Cuadro 8.5.4(1) Costo del Proyecto: Extensión del Uso de Estufas y Temescales Mejorados

A. Summary of Cost

Items		Unit	Amount (Q.) JICA's fund	Amount (Q.) Benerifiaries	Amount (Q.) JICA+Benerifiaries
1. Improved Stove	130	no	114,400.00	13,000.00	127,400
2. Temascal-1a (Temascal and conbustion box	10	no	16,200.00	5,600.00	21,800
3. Temascal-1b (only combustion box)	30	no	15,000.00	600.00	15,600
4. Demonstration and Capacitation	-	LS	20,400.00	0.00	20,400
		total	166,000.00	19,200.00	185,200.00

B. Breakdown

1. Improved Stove

Items	Quantity	Unit	Unit Cost	Amount (Q.) JICA's fund	Amount (Q.) Beneficiaries	
a. Materials						
Metal Materials (plancha, chimney, Door etc.)		LS		215.38	0.00	
Civil Materials (cement, blocks etc.)		LS		420.40	67.50	
Sub-Total				635.78	67.50	
b. Labor and others						
monpower (skilled)	1	day	75	130.00		
monpower (un-skilled)	1	day	30		30.00	
Transportion and miscellaneous			*15%	95.37		
Sub-Total				225.37	30.00	
Total				861.15	97.50	Total
			say,	880.00	100.00	980

2. Temascal Type-1a (newly construction of a temascal w/ the combustion box)

Items	Quantity	Unit	Unit Cost	Amount (Q.) JICA's fund	Amount (Q.) Beneficiaries	
a. Dome						
Civil Materials (cement, blocks etc.)		LS		712.00	420.00	
Sub-Total				712.00	420.00	
b. Combustion Box						
Metal Materials (plancha, chimney, Door etc.)		LS		212.66	0.00	
Civil Materials (cement, blocks etc.)		LS		157.80	13.20	
Sub-Total				370.46	13.20	
c. Labor and others						
monpower (skilled)	4	days	90	360.00		
monpower (un-skilled)	4	day	30		120.00	
Transportion and miscellaneous			*15%	162.37		
Sub-Total				522.37	120.00	
Total				1,604.83	553.20	Total
			say,	1,620.00	560.00	2,180

3. Temascal Type-1b (only installation of the conbustion box into an existing temascal)

Items	Quantity	Unit	Unit Cost	Amount (Q.) JICA's fund	Amount (Q.) Beneficiaries	
a. Combustion Box						
Chimney, Combustion Box etc.		LS		382.66	0.00	
Sub-Total				382.66	0.00	
b. Mon-power						
monpower (skilled)	0.5	days	90	45.00		
monpower (un-skilled)	0.5	day	30		15.00	
Transportion and miscellaneous			*15%	57.40		
Sub-Total				102.40	15.00	
Total				485.06	15.00	Total
			say,	500.00	20.00	520

4. Temascal Type-2 (house-type Temascal w/ combustion box)

Items	Quantity	Unit	Unit Cost	Amount (Q.) JICA's fund	Amount (Q.) Beneficiaries	
a. Temascal House						
Civil Materials (cement, blocks etc.)		LS		1,711.49	0.00	
Sub-Total				1,711.49	0.00	
b. Combustion Box						
Chimney, Combustion Box etc.		LS		362.50	0.00	
Sub-Total				362.50	0.00	
c. Labor and Others						
monpower (skilled)	6	days	75	450.00		
monpower (un-skilled)	6	day	30		180.00	
Transportion and miscellaneous			15%	311.10		
Sub-Total				761.10	180.00	
Total				2,835.09	180.00	Total
			say,	2,840.00	180.00	3,020

5. Demonstration and Construction Supervision

Items	Quantity	Unit	Unit Cost	Amount (Q.)
a. materials				
demonstration temascal Type-1a	1	no	2,180.00	2,180.00
demonstration temascal Type-1b	1	no	520.00	520.00
demonstration temascal Type-2	1	no	3,020.00	3,020.00
Sub-Total				5,720.00
b. Demonstration, capacitation and administration				
engineer	30	days	200.00	6,000.00
assistants	60	days	100.00	6,000.00
Transportation and others			*20%	2,658.00
Sub-Total				14,658.00
Total				20,378.00
			say,	20,400.00

Cuadro 8.5.4(2) Materiales a ser Preparados por los Beneficiarios

(Unit : Materials for 1 no.)

1. Improved Stove

Items	Quantity	Unit
a. Materials		
Adobe (sun-dried bricks)	20	no
White sand	3	bag
River sand	1	bag
Panela	3	no
b. Labor and others		
monpower (un-skilled)	1	day
Transportion from unloading place to their house	0.5	day

2. Temascal-1 (newly construction of a temascal w/ the combustion box)

Items	Quantity	Unit
a. Dome		
Adobe (sun-dried bricks)	210	no
b. Stove		
White sand	3	bag
River sand	0.5	bag
c. Labor and others		
monpower (un-skilled)	4	day
Transportion from unloading place to their house	0.5	day

3. Temascal-2 (only installation of the conbustion box into an existing temascal)

Items	Quantity	Unit
a. Stove	-	-
b. Mon-power		
monpower (un-skilled)	0.5	day
Transportion from unloading place to their house	0.5	day

Cuadro 8.5.4(3) Programa Implementación: Estufas Mejoradas y Baño Sauna Temascal

Items	2001					2002									
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
a. Sellection of NGO for the implementation															
NGO Selection and Contracting Works	■														
b. Design and Demonstration Stage															
Preparation of Demo		■													
Construction of Demo-Stove and Temascal		■	■												
Trial and Observation Period			■	■	■										
Interview with Villagers					■										
Final Decision of Design					■										
Selection of Beneficiaries					■										
c. Construction Stage															
Arrangement and Delivery of Material						■									
Construction Period							■	■	■						
Capacitation and Lecture for O&M								■	■						
d. Monitoring and Evaluation															
Initial Condidtion Survey		■	■												
Monitoring and Evaluation Survey													■		

Cuadro 8.5.4(4) Beneficios Esperados del Proyecto

Project : Extansion Use of Improved Cooking Stoves and Sauna Bath"Temascal"

- Assumed reduction % of firewood in the Project in a year (*1):	20%	
- Cost of firewood (*2) : Q.100 / tarea	0.3 Q./piece of firewood	
	(1 tarea = 300 pieces of firewood)	
- No. of Facilities to be constructed	Stove:	130 nos.
	Temascal:	40 nos.

(Without Project)

- Consuming rate of firewood :		
Cooking with open fire (*3)	26	pcs/day/family
Original Temascal (*2)	32	pcs/time/family
- Consuming amount of firewood in a year:		
Cooking with open fire	9,490	pcs/year/family
Original Temascal(*4)	3,338	pcs/year/family
	12,828	pcs/year/family
- Total cost for firewood in a year		
Cooking with open fire	2,847	Q./year/family
Original Temascal	1,001	Q./year/family
	3,848	pcs/year/family
- Total cost for firewood in a year for the entire project		
Cooking with open fire	370,110	Q./year
Original Temascal	40,056	Q./year
Total	410,166	Q./year

*1: According to a report of the "PRODETOTO"project, its reduction rate of Improved Stove was 46%.

*2: Based on the results of the survey made by the Study Team/MAGA.

*3: Derived from the report of "PRODETOTO". 1 family = 8persons

*4: Frequency of taking a sauna; 2 times per week in average based on the survey made by the Study Team.

(With Project)

- Total cost for firewood in a year	328,133 Q./year
20% of reduction rare of firewood	

(Benefit per Year)		82,033 Q./year
(Initial Project Cost)	JICA and Beneficiaries' Cost	185,200 Q.
(Rapairing Cost in every 5 years)		17,000 Q.

(Economic Internal Return Rate : EIRR) 78%

EIRR Calculation (unit : Q.)

year	Capital Cost	O&M Cost	Total Cost	Benefit	Net Cash Flow
1	185,200		185,200	82,033	-103,167
2			0	82,033	82,033
3			0	82,033	82,033
4			0	82,033	82,033
5		17,000	17,000	82,033	65,033
6			0	82,033	82,033
7			0	82,033	82,033
8			0	82,033	82,033
9			0	82,033	82,033
10		17,000	17,000	82,033	65,033
11			0	82,033	82,033
12			0	82,033	82,033
13			0	82,033	82,033
14			0	82,033	82,033
15			0	82,033	82,033

Other Benefits and Effects

- Conservation of forestries and watershed
- Reducing respiratory diseases caused by smoke
- Reducing accidental skin burns around a cooking fire
- Improving the health condidions with taking bath more frequently

Cuadro 8.5.5(1) Función y Responsabilidad de Cada Participante en el Plan de MPU

CDRO (NGO)	(1) Supervision and administration of MPU activities (2) Initial training and regular retraining of health promoter and committee members (3) Training and supervision of health committee concerning financing, accounting, stock control and maintenance and operation (Monthly supervision and recording of accounting and stock control done by Health Committee) (4) Initial provision of essential drugs and equipment (5) Providing the patient with prescription by the doctor visiting the village weekly (6) Regular monitoring using appropriate indicators (7) Regular purchasing and selling of drugs to MPU
Health Committee	(1) Monthly checking and recording of monthly benefit, kinds of drugs sold, stock control, and allocation of incentives to promoter (2) Coordination between MPU and CDRO (3) Coordination among health related personnel in the villages such as health promoter, health guards and heath committee (4) Monitoring MPU activities
Health Promoter	(1) Selling drugs and provide basic first aid treatment at MPU (2) Regular purchasing of drugs with admission from health committee through CDRO (3) When the patient is in serious situation or when they need prescription, advice them to go to appropriate health facilities such as Health Center (4) Checking and recording daily benefit, kinds of drugs sold, stock control (5) In case there are some problems, contact to CDRO through health committee (6) Receiving regular retraining from CDRO
Users	(1) Appropriate use of the drugs according to the guidance given by health promoter (2) Avoid giving the drugs bought to the others (3) Avoid self-treatment and go to the appropriate health facilities in case symptoms do not disappear
JICA Study Team	(1) Supervision of CDRO Activities (2) Financing for initial input (3) Monitoring and Evaluation

Cuadro 8.5.5(2) Estimación de Costo del Plan Instalación Unidades de Farmacia Mínima

Items	Unit price	Amount	Total		Particular
1. Training from NGO(CDRO)					
(1) Training for 1 community promoter					First Aid treatment included
					Pharmaceutical issues
Salary for trainer	600	10	6,000		
Material cost	600	2	1,200		
Transportation/lunch for trainees	50	20	1,000		
Transportation/lunch for trainers	50	10	500		
(2) Training for health committee members					one day training accounting methods
transportation/lunch for trainers	100	1	100		
transportation/lunch for trainees	50	5	250		
Materials	100	5	500		
salary for trainer	400	1	400		
(4)One day job on training in MPU			500		On the job training at MPU for 1 day
(5) Retraining of community pharmacist					
and committee members(2 times)					
human resource	450	2	900		
transportation/lunch for trainers	150	2	300		
transportation/lunch for trainees	50	12	600		
(6)Monthly follow-up and monitoring for one year					supervision given by NGO
human resource	85	12	1,020		
transportation	45	12	540		
(7)Purchasing of initial drugs and Transportation	1300	1	1,300		
subtotal for Training				15,110	
2. Drug input	3193	6	19,158		for MPU during 6 months
subtotal for drug input				19,158	
3. Equipment					
a. essential equipment for first aid,					
Mertiolate bottle(for 3 months)	27.9	1	28		
Cotton(for 3 months)	22	3	66		
1 Thermometer	4.5	1	5		
Antibacterial soap × 2	3.25	2	7		
1 Soap box	2.5	1	3		
1 Stainless steel tray	225	1	225		
1 Surgeon scissors	24	1	24		
1 Pinze	32	1	32		
Fabric bandage (for 3months)	7	5	35		
1 towel	15	1	15		
b.Equipment for MPU					
Shelf	900	2	1,800		
Chair	200	2	400		
Table	239	1	239		
Money Boxes	115	2	230		
c. Adminisstration equipment-notebook and pen	50	1	50		
5 notebooks and 4 pens					
d. Minimal Pharmacy Unit building	13967	1	13,967		
subtotal for equipment				17,124	
TOTAL				51,392	

