	
1	2010	231.8			231.8		-231.8
2	2011	2,226.3			2,226.3		-2,226.3
3	2012	41.7	10.2		51.9	328.2	276.4
4	2013	9.0	20.4		29.4	369.3	339.9
5	2014		34.0		34.0	410.3	376.3
6	2015		34.0		34.0	410.3	376.3
7	2016		34.0		34.0	410.3	376.3
8	2017		34.0		34.0	410.3	376.3
9	2018		34.0		34.0	410.3	376.3
10	2019		34.0		34.0	410.3	376.3
11	2020		34.0		34.0	410.3	376.3
12	2021		34.0	275.6	309.6	410.3	100.7
13	2022		34.0		34.0	410.3	376.3
14	2023		34.0		34.0	410.3	376.3
15	2024		34.0		34.0	410.3	376.3
16	2025		34.0		34.0	410.3	376.3
17	2026		34.0		34.0	410.3	376.3
18	2027		34.0		34.0	410.3	376.3
19	2028		34.0		34.0	410.3	376.3
20	2029		34.0		34.0	410.3	376.3
21	2030		34.0		34.0	410.3	376.3
22	2031		34.0	275.6	309.6	410.3	100.7
23	2032		34.0		34.0	410.3	376.3
24	2033		34.0		34.0	410.3	376.3
25	2034		34.0		34.0	410.3	376.3
26	2035		34.0		34.0	410.3	376.3
27	2036		34.0		34.0	410.3	376.3
28	2037		34.0		34.0	410.3	376.3
29	2038		34.0		34.0	410.3	376.3
30	2039		34.0		34.0	410.3	376.3
31	2040		34.0		34.0	410.3	376.3
32	2041		34.0	275.6	309.6	410.3	100.7
33	2042		34.0		34.0	410.3	376.3
34	2043		34.0		34.0	410.3	376.3
35	2044		34.0		34.0	410.3	376.3
36	2045		34.0		34.0	410.3	376.3
37	2046		34.0		34.0	410.3	376.3
38	2047		34.0		34.0	410.3	376.3
39	2048		34.0		34.0	410.3	376.3
40	2049		34.0		34.0	410.3	376.3
41	2050		34.0		34.0	410.3	376.3
42	2051		34.0	275.6	309.6	410.3	100.7
43	2052		34.0		34.0	410.3	376.3
44	2053		34.0		34.0	410.3	376.3
45	2054		34.0		34.0	410.3	376.3
46	2055		34.0		34.0	410.3	376.3
47	2056		34.0		34.0	410.3	376.3
48	2057		34.0		34.0	410.3	376.3
49	2058		34.0		34.0	410.3	376.3
50	2059		34.0		34.0	410.3	376.3

Table G2-7 Economic Cost and Benefit Stream (22/22)

Boribo River Basin : Chan Keak Rehabilitation Project

EIRR : 7.1%		Net Present Value (Riel Million) (8.00 % discount rate)		Benefit	Cost	B/C Ratio	
				1,262	1,368	0.92	
Year in Order	Year	Economic Cost			Economic Benefit		Net Cash Flow
		Initial Investment	Annual O&M	Major Repairing	Total	Irrigation	
1	2010	118.9			118.9		-118.9
2	2011	1,141.9			1,141.9		-1,141.9
3	2012	23.8	4.8		28.6	98.8	70.2
4	2013	7.3	9.6		16.9	111.2	94.2
5	2014		16.0		16.0	123.5	107.5
6	2015		16.0		16.0	123.5	107.5
7	2016		16.0		16.0	123.5	107.5
8	2017		16.0		16.0	123.5	107.5
9	2018		16.0		16.0	123.5	107.5
10	2019		16.0		16.0	123.5	107.5
11	2020		16.0		16.0	123.5	107.5
12	2021		16.0	143.4	159.4	123.5	-35.9
13	2022		16.0		16.0	123.5	107.5
14	2023		16.0		16.0	123.5	107.5
15	2024		16.0		16.0	123.5	107.5
16	2025		16.0		16.0	123.5	107.5
17	2026		16.0		16.0	123.5	107.5
18	2027		16.0		16.0	123.5	107.5
19	2028		16.0		16.0	123.5	107.5
20	2029		16.0		16.0	123.5	107.5
21	2030		16.0		16.0	123.5	107.5
22	2031		16.0	143.4	159.4	123.5	-35.9
23	2032		16.0		16.0	123.5	107.5
24	2033		16.0		16.0	123.5	107.5
25	2034		16.0		16.0	123.5	107.5
26	2035		16.0		16.0	123.5	107.5
27	2036		16.0		16.0	123.5	107.5
28	2037		16.0		16.0	123.5	107.5
29	2038		16.0		16.0	123.5	107.5
30	2039		16.0		16.0	123.5	107.5
31	2040		16.0		16.0	123.5	107.5
32	2041		16.0	143.4	159.4	123.5	-35.9
33	2042		16.0		16.0	123.5	107.5
34	2043		16.0		16.0	123.5	107.5
35	2044		16.0		16.0	123.5	107.5
36	2045		16.0		16.0	123.5	107.5
37	2046		16.0		16.0	123.5	107.5
38	2047		16.0		16.0	123.5	107.5
39	2048		16.0		16.0	123.5	107.5
40	2049		16.0		16.0	123.5	107.5
41	2050		16.0		16.0	123.5	107.5
42	2051		16.0	143.4	159.4	123.5	-35.9
43	2052		16.0		16.0	123.5	107.5
44	2053		16.0		16.0	123.5	107.5
45	2054		16.0		16.0	123.5	107.5
46	2055		16.0		16.0	123.5	107.5
47	2056		16.0		16.0	123.5	107.5
48	2057		16.0		16.0	123.5	107.5
49	2058		16.0		16.0	123.5	107.5
50	2059		16.0		16.0	123.5	107.5

