付　図

THE VERIFICATION STUDY ON SUSTAINABLE RURAL DEVELOPMENT FOR THE REDUCTION OF POVERTY IN THE CENTRAL HIGHLAND REGION OF THE REPUBLIC OF GUATEMALA

Japan International Cooperation Agency (JICA)

図 3.2.2 (1)　ミニ灌漑における工事進捗

	Work Description		Year	2001			2002																								
		Amount (Q)	Month	Dec			Jan			Feb			Mar			Apr			May			Jun			Jul			Aug			Total
1	Preparation Work:	5,562.89	Scheduled Progress	100%		100.0%																									100%
	Mobilization & Survey work		Schld Progress Amount			5,562.9																									5,563
			Actual Progress			100.0%																									100%
			Actual Progress Amount			5,562.9																									5,563
				90%																											
2	Pipeline Works																														
2-1	Conduction Pipe	83,054.66	Scheduled Progress					5.0%	5.0%	30.0%	30.0%	30.0%																			100.0%
			Schld Progress Amount					4,152.7	4,152.7	24,916.4	24,916.4	24,916.4																			83,055
			Actual Progress	80%				2.0%	2.0%	20.0%	20.0%	56.0%																			100%
			Actual Progress Amount					1,661.1	1,661.1	16,610.9	16,610.9	46,510.6																			83,055
2-2	Distributary Pipe	88,275.47	Scheduled Progress							10.0%	15.0%	15.0%	35.0%	25.0%																	100.0%
			Schld Progress Amount	70%						8,827.5	13,241.3	13,241.3	30,896.4	22,068.9																	88,275
			Actual Progress							9.0%	10.0%	10.0%	50.0%	21.0%																	100%
			Actual Progress Amount							7,944.8	8,827.5	8,827.5	44,137.7	18,537.8																	88,275
				60%																											
3	Pump & PumpHouse	179,916.00	Scheduled Progress			2.0%	2.0%	2.0%	2.0%	2.0%	30.0%	30.0%	30.0%																		100.0%
			Schld Progress Amount			3,598.3	3,598.3	3,598.3	3,598.3	3,598.3	53,974.8	53,974.8	53,974.8																		179,916
			Actual Progress			0.0%	0.0%	5.0%	5.0%	5.0%	10.0%	45.0%	30.0%																		100%
			Actual Progress Amount	50%		0.0	0.0	8,995.8	8,995.8	8,995.8	17,991.6	80,962.2	53,974.8																		179,916
4	Upper Tank	125,065.47	Scheduled Progress			2.5%	2.5%	2.5%	2.5%	20.0%	30.0%	30.0%	10.0%																		100.0%
			Schld Progress Amount			3,126.6	3,126.6	3,126.6	3,126.6	25,013.1	37,519.6	37,519.6	12,506.5																		125,065
			Actual Progress	40%			4.0%	4.0%	4.0%	20.0%	28.0%	30.0%	10.0%																		100%
			Actual Progress Amount			0.0	5,002.6	5,002.6	5,002.6	25,013.1	35,018.3	37,519.6	12,506.5																		125,065
5	Construction Supervision	82,885.04	Scheduled Progress			5.0%	10.0%	10.0%	10.0%	10.0%	15.0%	15.0%	15.0%	10.0%																	100.0%
	& other works		Schld Progress Amount	30%		4,144.3	8,288.5	8,288.5	8,288.5	8,288.5	12,432.8	12,432.8	12,432.8	8,288.5																	82,885
			Actual Progress			5.0%	10.0%	10.0%	10.0%	10.0%	15.0%	15.0%	15.0%	10.0%																	100%
			Actual Progress Amount			4,144.3	8,288.5	8,288.5	8,288.5	8,288.5	12,432.8	12,432.8	12,432.8	8,288.5																	82,885
6	Training	19,665.00	Scheduled Progress	20%									25.0%	25.0%						5.0%	5.0%	5%	5.0%	5.0%	5%	5.0%	5.0%	5%	5.0%		100.0%
			Schld Progress Amount										4,916.3	4,916.3						983.3	983.3	983.3	983.3	983.3	983.3	983.3	983.3	983.3	983.3		19,665
			Actual Progress							10.0%	10.0%	10.0%	10.0%	10.0%						5.0%	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		100%
			Actual Progress Amount							1,966.5	1,966.5	1,966.5	1,966.5	1,966.5						983.3	983.3	983.3	983.3	983.3	983.3	983.3	983.3	983.3	983.3		19,665
				10%																											
7	Initial Agriculture Input	83,678.74	Scheduled Progress										100.0%																		100.0%
			Schld Progress Amount										83,678.7																		83,679
			Actual Progress										100.0%																		100%
			Actual Progress Amount	0%									83,678.7																		83,679
8	Miscellaneous & Taxes	140,034.44	Scheduled Progress			2.46%	2.25%	2.87%	2.87%	10.57%	21.27%	21.27%	29.70%	6.16%						0.05%	0.05%	0.10%	0.09%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%		100.00%
			Schld Progress Amount			3,444.2	3,146.8	4,017.2	4,017.2	14,807.0	29,781.0	29,781.0	41,585.8	8,626.7						70.1	70.1	140.3	126.2	70.1	70.1	70.1	70.1	70.1	70.1		140,034
			Actual Progress			1.45%	1.99%	3.58%	3.58%	10.30%	13.58%	27.43%	28.00%	9.49%						0.05%	0.05%	0.10%	0.09%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%		100%
			Actual Progress Amount			2,034.6	2,785.8	5,019.5	5,019.5	14,424.6	19,016.7	38,406.3	39,209.6	13,290.3						70.1	70.1	140.3	126.2	70.1	70.1	70.1	70.1	70.1	70.1		140,034
	(A) Scheduled Total %		Monthly Progress %			2.46%	2.25%	2.87%	2.87%	10.57%	21.27%	21.27%	29.70%	5.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	0.13%	0.14%	0.14%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%		100%
			Accumulate %			2.46%	4.71%	7.58%	10.44%	21.02%	42.28%	63.55%	93.25%	98.68%	98.68%	98.68%	98.68%	98.68%	98.68%	98.81%	98.94%	99.08%	99.22%	99.35%	99.48%	99.61%	99.74%	99.87%	100.0%		
	Total Amount	808,137.72	Monthly Progress Amount			19,876.3	18,160.3	23,183.4	23,183.4	85,450.8	171,865.9	171,865.9	239,991.3	43,900.4	0.0	0.0	0.0	0.0	0.0	1,053.4	1,053.4	1,123.5	1,109.5	1,053.4	1,053.4	1,053.4	1,053.4	1,053.4	1,053.4		808,137.8
			Accumulate Amount			19,876.3	38,036.6	61,220.0	84,403.4	169,854.2	341,720.1	513,586.1	753,577.4	797,477.7	797,477.7	797,477.7	797,477.7	797,477.7	797,477.7	798,531.1	799,584.5	800,708.0	801,817.5	802,870.9	803,924.2	804,977.6	806,031.0	807,084.4	808,137.8		
	(B) Actual Total %		Monthly Progress %			1.5%	2.0%	3.6%	3.6%	10.3%	13.8%	28.0%	30.7%	5.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%		100.0%
			Accumulate %			1.45%	3.44%	7.03%	10.61%	20.91%	34.75%	62.80%	93.47%	98.68%	98.68%	98.68%	98.68%	98.68%	98.68%	98.81%	98.94%	99.08%	99.22%	99.35%	99.48%	99.61%	99.74%	99.87%	100.0%		
	Total Amount	808,137.72	Monthly Progress Amount			11,742	16,077	28,968	28,968	83,244	111,864	226,626	247,907	42,083	0	0	0	0	0	1,053	1,053	1,124	1,109	1,053	1,053	1,053	1,053	1,053	1,053		799,584
			Accumulate Amount			11,742	27,819	56,786	85,754	168,998	280,862	507,488	755,395	797,478	797,478	797,478	797,478	797,478	797,478	798,531	799,584	800,708	801,817	802,871	803,924	804,978	806,031	807,084	808,138		

Scheduled Progress

Actual Progress

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Japan International Cooperation Agency (JICA)

Work Description	Unit	Total in Phase I		Total in Phase II		January		February		March		July		August		September		October		November	
		Q'ty	Total(Q)	Q'ty	Total(Q)	Q'ty	Total(Q)	Q'ty	Total(Q)	Q'ty	Total(Q)	Q'ty	Total(Q)	Q'ty	Total(Q)	Q'ty	Total(Q)	Q'ty	Total(Q)	Q'ty	Total(Q)
Pipeline Works	m	258.14	57,696.95	2,741.86	235,570.39	54.4	7,002.11	127.9	22,100.56	258.1	57,696.95	478.1	58,108.35	1,570.5	81,832.79	1,812.4	122,170.18	2,461.4	258,053.15	3,000.0	293,267.34
						(1.8%)	(2.4%)	(4.3%)	(7.5%)	(8.6%)	(19.7%)	(15.9%)	(19.8%)	(52.4%)	(27.9%)	(60.4%)	(41.7%)	(82.0%)	(88.0%)	(100.0%)	(100.0%)
Aqueduct	LS	0%	0.00	100%	85,075.20		0.00		0.00		0.00		0.00		0.00		17,015.04		59,552.64		85,075.20
							(0.0%)		(0.0%)		(0.0%)		(0.0%)		(0.0%)		(20.0%)		(70.0%)		(100.0%)
Distribution Tank	LS	82%	71,584.17	18%	16,000.89		14,316.83		50,108.92		71,584.17		71,584.17		71,584.17		87,585.06		87,585.06	1.00	87,585.06
							(16.3%)		(57.2%)		(81.7%)		(81.7%)		(81.7%)		(100.0%)		(100.0%)		(100.0%)
Miscellaneous	LS	0%	0.00	100%	93,272.41		0.00		0.00		0.00		113.98		6,687.16	-	27,010.68	-	76,444.48	-	93,272.41
							(0.0%)		(0.0%)		(0.0%)		(0.1%)		(7.2%)		(29.0%)		(82.0%)		(100.0%)
Total			129,281.12		429,918.89		21,318.94		72,209.48		129,281.12		129,806.50		160,104.12		253,780.96		481,635.33		559,200.01
							(3.8%)		(12.9%)		(23.1%)		(23.2%)		(28.6%)		(45.4%)		(86.1%)		(100.0%)

