INCREMENTAL COST CALCULATION

SIMPLIFYING ASSUMPTIONS:

Existing pumps may still operate for the next 15 years at current maintenance cost
Existing air conditioner may still operate for the next 15 years with increased maintenance cost
Economic life for new equipment is 15 years with reasonable maintenance cost
Discount rate 8.7% Taken as the FIRR of the Project

VND	Exchange Rate	
920	21,500	
	0.043	USD/Kwh

Financing souce/item	Amount	
Co-financing from Saigon Water Corporation (SAWACO)		1,500,000.00
Frequency converters (additional)	1,500,000.00	
Financed under the Asian Clean Energy Fund		2,000,000.00
Converters	1,000,000.00	
Frequency converters ($700,000)		
Water pressure and quality calibration technology converter ($300,000)		
Air conditioning replacement	500,000.00	
Consulting Services	500,000.00	
Total investment		**3,500,000.00**

For Treated Water Pumps (financed by SAWACO) — ***Existing***

Quantity	3 sets	Flow =	6400	m3.h	
Installed	2004	Pressure =	49.5	m	
		Power =	1411	Kw	
	Power Consumption per Annum		1.5	GWh/year	(as per audit report enclosed)
	Savings 15% with Converters		1.3	GWh/year	(as per audit report enclosed)
Initial Value	300,000 USD (each pump / assumed)				
O&M rate	2% p.a / assumed for mechanical and equipment				

For Raw water pumps (financed by CEFPF): — ***Existing***

Quantity	3 sets	Flow =	6840	m3.h	Brand = WEIR - TECO
Installed	2004	Pressure =	39.97	m	Pump - Motor
		Power =	973	Kw	(UK - TAIWAN)
	Power Consumption per Annum		1.5	GWh/year	(as per audit report enclosed)
	Savings 15% with Converters		1.3	GWh/year	(as per audit report enclosed)
Initial Value	300,000 USD (each pump / assumed)				
O&M rate	2% p.a / assumed for mechanical and equipment				

For Air conditioner (chiller) (financed by CEFPF): — ***Existing*** — ***New***

Quantity	2 sets	Power =	75	Kw	55	Kw
GHG emission reduction		COP =	2.6		4	
Initial Value	150,000 USD (each chiller for calculation O&M)					
O&M rate	2% p.a / assumed for mechanical and equipment					

Baseline Energy Usage & Cost

Year	Investment Cost	Raw water pumps: Other O & M cost (US$)	Raw water pumps: Energy Usage(GWh)	Raw water pumps: Energy Cost (US$)	Air conditioner: Other O & M cost (US$)	Air conditioner: Energy Usage(GWh)	Air conditioner: Energy Cost (US$)
0			3.0	129,000	6,000	1.31	56,330
1		-	3.0	129,000	6,000	1.31	56,330
2		-	3.0	129,000	6,000	1.31	56,330
3		-	3.0	129,000	6,000	1.31	56,330
4		-	3.0	129,000	6,000	1.31	56,330
5		-	3.0	129,000	6,000	1.31	56,330
6		-	3.0	129,000	6,000	1.31	56,330
7		-	3.0	129,000	6,000	1.31	56,330
8		-	3.0	129,000	6,000	1.31	56,330
9		-	3.0	129,000	6,000	1.31	56,330
10		-	3.0	129,000	6,000	1.31	56,330
11		-	3.0	129,000	6,000	1.31	56,330
12		-	3.0	129,000	6,000	1.31	56,330
13		-	3.0	129,000	6,000	1.31	56,330
14		-	3.0	129,000	6,000	1.31	56,330
15		-	3.0	129,000	6,000	1.31	56,330
PVs	0.00	-		1,187,503.30	55,232.71		518,543.11
Present value of Costs (Baseline) =							1,761,279.12

Alternative Energy Usage & Cost (Project)

Year	Investment Cost	Existing raw water pumps w/ converters and Monitoring: Other O & M cost (US$)	Existing raw water pumps w/ converters and Monitoring: Energy Usage(GWh)	Existing raw water pumps w/ converters and Monitoring: Energy Cost (US$)	Air conditioner: Other O & M cost (US$)	Air conditioner: Energy Usage(GWh)	Air conditioner: Energy Cost (US$)
0	3,500,000.00	-	-	-	-	-	-
1		-	2.6	111,800	10,000	0.96	41,280
2		-	2.6	111,800	10,000	0.96	41,280
3		-	2.6	111,800	10,000	0.96	41,280
4		-	2.6	111,800	10,000	0.96	41,280
5		-	2.6	111,800	10,000	0.96	41,280
6		-	2.6	111,800	10,000	0.96	41,280
7		-	2.6	111,800	10,000	0.96	41,280
8		-	2.6	111,800	10,000	0.96	41,280
9		-	2.6	111,800	10,000	0.96	41,280
10		-	2.6	111,800	10,000	0.96	41,280
11		-	2.6	111,800	10,000	0.96	41,280
12		-	2.6	111,800	10,000	0.96	41,280
13		-	2.6	111,800	10,000	0.96	41,280
14		-	2.6	111,800	10,000	0.96	41,280
15		-	2.6	111,800	10,000	0.96	41,280
PVs	3,500,000.00	-		917,369.53	82,054.52		338,721.06
Present value of Costs (Alternative) =							4,838,145.10

Incremental cost ($PV_{alternative}$ - $PV_{baseline}$)= 3,076,865.98