Cuadro 8.5.5(3) Programa de Trabajo del Plan Instalación Unidades de Farmacia Mínimas

Items	2001					2002										
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Training for Community Pharmacist		■														
Training for committee members			■													
Building of MPU		■	■													
Purchasing and provision of drugs and equipment		■	■													
MPU starts functioning			■	■	■	■	■	■	■	■	■	■	■	■	■	
Monthly supervision by Health Committee			■	■	■	■	■	■	■	■	■	■	■	■	■	
Monthly follow-up and monitoring by CDRO			■	■	■	■	■	■	■	■	■	■	■	■		
Regular retraining for community pharmacist and committee								●						●		
Evaluation by JICA Study Team, CDRO and Health Committee															●	

Cuadro 8.5.5(4) Variedad y Cantidad de Medicamentos Básicos para la MPU en Pachum

drug	CDRO estimatio	FIS estimation	Averag	study team suggestion	unit price proam	Initial drug input
acetaminofen 100 mg/ml	167	11	89		2.84	252.29
acetaminofen 120 mgs/5ml	167	28	97		2.21	214.55
acetaminofen 500 mg tab.	167	165	166	300	0.07	21.00
acetaminofen 80 mg tabs	0	0	0	20	0.07	1.40
acido folico	333	110	222		0.09	19.95
albendazol 200 mgs tab	17	110	63	100	0.11	11.00
albendazol 200mgs/5ml suspencion	17	28	22	30	1.35	40.50
alcohol isopropilico	8	1	5		2.5	11.79
alum. Y mag. Hidroxido/dimetilpolisiloxa	33	110	72		6.16	441.47
amoxicilina 250 mgs/5 ml fco	17	28	22	40	5.52	220.80
amoxicilina 500 mgs cap	67	110	88	300	0.36	108.00
bencilo benzoato 25%	0	28	14	30	3.12	93.60
bromexina 4mg/ml jarabe	0	11	6	20	1.97	39.40
cloranfenicol 0.5% sol. Oft gotero	0	0	0	10	2.15	21.50
cloranfenicol 1% sol. Oft tubo	0	11	6		2.76	15.18
clorfeninamina maleato 2mg/5ml	17	0	8		2.33	19.42
clorferinamina maleato 4 mg	17	0	8		0.06	0.50
clotrimazol 2% crema tubo	8	28	18		8.5	152.29
dimenhidranato	0	28	14		0.24	3.30
ferroso sulfato frasco	333	0	167	180	2.98	536.40
guayacolato de glicerilo	0	17	8	20	1.66	33.20
hidroxido de magnesio 360 ml	0	11	6		6.15	33.83
ibuprofen 400 mgs	167	110	138		0.08	11.07
ketoconazol 2% crema	0	0	0	10	5.15	51.50
ketoconazol 200 mgs tab	0	0	0	30	0.33	9.90
mebendazol 100 mgs/5ml	0	11	6	25	0.98	24.50
metrodinazol 125mg/5ml	67	28	47	50	1.94	97.00
metronidazol 500 mgs tabs	0	110	55	150	0.1	15.00
peroxido hidrogeno 3%	0	0	0	5	0.73	3.65
ranitidina 150mgs	67	0	33		0.17	5.67
salbutamol 2mg/5ml	0	28	14	30	1.12	33.60
sro	0	110	55		0.85	46.75
secnidazol 500 mgs tabs	0	110	55	75	0.74	55.50
sulfacetamida 10% oft	0	28	14		2.4	33.00
tinidazol	17	0	8	80	0.28	22.40
trimetropin sulfa 160/800 tabs	83	110	97	150	0.2	30.00
trimetropin sulfa 40/200 fco	17	55	36	50	2.16	108.00
vitaminas multiples capsula	167	275	221	300	0.13	39.00
vitaminas multiples gotero	0	110	55	100	3.15	315.00
				Total per month		3193

is from Venta Social List.
The others are all from Botequine list

Cuadro 8.6.1(1) Aporte necesitado para la Implementación del Proyecto

Compound Fertilizer : (15-15-15、 72 lbs per cuerda at Q.0.95/lbs

Urea : 12 lbs per cuerda at Q.0.90/lbs

Compost : Mixing hen dropping and strained lees of sugar cane and fermented for three months. Price is Q. 20~25/qq and followings are application:

0.5 kg/m²、	4qq/crd
1kg/m²、	8qq/crd
2kg/m²、	16qq/crd
3kg/m²、	24qq/crd

Raw materials of compost like hen dropping and strained lees of sugar cane is better bought in a large quantity by trucks. Price of strained lees is Q 1,200 and hen dropping is 3,500 per truck consignment. It takes about 3 months for making "earthworm compost" Composts are used 8qq/crd. for standard section, 16qq/crd. for IPM section and 24qq/crd. for compost section.

Agricultural chemicals:

The late burning stick (*Tizon tardio*) is the main sickness in the potato crop. For its prevention or its control, you can apply poisons like: Dithane M-45, Antracol, Manzate, Trimilotx forte, Fruvit or Ridomil MZ-58, in a dosage of three or four measurements BAYER (name of a chemical distributor, which includes measurement in its product), of any product with 4-galon pump.

Most farmers in the area are using Antracol for economical reason.

Seeds: * Loman / most prevailed variety in Guatemalan highland

* Diaz / cold resistant
* Clean seeds are propagated by ICTA, but quantity of the propagation is very small at experimental stage and not insufficient to local demand.
* Anti-virus varieties developed by ICTA/ Cucu、Alaska、Paqui、Acana however, generally farmers do not accept the varieties as effective ones
* Generally, potato seeds which farmers store in their house are badly damaged by larva of "*Conttra gallina ciega and gusano alano alanbre* ".

Cuadro 8.6.1(2) Materiales de Aporte y Costos de Parcelas Demostrativas

M/F	Section I	Standard farming section : 1/2 crd x 5 communities : Compost/ 8qq x Q 25 = Q 200/crd x 1/2 crd x 5 communities = Q500 : Compound fertilizer 15-15-15/ 72 lbs/crd x Q 0.95 = Q 72 x 1/2 x 5 = Q171 : Urea/ 12lbs/crd x Q0.90 = Q11x1/2 x 5 = Q27 : Fungicide (Antracol, etc.) /(25cc/gallon x 8times x 2.5crd)x1/2x5= Q425 : Seeds (Loman or Diaz) / 3qq x Q50 x1/2 crd x 5communities = Q375 : Labor/15.5 days x Q25 = Q387.5 x 1/2 crd x 5communities = Q969 : Total for Section I Q 2,467
M/F	Section II	Compost Application Section : 1/2 crd x 5communities : Compost/ 24qq x Q25 = Q300/crd x 1/2 crd x 5communities = Q1,500 : Compound fertilizer 15 · 15 · 15/ 72lbs/crd x Q0.95 = Q72x1/2x5 = Q171 : Urea/ 12lbs/crd x Q0.90 = Q11x1/2 x 5 = Q27 : Fungicide (Antracol, etc.) /(25cc/gallon x 8times x 2.5crd)x1/2x5= Q425 : Seeds (Loman or Diaz) / 3qq x Q50 x1/2 crd x 5communities = Q375 : Labor/15.5 days x Q25 = Q387.5 x 1/2 crd x 5communities = Q969 : Total for Section II Q 3,462
M/F	Section III	IPM Section : 1/2 crd x 5communities : Compost/ 16qq x Q25 = Q250/crd x 1/2 crd x 5communities = Q1,000 : Compound fertilizer 15 · 15 · 15/ 72lbs/crd x Q0.95 = Q72x1/2x5 = Q171 : Urea/ 12lbs/crd x Q0.90 = Q11x1/2 x 5 = Q27 : Fungicide (Antracol, etc.) /(25cc/gallon x 4times x 2.5crd)x1/2x5= Q212.5 : Seeds (varieties recom. By ICTA) / 3qq x Q100 x1/2 crd x 5communities = Q750 : Labor/15.5 days x Q25 = Q387.5 x 1/2 crd x 5communities = Q969 : Total for Section III Q 3,129.5
M/F	Section IV	Clean Seads Section : 1/2 crd x 5communities : Compost/ 8qq x Q25 = Q200/crd x 1/2 crd x 5communities = Q500 : Compound fertilizer 15 · 15 · 15/ 72lbs/crd x Q0.95 = Q72x1/2x5 = Q171 : Urea/ 12lbs/crd x Q0.90 = Q11x1/2 x 5 = Q27 : Fungicide (Antracol, etc.) /(25cc/gallon x 4times x 2.5crd)x1/2x5= Q425 : Seeds (propagated by ICTA)) / 3qq x Q200 x1/2 crd x 5communities = Q1,500 : Labor/15.5 days x Q25 = Q387.5 x 1/2 crd x 5communities = Q969 : Total for Section III Q 3,592

Cuadro 8.6.1(3) Aportes y Costos por Secciones de Parcelas Demostrativas de Papa

A. Farming Input

Item	Unit	Unit Price (Quetzal)	Section I Quantity	Section I Cost (Quetzal/Section)	Section II Quantity	Section II Cost (Quetzal/Section)
Cost				**2,467**		**3,467**
1) Farm Inputs						
- Seeds	qq.	50	7.5	375.0	7.5	375.0
- Fertilizers						
Urea	pound	0.90	30	27.0	30	27.0
15-15-15	pound	0.95	180	171.0	180	171.0
Compost	qq.	25.0	20	500.0	60	1,500.0
- Fungicides	pound	53	8	425.0	4	425.0
2) Labor	man-day	25	38.76	969.0	38.76	969.0

Item	Unit	Unit Price (Quetzal)	Section III Quantity	Section III Cost (Quetzal/Section)	Section IV Unit Price (Quetzal)	Section IV Quantity	Section IV Cost (Quetzal/Section)
Cost				**3,129.5**			**3,592.0**
1) Farm Inputs							
- Seeds	qq.	100	7.5	750.0	200.0	7.5	1,500.0
- Fertilizers							
Urea	pound	0.90	30	27.0		30	27.0
15-15-15	pound	0.95	180	171.0		180	171.0
Compost	qq.	25.0	40	1,000.0		20	500.0
- Fungicides	pound	53	4	212.5		8	425.0
2) Labor	man-day	25	38.76	969		38.76	969.0

Total of Farming Inputs **12,655.5**

Notes: Each Section has an area of 0.5 cuerdas and are replicated in 5 Communities, for a total are of 2.5 cuerdas per Section.
The labor cost is born by the farmer that provides the land for Demonstration Farm.