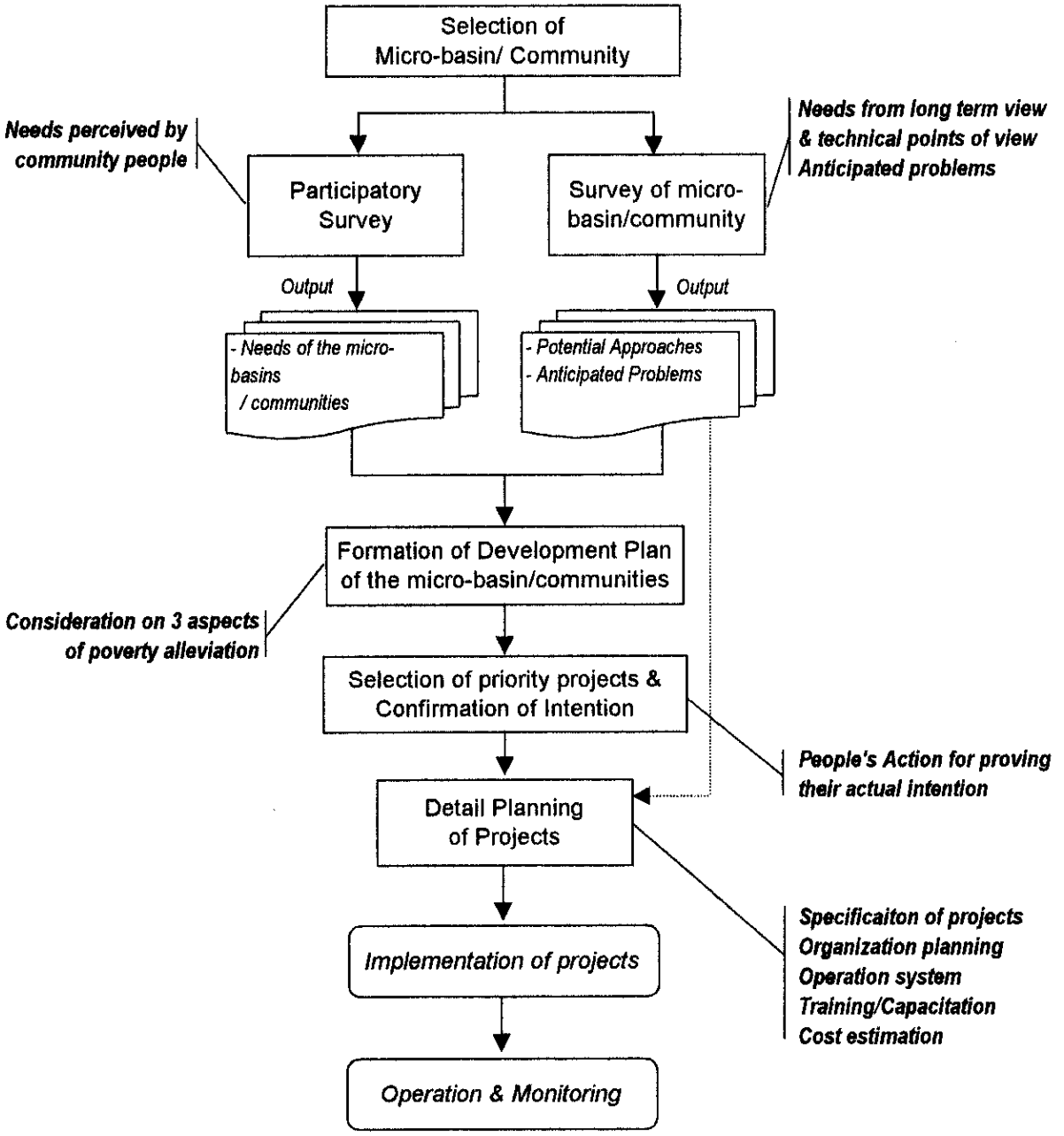
図 3.3.3 (1)
工事スケジュールと進捗：飲料水施設改善計画

Periods When Potatoes Varieties Loman and Dia 71 are Sold at "La Cumbre" Selling Point, Near Palestina

Place of Potato Production	Potato Variety	January	February	March	April	May	June	July	August	September	October	November	December
San Marcos	Loman												
San Marcos	Dia 71												
Palestina de Los Altos	Loman												
Palestina de Los Altos	Dia 71												
La Cumbre	Loman												
La Cumbre	Dia 71												
Sibilia	Loman												
Sibilia	Dia 71												

図 3.5.1 (1)

馬鈴薯の価格変動（"La Cumbre"において）



The Verification Study of the Master Plan on Sustainable Rural Development for the Reduction of Poverty in the Central Highland Region of the Republic of Guatemala	図 5.1.2 (1) 小流域/コミュニティにおける開発計画策定手順
Japan International Cooperation Agency (JICA)	

付属資料

プロジェクト・デザイン・マトリックス(PDM)
及びプロジェクト・プロファイル

プロジェクト・デザイン・マトリックス(PDM)とプロジェクト・プロファイル

1. シェアツァン・バホ
   - #1 縫製事業促進計画
   - #2 ミニ灌漑計画
   - #3 飲料水水質改善計画

2. パンジェバール
   - #4 コーヒー生産向上計画
   - #5 労働軽減の為のコーヒー処理施設導入計画
   - #6 飲料水施設改修計画
   - #7 飲料水水質改善計画

3. パチュム
   - #8 改良調理および改良サウナ風呂施設普及計画

4. パレスティナ
   - #9 馬鈴薯貯蔵改善計画
   - #10 馬鈴薯モデルファーム設置計画
   - #11 ミニ灌漑計画
   - #12 南部移動民対策計画
   - #13 ムニシパリティ地域保健サービス計画
   - #14 飲料水水質改善計画

PROJECT PROFILE #01

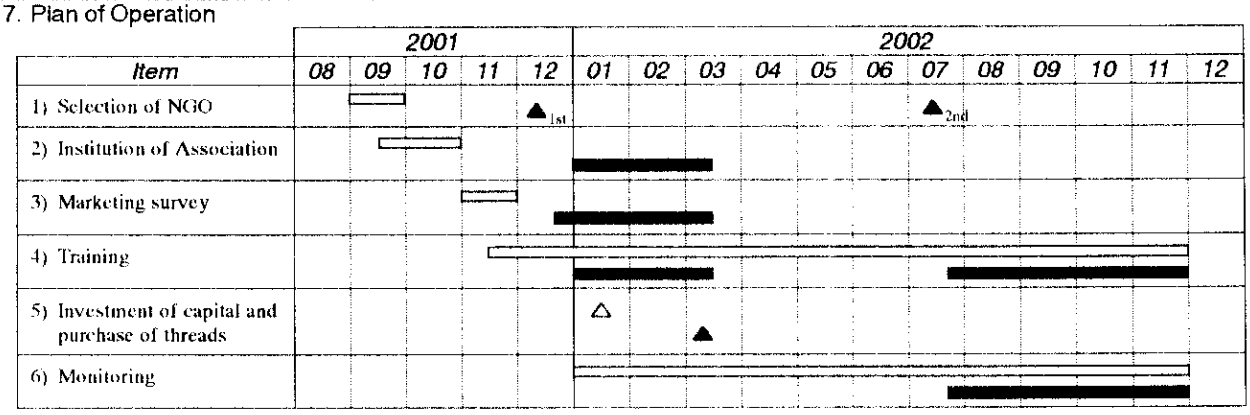
Project Name: Plan of Revolving Fund for Hand Weaving Thread
Community: Xeatzan Bajo

Item	Contents	Remarks
1. Objectives	Majors of women in Xeatzan Bajo have produced traditional Mayan women's blouses called Huipils by hand weaving. They have to purchase a small quantity of thread for Huipils by the higher price at retailers because their capital is quite limited, which results in increasing of production cost. In this project, initial investment of purchasing threads as revolving funds is given to the women's association to be instituted. They associationly purchase cheaper threads at wholesale stores and can reduce production cost of Huipils to increase profit. In addition, various educational training will be performed for women to increase their capacity building.	
2. Number of Beneficiaries	About 200 women who are engaged in weaving Huipils in Xeatzan Bajo.	
3. Implementation Organization	Women's Huipils production association for Xeatzan Bajo /JICA Study Team	
4. Project Contents		
1) Project Outline	1) Establishment of production organization and control system of revolving fund 2) Provision of capital for revolving fund given by JICA 3) Marketing survey conducted by NGO 4) Training program conducted by NGO (organization, management and accounting, general matters, gender, planning and evaluation) 5) Monitoring	
2) Facility / Activity	*Facilities/Activities* / *Implementator* 1) Establishment of organization and revolving fund — 1) NGO 2) Marketing survey — 2) NGO 3) Training — 3) NGO 4) Operation of organization (association purchase of threads and selling them to the member of association) — 4) Association	
3) Organization for O&M	1) Women's Huipils production association for Xeatzan Bajo	
4) Construction Period	1) Establishment of association: 1 month 2) Marketing survey: 1 month 3) Training: 7 months	
5. Project Cost	1) Initial capital for revolving fund ..... Q 86,000 2) Equipment and materials for association office ..... Q 10,180 3) Project management including training, marketing survey, establishment of association) ..... Q 162,180 Total project cost ..... Q 258,360	