Table G2-8 Comparison of Economic Viability of 21 Projects

	Project	Proposed Irri. Area (ha)	Investment Cost		Increase in Production (paddy ton)	EIRR (%)	NPV (8% discount rate)			
			Total (1000USD)	Per ha (USD)			Benefit (Million Riel)	Cost (Million Riel)	B - C (Million Riel)	B/C Ratio
1	BTB-01 Kong Hort Rehabilitation (Phase I)	10,040	27,267	2,716	17,844	8.7	97,520	91,673	5,847	1.06
2	BTB-01 Kong Hort Rehabilitation (Phase II)	2,733	9,340	3,418	3,293	3.3	21,901	35,373	-13,472	0.62
3	BTB-02 Sala Taon Weir Rehabilitation	10,400	58,239	5,600	17,815	2.7	99,184	186,699	-87,515	0.53
	BTB-02 Sala Taon Weir Rehabilitation (Alternative)	10,400	41,983	4,037	17,815	3.3	77,162	135,427	-58,265	0.57
4	BTB-03 Ratanak-Battambang Water Harvest. Rehabil	580	2,266	3,907	944	4.9	6,517	8,720	-2,203	0.75
5	MRB-01 Bassac Reservoir Rehabilitation	3,500	7,447	2,128	5,801	11.0	35,007	26,911	8,096	1.30
6	MRB-02 Ream Kon Rehabilitation	2,300	5,357	2,329	3,822	10.5	24,776	19,959	4,818	1.24
7	MRB-03 Por Canal Rehabilitation	1,200	2,402	2,002	2,023	12.4	12,945	9,132	3,814	1.42
8	MRB-04 Nikom Le/Dai Ta Chan Rehabilitation	600	2,150	3,584	1,206	7.6	7,488	7,787	-300	0.96
9	PRB-01 Beoung Preah Ponley Rehabilitation	8,500	18,897	2,223	18,511	11.9	89,127	63,227	25,900	1.41
10	PRB-02 Damnak Ampil Extension	8,000	17,175	2,147	12,259	11.1	74,452	57,258	17,194	1.30
11	PRB-03 Wat Loung Rehabilitation	3,940	8,545	2,169	7,624	11.4	42,514	30,939	11,575	1.37
12	PRB-04 Wat Chre Rehabilitation	1,000	2,800	2,800	2,063	9.4	12,244	10,676	1,569	1.15
13	PRB-05 Anlong Knouchi, Wat Leal, Kosh Khsach, Watger Harvest. & Recession Rice Rehabilitation	2,602	6,036	2,825	3,709	8.5	23,874	22,853	1,021	1.04
14	BRB-01 Lum Hach Rehabilitation	3,700	10,174	2,750	5,038	7.1	32,215	35,509	-3,294	0.91
15	BRB-02 7th January Canal Rehabilitation	2,000	5,339	2,670	2,789	7.3	19,635	21,083	-1,448	0.93
16	BRB-03 Khvet Rehabilitation	250	890	3,560	488	7.8	3,117	3,193	-76	0.98
17	BRB-04 Ta Ram Rehabilitation	180	981	5,448	351	4.1	2,318	3,550	-1,232	0.65
18	BRB-05 Chak Teum, Trpean Khlong & Don Poy Rehabilitation	980	2,465	2,515	1,911	11.0	12,382	9,606	2,776	1.29
19	BRB-06 Teuk Laak & Trapeang Thlan Rehabilitation	230	744	3,233	449	7.6	2,658	2,754	-96	0.97
20	BRB-07 Toul Champey Rehabilitation	360	685	1,901	702	13.9	4,192	2,684	1,509	1.56
21	BRB-08 Chan Keak Rehabilitation	110	355	3,229	206	7.1	1,262	1,368	-106	0.92
Total & Average		63,205	189,553	2,999	108,845					