Cuadro 8.6.1(4) Estimación del Costo del Proyecto de Parcelas Demostrativas

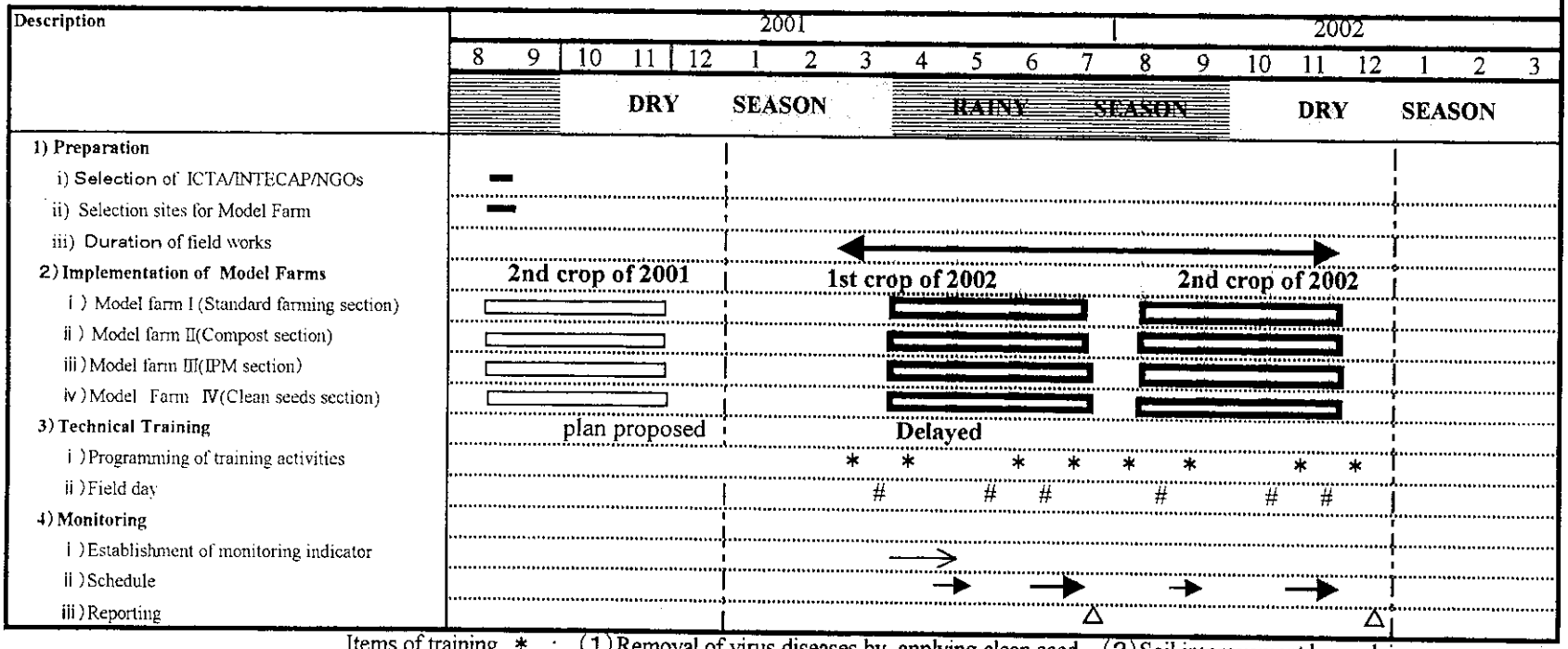
Palestina de Los Altos, Quetzaltenango

Providing Model Farms for demonstration of improved potato farming

Item	Specification	Q'ty	Mdg.	Unit Price	Cost (Q.)	Remarks
Chemical fertilizer	15x15x15	720	lbs	0.95	684.00	72 lbs/crd. recommended by ICTA
	Urea	120	lbs	0.90	108.00	12 lbs/crd. recommended by ICTA
Compost	made of hen manure	140	qq	25.00	3,500.00	8qq/crd or1kg/m2
Fungicides	Dithane M-45, Antracol, Manzate,	28	unit	53.13	1,487.50	mainly Antracol
	Trimilotx forte, Ridomil MZ-58					
Seeds	Loman (3qq x 5.0crd)	15	qq	50.00	750.00	
	Resistant varieties(3qq x 2.5crd)	7.5	qq	100.00	750.00	recommended by ICTA
	Clean seed (3qq x 2.5crd)	7.5	qq	200.00	1,500.00	propagated by ICTA
sub-total(materials)					8.779.5	
Technical training	Training(4), Field-Day(3)	7	time	500.00	3,500.00	experts from ICTA/INTECAP/NGOs
Contingency	5% of total products	1	unit	875.00	875.00	project signboard etc.
Labors for farming	15.5 days/crd x Q25	10	unit	387.50	3,875.00	
TOTAL					17,029.50	

Cuadro 8.6.1(5) Programa de Implementación del Proyecto de Parcelas Demostrativas

Project No	8.6.1
Name of Plan	Model Farm Plan for Potato Production
Target Area	Palestina, Quetzaltenanngo
Implementation Agency	Potato Growers' Association
Project Purpose	①To provide a Model-Farm to demonstrate improved farming practice, ②To show modern techniques on potato production, and ③Target of potato productivity is 25 to 35qq /crd.



Items of training * : (1) Removal of virus diseases by applying clean seed, (2) Soil improvement by applying compost (3) Curtailment of applying pesticides by IPM, (4) Improving cropping system .

Field Day # : Discussion between farmers and potato experts at fields. 3 times in each crop, 6times 12 months.

Cuadro 8.6.2(1) Costo de Proyecto (1/2)

Palestina de Los Altos, Quetzaltenanngo

Item	Specification	Q'ty	Mdg.	Unit Price	Cost (Q.)	Remarks
1. Cost for construction of Warehouse						
Foundation 1.25 x 1.25 x 0.15m						
Cement	gray 5000	30	bolsa	34.50	1,035.00	
Sand	from river	3	m3	85.00	255.00	
Gravel		3	m3	125.00	375.00	
Iron rod	de media	60	Lb	25.00	1,500.00	
Meters of continuous rafter						
Iron rod	3/8" original	30	Lb	15.00	450.00	
Sand	from river	5	m3	85.00	425.00	
Blue gravel		5	m3	125.00	625.00	
Cement	gray 5000	48	bag	34.50	1,656.00	
Filled blocks for foundation		650	ps	3.10	2,015.00	
Sand	from river	1	m3	85.00	85.00	
Blue gravel		10	m3	34.50	345.00	
Straight meters of humid "SOLERA"	0.15x0.20					
Iron rods	3/8" original	40	Lb	15.00	600.00	
Sand	from river	2	m3	85.00	170.00	
Blue gravel		2	m3	125.00	250.00	
Cement	gray 5000	18	bag	34.50	621.00	
Metros linea de solera intermedia						
Iron rods	3/8" original%	20	Lb	15.00	300.00	
Sand	de rio	1	m3	85.00	85.00	
Blue gravel		1	m3	125.00	125.00	
Cement	gris 5000	9	bag	34.50	310.50	
Metros lineales de solela final o corona						
Iron rods	3/8" original%	40	Lb	15.00	600.00	
Sand	de rio	2	m3	85.00	170.00	
Blue gravel		2	m3	125.00	250.00	
Cement	gray 5000	18	bag	34.50	621.00	
Mooring wire		100	Lb	4.00	400.00	
Columns(type A 0.20x0.20)						
Iron rods	1/2" original	48	Lb	22.50	1,080.00	
Iron rods	1/4" original	30	Lb	6.83	204.90	
Sand	from river	3	m3	85.00	255.00	
Blue gravel		3	m3	125.00	375.00	
Cement	gray 5000	30	bag	34.50	1,035.00	
Columns(type B 0.20x0.20)						
Iron rods	3/8" original	24	Lb	15.00	360.00	
Iron rods	1/4" original	15	Lb	6.83	102.45	
Sand	from river	1	m3	85.00	85.00	
Blue Gravel		1	m3	125.00	125.00	
Cement	gris 5000	8	bolsa	34.50	276.00	
Lifting						
Empty blocks of 15 x 20 x 40	15*20*40	2,550	pc.	3.10	7,905.00	
Cement	gris 5000	50	bag	34.50	1,725.00	
Sand	de rio	6	m3	85.00	510.00	
Workmanship for lifting						
Square meters of wall		*225*		*90.00*	*20,250.00*	
Others						
Board		5	dozen	280.00	1,400.00	
Paral		5	dozen	150.00	750.00	
Mixing machine		1	unit	700.00	700.00	

Cuadro 8.6.2(1) Costo de Proyecto (2/2)

Palestina de Los Altos, Quetzaltenanngo

Item	Specification	Q'ty	Mdg.	Unit Price	Cost (Q.)	Remarks
Compression of cold storage floor						
Round stone		30	m3	75.00	2,250.00	
Blue gravel		25	m3	125.00	3,125.00	
Select sand material		50	m3	100.00	5,000.00	
Tubos de cemento	4inches	40	pc.	20.00	800.00	
Foundery of 10cm cold storage floor						
Cement	de gris	110	bolsa	34.50	3,795.00	
Sand		12	m3	85.00	1,020.00	
Blue Gravel		12	m3	125.00	1,500.00	
Iron rods	1/4"original	190	lb	6.83	1,297.70	
Entrance room						
Rubble		115	m3	25.00	2,875.00	
Excavation	*workmanship*	*115*	*m3*	*20.00*	*2,300.00*	
Material filling		*115*	*m3*	*20.00*	*2,300.00*	
Foundry		*18*	*m3*	*165.00*	*2,970.00*	
Placing of cement tubes	*workmanship*	*40*	*pc.*	*12.50*	*500.00*	
Cost for construction of refrigerated room					350,299.68	
Cost for Installation of Transformer e.t.c					80,000.00	
Transportation cost (10% of material and Labor Cost)					51,043.92	
Training Cost (7% of construction Cost. Including Consultant fee for Construction work)					301,307.46	
Sub-Total					561,483.15	
Contingency (10% of construction cost)					56,148.32	
Total Cost for Construction of Warehouse					**617,631.47**	
2.Cost for Installation of Cellar						
Cost for installation of Cellar					600.00	
Cost for Initial Consuming Input					1,280.00	
Cost for Training					14,200.00	
Total Cost for Installation of Cellar					**16,080.00**	
Total Cost Project Cost (1+2)					**633,711.47**	

Cuadro 8.6.2(2) Estimación del Costo de Operación del Proyecto de Almacenage de Papa