6. Monitoring & Evaluation

Item	*Frequency*	*Data collector*	*Aggregation*	*Decision Maker*
1) Amount of thread that are sold and stocked in association	Once a week	Association	NGO	JICA Study Team
2) Financial statement	Once a week	Association	NGO	JICA Study Team
3) Reduction of production cost	Once a year	Association	NGO	JICA Study Team

7. Plan of Operation



: Schedule, : Progress

PDM #01: Plan of Revolving Fund for Hand Weaving Thread

Community: Xeatzan Bajo | Target Group: Women in the Village
Period: Sep. 2001 ~ Dec. 2002 | Implt. Organization: JICA and Women's Association

January, 2003

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1. Poverty condition in central highland region will be mitigated.	1. Poverty indicator of rural area will be improved up to the provincial average by 2015.	1. FIS Poverty Indicator and monitoring on Farmers.	1. There will be no drastic change in development policy of Guatemalan Government.
Project Purpose 1. Income of women in Xeatzan Bajo will be improved. 2. Women's capacity will be enhanced to improve socioeconomic situation.	1. Participant's income increase by 10 per cent	1 Record of weekly and monthly meeting (monitoring on members) 2 Record of the association	1. Similar type of projects will be implemented in other neighboring communities with utilizing the monitoring results of this project.
Outputs 1. Women's association is established and in active. 2. Women buy thread at cheaper price from the association. 3. Members master organizational and administrative skills and operate association by themselves. 4. The association continues joint purchase of thread 5. Members can sell their products at better price. 6. Members understanding on huipil business, alternative income generation activity is enhanced. 7. Members master basic management skill such as writing and reading, simple calculation.	*By Nov 2002* 1. The production cost decrease by 15 %. 2. Amount of thread that are sold and stocked in association. 3. Balance of cash flow	1. Monitoring on thread price at retailer and wholesaler. 2. Operation record of the association for a accounting book and sale/ stock book	1. The price of thread and huipil do not change dramatically 2. The demand for huipil will not be deteriorated from the present level.
Activities 1. Establishment of women's association 2. Provision of thread to the association as the initial input 3. Sale of thread by the association to the members. 4. Joint purchase of thread through the association 5. Training of members - Basic training for management (simple calculation, literacy training) - Huipil business (marketing, demand and perspective of huipil business) - Organization management (accounting, etc.) - Skill and information on alternative income generation activities.	*Inputs* *JICA side* 1. Purchase cost of thread ..... Q 86,000 2. Purchase cost for other initial inputs ..... Q 10,180 3. Cost of training for members' capacitation and other management support ..... Q 162,180 Total Cost ..... Q 258,360 *Guatemalan side* 1. Rental space for thread shop (aprox. 30m^2) Q150/month		1. The consumption of thread in Xeatzan Bajo does not change drastically. *Pre-conditions*

PCM Evaluation #01: Plan of Revolving Fund for Hand Weaving Thread

Evaluation Summary	Efficiency	Effectiveness	Impact	Relevance	Sustainability
Overall Goal 1. Poverty condition in the central highland region will be mitigated.			(+) It is expected that income increase will contribute to the poverty reduction. (+) Surrounding areas also enjoy the cheaper price of thread.	(+) Improvement of job opportunity for women is still important factor for poverty reduction in Guatemala. (-) Market of Huipil is still limited and it is quite difficult to enhance its business opportunity.	(-) Financial condition is poor and profit accumulation is not sufficient for future activity. (-) Supporting system is very weak. Government has neither sufficient fund nor staff for conducting continuous supervision. (+) Demand for cheaper thread is still high in and around the community and therefore there is a possibility of continuation.
Project Purpose 1. Income of women in will be improved. 2. Women's capacity will be enhanced.		(+) It was observed that income has increased through reduction of production cost in terms of material cost, time cost and transportation cost. (±) Capacity is enhanced for those who engaged in shop management, while it is not for those who did not engage.			
Outputs 1. Women' cooperative is established and in active. 2. Women buy thread at cheaper price. 3. Members operate cooperative by themselves. 4. The cooperative continues joint purchase of thread. 5. Members' understanding on huipil business, alternative income generation activity is enhanced. 6. Members master basic management skill such as writing and reading, simple calculation.	(+) Association is established & in active. (±) Cash and stock control was poor at beginning. With the change of system, the condition improved significantly. (+) Members can reduce the production cost by appox.8.6%. (-) Understanding on Huipil business, alternative income source is not enhanced as expected.				
Inputs 1. Material thread (Q86,000) 2. Provision of other inputs (utensils, stationery, etc.) (Q10,180) 3. Training (Q162,180)	(+) 29 women continuously participated in the training class per week and most of them answered that the class was useful				

OVERALL EVALUATION #01
Plan of Revolving Fund for Hand Weaving Thread

Criteria	Result	Basis
Efficiency	Relatively High	- Cost reduction is achieved to some extent (reduction of material cost by 8.6%). - Skill in operation and management of the association is improved for those who engaged in the shop management. - 29 women continuously attend the literacy training for 3 months and obtained reading and writing skill.
Effectiveness	Basically achieved	- Cost reduction is achieved to some extent (reduction of material cost by 8.6%). - Skill in organizational management is not sufficiently achieved. Continuous supervision will be necessary for the women to have sufficient skill.
Impact	Positive impact is expected.	- It is considered that reduction of production cost contributed to the income improvement. It is expected that this cost reduction will contribute to poverty alleviation in central highland region in long term. - Surrounding areas of the Xeatzan Bajo also enjoy the cheaper price of thread, which means that larger area start gaining the benefit from the project.
Relevance	High	- The demand for job opportunity for women is still high and quite important for the poverty reduction of indigenous people. - Although the market for Huipil is limited, it is still essential work for women and demand will stay at present level for the time being.
Sustainability	Low	- Financial condition is poor and profit accumulation is not sufficient for future activity. - Supporting system is too weak to provide continuous supervision.

Conclusion	It is observed that income condition and women's capacity are gradually improved after the implementation of the project. However, continuous and close supervision will be still necessary in order to make the improvement more certain. On the other hand, the supporting system under the present government is quite weak and provision of continuous supervision would be difficult. Therefore, it can be concluded that the sustainability of the project is low.

Recommendation *[Responsible agency]*	Following points shall be followed up for the project to be sustainable. *[a),b),c),d): MAGA, e): Village authority]* a) Continuous supervision and training on accounting and stock control. b) Assistance for preparation of simple report on shop operation. c) Assistance in establishment of auditing and reporting system. d) Assistance in finding wholesaler that offers more reasonable price e) Monitoring by beneficiaries, at least, on following items. - Difference between cash holding and balance in the accounting book - Difference between actual stock and balance in stock book - Total monthly sale

PROJECT PROFILE #02

Project Name: Mini-Irrigation Plan
Community: Xeatzan Bajo

Item	Contents	Remarks
1. Objectives	To increase farmers income through: i) increase in cropping intensity from 225 % under present condition up to 300 % with project conditions; ii) increase crops yield by about 1.5 times; iii) increase quality of produce, and therefore attain better farm gate prices and iv) organization of users association in terms of O&M of facilities and marketing.	
2. Number of Beneficiaries	About 80 farmers (4.6 ha)	
3. Implementation Organization	Irrigation Committee of Xeatzan Bajo	
4. Project Contents		
1) Project Outline	Presently most of the land in Xeatzan Bajo area is used for vegetable production under rainfed condition, at twice of cultivation in a year. Crops yield under rainfed condition is very unstable, and because majority of farmers produces at the same time, farm gate prices are depressed during harvesting in the rainy season. This project aims to stabilize and increase the farmers' incomes by means of introducing a small-scale irrigated cultivation with spring water, which is located in the village.	
2) Facility / Activity	*Facilities/Activities* — *Implementator* 1) Pump station (1 pump, 1 house) — Contractor (1-3) 2) Pipeline ; Conduction pipeline : 1km Distribution pipeline : 9km 3) Elevated regulating tank : 75 m^3 4) Technical assistance: farming practices and marketing — ICTA / marketing company 5) Organization of the irrigation committee — The study team	
3) Organization for O&M	Irrigation committee	
4) Construction Period	4.5 months	
5. Project Cost	1) Construction cost and training cost ..... Q 584,425 2) Agriculture input ..... Q 83,679 3) Other ..... Q 140,034 Total Cost ..... Q 808,138	Cost born by beneficiaries: Q 92,000

6. Monitoring & Evaluation

Item	*Frequency*	*Data collector*	*Aggregation*	*Decision Maker*
1) No. of beneficiary's attendants to the construction work	Everyday during construction period	Irri. Committee	MAGA	Study Team
2) Progress of construction works	Every half month	MAGA/Study Team	Study Team	Study Team
3) Total benefits	Before and after 1st crop season	MAGA/Study Team	Study Team	Study Team
4) Collection rate of the water charge	At the time of harvest	Irri. Committee	MAGA/ Study Team	Study Team