Table G2-9 Annual Paddy Production Increases in Proposed Project Area

Project Code & Project Name	Present/Without		Future/With								Production Increase (ton)
	Area (ha)	Production (ton)	Year 1 (ton)	Year 2 (ton)	Year 3 (ton)	Year 4 (ton)	Year 5 (ton)	Year 6 (ton)	Year 7 (ton)	Year 8 (ton)	
	1 BTB-01	10,560	11,463	11,463	11,463	11,463	17,584	20,515	23,446	26,376	
2 BTB-01	2,884	4,664	4,664	4,664	5,570	6,366	7,161	7,957	7,957	7,957	3,293
3 BTB-02	10,813	13,483	13,483	13,483	13,483	18,215	21,251	24,286	27,322	30,358	16,875
4 BTB-03	594	757	757	757	1,354	1,524	1,693	1,693	1,693	1,693	936
5 MRB-01	4,120	4,759	4,759	4,759	4,759	8,448	9,504	10,560	10,560	10,560	5,801
6 MRB-02	2,670	3,112	3,112	3,112	5,547	6,241	6,934	6,934	6,934	6,934	3,822
7 MRB-03	1,340	1,598	1,598	1,598	2,896	3,258	3,620	3,620	3,620	3,620	2,022
8 MRB-04	700	815	815	815	1,616	1,818	2,020	2,020	2,020	2,020	1,205
9 PRB-01	8,643	12,671	12,671	12,671	12,671	18,709	21,827	24,946	28,064	31,182	18,511
10 PRB-02	8,050	17,096	17,096	17,096	17,096	17,613	20,549	23,484	26,420	29,355	12,259
11 PRB-03	4,335	6,407	6,407	6,407	6,407	9,822	11,225	12,628	14,031	14,031	7,624
12 PRB-04	1,000	1,521	1,521	1,521	2,509	2,867	3,226	3,584	3,584	3,584	2,063
13 PRB-05	2,614	4,963	4,963	4,963	6,070	6,938	7,805	8,672	8,672	8,672	3,709
14 BRB-01	4,000	7,913	7,913	7,913	7,913	9,065	10,360	11,655	12,950	12,950	5,037
15 BRB-02	2,170	4,212	4,212	4,212	4,900	5,600	6,300	7,000	7,000	7,000	2,788
16 BRB-03	250	388	388	388	700	788	875	875	875	875	487
17 BRB-04	180	279	279	279	504	567	630	630	630	630	351
18 BRB-05	980	1,519	1,519	1,519	2,744	3,087	3,430	3,430	3,430	3,430	1,911
19 BRB-06	230	357	357	357	644	725	805	805	805	805	448
20 BRB-07	360	558	558	558	1,008	1,134	1,260	1,260	1,260	1,260	702
21 BRB-08	110	179	179	179	308	347	385	385	385	385	206
Total	66,603	98,714	98,714	98,714	110,163	140,713	161,374	179,870	194,588	206,608	107,894
			0	0	11,449	41,999	62,660	81,156	95,874	107,894	

Table G3-1 Financial Crop Budget of Rice under Present/Without Project Condition

Item	Unit	Early Wet Season			Wet Season Transplanting			Wet Season Direct Sowing					
		Normal irrigated area		Supplemental irrigated area	Rainfed area		Value	Normal irrigated area		Supplemental irrigated area			
		Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)			
1. Gross Income	Riel												
Main products	kg	3,000	560	1,680	1,764	1,176	882	1,176	560	1,120	1,500	560	840
By-product (straw)	kg	3,000	28	84	84	56	42	56	28	28	1,500	28	42
2. Production Cost	Riel												
2.1 Inputs	Riel												
Seed	kg	60	560	34	340	241	200	230	67	67	120	560	67
Manure (wet)	ton	0	30,000	0	0	0	0	0	0	0	0	30,000	0
Fertilizer													
Urea	kg	115	1,640	189	189	123	98	98	60	1,640	60	1,640	82
DAP	kg	65	1,630	106	106	73	57	57	35	1,630	40	1,630	49
KCl	kg	0	1,550	0	0	0	0	0	0	1,550	0	1,550	0
Agro-chemicals	liter	0	5,250	0	0	0	0	0	0	5,250	0	5,250	0
2.2 Labor	Riel												
Hired labor	manday	10	6,400	64	64	58	51	51	8	6,400	12	6,400	77
Family labor	manday	89	0	0	0	0	0	0	74	0	61	0	0
2.3 Land preparation	Riel												
Draft animal/Tractor	ha	1	250,000	250	250	250	250	250	1	250,000	1	350,000	350
Pumping	ha	0	30,000	0	0	30	0	0	0	30,000	0	30,000	30
2.4 Pumping	Riel												
2.5 Transportation	Riel												
Ox-cart	ton	3	30,000	90	90	60	45	45	1.5	30,000	2	30,000	60
2.6 Miscellaneous	Riel												
3. Net Return	Riel												
Net Return/Production Cost Ratio													
		999		1.31	987	0.76	311	0.54	426	0.57	149		0.20