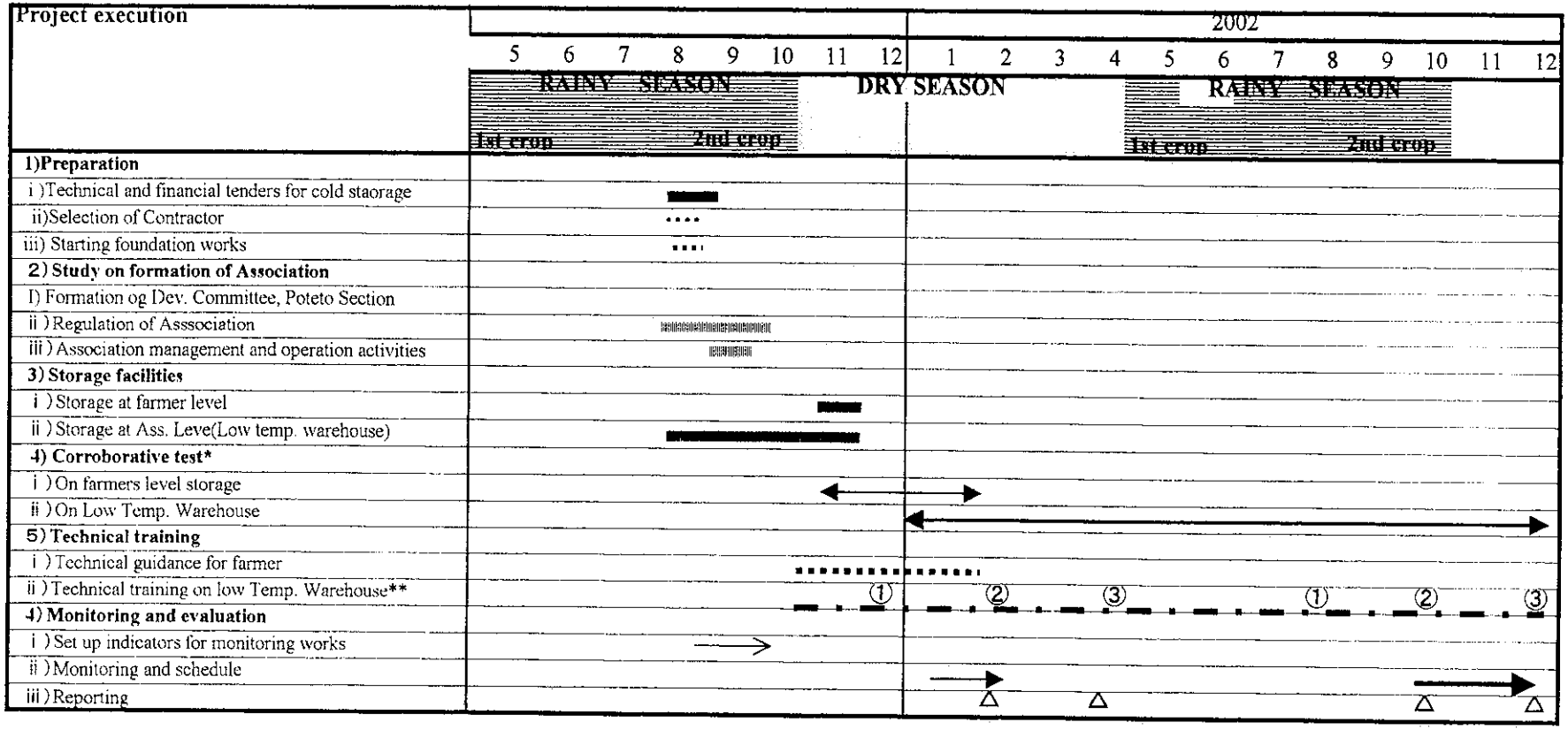
Items	Unit	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1. Electricity														
1) Basic Charge	Q	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2) Compressor														
a. Basic Charge	Q	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	
b. Unit Price	Q/kwh	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	
c. Consumption	kwh	2.50	2.50	0	0	0	0	0	0	0	0	2.50	2.50	
d. Hour per day	hours	12.0	12.0	0	0	0	0	0	0	0	0	12.0	12.0	
e. Days	days	31	28	0	0	0	0	0	0	0	0	30	31	
f. Cost for Electricity	Q	1,679.00	1,518.80	23.60	23.60	23.60	23.60	23.60	23.60	23.60	23.60	1,625.60	1,679.00	6,691.20
3) Fan														
a. Basic Charge	Q	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
b. Unit Price	Q/kwh	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	
c. Consumption	kwh	0.70	0.70	0	0	0	0	0	0	0	0	0.70	0.70	
d. Hour per day	hours	24.0	24.0	0	0	0	0	0	0	0	0	24.0	24.0	
e. Days	days	31	28	0	0	0	0	0	0	0	0	30	31	
f. Cost for Electricity	Q	927.02	837.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	897.12	927.02	3,588.48
4) Total Electricity Cost	Q	2,606.02	2,356.11	23.60	23.60	23.60	23.60	23.60	23.60	23.60	23.60	2,522.72	2,606.02	10,279.68
2. Labor Cost														
1) Technical Staff														
a. Number	persons	2	2	2	0	0	0	0	0	0	0	2	2	
b. Days	days	31	28	0	0	0	0	0	0	0	0	30	31	
c. Man-days	md	62	56	0	0	0	0	0	0	0	0	60	62	240.0
d. Unit Cost	Q/md	40.00	40.00	0	0	0	0	0	0	0	0	40.00	40.00	
e. Cost for Tech. Staff	Q	2,480.0	2,240.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,400.0	2,480.0	9,600.0
2) Unskilled Labor														
a. Number	persons	0	10	0	0	0	0	0	0	0	0	10	0	
b. Days	days	0	15	0	0	0	0	0	0	0	0	15	0	
c. Man-days	md	0	150	0	0	0	0	0	0	0	0	150	0	300.0
d. Unit Cost	Q/md	28.85	28.85	0	0	0	0	0	0	0	0	28.85	0.00	
e. Cost for Tech. Staff	Q	0.00	4,327.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,327.50	0.00	8,655.0
3) Watchman														
a. Number	persons	1	1	0	0	0	0	0	0	0	0	1	1	
b. Days	days	31	28	0	0	0	0	0	0	0	0	30	31	
c. Man-days	md	31	28	0	0	0	0	0	0	0	0	30	31	120.0
d. Unit Cost	Q/md	28.85	28.85	0	0	0	0	0	0	0	0	28.85	28.85	
e. Cost for Tech. Staff	Q	894.35	807.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	865.50	894.35	3,462.0
4) Total Labor Cost	Q	3,374.4	7,375.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7,593.0	3,374.4	21,717.0
3. Water Charge														
1) Basic required volume	lit/qq	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2) Amount of potato for washing	qq	0.0	2,000.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3) Required volume for washing	m3	0.0	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4) Basic water charge	Q/m3	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5) Total water charge	Q	0.0	1,600.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,600.0
4. Other Cost														
1) Maintenance*1	Q	412.8	412.8	412.8	412.8	412.8	412.8	412.8	412.8	412.8	412.8	412.8	412.8	4,953.6
2) Miscellaneous*2	Q	299.0	566.6	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	505.8	299.0	1,679.8
3) Sub-total	Q	711.8	979.4	414.0	414.0	414.0	414.0	414.0	414.0	414.0	414.0	918.6	711.8	6,633.4
5. Total Cost	Q	6,692.2	12,310.8	437.6	437.6	437.6	437.6	437.6	437.6	437.6	437.6	11,034.3	6,692.2	40,230.1
													Cost for 1qq	20.12

*1: Maintenance cost for a year is assumed to be 1% of construction cost of the Storage. Q495,328.00 x 0.01 / 12 months = Q412.8

*2: Miscellaneous cost is caluculated as 5% of the total labor, electicity, and water cost.

Cuadro 8.6.2(3) Programa de Implementación del Proyecto de Almacenage de Papa

Project No	b-3
Name of Plan	Potato Storage Plan
Target Area	Palestina, Quetzaltenango
Implementation Agency	Potato Growers' Association
Project Purpose	① To conduct corroborative experiment for totato storage both at farmers level and farmers' association level,
	② To diffuse the practices among farmers in target area, ③ To increase farmers' income



* Test items: Weight, quality, change of temperature and humidity, change of sugar contentent and condition of texture and skin

** Training items: ①Condition of Temperature and humidities for potato storage、② Storege know-how on other vegetables like onion, snow bean and others. ③Technical training on operation and maintenance on Low Temperature Warehouse

Cuadro 8.6.3(1) Conceptos Básicos del Proyecto de Mini-Riego en Palestina de Los Altos (1/2)

(1) Ownership

Facilities and others	Ownership	
	Initial stage	Further stage
Main facilities (Pump, pump house, conduction pipeline, tank, distributary pipelines)	Municipality	Municipality or Water Users' Association (In case the water users' association is incorporated)
On-farm facilities (0.01 ha of vinyl houses)	Municipality (The beneficiaries should pay an annual rental charge to the Municipality) Annual Rental Charge : Q.2,000 / plot / year Rental Period : 3 years	Municipality or Individual farmers (In case that the beneficial farmer pays the annual rental charge for 3 years without being in arrears, he can obtain the ownership of the on-farm facilities)
Spring water	Municipality (The beneficiaries should pay an certain amount of fee to the Municipality for utilizing the municipality's water. Out of the water charge (Q.2.0 / m^3), about Q. 0.1-0.2/m^3 is counted as the fee to be used for some overall welfare programs in Palestina area.)	

(2) Funds for construction

Main facilities (Pump, pump house, conduction pipeline, tank, distributary pipelines)	The project will pay.
On-farm facilities (Vinyl house)	The project will pay.: vinyl house = 0.01 ha on farm water delivery system for 0.02 ha (0.01 ha with vinyl house and 0.01 ha without vinyl house) By the beneficiaries' own fund : vinyl house = 0.01 ha max. (If farmer wants to expand his vinyl house area, he has right to expand it. It is not compulsory. It depends on the farmers' intention in future)

Cuadro 8.6.3(1) Conceptos Básicos del Proyecto de Mini-Riego en Palestina de Los Altos (2/2)

(3) Further Extension of the Mini-Irrigation System

Items	Descriptions	
Capital / funds for the extension	The revolving fund (the rental charge of the on-farm facilities which will be paid by the beneficiaries annually)	
Allocation of the Capital	All the revolving fund collected from the beneficiaries should be used only for the construction of on-farm facilities. The number of new on-farm system should be finalized in annual meeting among the municipality and water users' association.	
Beneficiaries	(Initial stage)	(Final Number of Beneficiaries)
	75 persons If the number of the applicants are more than 75, a waiting list will be made.	150 persons New on-farm facilities should be provided in sequence of a waiting list of the Mini-irrigation project with same condition of the initial beneficiaries.
Further expansion of the vinyl house from 0.01ha to 0.02 ha by farmers themselves	Initially 0.01 ha of vinyl house will be provided by the project fund. The beneficiaries have right to expand his vinyl house irrigation system by their own funds in future.	

(4) Beneficiaries' Participation and Obligations

Stages	Activities/Items	Remarks
Construction stage*	Voluntary service as a un-skilled labor of the construction works	The project facilities; the tanks, pipelines and related structures.
Operation period	Daily maintenance works	All the beneficiaries are obliged to attend the maintenance works if required.
Cultivation Period	Cost to be paid by the beneficiaries 1) All the agriculture farm input 2) Rental charge of a vinyl house and drip system	1) Fertilizer, seed, pesticide, water charge and so on. 2) Farmers should pay to the municipality for rental charge of vinyl house and drip system.

*: The beneficiaries should provide the voluntary works as the unskilled labors, about 2,550 man-days, i.e. 5-6 man-days per month for each beneficiary in average. (See Table 8.6.3 (7))

Cuadro 8.6.3(2) Prácticas Propuestas para el Manejo de Cultivos Bajo Invernaderos con Riego en Palestina de Los Altos

	Proposed Farming Practices
Cultivo: Tomato	
Varedades de Tomate	Hibridos Daniela, Menroe, Big Beef, Alboran RZ
Densidad de Siembra y Material usado	3 plantas por m2. Sembrar plantitas de "pilones" desarrollados por los mismos agricultores en pequeños envases plasticos de 3 pulgadas de ancho.
Fertilización (lib/100 m2)	N=5; P=4; y K=8
Mano de Obra (Jornales/ 100 m2)	Toda la actividad realizadas por el propietario; familiar = 85 jornales.
Riego	La programación del riego se realizará en base a requerimientos del cultivo.
Control de Insectos & Enfermedades	El invernadero se diseñará de forma tal que ayude a reducir al minimo la penetración de insectos. Aplicar importantes y económicas prácticas de Manejo Integrado de Cultivos (MIC) que han sido validadas por el ICTA, tal como la "Solarización del Suelo" que consiste en cubrir el suelo con plastico por un período de 6 semanas; Aplicar criterios de Umbral Economico de daños para el control de plagas. Hacer aplicaciones para control de insectos y nematodos aplicando pesticidas solo cuando se compruebe su necesidad. Usar insecticidas y fungicida de baja dosis letal para humanos.

Cultivo: Chile Pimiento	
Varedades	Hibrido Zirconio RZ, Nataly, Macabi, Magali
Densidad de Siembra y Material usado	3 plantas por m2. Sembrar plantitas de "pilones" desarrollados por los mismos agricultores en pequeños envases plasticos de 3 pulgadas de ancho.
Fertilización (lib/100 m2)	N=5; P=4; y K=8
Mano de Obra (Jornales/ 100 m2)	Toda la actividad realizadas por el propietario; familiar = 85 jornales.
Riego	La programación del riego se realizará en base a requerimientos del cultivo.
Control de Insectos & Enfermedades	El invernadero se diseñará de forma tal que ayude a reducir al minimo la penetración de insectos. Aplicar importantes y económicas prácticas de Manejo Integrado de Cultivos (MIC) que han sido validadas por el ICTA, tal como la "Solarización del Suelo" que consiste en cubrir el suelo con plastico por un período de 6 semanas; Aplicar criterios de Umbral Economico de daños para el control de plagas. Hacer aplicaciones para control de insectos y nematodos aplicando pesticidas solo cuando se compruebe su necesidad. Usar insecticidas y fungicida de baja dosis letal para humanos.

Cuadro 8.6.3(3) Costo de Producción Financiero y Beneficio de Cultivos Irrigados en Palestina de Los Altos

Tomato (per 100 m2 of greenhouse)

Item	Units	Unit Price (Quetzal)	Quantity	Sub-total (Quetzal/100 m2.)
A) Gross Income				
Production	qq.	250	26	**6,500**
B) Production Cost				**780**
Inputs				
- Seeds (Pilon seedlings)	seedlings	0.15	225	34
- Fertilizers				
N	lib.	2.00	5	10
P	lib.	1.7	4	7
K	lib.	1.6	8	13
- Compost	qq.	25	5	125
- Insecticides	lib.	125	1	125
- Fungicidas	lib.	200	1	200
- Adherente	lit.	50	1	50
- Rope	PA			100
- Labor (Family)	days		**85**	**0**
- Costo de Riego	Per harvest in 100 m2 of greenhous			118
C) Net Income	(Quetzal/m2.)			**5,720**

Chile Pimiento (per 100 m2 of greenhouse)

Item	Units	Unit Price (Quetzal)	Quantity	Sub-total (Quetzal/100 m2.)
A) Gross Income				
Production	qq.	250	10	**2,500**
B) Production Cost				**500**
Inputs				
- Seeds (Pilon seedlings)	seedlings	0.1	225	23
- Fertilizers				
N	lib.	2.00	5	10
P	lib.	1.7	4	7
K	lib.	1.6	8	13
- Compost	qq.	20	3	60
- Insecticides		125	0.5	63
- Fungicidas	lib.	200	0.3	60
- Adherente	lit.	50	1	50
- Rope	PA			100
- Labor (Family)	Jornales		**65**	**0**
- Costo de Riego	Per harvest in 100 m2 of greenhous			118
C) Net Income	(Quetzal/100 m2)			**2,000**

Cuadro 8.6.3(4) Calculo de la Tarifa de Agua de Riego en Palestina de Los Altos

1) Pump Condition

H = 250m, Q = 4 lit/sec, 35HP of Electric Pump, 12hrs operation

Capacity of Pumping Water Volume

14.4 m3/hr

173 m3/12hrs

2) Fuel Consumption

Electric consumption w/ 30HP-pump	26.11	kwH/hr	0.746 (kwH / HP-hr)
Electric cost for pumping 1m4 of water	**1.80**	Q/m3 *	

* : Calculated based on the tariff of DEOCSA and in consideration of some idling charges, , such as basic electric charge and so on, in rainy season

3) Water Charge

Electric Charge	1.80 Q./m3
O & M Cost	0.40 Q./m3
Miscellaneous*	0.55 Q./m3
Total	**2.75 Q./m3**

* Miscellaneous includes replacement cost and the curtain amount of money to be used for overall welfare programs in Palestina de Los Altos

4) Water Consumption for Irrigation

Condition : 0.66 lit/s/ha for 1crop season (100days)

Avegare water comsumption : 75% of max.