7. Plan of Operation

	2001					2002											
Item	*08*	*09*	*10*	*11*	*12*	*01*	*02*	*03*	*04*	*05*	*06*	*07*	*08*	*09*	*10*	*11*	*12*
1) Construction works																	
2) Technical assistance																	
3) Cultivation																	
4) Monitoring			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△

▭ △ : Schedule, ▬ : Progress

PDM #02: Mini-Irrigation Plan

Community: Xeatzan Bajo | Target Group: Farmers
Period: Sep. 2001 ~ Nov. 2002 | Implt. Organization: MAGA & Water Users' Association

January, 2003

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1. Poverty condition in central highland region will be mitigated.	1. Poverty indicator of rural area will be improved up to the provincial average by 2015.	1. FIS Poverty Indicator and monitoring on Farmers.	1. There will be no drastic change in development policy of Guatemalan Government.
Project Purpose 1. Income level of the beneficiaries will be improved.	1. Income level of the beneficiaries (income from vegetable production) will increase.	1. Monitoring of farm income through interview survey.	1. Similar type of projects will be implemented in other neighboring communities with utilizing the monitoring results of this project.
Outputs 1. Irrigation system is used. 2. Water users' association is in act. 3. Water charge is properly collected. 4. The facility is properly maintained by users. 5. Farmers master skill of vegetable production. 6. Increase of land use intensity from 2 harvests to 3 harvests per year. 7. Increase of crop yield and quality.	1. Number of water users association and number of facility users 2. Collection rate is more than 80%. 3. Condition of operation and maintenance of the facility (Utilization of water charge and actual working days of the facility) 4. Number of farmers that practice vegetable production.	1. Record of water users' association and water users 2. Record of water charge collection (account book) 3. Monitoring of the facility 4. Monitoring of farmers 5. Monitoring on agricultural production	1. Demand for vegetable will not be worsen. 2. There is no extreme reduction in the price of vegetable
Activities 1. Construction of irrigation system. 2. Establishment of water users association and its strengthening 3. Collection of water fee by water users' association. 4. Operation and maintenance of system by water users themselves 5. Training on vegetable production 6. Acquisition of farm inputs for vegetable production 7. Arrangements for obtaining credit from Rural Bank or contract growers 8. Arrangements for marketing of vegetables	*Inputs* *JICA side* 1. Construction cost, training cost for operation and maintenance of irrigation system and : Q 584,425 2. Cost for agricultural farm input : Q 83,679 3. Other : Q 140,034 4. Total Cost: Q 808,138 5. Cost for provision of initial farm inputs of vegetable production : Q 92,000 *Guatemalan side* 1. Voluntary labors: 1,950 man-days 2. Land for facilities: Q20,000 (for approximately 1 cuerda)		1. There is no abnormal weather such as drought, abnormal scale typhoon, etc. 2 There is no abnormal outbreak of pests and/or diseases of vegetables. *Pre-conditions* 1. People have intention to participate in construction of irrigation system and are willing to pay necessary cost (water charge, etc.)

PCM Evaluation #02: Mini-Irrigation Plan

Evaluation Summary	Efficiency	Effectiveness	Impact	Relevance	Sustainability
Overall Goal 1. Poverty condition in central highland region will be mitigated.			(+) Farmers were organized for bargaining with middleman over the products. (+) From the water fee , the community can earn a fund for communal welfare activities. (+) Many non-beneficiaries wanted to join the irrigation association after completion of the project.	(+) Agriculture was still one of main mean for income generation in rural area, and irrigation cultivation was very important factor for profitability in agriculture. (+) A diffusion of irrigation system in Guatemala was still low, and the advantage of the irrigating cultivation is high in future.	(+) The irrigation association was well organized, and will have more association members by expansion of the irrigation area in future. (-) Burden of activities to be done by the committee was too heavy. (+) Irrigation association had a revolving fund, which would be used for a small loan to farmers, a daily operation fund of the irrigation system, emergency repair of the facilities. (-) Amount of agriculture input including water fee was increased. Farmers had more risk in case of their failure in cultivation. (+) Even though the profitability was low because of the low selling price at the harvest season, farmers' interests and intentions for next crop were still high.
Project Purpose 1. Income level of the beneficiaries will be improved.		(+) Some farmers gained increased incomes from irrigation even the low selling price. (-) A part of the farmers did not earned because of the low yield and selling price. However the effectiveness of the irrigation was confirmed by the several simulations.			
Outputs 1. Irrigation system is used. 2. Water users' association is in act. 3. Water charge is properly collected. 4. The facility is properly maintained by users. 5. Farmers master skill of vegetable production. 6. Increase of land use intensity from 2 harvests to 3 harvests per year. 7. Increase of crop yield and quality.	(+) Irrigation system was duly constructed and used by the beneficiaries efficiently. (+) Irrigation association managed well. (-) Not all the farmers mastered skill and unevenness of productivity, such as yield and quality, is observed.				
Inputs 1. Construction(Q584,425) 2. Agricultural farm input(Q83,679) 3. Others (Q 140,034)	(-) Timing of cultivation, which was started immediately after the construction was not good period in terms of selling price.				

OVERALL EVALUATION #02
Mini-Irrigation Plan

Criteria	Result	Basis
Efficiency	Middle	- Irrigation system was duly constructed and used by the beneficiaries efficiently. - Timing of the first cultivation, which was started immediately after the construction was not good period in terms of selling price and profitability.
Effectiveness	Middle	- Not all the beneficiaries gained the benefits from the project in the first cultivation. However the effectiveness of the irrigation was confirmed by the several simulations.
Impact	Many positive impact were observed	- Farmers were organized for bargaining with middleman over the products. - By the implementation of the irrigation project, the community can earn a fund for communal welfare activities.
Relevance	High	- A diffusion of irrigation system in Guatemala is still low and the advantage of the irrigating cultivation is still high.
Sustainability	Middle	- The association is organized well. - The association learned how to maintain the facilities very well. - The committee members have heavy burden of association activities, and this burden should be alleviated and compensated.

Conclusion	Timing of cultivation, which was started immediately after the construction was not good period for getting good selling price of the products. Thus the profitability in the first cultivation was low. Even though the profitability was low because of the low selling price at the harvest season, farmers' interests for next crop were still high. Based on the simulation with proper cultivation period, the effectiveness of the irrigation was proved. It is expected that the high income by irrigation would be realized in the next cultivation. The reduction of burden of the committee member is a key of the project sustainability.

Recommendation *[Responsible agency]*	The following items should be monitored with high priority. - After 1 year; collection rate of water fee and payment condition of 11% of water fee (fund for communal welfare). *[MAGA]* - After 5 years; condition of facilities (condition of maintenance of pump, pipeline, valves and other facilities) *[MAGA]*

PROJECT PROFILE #03

Project Name: Water Quality Improvement Plan for the Existing Drinking Water
Community: Xeatzan Bajo

Item	Contents	Remarks
1. Objectives	To improve health condition of the community residents through improvement of drinking water quality by installation of sterilizer.	
2. Number of Beneficiaries	Users of present potable water supply system 240 households (approximately 1,248 persons)	
3. Implementation Organization	Development Committee of Xeatzan Bajo	
4. Project Contents		
1) Project Outline	Sterilizer will be installed to a water tank and hypo chlorinate will be injected into the potable water in order to eliminate bacteria. People education will be conducted so that people use improved water continuously and pay necessary expense for the operation of sterilizer, excluding hypo chlorinate.	
2) Facility / Activity	*Facilities/Activities*: 1) Hypo chlorinates Dispenser 1 unit; 2) People education *Implementator*: Contractor; Development Committee (under the supervision of the study team)	
3) Organization for O&M	Development Committee and Pump Committee	Presently, development committee is in charge of water fee collection. This system will be utilized in this project.
4) Construction Period	1.5 months (Period necessary for installation of sterilizer)	
5. Project Cost	1. Hypo chlorinates dispenser and materials ..... Q 4,337 2. House construction ..... Q 16,847 Total Cost ..... Q 21,184	After use of initial hydro chlorinates, Patzum municipality will provide it to this project.