Item	Unit	Wet Season Direct Sowing			Dry Season			Recession area					
		Rainfed area		Value	Supplemental irrigated area		Value	Rainfed area		Value			
		Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)			
1. Gross Income	Riel												
Main products	kg	1,000	560	560	1,764	1,470	1,176	2,000	560	1,120	2,000	560	1,120
By-product (straw)	kg	1,000	28	28	84	70	56	2,000	28	56	2,000	28	56
2. Production Cost	Riel												
2.1 Inputs	Riel												
Seed	kg	120	560	67	67	34	34	60	560	34	60	560	34
Manure (wet)	ton	0	30,000	0	0	0	0	0	30,000	0	0	30,000	0
Fertilizer													
Urea	kg	40	1,640	66	189	156	123	75	1,640	123	60	1,640	98
DAP	kg	20	1,630	33	106	90	73	45	1,630	73	40	1,630	65
KCl	kg	0	1,550	0	0	0	0	0	1,550	0	0	1,550	0
Agro-chemicals	liter	0	5,250	0	0	0	0	0	5,250	0	0	5,250	0
2.2 Labor	manday												
Hired labor	manday	12	6,400	77	64	64	58	9	6,400	58	9	6,400	58
Family labor	manday	59	0	0	0	0	0	79	0	0	79	0	0
2.3 Land preparation	Riel												
Draft animal/Tractor	ha	1	250,000	250	250	250	250	1	250,000	250	1	250,000	250
Pumping	ha	0	30,000	0	0	30	0	0	30,000	0	0	30,000	0
2.4 Pumping	Riel												
2.5 Transportation	Riel												
Ox-cart	ton	1	30,000	30	30	75	75	2	30,000	60	2	30,000	60
2.6 Miscellaneous	Riel												
3. Net Return	Riel												
Net Return/Production Cost Ratio													
		40		0.07	999	1.01	551	0.88	586	0.99	149		0.20

Table G3-2 Financial Crop Budget of Rice under With Project Condition

Item	Unit	Early Wet Season			Wet Season Transplanting			Wet Season Direct Sowing			Dry Season					
		Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)			
1. Gross Income	Riel			2,058			2,058			1,646			1,646			2,058
Paddy	kg	3,500	560	1,960	3,500	560	1,960	2,800	560	1,568	2,800	560	1,568	3,500	560	1,960
By-product (straw)	kg	3,500	28	98	3,500	28	98	2,800	28	78	2,800	28	78	3,500	28	98
2. Production Cost	Riel			860			1,113			894			1,139			860
2.1 Inputs	Riel			399			399			331			331			399
Seed	kg	30	900	27	30	900	27	80	900	72	80	900	72	30	900	27
Manure (wet)	ton	1	30,000	15	1	30,000	15	1	30,000	15	1	30,000	15	1	30,000	15
Fertilizer																
Urea	kg	115	1,640	189	115	1,640	189	80	1,640	131	80	1,640	131	115	1,640	189
DAP	kg	65	1,630	106	65	1,630	106	50	1,630	82	50	1,630	82	65	1,630	106
KCl	kg	40	1,550	62	40	1,550	62	20	1,550	31	20	1,550	31	40	1,550	62
Agro-chemicals	liter	0	5,250	0	0	5,250	0	0	5,250	0	0	5,250	0	0	5,250	0
Hired labor	manday	11	6,400	70	77	6,400	77	14	6,400	90	14	6,400	90	11	6,400	70
Family labor	manday	99	0	0	103	0	0	56	0	0	56	0	0	99	0	0
2.3 Land preparation	Riel			250			250			350			350			250
Draft animal/Tractor	ha	1	250,000	250	1	250,000	250	1	350,000	350	1	350,000	350	1	250,000	250
2.4 Pumping	Riel			0			234			0			234			0
Pumping	ha	0	30,000	0	0	30,000	234	0	30,000	0	1	233,700	234	0	30,000	0
2.5 Transportation	Riel			105			105			84			84			105
Ox-cart	ton	3.5	30,000	105	3.5	30,000	105	2.8	30,000	84	2.8	30,000	84	3.5	30,000	105
2.6 Miscellaneous	Riel			56			48			39			50			56
Net Return	Riel			1,198			945			752			507			1,198
Net Return/Production Cost Ratio				1.39			0.85			0.84			0.44			1.39

Item	Unit	Dry Season			Upland Crops (Mungbean)			Upland Crops (Morning Glory)			Upland Crops (Cucumber)		
		Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)	Qty	Price (Riel)	Value ('000 Riel)
1. Gross Income	Riel			1,470			765			4,200			5,400
Paddy	kg	2,500	560	1,400	0	560	0	0	560	0	0	560	0
Mungbean	kg	0	1,500	0	700	1,500	750	0	1,500	0	0	1,500	0
Vegetable (morning glory)	kg	0	300	0	0	300	0	14,000	300	4,200	0	300	0
Vegetable (cucumber)	kg	0	1,200	0	0	1,200	0	0	1,200	0	4,500	1,200	5,400
By-product (straw)	kg	2,500	28	70	0	28	0	0	28	0	0	28	0
By-product (mungbean)	kg	0	30	0	700	30	21	0	30	0	0	30	0
2. Production Cost	Riel			510			390			1,789			2,322
2.1 Inputs	Riel			297			341			920			1,635
Seed	kg	30	1,400	42	50	1,400	70	20	6,000	120	13.3	16,000	213
Manure (wet)	ton	1	30,000	30	2	30,000	60	10	30,000	300	20	30,000	600
Fertilizer													
Urea	kg	60	1,640	98	55	1,640	90	153	1,640	251	200	1,640	328
DAP	kg	40	1,630	65	50	1,630	82	153	1,630	249	277	1,630	452
KCl	kg	40	1,550	62	25	1,550	39	0	1,550	0	0	1,550	0
Agro-chemicals	liter	0	5,250	0	0	5,250	0	0	5,250	0	8	5,250	42
Hired labor	manday	22	6,400	141	18	6,400	115	45	6,400	288	55	6,400	352
Family labor	manday	83	0	0	42	0	0	105	0	0	115	0	0
2.3 Land preparation	Riel			48			48			96			96
Draft animal/Tractor	ha	1	48,000	48	1	48,000	48	1	96,000	96	1	96,000	96
2.5 Transportation	Riel			0			15			420			135
Ox-cart	ton	0.0	30,000	0	0.7	30,000	21	14.0	30,000	420	4.5	30,000	135
2.6 Miscellaneous	Riel			24			18			65			104
Net Return	Riel			960			521			2,411			3,078
Net Return/Production Cost Ratio				1.88			0.95			1.35			1.33