4,277 m3/ha/1crop

2,994 m3/manzana/1crop

86 m3/0.02ha/1crop

5) Total Water Charge to be Collected

Total irrigated area : 3.0ha, 1 crop season = 100days

4,277 m3/ha/1crop : consumption of water

12,830 m3/3ha/1crop : consumption of water

Electric Charge	23,095 Q./1 crop
O & M Cost	5,132 Q./1 crop
Miscellaneous*	7,057 Q./1 crop
Total	**35,284 Q./1 crop**

6) Water Charge for 1 pot (0.02ha=200m2)

Condition : 0.66 lit/s/ha for 1crop season(100days)

86 m3/0.02ha/1crop : water amount

235 Q./0.02ha/1crop season

Cuadro 8.6.3(5) Máxima Cantidad de Agua Disponible y Requerimiento de Agua para el Sistema de Mini-Riego de Palestina de Los Altos

(1) Maximum Available Water

Maximum Available Water for the project : 10.7 lit/s (43% of the spring discharge)

- Name of spring : Los Molinos Spring
- Present discharge of the spring : 25.0 lit/s
- Annual increase rate of population : 3 % per year*1
- Number of families 930 families
- Period to be considered 15 years
- The number of family member 6.7 persons/family *2
- Assumed water consumption per capita in 15 years later 96 lit/person/day *3
- Safety Factor in consideration of Dry Year 0.75

(Note: *1: National population increasing rate based on the census '73 and '94 is 2.3%, 2: Based on the household survey. *3: 120 % of the present max consumption)

(2) Irrigation Water Requirement

The calculated irrigation water requirement : **5.7 mm/day, 0.66 litters/sec/ha.**

Irrigation water requirements for each crop are calculated by the following formula :

$WRg = WRn / Ie * C_{loss}$

$WRn = ETcrop - Erain$ here is, WRg : Gross Water Requirement (mm/day)
WRn : Net Water Requirement (mm/day)
ETcrop : Crop Evapotranspiration (mm/day)
Ie : Irrigation Efficiency
Erain : Effective Rain (mm/day)
(in greenhouse : Erain = 0 mm)
C_{loss} : Conveyance Loss Factor

$ETcrop = ETo * Kc$ here is, ETo : Potential Evapotranspiration (mm/day)
Kc : Crop coefficient

NOTE > ETo : Calculated by the Modified Penman Method based on the meteorological data at Labor Ovalle Station in Quetzaltenango

Cuadro 8.6.3(6) Cálculo de los Requerimientos de Agua para Riego : Palestina

	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
ETo (mm/mon.)	103	110	134	133	124	102	121	113	92	96	95	96	103	110	134
Ave. Kc	0.00	0.64	0.83	1.05	0.68	0.30	0.75	0.94	0.90	0.30	0.64	0.83	1.05	0.68	0.00
ETcrop (mm/mon.)	0.0	61.4	96.6	121.9	73.4	26.8	79.1	92.6	72.5	25.2	53.0	69.2	94.9	65.0	0.0
ETcrop (mm/day)	0.0	2.2	3.1	4.1	2.4	0.9	2.6	3.0	2.4	0.8	1.8	2.2	3.1	2.3	0.0
Rainfall (mm/mon.)	0.5	8	11.9	31.6	118.6	150.7	98.4	128	198.3	74.2	18.5	3.8	0.5	8	11.9
Effective rain(mm/mon)*1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Water Reqirement(mm/mon)	0.0	61.4	96.6	121.9	73.4	26.8	79.1	92.6	72.5	25.2	53.0	69.2	94.9	65.0	0.0
Net Water Reqirement(mm/day)	0.0	2.2	3.1	4.1	2.4	0.9	2.6	3.0	2.4	0.8	1.8	2.2	3.1	2.3	0.0
Gross Water Requirement (mm/day)	0.0	3.1	4.4	**5.7**	3.3	1.3	3.6	4.2	3.4	1.1	2.5	3.2	4.3	3.3	0.0
Gross Water Requirement (lit/s/ha)	0.00	0.36	0.51	**0.66**	0.39	0.15	0.42	0.49	0.39	0.13	0.29	0.36	0.50	0.38	0.00

ETo : Calculated by the Modified Penman Method based on the meteorological data at Labor Ovalle Station in Quetzaltenango

*1 : Effwctive Rainfall is 0 mm, because of cultivation in a vinyl house.

Calculation condition

1) Cultivation :
: Vinyl house cultivation with drip irrigation

2) Irrigation efficiency : 85% for drip irrigation

- Drip irrigation : more than 85-90%, say 85%
- Sprinkler irrigation : 70-85% say, 70%
- Surface irrigation : 50%

3) Conveyance loss factor : 1.2

Crops	cropping period (days)					Kc			
	Total	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Brocoli	80	20	30	20	10	0.5-0.6	0.78	0.95	0.80
Cabbage	90	25	30	25	10	0.5-0.6	0.78	0.95	0.80
Carrot	90	15	25	30	20	0.5-0.6	0.80	1.00	0.70
Chile	120	25	35	40	20	0.5-0.6	0.78	0.95	0.80
Cole Brussels	90	25	30	25	10	0.5-0.6	0.78	0.95	0.80
Cauliflower	80	20	30	20	10	0.5-0.6	0.78	0.95	0.80
French bean	70	10	25	25	10	0.5-0.6	0.78	0.95	0.85
Lettuce	75	20	30	15	10	0.5-0.6	0.78	0.95	0.90
Snow pea	80	15	20	30	15	0.5-0.6	0.83	1.05	0.95
Tomato	120	25	35	35	25	0.5-0.6	0.83	1.05	0.60

NOTE> 1th : Initial period, 2nd : crop development period, 3 : mid-season, 4th : last season
Kc : Derived from FAO technical book, Condition: 4days interval irrigation, climate RH>70% & Wind0-5m/s

Cuadro 8.6.3(7) Requerimiento de Mano de Obra No Calificada de Beneficiarios: Mini-Riego en Palestina de Los Altos

1) Calculation of Man-Powers

Items	Excavation Volume [m3]	Backfilling Volume [m3]	Pipe Placement [m]	Man-power [man-day]	Man-power [men/day]	2001 Aug	Sep	Oct	Nov	Dec	2002 Jan	Feb
Construction Stage												
Pump House and Suction Pit	30		0	26	1							
Pump Installation and Miscellaneous Works												
Upper Tank	240	72	0	231	5							
Conduction Pipes	600	480	1,320	776	17							
Distributary Pipes	580	464	12,000	1,393	10							
Valves / Filters / Regulator Installation etc.												
Miscellaneous Works 5%	LS			121.3								
Total				2,547								

Number of Beneficiaries : 75 - 150

2) Labor Productivity for Civil Works*

Work Items	Productivity	Unit
Excavation	0.84	man-day/m3
PVC Pipe Placement	0.06	man-day/m
Backfilling	0.40	man-day/m3

* : Derived from a Japanese Labor Productivities with modified factor Fm (=2.0) .

3) Participation of the Beneficiaries in the Construction Period

566.1	man-day/month in total
5.7	man-day/month/family
1.4	times/week/family

Cuadro 8.6.3(8) Conceptos Propuestos de Organización para Proyecto Mini-Riego (Palestina) (1/2)

1. Beneficiaries	• The beneficiaries of the project will be residents of 5 communities (Los Perez, Los Diaz, Los Morales, Los Cabrera, Sector I) who are willing to participate in this project and satisfy the requirements stated below. (75 persons are tentatively planned to be the beneficiaries for the 1st year.) • The requirements for being beneficiaries are those who, - can secure land area of 0.02 ha in the project area for at least one year - can afford initial investment for farm input (water charge, fertilizer, seeds, etc.) - agree with the concept of the project (lease contract for vinyl house, etc.) - be a member of water users' association formed by the beneficiaries in 5 communities. To be a member, it is required to provide hand labor in constructing irrigation system or for certain days that is decided among the association.
2. Water Users' Association	• Water users' association will be established by the beneficiaries of the irrigation system. Each community selects their representatives and form an executive committee. • The structure of the executive committee is tentatively proposed as follows: 1) President 1 person 2) Vice-President 1 person 3) Secretary 1 person 4) Treasurer 1 person 5) Vocales 5 persons (1 person from each community) • It is recommended to register the association as civil association so that the organization has legal personality and, hence, legal power to negotiate. • At the establishment of association, bank account will be open under the name of water users' association. It is proposed that counter signature of municipality and president of water users' association be necessary for withdrawal of deposit in order to avoid misuse of the deposited money.
3. Support System	
a) JICA Study Team	• Overall supervision of the project (construction of irrigation facility, establishment of organization, etc.) • Provision of equipment and facility • Monitoring and evaluation of the project
b) Municipality	• Establishment of irrigation section in the municipality and assignment of 1~2 personnel for its administration. Room for portable water association might be shared with this section for actual operation. • Management and payment of collected charge for electricity and water use. • Arrangement of local company for repair and maintenance of the system (The cost will be borne by water users' association.).
c) MAGA	• Assignment of at least one personnel for the liaison officer of the Project • Overall supervision and data collection for monitoring. • Mediation in case any problem arises especially between municipality and water users' association. • Provision of technical consultancy for the case irrigation system is broken down.
c) Consultant or NGO	• Technical assistant for vinyl house production • Assistance in marketing

Cuadro 8.6.3(8) Conceptos Propuestos de Organización para Proyecto Mini-Riego (Palestina) (2/2)

4. Contract between Municipality and Water Users' Association	• To demarcate the role of municipality and water users' association and to avoid any conflict regarding ownership of the facility, it is necessary to make contract between them (It would be better to make contract after the association is legally registered, which would take approximately 2 month). • The contents of the contract should cover, at least, following items. a) Parties of the contract (Municipality and Water Users Association) b) Rights of each party (Ownership of irrigation system, Users' right of the facility, Lease contract of vinyl house, etc.) c) Obligation of each party (Collection and Payment of water charge, Compensation for the case facility is broken, etc.) d) Effective period of the contract e) Revision and cancellation of contract f) Nonfulfillment of contract and penalty
5. Land for Cultivation	• Beneficiaries will provide land for cultivation. Presently, it is planned to construct irrigation system in Los Morares and Los Diaz (See Figure 8.6.3 (1)). For this reason, rental of cultivation land among community people, especially for the people from Los Perez, will be necessary and, therefore, consensus among them will be necessary. • The beneficiary should cultivate his own (or rented land) by himself. Tenant farming with other person cannot be accepted.
6. Ownership of Irrigation Facility	• Ownership of the irrigation system will belong to the municipality. However, users' rights have to be protected by making contract between the municipality and the association so that neither party can change users' rights without agreement of both parties.
7. Water charge	• Beneficiaries have to pay water charge that consists of electricity fee, maintenance and repair cost, a fee to be paid to the municipality and miscellaneous cost. • Representative of each community will collect water charge and deposit collected money into the account through treasurer of the association. • Necessary payment such as cost for electricity or repair will be paid from this account as the needs arise.
8. Ownership and Use of Tertiary System and Vinyl House	• Ownership of vinyl house and tertiary system belongs to the municipality and beneficiaries can use them for certain period (one year) on the basis of lease contract. • Those who paid lease charge for the year without any delay will have a right to continue the lease contract for next year. (In case he would like to stop the contract, he can cancel it by his own will.) • In case he or she paid lease fee for 3 years without delay, he or she can have the ownership of the vinyl house. • For those who cannot pay the fee, he cannot continue the lease and the facility will be transferred to other applicants. • In case vinyl house was broken at the time of return because of his fault, he has to either buy the equipment with the full amount or to pay full repair cost. • In case payment is impossible, municipality will pay temporally, and collect money from the person based on the interest rate of Ban Rural. • In case of natural disaster (earthquake, large scale of hurricane, etc.), however, he can evade his duty of payment.