6. Monitoring & Evaluation

Item	*Frequency*	*Data collector*	*Aggregation*	*Decision Maker*
1) Users of improved water	Every 3 months	Pump Committee	Dev. Committee	Study Team
2) Operation status of sterilizer	Monthly	Pump Committee	Dev. Committee	Study Team
3) Number of diarrhea patient	Every 3 months	Pump Committee	Dev. Committee	Study Team
4) Simple water quality test	Every year	Pump Committee	Dev. Committee	Study Team

7. Plan of Operation

	2001					*2002*											
Item	*08*	*09*	*10*	*11*	*12*	*01*	*02*	*03*	*04*	*05*	*06*	*07*	*08*	*09*	*10*	*11*	*12*
1) Purchase of equipment		□												■	■		
2) Installation of sterilizer		□													■	■	
3) People education		□														■	
4) Monitoring			△	△	△	△	△	△	△	△	△	△	△	△	△▲	△▲	

□ △ : Schedule, ■ ▲ : Progress

PDM #03: Water Quality Improvement Plan for the Existing Drinking Water

Community: Xeatzan Bajo | Target Group: Beneficiaries of water supply system
Period: Sep. 2001 ~ Dec. 2002 | Implt. Organization: MAGA & Water Committee

January, 2003

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1. Poverty condition in central highland region will be mitigated.	1. Poverty indicator of rural area will be improved up to the provincial average by 2015.	1. FIS Poverty Indicator and monitoring on Farmers.	1. There will be no drastic change in development policy of Guatemalan Government.
Project Purpose 1. Health condition of inhabitants in Xeatzan Bajo is improved.	1. Morbidity of water-borne diseases in Xeatzan Bajo is reduced.	1. Interview survey of potable water users. 2. Number of water-bone disease patients (such as diarrhea) in the health post.	1. Similar type of projects will be implemented in other communities by utilizing monitoring results of the project.
Outputs 1. Quality of potable water is improved. 2. Beneficiaries use improved potable water. 3. Sterilizer is properly maintained.	1. No colon bacillus is detected in potable water. 2. There is no reduction in the number of water user. 3. Sterilizer is constantly in operation.	1. Simple water quality test 2. Monitoring on potable water user 3. Number of operating days of sterilizer.	1. There is no chemical contamination occurs in potable water.
Activities 1. Education on use of improved water is made for beneficiaries through water committee. 2. Sterilize is installed to the water supply system. 3. O&M and fee collection of the sterilizer are made by water committee.	*Inputs* *JICA side* 1. Hypo chlorinates dispenser and materials ..... Q 4,337 2. House construction ..... Q 16,847 Total Cost ..... Q 21,184 *Guatemalan side* 1. Land for the house ..... 30 m^2		1. Installation of sterilizer is made with the consensus of community. 2. No disaster that damages water system occurs such as earthquake. *Pre-conditions* 1. There is no strong objection to the installation of sterilizer.

PCM Evaluation #03: Water Quality Improvement Plan for the Existing Drinking Water

Evaluation Summary	Efficiency	Effectiveness	Impact	Relevance	Sustainability
Overall Goal 1. Poverty condition in central highland region will be mitigated.			(-) Some people noted a strange smell of the treated water. But those people were using the treated water.	(+) Health and water treatment, poverty and health are essential for human life. (+) The treatment of potable water is one of important items in the rural development of Guatemala.	(+) Obligation of the treatment of potable water had been legalized in Guatemala. Thus financial and technical assistance are continuously expected from the municipality. (+) As time elapse, the benefit of the treated water will be identified by the people, and the necessity will be recognized. (+) The water committee learned how to maintain the sterilizer system very well.
Project Purpose 1. Health condition of inhabitants in Xeatzan Bajo is improved.		(+) It is expected that health condition will be improved by the treatment of water, however, a certain period is necessary to identify it.			
Outputs 1. Quality of potable water is improved. 2. Beneficiaries use improved potable water. 3. Sterilizer is properly maintained.	(+) Quality of potable water was improved. (+) Potable water was used by all the beneficiaries. (+) Quality and quantity of manpower, material, and cost were properly input for the implementation of the project.				
Inputs 1. Hypo chlorinates dispenser and materials(Q 4,337) 2. House construction(Q 16,847)					

OVERALL EVALUATION #03
Water Quality Improvement Plan for the Existing Drinking Water

Criteria	Result	Basis
Efficiency	High	- Water quality was certainly and immediately improved.
Effectiveness	Will achieved later	- Number of patient of water born diseases is expected to be reduced, but it take certain time for identifying it.
Impact	Negative impact	- Some people noted a strange smell of the treated water. But those people were using the treated water.
Relevance	High	- The treatment of potable water is one of important items in terms of rural development of Guatemala.
Sustainability	High	- Assistance of the municipality can be received from now on. - The water committee learned how to maintain the sterilizer system very well.

Conclusion	The water quality was improved immediately after installation of the sterilizer. However the benefit of the project could not be observed quickly and clearly. The municipality started to involve the water treatment recently and they has intention to support the project continuously.

Recommendation *[Responsible agency]*	The following items should be monitored with high priority. - After 1 year; condition and operation status of the sterilizer. *[Municipality]* - After 1 year; status of municipality's assistance (supply of the chemical materials). *[MAGA]* - After 5 years; condition and operation status of the sterilizer. *[Municipality]*

PROJECT PROFILE #04

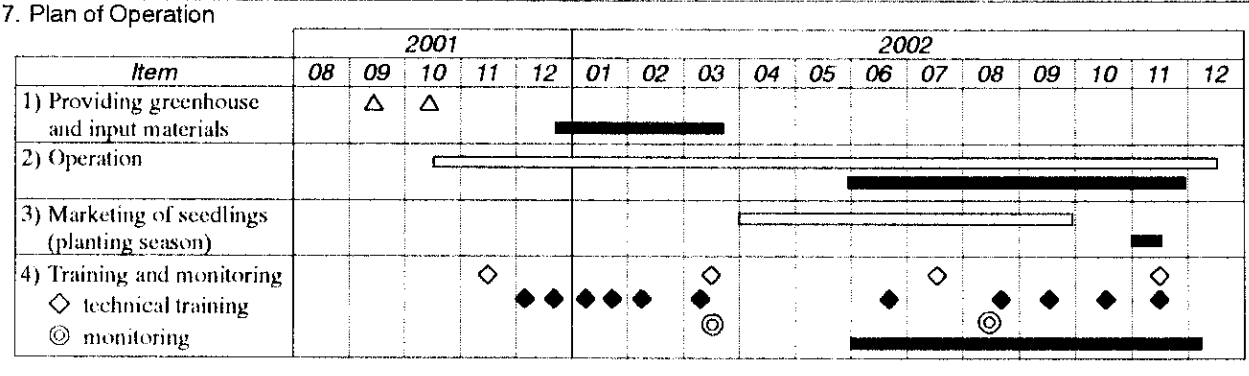
Project Name: Coffee Production Improvement Plan
Community: Panyebar

Item	Contents	Remarks
1. Objectives	Replacement of old trees is an urgent matter because there are many old trees of over 20 years in this village plantation, which is a major factor of low productivity. By applying coffee plantation management technology, improve present low profit plantation into high productivity sustainable coffee plantation, aiming at stable increase of farmers' income.	
2. No. of Beneficiaries	About 80 families, with population of about 400	
3. Implementing Organization	Coffee Growers association	
4. Project Contents		
1) Project Outline	(i) Establishment of nursery center - Setting up a nursery - Nursing seedlings of improved coffee variety and distribute to participants (ii) Technical training Conduct technical transfers to farmers by training on the coffee plantation management technology. (iii) Cash making operation There are several kinds of promising fruits such as avocados and peaches, which could be cultivated in coffee nursery and also marketed, with high popularity both in domestic markets. It should be effective to secure income source to strengthen financial conditions of this project.	
2) Facility / Activity	*Facilities/Activities* / *Implementation* 1) Vinyl house A 420 m² for coffee seedling — Coffee growers association 2) Vinyl house B 375 m² for fruit seedling 3) Water tank 4) Necessary input materials 5) Provision of granted 2,500 pcs coffee seedlings of improved varieties from JICA 6) Provision of granted 500 pcs avocado seedlings of Hass variety and 300 pcs peach seedling from JICA	
3) Organization for O&M	Coffee growers association	
4) Construction Period	About 2 months for green house	
5. Project Cost	1) Total project cost/Q 132,138 (Q9,624 of labor cost born by beneficiaries)	

6. Monitoring & Evaluation

Item	*Frequency*	*Data collector*	*Aggregation*	*Decision Maker*
1) Number of renewed coffee tree	End of rainy season (about November)	Coffee Growers Association	MAGA	Study Team
2) Number of participant to training course	After training course closed	Coffee Growers Association	MAGA	Study Team
3) Result nursery operation	End of rainy season (about November)	Coffee Growers Association	MAGA	Study Team
4) Sales of fruit seedlings	End of rainy season (about November)	Coffee Growers Association	MAGA	Study Team

7. Plan of Operation



△ ◇ ◎ : Schedule, ◆ : Progress

PDM #04: Coffee Production Improvement Plan

Community: Panyebar | Target Group: Coffee Produvers in Panyeber
Period: Sep. 2001 ~ Dec. 2002 | Implt. Organization: MAGA, Coffee Growers' Association

January, 2003

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1. Poverty condition in central highland region will be mitigated.	1. Poverty indicator of rural area will be improved up to the provincial average by 2015.	1. FIS Poverty Indicator and monitoring on Farmers.	1. There will be no drastic change in development policy of Guatemalan Government.
Project Purpose 1. Income level of participants will be improved.	1. Income from coffee production will increase. 2. Production increases to 10~15 qq from present 7~10 qq.	1. Monitoring on farmers and interview survey. 2. Monitoring on farmers and interview survey.	1. Similar type of projects will be implemented in other neighboring communities with utilizing the monitoring results of this project.
Outputs 1. Coffee growers' association is in act. 2. Nursery is constructed, properly operated, and seedlings are distributed to the members. 3. Association members master proper coffee cultivation technique. 4. Association members master proper cultivation technique of cash crops like fruits. 5. Association members get knowledge & experience on marketing of cash crops	1. Number of participants in Growers' association (over 70% of plan) and status of activities. 2. Number of produced seedlings and number of distributed seedlings (over 70% of plan). 3. Number of farmers who apply the introduced techniques (over 70% of plan). 4. Number of fruits seedlings sold (over 70% of production).	1. Number of registered participants of association and record of activities 2. Operation record of the nursery 3. Monitoring of farmers and interview survey 4. Monitoring of farmers and interview survey	1. There is no drastic reduction in demand and price of coffee. 2. There is no drastic reduction in demand and price of fruits.
Activities 1. Establishment of coffee growers' association 2. Construction of nursery bed 3. Technical training on the nursery operation 4. Technical training on coffee production (renovation of old tree, pest management, organic fertilizer, etc.) 5. Technical training of cultivation of cash crops likes, (avocado, etc.) 6. Technical training on commercial nursery for raising cash crops 7. Monitoring and evaluation of the project	*Inputs* *JICA side* 1. Construction cost of nursery bed Greenhouse (420 m²) Greenhouse (375 m²) Water Tank, Others Q 91,882(A) 2. Operational expenditures Seeds Consumables like plastic pot and etc. Fertilizers, pesticides Q 8,656(B) 3. Seedling Coffee (2500 pcs) Avocado (500 pcs) Peach (300 pcs) Q 12,725(C) 4. Technical guidance Training on O/M of nursery bed Training on increasing of coffee and fruits production Q 18,875(D) Total Cost for project (A) + (B) + (C) + (D) = Q 132,138 *Guatemalan side* 1. Voluntary Labor : 175 man-days for construction of vinyl house 2. Land for Vinyl house : 420 m² & 375 m²		1. There is no outbreak of pests and diseases that may affect coffee production. *Pre-conditions* 1. There is no strong objection against the project among farmers.