Table G3-3 Financial Irrigation Benefit (1/22)

Battambang River Basin

Kong Hort Rehabilitation Project Phase I

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
<u>Rice</u>	<u>10,560</u>		<u>913</u>	<u>10,040</u>		<u>8,303</u>	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	1,707	1,191	2,033	
- Supplemental irrigation area	2	508	1	0	0	0	
- Rainfed area	1,794	311	558	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	8,333	752	6,270	
- Supplemental irrigation area	7	149	1	0	0	0	
- Rainfed area	8,757	40	353	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
<u>Upland Crops</u>	<u>0</u>		<u>0</u>	<u>90</u>		<u>226</u>	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (raifed)	0	0	0	20	521	10	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	70	3,078	215	
Total	10,560		913	10,130		8,529	7,615

Table G3-3 Financial Irrigation Benefit (2/22)

Battambang River Basin

Kong Hort Rehabilitation Project Phase II

Crops	Present Condition			With Project Condition			Incremental NPV (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
<u>Rice</u>	<u>3,225</u>		<u>752</u>	<u>2,733</u>		<u>2,266</u>	
Early Wet Season							
- Normal irrigation area	5	999	5	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	40	987	40	456	1,191	543	
- Supplemental irrigation area	98	508	50	0	0	0	
- Rainfed area	344	311	107	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	196	426	84	2,229	752	1,677	
- Supplemental irrigation area	476	149	71	0	0	0	
- Rainfed area	1,682	40	68	0	0	0	
Dry Season							
- Normal irrigation area	236	999	236	0	1,198	0	
- Supplemental irrigation area	50	740	37	0	0	0	
- Rainfed area	50	551	28	0	0	0	
- Recession area	48	586	28	48	960	46	
<u>Upland Crops</u>	<u>0</u>		<u>0</u>	<u>20</u>		<u>62</u>	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (raifed)	0	0	0	0	521	0	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	20	3,078	62	
Total	3,225		752	2,753		2,328	1,576

Table G3-3 Financial Irrigation Benefit (3/22)

Battambang River Basin

Sala Taon Wetr Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	10,970		1,199	10,400		8,600	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	20	987	20	1,768	1,191	2,105	
- Supplemental irrigation area	189	508	96	0	0	0	
- Rainfed area	1,630	311	507	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	97	426	41	8,632	752	6,495	
- Supplemental irrigation area	276	149	41	0	0	0	
- Rainfed area	8,601	40	347	0	0	0	
Dry Season							
- Normal irrigation area	117	999	117	0	1,198	0	
- Supplemental irrigation area	40	740	30	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	90		226	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	20	521	10	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	70	3,078	215	
Total	10,970		1,199	10,490		8,826	7,628

Table G3-3 Financial Irrigation Benefit (4/22)

Battambang River Basin

Sala Taon Wetr Rehabilitation Project (Pump Station)

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	10,970		1,199	10,400		6,045	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	20	987	20	1,768	945	1,671	
- Supplemental irrigation area	189	508	96	0	0	0	
- Rainfed area	1,630	311	507	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	97	426	41	8,632	507	4,374	
- Supplemental irrigation area	276	149	41	0	0	0	
- Rainfed area	8,601	40	347	0	0	0	
Dry Season							
- Normal irrigation area	117	999	117	0	1,198	0	
- Supplemental irrigation area	40	740	30	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	90		226	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	20	521	10	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	70	3,078	215	
Total	10,970		1,199	10,490		6,271	5,072

Table G3-3 Financial Irrigation Benefit (5/22)

Battambang River Basin

Ratanak-Battambang Water Harvesting Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	634		82	580		480	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	99	1,191	118	
- Supplemental irrigation area	4	508	2	0	0	0	
- Rainfed area	97	311	30	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	481	752	362	
- Supplemental irrigation area	6	149	1	0	0	0	
- Rainfed area	487	40	20	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	40	740	30	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	13		40	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	0	521	0	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	13	3,078	40	
Total	634		82	593		520	437

Table G3-3 Financial Irrigation Benefit (6/22)