Cuadro 8.6.3(9) Instalaciones del Proyecto de Mini-Riego en Palestina

1) Pump House	<u>Pump</u> Design discharge of pump: 4 litters/sec = 64GPM Driving power and energy: Electric engine 35HP Suction pipe: 3 inches Pump-up Elevation: 250m (from pump station to the top storage tank) <u>Pump House</u> Size : 2*3m Made by : Concrete blocks Electric supply : 1 no. of 100V transformer from the existing pump Existing suction tank for portable water system will be utilized for the irrigation system simultaneously.
2) Water Conveyance System	<u>Conduction pipe system</u> Closed type pipeline Length : 1.6 km in total Pipe type : GI pipe, PVC-250PSI and PVC-160PSI pipe Diameter : ϕ 3" <u>Distributary pipe system</u> Semi-closed type pipelines with float valve systems Length : 3.2 km in total approximately Pipe type : PVC-250PSI and PVC-160PSI pipe Diameter : ϕ 1-1.5" <u>Aqueduct</u> Length : 24 m Pipe diameter : ϕ 3" Wire cable : main cable : 5/8" & supporting cable 1/2"
3) Tank	<u>Top storage tank</u> - Capacity : 180 m^3 (for 12hrs storage capacity of 4 lit/s) - Materials : reinforced concrete - Size : 2.8*8.0*8.0 m - Function : 12 hrs night storage of pumped water in order to irrigate the plots in daytime
4) On farm facilities	Vinyl houses for 0.01ha each will be prepared by the Project. Vinyl house : 7m * 15m with 3/4" PVC pipes and vinyl sheets Water supply : One tap at each plot for manual watering

Cuadro 8.6.3 (10) Costo del Proyecto de Mini-Riego en Palestina

Items		Q'ty	unit	Cost (Q)	Cost (Yen)
Conduction pipe				94,000	1,457,000
	PVC pipe 3" 160PSI	790.00	m		
	PVC pipe 3" 250PSI	180.00	m		
	Galvanized Iron pipe 3"	630.00	m		
Distributary pipe -Cabrera				13,000	201,500
	PVC pipe 1.5" 160PSI	1,500.00	m		
Distributary pipe -Diaz				18,000	279,000
	PVC pipe 1.5" 160PSI	2,000.00	m		
Pipe Miscellaneous			LS	59,000	914,500
	Sub-total			184,000	2,852,000
Pump & Pump House			LS	183,000	2,836,500
	Pump (4 lit/s) including valve etc.				
	Pump House (3*4m)				
	Pumping Pit				
Upper Tank (180m3)			LS	162,000	2,511,000
	Sub-total			345,000	5,347,500
Vinyl House			LS	368,000	5,704,000
	Vinyl house: material & supervision	76.00	no		
	Sub-total			368,000	5,704,000
Construction Supervision (incl. Control Survey)			LS	33,000	511,500
Miscellaneous Works			LS	57,000	883,500
	concrete meter box (0.3*0.3*0.2m)	76.00	nos		
	Small Valve	76.00	nos		
	Water Meter	76.00	nos		
	Aqueduct (L=24m) beside Pump house	1.00	LS		
	Sub-total			57,000	883,500
	Total			983,000	15,236,500
	Price Escalation and Contingency 20%			197,000	3,053,500
	Total-(1)			1,180,000	18,290,000

(2) Cost for training

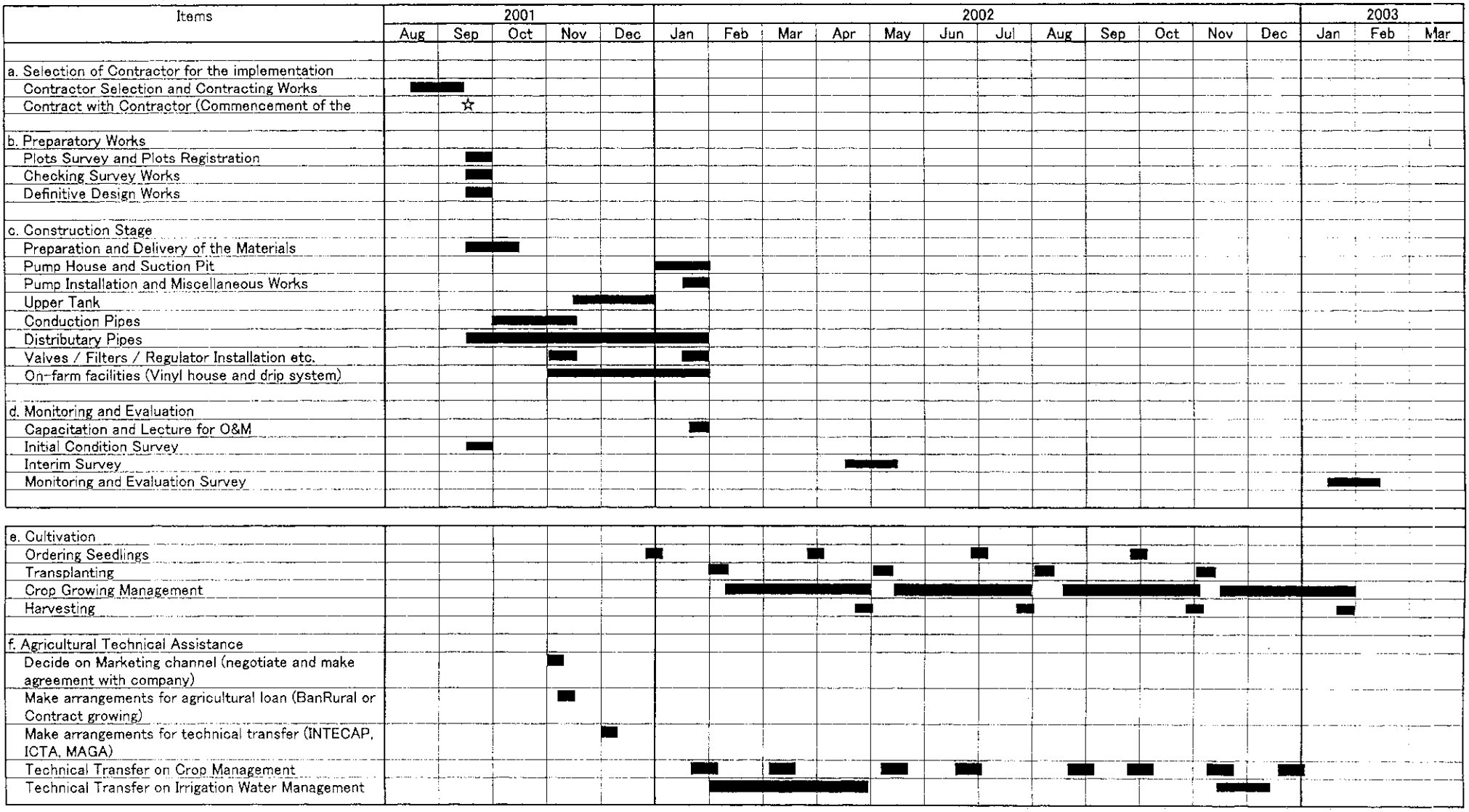
Items		Q'ty	unit	Cost (Q)	Cost (\)
	Personnel charge	45.00	days		
	Fuel and other expenditures		LS		
	Organization training		LS		
	Others		LS		
	Total-(2)			48,000	744,000
	Total (1+2)			1,228,000	19,034,000

(3) Cost for initial agriculture input

	Seeds, pesticide and fertilizer	3.00	ha		
	Water charge	3.00	ha		
	Total-(3)			143,000	2,216,500

Exchange Rate Q.1.0 = Yen 15.5

Cuadro 8.6-3(11) Programa de Implementación: Mini-Riego en Palestina, Quetzaltenango



Cuadro 8.6.3(12) Flujo de Costo y Beneficio: Mini-Riego en Palestina de Los Altos

(unit : Q.)

Year	Cost				Benefit	Net Cash Flow
	Capital Cost *1	O&M Cost*2	Replacement Cost*3	Total Cost		
1	1,303,850	80,070		1,383,920	362,813	-1,021,107
2		80,070		80,070	507,938	427,868
3		80,070		80,070	653,063	572,993
4		80,070		80,070	725,625	645,555
5		80,070	412,500	492,570	725,625	233,055
6		80,070		80,070	725,625	645,555
7		80,070		80,070	725,625	645,555
8		80,070		80,070	725,625	645,555
9		80,070		80,070	725,625	645,555
10		80,070	725,796	805,866	725,625	-80,241
11		80,070		80,070	725,625	645,555
12		80,070		80,070	725,625	645,555
13		80,070		80,070	725,625	645,555
14		80,070		80,070	725,625	645,555
15		80,070	412,500	492,570	725,625	233,055
16		80,070		80,070	725,625	645,555
17		80,070		80,070	725,625	645,555
18		80,070		80,070	725,625	645,555
19		80,070		80,070	725,625	645,555
20		80,070	725,796	805,866	725,625	-80,241
21		80,070		80,070	725,625	645,555
22		80,070		80,070	725,625	645,555
23		80,070		80,070	725,625	645,555
24		80,070		80,070	725,625	645,555
25		80,070	412,500	492,570	725,625	233,055
26		80,070		80,070	725,625	645,555
27		80,070		80,070	725,625	645,555
28		80,070		80,070	725,625	645,555
29		80,070		80,070	725,625	645,555
30		80,070		80,070	725,625	645,555

EIRR : 49.6%

Note:

*1 : Capital cost includes labor cost for the unskilled labors provided by the beneficiaries.

*2 : O & M Cost consists of electric charge, cost for lubricant, payment for pump operators and plumber, other administrative consumption ;

*3 : Replacement Cost :

Green house and drip system ; 50% will be replaced in every 5 years.

Pump replacement ; every 10 years

Pipe system ; 50% of the pipeline needs to be replaced in every 10 years.

Cuadro 8.6.4(1) Costo de Proyecto: Plan de Calidad de Agua Potable en Palestina (1/3)

Q1.00=Yen15.5

Contenido	Especificacion	Cantidad	Unidad de Medida	Precio Unitario (Q.)	Costo (Q.)	Observacion
Instalacion de Equipo Dosificador		3	unidad	16,546.51	49,639.52	
Construccion de Tanque de Distribucion		1	unidad	96,928.22	96,928.22	
TOTAL					146,567.74	

* No incluye obra civil como obra de excavacion, relleno, compactacion.

Cuadro 8.6.4(1) Costo de Proyecto: Plan de Calidad de Agua Potable en Palestina (2/3)

Q1.00=Yen15.5

Contenido	Especificacion	Cantidad	Unidad de Medida	Precio Unitario (Q.)	Costo (Q.)	Observacion
Cimiento	grava 3/4"	1.35	m3	132.50	178.88	
Concreto de base	f'c = 2,000psi	0.45	m3	1,319.71	593.87	
Concreto	f'c = 3,000psi	20.98	m3	1,384.84	29,053.94	
Hierro corrugado	Grado 40.0ksi	66.88	Hlb	507.00	33,908.16	
Parada de agua	150mmPVC	11.41	ml	117.00	1,334.97	
Escarela	Acero inoxidable 5/8"	10	unidad	522.60	5,226.00	
Formaletas		58	m2	273.00	15,834.00	
Tapa de manhole		4	unidad	1,560.00	6,240.00	
Obra de soporte		10	m3	78.00	780.00	
Saffording		19	m2	156.00	2,964.00	
Sleeves		1	Global	585.00	585.00	
Impermeable		20	m2	11.47	229.40	
TOTAL					96,928.22	

* No incluye obra civil como obra de excavacion, relleno, compactacion.