PCM Evaluation #04: Coffee Production Improvement Plan

Evaluation Summary	Efficiency	Effectiveness	Impact	Relevance	Sustainability
Overall Goal 1. Poverty condition in central highland region will be mitigated.			(+) Farmers received several knowledge about crops, not only coffee but also avocado, peach, and others. Especially a lecture of the organic cultivation inspired farmers so much. (-) Land owner requested to pay fee for land use of the vinyl houses. the committee decided to pay it.	(-) International marketing price of coffee was depressed so long and coffee cultivation was not profitable well. (+) Demand in the Guatemalan domestic market for avocado and peach were high.	(+) In terms of the cultivation of avocado, peach, and other fruits, high demand will be expected continuously. (-) Because of the low price of present coffee, farmers were discouraged to continue coffee cultivation.
Project Purpose 1. Income level of participants will be improved.		( ) Selling seedlings were postponed up to next rainy season. So the income increase should be await until that time.			
Outputs 1. Coffee growers' association is in act. 2. Nursery is constructed, properly operated, and seedlings are distributed to the members. 3. Association members master proper coffee and cash crop cultivation technique. 4. Association members get knowledge and experiences regarding marketing of cash crops	(+) The coffee association was in act, and members attended the lectures of cultivation technique. (-) Nursery was constructed, but construction works was behind the schedule because of lack of labor forces.				
Inputs 1. Construction cost of nursery bed(Q 91,882) 2. Operational expenditures (Q 8,656) 3. Seedling (Q 12,725) 4. Technical guidance (Q 18,875)	(+) The seedlings were distributed and planted properly.				

OVERALL EVALUATION #04
Coffee Production Improvement Plan

Criteria	Result	Basis
Efficiency	Middle	- Construction was delayed and could not finish on time.
Effectiveness	-	- Period of selling seedlings will be in next rainy season, so actual income should be waited.
Impact	Positive impact and negative impact	- By the lectures given by the project, farmers had more knowledge for diversification of crops. - Land owner requested to pay fee for land use of the vinyl houses. the committee decided to pay it.
Relevance	Middle	- International marketing prices of coffee was depressed.
Sustainability	Middle	- In terms of fruits cultivation, there are possibility of farther extension, but coffee is relatively difficult.

Conclusion	Because of season of planting of the seedling, the seedling of coffee grown in the vinyl house could not be sold up to next rainy season. Thus actual condition of income increase should be waited until next rainy season. In terms of fruits cultivation, there are relatively high possibility of farther extension and prosperity in future, comparing with coffee.

Recommendation *[Responsible agency]*	The following items should be monitored with high priority. *[MAGA]* - After a half year; growth condition of plants and selling results of the seedlings. - After 2 years; physical and operational condition of vinyl houses.

PROJECT PROFILE #05

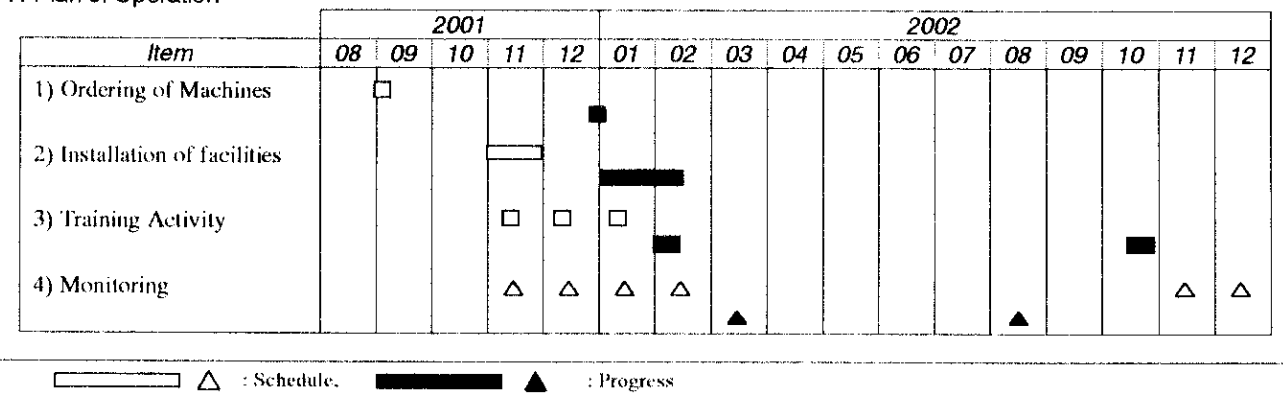
Project Name: Plan for Reducing Workload in the Mountainous Area through Coffee Processing
Community: Panyebar

Item	Contents	Remarks
1. Objectives	The main objective of the project is to reduce the workload of farmers who carry coffee beans walking through very steep slopes. Additional project benefits are: i) increase of farmers' net income; ii) reduction of pollution of river waters; iii) use of organic matter for composting.	
2. Number of Beneficiaries	80 small coffee farmers	Farmers having more than 1 ha of coffer area are excluded as direct project beneficiary.
3. Implementation Organization	Coffee grower association of Panyeber	
4. Project Contents		
1) Project Outline	Four groups of small coffee farmers are formed considering the location of their farm plots. The groups are integrated by 15 to 25 coffee farmers. Coffee pulping machines will be installed in selected sites near by the farms of each group. The cost of machines is born by JICA. Each farmer will pulp and manage individually its own harvested coffee.	
2) Facility / Activity	*Facilities/Activities* — *Implementator* 1) Provision of pulping machines — JICA 2) Confirmation of installation sites — Development committee 3) Installation of pulping machines — Development committee 4) Provision of drums and plastic sheets — JICA	Assisted by Study team
3) Organization for O&M	Coffee grower association	
4) Construction period	1.5 month	
5. Project Cost	1. 4 units for pulping with motor ..... Q 33,535 2. Construct. 4 protection houses for pulping machines ..... Q 14,247 3. Purchase of 1 weighing scales ..... Q 1,056 4. Vinyl for drying coffee ..... Q 2,175 5. Purchase of 50 plastic drums for fermentation ..... Q 15,527 6. Training activities ..... Q 2,760 Total Q75,300	The project will provide plastic drums and vinyl sheets to the 50 farmers with smaller land areas. 30 farmers with larger land are should acquire their own fermentation drums and drying sheets.

6. Monitoring & Evaluation

Item	*Frequency*	*Data collector*	*Aggregation*	*Decision Maker*
1) Installat. pulping machines	Weekly	Coffee Growers Association	Coffee Growers Association	Study Team
2) Operation of pulping	Weekly	Coffee Growers Association	Coffee Growers Association	Study Team
3) Reduction of coffee beans	Monthly	Coffee Growers Association	Coffee Growers Association	Study Team
4) Price of coffee	Monthly	Coffee Growers Association	Coffee Growers Association	Study Team
5) Collection of pulping fee	Monthly	Coffee Growers Association	Coffee Growers Association	Study Team

7. Plan of Operation



: Schedule, : Progress

PDM #05: Plan for Reducing Workload in the Mountainous Area through Coffee Processing

Community: Panyebar | Target Group: 80 Coffee Farmers of Panyeber
Period: Sep. 2001 ~ Dec. 2002 | Impl. Organization: Farmers Coo-MAGA-ANACAFE-INTECAP