Moung Ruessei River Basin

Bassac Reservoir Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	4,120		512	3,500		3,109	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	1,085	1,191	1,292	
- Supplemental irrigation area	0	508	0	0	0	0	
- Rainfed area	1,277	311	397	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	2,415	752	1,817	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	2,843	40	115	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	60		159	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	10	521	5	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	50	3,078	154	
Total	4,120		512	3,560		3,268	2,756

Table G3-3 Financial Irrigation Benefit (7/22)

Moung Ruessei River Basin

Ream Kon Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	2,670		342	2,300		2,044	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	710	1,191	845	
- Supplemental irrigation area	12	508	6	0	0	0	
- Rainfed area	812	311	253	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	1,580	752	1,189	
- Supplemental irrigation area	28	149	4	0	0	0	
- Rainfed area	1,808	40	73	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	10	586	6	10	960	10	
Upland Crops	0		0	40		98	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	10	521	5	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	30	3,078	92	
Total	2,670		342	2,340		2,141	1,800

Table G3-3 Financial Irrigation Benefit (8/22)

Moung Ruessei River Basin

Por Canal Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	1,340		180	1,200		1,066	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	372	1,191	443	
- Supplemental irrigation area	31	508	16	0	0	0	
- Rainfed area	384	311	119	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	828	752	623	
- Supplemental irrigation area	69	149	10	0	0	0	
- Rainfed area	856	40	35	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	20		49	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	5	521	3	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	15	3,078	46	
Total	1,340		180	1,220		1,115	935

Table G3-3 Financial Irrigation Benefit (9/22)

Moung Ruessei River Basin

Nikom Le/Dai Ta Chan Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	700		89	660		605	
Early Wet Season							
- Normal irrigation area	0	999	0	60	1,198	72	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	186	1,191	222	
- Supplemental irrigation area	4	508	2	0	0	0	
- Rainfed area	213	311	66	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	414	752	312	
- Supplemental irrigation area	8	149	1	0	0	0	
- Rainfed area	475	40	19	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	10		23	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	3	521	2	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	7	3,078	22	
Total	700		89	670		628	539

Table G3-3 Financial Irrigation Benefit (10/22)

Pursat River Basin

Beoung Preah Ponley Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	8,673		2,399	9,300		10,223	
Early Wet Season							
- Normal irrigation area	0	999	0	790	1,198	947	
Wet Season Transplanting							
- Normal irrigation area	23	987	23	6,545	1,191	7,793	
- Supplemental irrigation area	876	508	445	0	0	0	
- Rainfed area	5,756	311	1,790	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	7	426	3	1,955	752	1,471	
- Supplemental irrigation area	262	149	39	0	0	0	
- Rainfed area	1,719	40	69	0	0	0	
Dry Season							
- Normal irrigation area	30	999	30	10	1,198	12	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	30		46	
- Mungbean (irrigated)	0	0	0	10	960	10	
- Mungbean (rainfed)	0	0	0	10	521	5	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	10	3,078	31	
Total	8,673		2,399	9,330		10,268	7,869

Table G3-3 Financial Irrigation Benefit (11/22)

Pursat River Basin

Damnak Ampil Extension Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	<u>9,220</u>		<u>4,173</u>	<u>8,755</u>		<u>9,624</u>	
Early Wet Season							
- Normal irrigation area	0	999	0	740	1,198	887	
Wet Season Transplanting							
- Normal irrigation area	901	987	890	6,160	1,191	7,335	
- Supplemental irrigation area	1,257	508	639	0	0	0	
- Rainfed area	4,041	311	1,257	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	269	426	115	1,840	752	1,385	
- Supplemental irrigation area	375	149	56	0	0	0	
- Rainfed area	1,207	40	49	0	0	0	
Dry Season							
- Normal irrigation area	1,170	999	1,169	15	1,198	18	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	<u>0</u>		<u>0</u>	<u>325</u>		<u>841</u>	
- Mungbean (irrigated)	0	0	0	15	960	14	
- Mungbean (rainfed)	0	0	0	50	521	26	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	260	3,078	800	
Total	9,220		4,173	9,080		10,464	6,292

Table G3-3 Financial Irrigation Benefit (12/22)

Pursat River Basin

Wat Long Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	<u>4,380</u>		<u>1,223</u>	<u>4,190</u>		<u>4,594</u>	
Early Wet Season							
- Normal irrigation area	0	999	0	240	1,198	288	
Wet Season Transplanting							
- Normal irrigation area	35	987	35	3,034	1,191	3,613	
- Supplemental irrigation area	316	508	161	0	0	0	
- Rainfed area	2,988	311	929	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	10	426	4	906	752	682	
- Supplemental irrigation area	94	149	14	0	0	0	
- Rainfed area	892	40	36	0	0	0	
Dry Season							
- Normal irrigation area	45	999	45	10	1,198	12	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	<u>0</u>		<u>0</u>	<u>160</u>		<u>343</u>	
- Mungbean (irrigated)	0	0	0	10	960	10	
- Mungbean (rainfed)	0	0	0	50	521	26	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	100	3,078	308	
Total	4,380		1,223	4,350		4,937	3,714