Cuadro 8.6.4(1) Costo de Proyecto: Plan de Calidad de Agua Potable en Palestina (3/3)

Q1.00=Yen15.5

Contenido	Especificacion	Cantidad	Unidad de Medida	Precio Unitario (Q.)	Costo (Q.)	Observacion
DOSIFICADOR	DSA 310 RE-IE	1	Unidad	4,886.60	4,886.60	* Tubo de aspiracion transparente, 1.20m
VALVULA ESFERA	PLASTICA 1"	2	Unidad	41.08	82.16	de largo equipado con lastre y crepina.
MANOMETRO	PRESION 0-100 PSI	1	Unidad	37.44	37.44	
RED.BUSHING	PVC 6" x 3"	2	Unidad	186.61	373.22	* La mano de obra no incluye trabajos de
RED.BUSHING	PVC 3" x 1"	2	Unidad	22.10	44.20	obra civil.
UNION UNIVERSAL	PVC 1"	4	Unidad	28.62	114.48	
FILTRO DE 1"	(ANILLOS) MARCA AZUD	1	Unidad	199.00	199.00	
TEE	PVC 6"	2	Unidad	588.82	1,177.64	
VALVULA MARIPOSA	HF 6" WD-3010-3	1	Unidad	1,470.56	1,470.56	
BRIDA	6" PVC	2	Unidad	324.89	649.78	
TORNILLOS 5/8 x 6" COMP		16	Unidad	11.47	183.52	
						9,218.60
MANO DE OBRA POR INSTALACION		1	Unidad	5,000.00	5,000.00	
ARTICULOS VARIOS Y MISCELANEOS		1	Unidad	1,100.00	1,100.00	
CASETA DE TANQUE DE DEPOSITO	0.8x0.8xH1.2m	1	Unidad			
BLOQUE DE CONCRETO	Tipo liviano de 14x19x39cms	0.096	Millar	2,546.67	244.48	
CEMENTO	Gris nacional	1	42.5kg	30.10	30.10	
ARENA	de rio	0.8	m3	74.62	59.70	
LAMINA GALVANIZADA LISA	3'x8'	1	Unidad	108.63	108.63	
PUERTA DE PLYWOOD	pino de 0.7x1.2m	1	Unidad	400.00	400.00	
TANQUE 55 GLS DE HIPOCLORITO	10%	1	55GLS	385.00	385.00	
TOTAL					16,546.51	

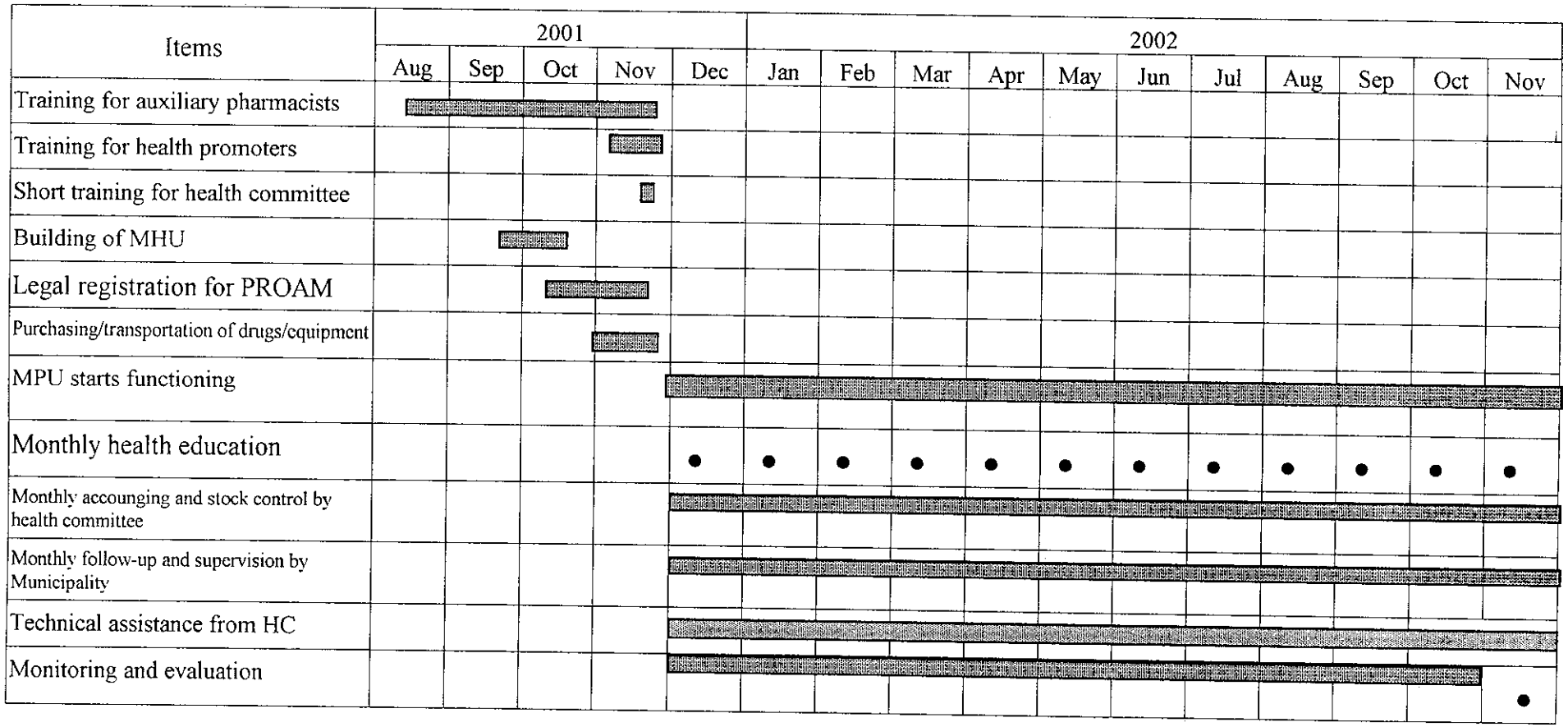
Cuadro 8.6.5(1) Función y Responsabilidad de cada Participante en el Plan de Servicios de Salud Comunitario

Municipal Pharmacy	(1) Regularly (every three month) purchasing PROAM drugs and selling them to MPU with 105% of original purchasing price. (2) Selling PROAM drugs at municipal pharmacy with 133% of original price.
Municipality	(1) Organizing health committees and selecting competent health promoters (2) Preparing all the necessary document to apply to PROAM (3) Monthly supervision of accounting and stock control done by health committee
Health Committee	(1) Monthly administration of drug sales benefit, stock control, accounting for MPU and recording as well as allocation of incentive to health promoter. (2) Safely keep the certain part of benefit for future health activities in the communities. The committee has the right to decide the purpose of use. (3) Support for health education session given by health promoters (4) Co-ordination among health promoter, municipality and municipal pharmacy
Health Promoter	(1) Selling essential drug as well as giving first aid treatment to the village people at their own house unit (2) calculate daily benefit, kinds of drugs sold, first aid attended, stock and record them (3) Implementing monthly health education session in co-operation with health committee (4) Purchasing drugs from Municipal pharmacy with the rate of 105% and selling at 133% of the original prices. (5) Referring the patients to the health center if the symptom does not disappears or in case of very severe symptoms (6) Keep contact with health center for technical assistance
Health Center	(1) Technical support to Health promoter, health committee and municipal pharmacy (2) retraining for health promoters concerning drug selling and health education topics when needed (3) Support for implementation of monthly health education (4) Providing the patient with prescription
Users	(1) Appropriate use of the drugs according to the guidance given by health promoter (2) Active participation to monthly health education (3) Avoid giving the drugs bought to the others (4) Avoid self-treatment and go to the appropriate health facilities when the symptoms do not disappear or very severe symptoms
JICA Study Team	(1) Financing and Purchasing initial equipment and inputs together with municipality including building of MPU (2) Monitoring and Evaluation

Cuadro 8.6.5(2) Estimación del Costo del Plan de Servicios de Salud Comunitaria de la Municipalidad

Items	Unit price (Q)	Amount	Total (Q)		Particular
1. Training					
a. Promoters					
(1)Training by Health Center					
Salary for trainer	5000	1	5,000		Training for health education
Material cost	250	4	1,000		and first aid matters
Transportation/lunch for trainees	250	4	1,000		
(2)Training by Professional parmaceutician					
Transportation/lunch for trainees	50	40	2,000		Training for Pharmaceutical issues
Material cost	500	4	2,000		
Salary for trainers	900	10	9,000		
Accomodation fee for trainers	300	10	3,000		
Gasolin/transportation	75	10	750		
Transportation/lunch for promoters	50	4	200		On the job training at municipal
					pharmacy for 2 days
Transportation/lunch for	50	2	100		Auxiliary pharmacist attends
auxiliary pharmacist					each MPU for 1 day
b. Auxiliary pharmacist					
Course cost including learning materials	300	2	600		
Studying materials	500	2	1,000		
Inscription and final examination	100	2	200		
Transportation and daily allocation					
for trainee	50	80	4,000		
c. Health committee members					
transportation/lunch for trainees	50	10	500		Training for administration of MPU
Materials	50	10	500		
subtotal for training				30,850	
2. Initial Drug input	1911	12	22,932		for 2MPUs during 6 months
subtotal for drug input				22,932	
3. Equipment					
a. Minimal Pharmacy Unit building	13966.9	2	27,934		2 buildings
b. first aid essential equipment					For 2 MPUs
Mertiolate bottle(for 3 months)	27.9	2	56		
Cotton(for 3 months)	22.0	6	132		
1 Thermometer	4.50	2	9		
Antibacterial soap × 2	3.25	6	20		
1 Soap box	2.50	2	5		
1 Stainless steel tray	225.00	2	450		
1 Surgeon scissors	24.00	2	48		
1 Pinze	32.00	2	64		
Fabric bandage (for 3months)	7.00	10	70		
1 towel	15.00	2	30		
c. Health Education Materials	150	24	3,600		2 MPU and Health Centre
d. Adiministration equipment	100	1	100		2 pens and 2 notebooks for committee
10notebooks and 8 pens					
e. Equipment for MPU					For 2 MPUs
shelf	900	2	1,800		
chair	200	4	800		
table	239	2	478		
money box	115	4	460		
f.Transportation fee for initial					
drug and equipment	2000	1	2,000		
subtotal for equipment				38,055	
TOTAL				91,837	

Cuadro 8.6.5(3) Programa de Trabajo del Plan de Servicios de Salud Comunitaria de la Municipalidad



evaluation

Cuadro 8.6.5(4) Contenido del Curso de Capacitación para Promotores de Salud de la Comunidad y Auxiliares de Farmacia

1. **Training Course Content for Health Promoters by Health Center(5 days)**

(1) Acute respiratory infections

(2) Diarrhea and cholera

(3) First Aid

(4) Vaccination

(5) Reproductive health

*The training components includs the drug management according to the protocol and rules of the Ministry of Health.

*The trainer will be Rural Health Technician Coordinator in "Area de Salud de Quetzaltenango", Mr. Hector Larios.

2. **Training Course Content for Health Promoters by private Professional pharmacist(10days)**

(1) General introduction

(2) Methodology

(3) Pharmaceutical forms

(4) Administration method

(5) Prescription

(6) Classification of drugs group 1

(7) Classification de drugs group 2

(8) Training for the administration of Rural Boteqine(First Aid Box)

3. **Training Course Content for Auxiliary Pharmacist by CEGIMED(3 to 4 months)**

(1) General Introduction

(2) Pharmaceutical Legislation

(3) Methodology

(4) Action and Effect of drugs

(5) Administrative method

(6) Classification of drugs 1

(7) Classification of drugs 2

(8) Medicine Plants

(9) Use and risk of drugs

(10) Administration

Cuadro 8.6.5(5) Requerimientos para la Compra de Medicamentos del PROAM (1/2)

CRITERIA FOR THE SELECTION OF GEOGRAPHICAL AREAS FOR THE LOCATION OF "Venta Social" and "Botequin"

FOR Venta Social

1. It must be located in hygienic areas away from places considered as a contamination risk, such as rubbish dumps, canteens, flea markets, etc.
2. It must offer coverage to at least 10,000 people, including those who attend to rural first aid cupboards, in order to assure its self-sustainability.
3. It must search an area which is not attended by any other Social Sales of Drugs.
4. The physical facilities must have a premise dedicated specifically to the sales, with water and bathroom services. It must also have enough lighting and with the right equipment for the appropriate storage and conservation of the drugs.
5. Very distant health services or in difficult to access places to the population.
6. The person in charge must receive a salary.