January, 2003

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1. Poverty condition in central highland region will be mitigated.	1. Poverty indicator of rural area will be improved up to the provincial average by 2015.	1. FIS Poverty Indicator and monitoring on Farmers.	1. There will be no drastic change in development policy of Guatemalan Government.
Project Purpose 1. Workload of coffee farmers at harvesting time will be reduced. 2. Income level of small coffee farmers will be improved. 3. Job opportunities will be created in Panyebar Model Project Area.	1. Time consumption for transporting the harvested coffee will be reduced 2. The income level of beneficiary farmers will increase about 10 %. 3. Number of labors employed for depulping.	1. Monitoring and interview survey. 2. Monitoring production costs and selling prices of dry and fresh coffee beans. 3. Monitoring of employed farmers.	1. Similar type of projects will be implemented in other neighboring communities with utilizing the monitoring results of this project.
Outputs 1. Coffee producers are organized into 4 groups of 15 to 25 farmers each and the groups are in action. 2. Coffee beans are processed into depulped and dry coffee beans nearby farms site. 3. The weight of coffee to be transported is reduced compared with fresh beans. 4. Coffee farmers sell dried coffee bean with added value. 5. Organic materials for compost production become available.	1. Number of groups organized and their member 2. About 4,800 quintals of coffee beans are depulped and dried up every year by 80 beneficiary farmers (over 80% of raw coffee production). 3. The weight of coffee is reduced to 1/5. 4. The price will be higher by 10 % compared with the price of fresh beans. 5. Number of farmers who apply organic matter from depulping.	1. Monitoring on membership of the organized coffee farmers groups. 2. Monitoring on depulped coffee. 3. Monitoring of the weight of depulped coffee. 4. Monitoring on coffee sale of group members. 5. Monitoring on farmers.	1. Demand and prices of coffee will not decrease greatly and farmers continue producing coffee.
Activities 1. Selection of 80 coffee farmers and Organizing 5 groups for coffee pulping. 2. Deciding on sites for installing coffee pulping and drying facilities. 3. Installation of 6 Manual Coffee Pulping Machines. 4. Provision of vinyl sheets for drying coffee. 5. Training members of coffee pulping groups. 6. Contact markets outlets for selling dry coffee beans.	*Inputs* *JICA side* 1. 4 units for pulping with motor ..... Q 33,535 2. Construct. 4 protection houses for pulping machines ..... Q 14,247 3. Purchase of 1 weighing scales ..... Q 1,056 4. Vinyl for drying coffee ..... Q 2,175 5. Purchase of 50 plastic drums for fermentation Q 15,527 6. Training activities ..... Q 2,760 *Total Cost* ..... *Q75,.300* *Guatemalan side* 1. Land for house ..... 30 m^2 x 4		1. There is no occurrence of natural disaster that damages the facilities. *Pre-conditions* 1. Coffee farmers cooperate in providing the land area for the project and in providing free labor for the necessary project works.

PCM Evaluation #05: Plan for Reducing Workload in the Mountainous Area through Coffee Processing

Evaluation Summary	Efficiency	Effectiveness	Impact	Relevance	Sustainability
Overall Goal 1. Poverty condition in central highland region will be mitigated.			(+) Farmers tried to sell coffee by themselves directly, and business mind awake. (+) Pollution of river and lake water, which was caused by the pulping factory was alleviate.	(+) Coffee transportation is one of the heavy works in harvest season and reduction of workload is necessary. (-) International marketing price of coffee was depressed so long and coffee cultivation was not profitable well.	(+) The committee members learned how to maintain and calibrate the machine.
Project Purpose 1. Workload of coffee farmers at harvesting time will be reduced. 2. Income level of small coffee farmers will be improved. 3. Job opportunities will be created in Panyebar Model Project Area.		(+) By introducing the pulping machine, work load of transportation was dramatically reduced.			
Outputs 1. Coffee producers are organized into 4 groups of 15 to 25 farmers each and the groups are in action. 2. Coffee beans are processed into depulped and dry coffee beans nearby farms site. 3. The weight of coffee to be transported is reduced compared with fresh beans. 4. Coffee farmers sell dried coffee bean with added value. 5. Organic materials for compost production become available.	(-) Timing of installation of the pulping machine was delayed; The pulping machines were installed after a harvest season of coffee, thus condition of the full operation of the machine could not observed. (+) Quality and quantity of manpower, material, and cost were properly input for the implementation of the project.				
Inputs 1. Pulping machine(Q 33,535) 2. Construct. of protection houses(Q 14,247) 3. Several materials(Q 18,758) 4. Training activities(Q 2,760)					

OVERALL EVALUATION #05
Plan for Reducing Workload in the Mountainous Area through Coffee Processing

Criteria	Result	Basis
Efficiency	Middle	- Timing of installation of the pulping machine was delayed; The pulping machines were installed after a harvest season of coffee, thus condition of the full operation of the machine could not observed.
Effectiveness	Achieved	- By introduction of the pulping machine, work load of transportation was dramatically reduced.
Impact	Positive impact	- Separating from middle-man, farmers try to sell coffee by themselves directly, and business mind awake.
Relevance	High	- Coffee transportation is one of the heavy works in harvest season and reduction of workload is necessary.
Sustainability	High	- The committee members learned how to maintain and calibrate the machine. - Pulping charge were duly collected from beneficiaries

Conclusion	Workload of transportation was dramatically reduced by the introduction of the pulp machines. This will contributes to improvement of the human life in the rural area. "Efficiency" was evaluated as "middle" because of the inadequate timing of the machine. However the machine will be full operated in the next harvest season.

Recommendation *[Responsible agency]*	The following items should be monitored with high priority. *[ANACAFE]* - After 1 year; physical condition and maintenance of 4 pulping machine. - After 1 years; operational status of 4 pulping machine. - After 1 years; collection rate of pulping charge.

PROJECT PROFILE #06

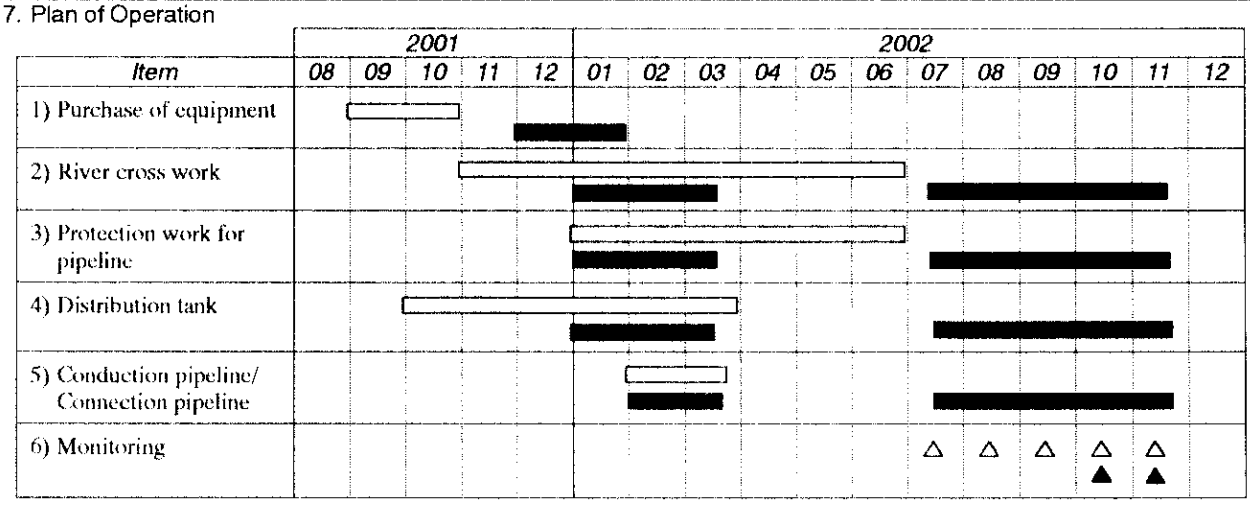
Project Name: Rehabilitation Plan for Drinking Water System
Community: Panyebar

Item	Contents	Remarks
1. Objectives	To improve potable water supply system and to use it effectively	
2. Number of Beneficiaries	Users of present potable water supply system, 301 households	
3. Implementation Organization	Water Committee of Panyebar	
4. Project Contents		
1) Project Outline	JICA supplies construction materials for the improvement of the facilities at the point where the pipelines cross the river, and for the performance of the protection work at the steep slope for about 4 km starting from the source of the river and a tank. The constructions of the facilities will be made beneficiaries.	
2) Facility / Activity	*Facilities/Activities*: 1) River cross work 7 points; 2) Protection work for pipeline 2,400 m; 3) Distribution tank 1 units; 4) Conveyance pipeline 3 km; 5) Connection pipeline 30 m — *Implementator*: 1),2),4),5): Water Committee; 3): Contractor	
3) Organization for O&M	Water Committee	
4) Construction Period	About 10 month	
5. Project Cost	1. Rehabilitation Works 1) River cross work / Protection work for pipeline /Other related works ..... Q 293,268 2) Distribution tank ..... Q 87,585 3) Conveyance pipeline ..... Q 85,075 4) Others ..... Q 93,272 Total Cost ..... Q 559,200	

6. Monitoring & Evaluation

Item	*Frequency*	*Data collector*	*Aggregation*	*Decision Maker*
1) Progress of construction of water supply	Monthly	Water Committee	Water Committee	Study Team
2) Payment rate of water charge	Every 4 months	Water Committee	Water Committee	Study Team
3) Status on O&M of facilities	Once half year	Water Committee	Water Committee	Study Team
4) Status of water use	Monthly	Water Committee	Water Committee	Study Team

7. Plan of Operation



□ △ : Schedule, ■ : Progress

PDM #06: Rehabilitation Plan for Drinking Water System

Community: Panyebar | Target Group: Beneficiaries of water supply system
Period: Sep. 2001 ~ Dec. 2002 | Implt. Organization: Water Committee

January, 2003

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1. Poverty condition in central highland region will be mitigated.	1. Poverty indicator of rural area will be improved up to the provincial average by 2015.	1. FIS Poverty Indicator and monitoring on Farmers.	1. There will be no drastic change in development policy of Guatemalan Government.
Project Purpose 1. Water will be always available at each house. 2. Time and energy spent for water collection will be reduced.	1. Water supply to each house will be stable. 2. Time spent for water collection per day or per week will be reduced.	1. Monitoring on water users.	1. Similar type of projects will be implemented in other communities by utilizing monitoring results of the project.
Outputs 1. Water system is improved. 2. Water charge is collected by the water committee. 3. Water system is properly maintained by the beneficiaries themselves. 4. Water is properly used at each house and saved.	1. Status of water system improvement. 2. Collection rate of water charge is more than 80%. 3. Maintenance condition of water supply system (collected water charge is properly used of maintenance purpose) 4. 5% of amount of water used at each house will be reduced.	1. Record of repair work 2. Record of water charge collection 3. Account record of water charge 4. Monitoring on beneficiaries.	1. Available water amount will not be reduced and water quality at water source will not be deteriorated.
Activities 1. Improvement of water supply system 2. Strengthening of water committee (improvement of water fee collection system) 3. Operation and maintenance of water supply system by the water users. 4. Training on water saving for the water users	*Inputs* *JICA side* 1. Rehabilitation Works 1) River cross work / Protection work for pipeline /Other related works ..... Q 293,268 2) Distribution tank..... Q 87,585 3) Conveyance pipeline..... Q 85,075 4) Others ..... Q 93,272 Total Cost..... Q 559,200 *Guatemalan side* 1. Land for tank ..... 100 m^2 2. Labor..... 4,200man-days		1. There is no occurrence of natural disasters that damages water system drastically such as earthquake. *Pre-conditions* 1. People have intention to participate in repair work of water system and are willing to pay water charge.