Table G3-3 Financial Irrigation Benefit (13/22)

Pursat River Basin

Wat Chre Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	1,020		298	1,070		1,174	
Early Wet Season							
- Normal irrigation area	0	999	0	70	1,198	84	
Wet Season Transplanting							
- Normal irrigation area	15	987	15	770	1,191	917	
- Supplemental irrigation area	75	508	38	0	0	0	
- Rainfed area	679	311	211	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	5	426	2	230	752	173	
- Supplemental irrigation area	23	149	3	0	0	0	
- Rainfed area	203	40	8	0	0	0	
Dry Season							
- Normal irrigation area	20	999	20	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	40		98	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	10	521	5	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	30	3,078	92	
Total	1,020		298	1,110		1,271	974

Table G3-3 Financial Irrigation Benefit (14/22)

Pursat River Basin

Ou Tapoung/Boeung Khnar Water Harvesting & Recession Rice Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	2,789		1,262	2,926		3,046	
Early Wet Season							
- Normal irrigation area	0	999	0	224	1,198	268	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	948	1,191	1,129	
- Supplemental irrigation area	174	508	88	0	0	0	
- Rainfed area	783	311	244	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	283	752	213	
- Supplemental irrigation area	52	149	8	0	0	0	
- Rainfed area	234	40	9	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	100	1,198	120	
- Supplemental irrigation area	72	740	53	0	0	0	
- Rainfed area	103	551	57	0	0	0	
- Recession area	1,371	586	803	1,371	960	1,316	
Upland Crops	0		0	147		196	
- Mungbean (irrigated)	0	0	0	97	960	93	
- Mungbean (rainfed)	0	0	0	20	521	10	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	30	3,078	92	
Total	2,789		1,262	3,073		3,241	1,979

Table G3-3 Financial Irrigation Benefit (15/22)

Boribo River Basin

Lum Hach Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	4,380		1,960	3,700		4,406	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	380	987	375	3,700	1,191	4,406	
- Supplemental irrigation area	405	508	206	0	0	0	
- Rainfed area	3,215	311	1,000	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	0	752	0	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	0	40	0	0	0	0	
Dry Season							
- Normal irrigation area	380	999	380	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	160		365	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	50	521	26	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	110	3,078	339	
Total	4,380		1,960	3,860		4,770	2,810

Table G3-3 Financial Irrigation Benefit (16/22)

Boribo River Basin

7th January Canal Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	2,360		1,033	2,000		2,381	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	190	987	188	2,000	1,191	2,381	
- Supplemental irrigation area	203	508	103	0	0	0	
- Rainfed area	1,777	311	553	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	0	752	0	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	0	40	0	0	0	0	
Dry Season							
- Normal irrigation area	190	999	190	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	100		231	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	30	521	16	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	70	3,078	215	
Total	2,360		1,033	2,100		2,612	1,579

Table G3-3 Financial Irrigation Benefit (17/22)

Boribo River Basin

Khvet Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	<u>250</u>		<u>83</u>	<u>250</u>		<u>298</u>	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	250	1,191	298	
- Supplemental irrigation area	25	508	13	0	0	0	
- Rainfed area	225	311	70	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	0	752	0	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	0	40	0	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	<u>0</u>		<u>0</u>	<u>10</u>		<u>23</u>	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	3	521	2	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	7	3,078	22	
Total	250		83	260		321	238

Table G3-3 Financial Irrigation Benefit (18/22)

Boribo River Basin

Ta Ram Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	<u>180</u>		<u>60</u>	<u>180</u>		<u>214</u>	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	180	1,191	214	
- Supplemental irrigation area	18	508	9	0	0	0	
- Rainfed area	162	311	50	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	0	752	0	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	0	40	0	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	<u>0</u>		<u>0</u>	<u>10</u>		<u>23</u>	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	3	521	2	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	7	3,078	22	
Total	180		60	190		237	178

Table G3-3 Financial Irrigation Benefit (19/22)

Boribo River Basin

Chak Teum, Trapeang Khong & Don Poy Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	980		324	980		1,167	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	980	1,191	1,167	
- Supplemental irrigation area	98	508	50	0	0	0	
- Rainfed area	882	311	274	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	0	752	0	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	0	40	0	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	50		103	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	20	521	10	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	30	3,078	92	
Total	980		324	1,030		1,270	946

Table G3-3 Financial Irrigation Benefit (20/22)

Boribo River Basin

Teuk Laak & Trapeang Thlan Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	230		76	230		274	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	230	1,191	274	
- Supplemental irrigation area	23	508	12	0	0	0	
- Rainfed area	207	311	64	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	0	752	0	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	0	40	0	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	10		5	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	10	521	5	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	0	3,078	0	
Total	230		76	240		279	203

Table G3-3 Financial Irrigation Benefit (21/22)

Boribo River Basin

Toul Champey Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	360		119	360		429	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	360	1,191	429	
- Supplemental irrigation area	36	508	18	0	0	0	
- Rainfed area	324	311	101	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	0	752	0	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	0	40	0	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	20		10	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	20	521	10	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	0	3,078	0	
Total	360		119	380		439	320