FOR Botequine(First Aid Box, Minimal Pharmacy Unit)

1. It must be located in hygienic areas away from places considered as a contamination risk, such as rubbish dumps, canteens, flea markets, etc.
2. It must search a geographical area which is not attended by any other Rural First Aid Cupboards or Social Sales of Drugs, in order to improve its coverage.
3. The physical facilities must have a premise dedicated specifically to the sales, with water and bathroom services. It must also have enough lighting and with the right equipment for the appropriate storage and conservation of the drugs.
4. Very distant health services or in difficult to access places to the population.
5. The entrusted person must be a volunteer and will receive a minimum remuneration.

CONDITIONS FOR PURCHASING DRUGS AND FOR THE FUNCTIONING OF VENTA SOCIAL AND BOTEQUIN

1. The payment for the drugs is in cash with a cheque de caja (document bought at a bank, which is not negotiable) bought by the NGO issued to: Bank of Guatemala.
2. No credits are granted.
3. The drugs must be picked up in PROAM's facilities (11th Ave. 11-57, Zone 7, La Verbena).
4. There are no returns, exchanges, expired or complains about drugs after signing of receipt.
5. It is prohibited to sell wholesale drugs in the Social Sales, they will only be sold for treatments.
6. No minimums or maximums are required for buying at PROAM.
7. All the Social Sales must send a monthly report of sales in units and values, within the first five days of each month.
8. Exhibit PROAM's authorized list of prices for the drugs sold. (It is prohibited to increase a percentage greater than the one authorized by PROAM).
9. Every Social Sale of Drugs NOT AUTHORIZED by PROAM will not be able to buy drugs at PROAM.
10. The Social Sales and Rural First Aid Cupboards that don't fulfill the laws and regulations from the Program of Accessibility to Drugs –PROAM-, will be canceled.
11. The order's request must be sent with one month anticipation when the social sale is new and with three working-days anticipation from the second order on.
12. PROAM will indicate the date when the order can be picked up.
13. The exact address of the Social Sale for which the drugs are being purchased must be indicated in the application.
14. Every NGO must send during January the estimated programming per year of consumption of each drug, which can be calculated monthly or quarterly, this must be done bearing in mind the number of Social Sales that are subscribed with PROAM.

Cuadro 8.6.5(5) Requerimientos para la Compra de Medicamentos del PROAM (2/2)

REQUIREMENTS FOR THE OPENING OF A SOCIAL SALES OF DRUGS OR A MUNICIPAL PHARMACY

FROM PROAM:

a. Request to subscribe, addressed to the General Manager from PROAM, indicating the functions and objectives of the Organization, signed and stamped by the NGO's Legal Representative.
b. Fill out subscription form.
c. Enclose **legalized** photocopy that certifies the NGO's legal status, granted by the Ministry of Governing (if the organization was established before August/98) and by the registry office from the municipality where they are constituted (if the organization was established after August/98).
d. Report from the correspondent Health Area Headquarter.
e. Enclose a sketch of the local and geographical location of the Social Sales.
f. Enclose a photocopy of the Legal Representative's identification.
g. **Legalized** photocopy of the Entitlement of the NGO's Legal Representative.
h. Enclose a photocopy of the identification of the persons entrusted of purchasing (two maximum) and two photographs (2" x 2") of each one of them.
i. Enclose a photocopy of the identification from the person in charge of the Social Sales of Drugs (who must be a properly registered Pharmacy Assistant).
j. Enclose a photocopy of the entrusted person's health card.
k. Photocopy of the Tax-payer Identification Number card (NIT), issued by the Ministry of Public Finances under the NGO's name.
l. (*) Enclose a photocopy of the certificate of being registered as a Pharmacy Assistant and the diploma, for the person in charge of the Social Sales; whom will also be the Technical Director.
m. (*) Enclose a photocopy of the Sanitary License of the Social Sales of Drugs, issued by the Department for Regulation and Control of Drugs and similar.

(*) The requirements in letters l) and m), will be asked for after the fulfillment of the requirements from the Department for Regulation and Control of Drugs and similar; which must be enclosed to the NGO's file which was sent to PROAM, for the signature of the correspondent agreement.

FROM THE DEPARTMENT OF REGULATION AND CONTROL OF DRUGS AND SIMILAR

a. Record stating that the NGO has fulfilled PROAM's requirements and is qualified to request a Sanitary License for the Social Sales indicated (issued by PROAM).
b. Request of a Sanitary License, addressed to the Manager of the Department for Regulation and Control of Drugs and similar, **indicating that its for a Social Sales of Drugs** and the authorized address by PROAM (a sanitary license must be requested for each Social Sale that the NGO wants to administrate).
c. Other requirements that the Department for Regulation and Control of Drugs and similar establishes (ask for more information).

FROM THE MINISTRY OF PUBLIC FINANCES

a. Registration to the Value-added Tax (IVA), as a non-lucrative entity.
b. Authorization of the document which will be issued to the consumer (ask what type of document is needed in a non-lucrative entity).
c. Authorization of books (whichever the ministry demands for non-lucrative entities).

Cuadro 8.6.5(6) Variedad y Cantidad Inicial de Medicamentos en MPU en Palestina

Municipality Community Health Service Plan

Name of drug	estimation by fis	municipo farmacy sales	suggestion by health center	Revision by Study Team	unit Price proam	incial drug input
Acetaminofen 100mgs	8		35		2.84	62
acetaminofen 120 mgs/5ml	21	1.16	35	30	2.21	66
acetaminofen 500 mg tab.	125	49.08	166	130	0.07	9
acetaminofen 80 mg tabs	0		222	100	0.07	7
acido folico	83		388	300	0.09	27
albendazol 200 mgs tab	83	7.17	33		0.11	5
albendazol 200mgs/5ml suspencion	21				1.35	28
alcohol isopropilico	1		8		2.5	11
alum. Y mag. Hidroxido/dimetilpolisiloxano	83		33		6.16	358
amoxicilina 250 mgs/5 ml fco	21	5.33	27		5.52	98
amoxicilina 500 mgs cap	83	41.67	88		0.36	26
bencilo benzoato 25%	21		5		3.12	40
bromexina 4mg/ml jarabe	8	1.25			1.97	9
cloranfenicol 0.5% sol. Oft gotero	0		11		2.15	24
cloranfenicol 1% sol. Oft tubo	8		11		2.76	27
clorfeninamina maleato 2mg/5ml	0	3.67	13		2.33	19
clorferinamina maleato 4 mg	0	71.25	37		0.06	3
clotrimazol 2% crema tubo	21	0.25	13		8.5	97
dimenhidranato	21	0.75	11		0.24	3
ferroso sulfato frasco	0		36	50	2.98	149
guayacolato de glicerilo	13	7.42	44		1.66	35
hidroxido de magnesio 360 ml	8				6.15	51
ibuprofen 400 mgs	83	97.25	77		0.08	7
ketoconazol 2% crema			11		5.15	57
ketoconazol 200 mgs tab			33		0.33	11
mebendazol 100 mgs/5ml	8		13		0.98	10
metrodinazol 125mg/5ml	21	9	15		1.94	29
metronidazol 500 mgs tabs	83	42.95			0.1	6
peroxido hidrogeno 3%	0		4		0.73	3
ranitidina 150mgs	0		44		0.17	7
salbutamol 2mg/5ml	21	1.5	25		1.12	18
sro	83		111		0.85	83
secnidazol 500 mgs tabs	83				0.74	61
sulfacetamida 10% oft	21		11		2.4	38
tinidazol	0		66		0.28	18
trimetropin sulfa 160/800 tabs	83	107.49	102		0.2	20
trimetropin sulfa 40/200 fco	42	7.33	36		2.16	61
vitaminas multiples capsula	208	45.33	33		0.13	12
vitaminas multiples gotero	83	3	166	100	3.15	315
				Total per month		1911

is drugs from Venta Social drug list

The rest is from Botequine drug list

Cuadro 8.6.6(1) Detalles de la Capacitación a Migrantes (1/2)

Level A

Trainee: 20

1) 10 Health Centre Personnel esp. Auxiliary Nurses in Centro de Salud and three Puesto de Salud.

2) 10 School Teachers

Trainer: NGO

Place: Municipality Hall in Palestina de Los Altos in Quetzaltenango or Health Centre

Purpose: Train health centre personnel in order to allow them to obtain additional information and skills to support migrants to the south.

Theme of training	Goal: Trainees can teach the following subjects after the training to villagers and school children	Supply of teaching materials	Unit of training
Safe Water "Water Filter"	1 What is the water related disease 2 How to obtain safe water 3 How to make water filter 4 How to manage good water filter	Water tank with a tap and lid	Lecture 2h Practice 3h
Pesticides Management	1 What is Plaguicidas 2 Effects of Plaguicidas 3 Danger of Plaguicidas 4 How to use Plaguicidas 5 When you get sick	Thin body suits Masks Gloves	Lecture 2h Practice 3h
Malaria /Dengue control	1 What is Malaria and Dengue? 2 What is the symptom? 3 How to prevent Malaria/Dengue 4 How to manage when infected	Seeds of Plants	Lecture 2h Practice 3h
Toilets management	1 Making simple toilets 2 Management of toilets	Portable toilet	Lecture 2h Practice 3h

Note: For the trainees from health sector, the participation in Trainings level B is obliged as a part of the training A.

Cuadro 8.6.6(1) Detalles de la Capacitación a Migrantes (2/2)

Level B

Trainee: 20 Community Health Promoters (They are given standard 5 days training to be a health promoters before this training by NGO with the permission of HC)
5 CHP from each caserios receive training of one theme out of 4 listed below.

Trainer: NGO and Auxiliary Nurse as a part of the training of level A

Place: Municipality of Palestina de Los Altos or Health Centre, Quetzaltenango

Period : January-March period , 5 days for standard training plus two days additional training per community health promoters

Level C

Trainee: 200 Migrants in five caserios

Trainer: NGO, Auxiliary Nurses, and Community Health Promoters

Period : January- March

Method: Training is given to villagers in their own village.
The numbers are estimated as 200 in five caserios.
The training are 2-3 hours per theme.
Trainees can change according to the theme.
The training includes lectures and practices.

Theme of training	Goals: Level B: Trainee can teach the subject Level C: Trainee can use new action introduced in the training	Supply of teaching materials to the trainees	Unit of training
Diarrhoea	1 What is Diarrhoea 2 How to prevent Diarrhoea 3 How to treat Diarrhoea patients		Lecture 2h Practice 3h
Safe Water "Water Filter"	1 What is the water related disease 2 How to obtain safe water 3 How to make water filter 4 How to manage good water filter	Water tank with a tap and a lid	Lecture 2h Practice 3h
Pesticides Management	1 What is Plaguicidas 2 Effects of Plaguicidas 3 Danger of Plaguicidas 4 How to use Plaguicidas 5 When you get sick	Thin body suits Mask Gloves	Lecture 2h Practice 3h
Malaria /Dengue control	1 What is Malaria and Dengue? 2 What is the simpton? 3 How to prevent Malaria/Dengue 4 How to manage when infected	Seeds of Plants	Lecture 2h Practice 3h
Toilets management	1 Prepare simple toilets 2 Management of toilets	Portable toilet	Lecture 2h Practice 3h

Cuadro 8.6.6(2) Costo del Proyecto de Plan de Migrantes a la Costa Sur

Items	Unit Price (Q)	Amount	Total (Q)	Remarks
(A) Project implementation	LS		116,000	training, monitoring survey and base-line survey
(B) Equipment and material				
Water filter	560	200	112,000	for potable water
Mask /gloves/rain coat	200	200	40,000	for pesticides
Simple toilet	440	200	88,000	
Seeds of repellent plants	100	200	20,000	against Malaria/dengue
(C) Teaching materials	72	250	18,000	
			394,000	