Table G3-3 Financial Irrigation Benefit (22/22)

Boribo River Basin

Chan Keak Rehabilitation Project

Crops	Present Condition			With Project Condition			Incremental Net Benefit (Riel Million)
	Planted Area (ha)	Net Production Value		Planted Area (ha)	Net Production Value		
		Per ha (Riel '000)	Total (Riel Million)		Per ha (Riel '000)	Total (Riel Million)	
Rice	110		40	110		131	
Early Wet Season							
- Normal irrigation area	0	999	0	0	1,198	0	
Wet Season Transplanting							
- Normal irrigation area	0	987	0	110	1,191	131	
- Supplemental irrigation area	28	508	14	0	0	0	
- Rainfed area	82	311	26	0	0	0	
Wet Season Direct Sowing							
- Normal irrigation area	0	426	0	0	752	0	
- Supplemental irrigation area	0	149	0	0	0	0	
- Rainfed area	0	40	0	0	0	0	
Dry Season							
- Normal irrigation area	0	999	0	0	1,198	0	
- Supplemental irrigation area	0	740	0	0	0	0	
- Rainfed area	0	551	0	0	0	0	
- Recession area	0	586	0	0	960	0	
Upland Crops	0		0	10		5	
- Mungbean (irrigated)	0	0	0	0	960	0	
- Mungbean (rainfed)	0	0	0	10	521	5	
- Morning Glory (irrigated)	0	0	0	0	2,411	0	
- Cucumber (irrigated)	0	0	0	0	3,078	0	
Total	110		40	120		136	97

Table G3-4 Increase in Net Benefit per 1 ha

	Proposed Project	Present/Without Project		With Project		Increase in Net Benefit per 1 ha ('000 Riel)			
		Area (ha)	Net Benefit (M. Riel) ('000 Riel)	Area (ha)	Net Benefit (M. Riel) ('000 Riel)				
1	BTB-01 Kong Hort Rehabilitation (Phase I)	10,560	913.1	86.5	10,040	8,528.5	849.5	763.0	8.8
2	BTB-01 Kong Hort Rehabilitation (Phase II)	2,884	752.1	260.8	2,733	2,327.9	851.8	591.0	2.3
3	BTB-02 Salat On Weir Rehabilitation	10,813	1,198.6	110.8	10,400	8,826.1	848.7	737.8	6.7
	Salat On Weir Rehabilitation (Alternative)					6,270.9	603.0	492.1	4.4
4	BTB-03 Ratanak-Battambang Weir Rehabilitation	594	82.4	138.7	580	519.8	896.2	757.5	5.5
5	MRB-01 Bassac Reservoir Rehabilitation	4,120	511.8	124.2	3,500	3,268.2	933.8	809.5	6.5
6	MRB-02 Ream Kon Rehabilitation	2,670	341.7	128.0	2,300	2,141.4	931.0	803.1	6.3
7	MRB-03 Por Canal Rehabilitation	1,340	179.9	134.3	1,200	1,114.7	928.9	794.7	5.9
8	MRB-04 Nikom Le/Dai Ta Chan Rehabilitation	700	88.6	126.6	600	628.0	1,046.7	920.1	7.3
9	PRB-01 Beecoun Preah Ponley Rehabilitation	8,643	2,399.1	277.6	8,500	10,268.2	1,208.0	930.4	3.4
10	PRB-02 Damnak Ampil Extension	8,050	4,172.7	518.3	8,000	10,464.4	1,308.1	789.7	1.5
11	PRB-03 Wat Loung Rehabilitation	4,335	1,223.4	282.2	3,940	4,937.2	1,253.1	970.9	3.4
12	PRB-04 Wat Chre Rehabilitation	1,000	297.7	297.7	980	1,271.3	1,297.2	999.5	3.4
13	PRB-05 Ou Tapoung/Boueng Khnar Water Harvesting & Recession Rice Rehabilitation	2,614	1,262.3	482.9	2,602	3,241.4	1,245.7	762.8	1.6
14	BRB-01 Lum Hach Rehabilitation	4,000	1,960.3	490.1	3,700	4,770.2	1,289.2	799.2	1.6
15	BRB-02 7th January Canal Rehabilitation	2,170	1,033.1	476.1	2,000	2,612.4	1,306.2	830.1	1.7
16	BRB-03 Khyet Rehabilitation	250	82.7	330.8	250	320.8	1,283.2	952.4	2.9
17	BRB-04 Ta Ram Rehabilitation	180	59.5	330.6	180	237.4	1,318.9	988.3	3.0
18	BRB-05 Chak Teum, Trpean Khlong & Don Poy Rehabilitation	980	324.1	330.7	980	1,269.6	1,295.5	964.8	2.9
19	BRB-06 Teuk Laal & Trapeang Thlan Rehabilitation	230	76.1	330.9	230	279.1	1,213.5	882.6	2.7
20	BRB-07 Toul Champey Rehabilitation	360	119.0	330.6	360	439.1	1,219.7	889.2	2.7
21	BRB-08 Chan Keak Rehabilitation	110	39.7	360.9	110	136.2	1,238.2	877.3	2.4