PCM Evaluation #06: Rehabilitation Plan for Drinking Water System

Evaluation Summary	Efficiency	Effectiveness	Impact	Relevance	Sustainability
Overall Goal 1. Poverty condition in central highland region will be mitigated.			(+) The water committee had strong position and voice in the society because of the stable water supply. (-) In spite of the agreement of provision of voluntary labor force from village, people did not attend and finally they received wages from the municipality	(+) Potable water has always high priority in rural development. (+) Villagers' eagerness for stable and sufficient water is so high.	(+) People appreciated stable water supply and the improved services provided by the water committee, which will expedite people to pay water charge much easier. (+) The water committee enhanced their collection system of water charge. Thus fund for operation and maintenance work of water system is ensured. (+) The water committee learned the skills of repairing pipeline and maintenance.
Project Purpose 1. Water will be always available at each house. 2. Time and energy spent for water collection will be reduced.		(+) Potable water was supplied without significant cut-off everyday.			
Outputs 1. Water system is improved. 2. Water charge is collected by the water committee. 3. Water system is properly maintained by the beneficiaries themselves.	(+) Water system was improved. (-) Because of lack of voluntary labors, the schedule of construction period was delayed.				
Inputs Rehabilitation Works (Q559,200)	(-) Because of lack of voluntary labors, the municipality paid labors' wages in additional. (+) The water committee was enhanced well. they decided to apply a penalty against the delinquent of water fee.				

OVERALL EVALUATION #06
Rehabilitation Plan for Drinking Water System

Criteria	Result	Basis
Efficiency	Middle	- Completion of construction works was delayed. - Stable water supply was ensured.
Effectiveness	High	- The beneficiaries could enjoy stable water supply.
Impact	Positive impact	- The water committee had a strong position and voice in the society because of improvement of their services and provision of the stable water supply.
Relevance	High	- The stable water supply is one of important items in rural development.
Sustainability	High	- As long as water reaches to houses, people are going to pay water fee. Then the water fee can be used for maintenance, which secure stable water supply.

Conclusion	Because of lack of voluntary labors, the schedule of construction period was delayed. Water supply system was improved and reinforced. So people can receive stable water supply services. Because of the enhancement of the water committee, they can collect water fee effectively.

Recommendation *[Responsible agency]*	The following items should be monitored with high priority. */MAGA/* - After 1 year; collection rate of water fee. - After 1 year; physical condition and maintenance of potable water system. - After 1 year; condition of water supply, stable or not.

PROJECT PROFILE #07

Project Name: Water Quality Improvement Plan for the Existing Drinking Water
Community: Panyebar

Item	Contents	Remarks
1. Objectives	To improve health condition of the community residents through improvement of drinking water quality by installation of sterilizer.	
2. Number of Beneficiaries	Users of present potable water supply system 301 households	
3. Implementation Organization	Water Committee	
4. Project Contents		
1) Project Outline	Sterilizer will be installed to the water tank and hypo chlorinate will be injected into the potable water in order to eliminate bacteria. People education will be conducted so that people use improved water continuously and pay necessary expense for the operation of sterilizer excluding hypo chlorinate.	
2) Facility / Activity	*Facilities/Activities*: 1) Hypo chlorinate Dosing 2 unit; 2) People education *Implementator*: Contractor; Water Committee (under the supervision of the study team)	
3) Organization for O&M	Water Committee	
4) Construction Period	1.5 months (Period necessary for installation of sterilizer and construction of house)	
5. Project Cost	1. Hypo chlorinate and materials ..... Q 8,437 2. House construction..... Q 32,254 3. Total Cost ..... Q 40,691	After use of hypo chlorinate, San Juan la Laguna municipality will provide it to this project.

6. Monitoring & Evaluation

Item	*Frequency*	*Data collector*	*Aggregation*	*Decision Maker*
1) Users of improved water	Every 3 months	Water Committee	Water Committee	Study Team
2) Operation status of sterilizer	Monthly	Water Committee	Water Committee	Study Team
3) Number of diarrhea patient	Every 3 months	Water Committee	Water Committee	Study Team
4) Simple water quality test	Every year	Water Committee	Water Committee	Study Team

7. Plan of Operation

	2001					*2002*											
Item	*08*	*09*	*10*	*11*	*12*	*01*	*02*	*03*	*04*	*05*	*06*	*07*	*08*	*09*	*10*	*11*	*12*
1) Purchase of equipment		□												■			
2) Installation of sterilizer		□													■		
3) People education		□														■	
4) Monitoring			△	△	△	△	△	△	△	△	△	△	△	△	△▲	△▲	

□ △ : Schedule, ■ ▲ : Progress

PDM #07: Water Quality Improvement Plan for the Existing Drinking Water

Community: Panyebar | Target Group: Beneficiaries of water supply system
Period: Sep. 2001 ~ Dec. 2002 | Implt. Organization: Water Committee

January, 2003

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1. Poverty condition in central highland region will be mitigated.	1. Poverty indicator of rural area will be improved up to the provincial average by 2015.	1. FIS Poverty Indicator and monitoring on Farmers.	1. There will be no drastic change in development policy of Guatemalan Government.
Project Purpose 1. Health condition of inhabitants in Panyebar is improved.	1. Morbidity of water-borne diseases in Panyebar is reduced.	1. Interview survey of potable water users. 2. Number of water-borne disease patients (such as diarrhea) in the health post.	1. Similar type of projects will be implemented in other communities by utilizing monitoring results of the project.
Outputs 1. Quality of potable water is improved. 2. Beneficiaries use improved potable water. 3. Sterilizer is properly maintained.	1. No colon bacillus is detected in potable water. 2. There is no reduction in the number of water user. 3. Sterilizer is constantly in operation.	1. Simple water quality test 2. Monitoring on potable water user 3. Number of operating days of sterilizer.	1. There is no chemical contamination occurs in potable water.
Activities 1. Education on use of improved water is made for beneficiaries through water committee. 2. Sterilizer is installed to the water supply system. 3. O&M and fee collection of the sterilizer are made by water committee.	*Inputs* *JICA side* 1. Hypo chlorinate and materials ..... Q 8,437 2. House construction ..... Q 32,254 Total Cost ..... Q 40,691 *Guatemalan side* 1. Land for house ..... 30 m^2 x 2 places		1. Installation of sterilizer is made with the consensus of community. 2. No disaster that damages water system occurs such as earthquake. *Pre-conditions* 1. There is no strong objection to the installation of sterilizer.

PCM Evaluation #07: Water Quality Improvement Plan for the Existing Drinking Water

Evaluation Summary	Efficiency	Effectiveness	Impact	Relevance	Sustainability
Overall Goal 1. Poverty condition in central highland region will be mitigated.			(-) Some people noted a strange smell of the treated water. But those people were using the treated water.	(+) Health and water treatment, poverty and health are essential for human life. (+) The treatment of potable water is one of important items in the rural development of Guatemala.	(+) Obligation of the treatment of potable water had been legalized in Guatemala. Thus financial and technical assistance are continuously expected from the municipality. (+) As time elapse, the benefit of the treated water will be identified by the people, and the necessity will be recognized. (+) The water committee learned how to maintain the sterilizer system very well.
Project Purpose 1. Health condition of inhabitants in Xeatzan Bajo is improved.		(+) It is expected that health condition will be improved by the treatment of water, however, a certain period is necessary to identify it.			
Outputs 1. Quality of potable water is improved. 2. Beneficiaries use improved potable water. 3. Sterilizer is properly maintained.	(+) Quality of potable water was improved. (+) Potable water was used by all the beneficiaries. (+) Quality and quantity of manpower, material, and cost were properly input for the implementation of the project.				
Inputs 1. Hypo chlorinates dispenser and materials(Q 4,337) 2. House construction(Q 16,847)					

OVERALL EVALUATION #07
Water Quality Improvement Plan for the Existing Drinking Water

Criteria	Result	Basis
Efficiency	High	- Water quality was certainly and immediately improved.
Effectiveness	Will achieved later	- Number of patient of water born diseases is expected to be reduced, but it take certain time for identifying it.
Impact	Negative impact	- Some people noted a strange smell of the treated water. But those people were using the treated water.
Relevance	High	- The treatment of potable water is one of important items in terms of rural development of Guatemala.
Sustainability	High	- Assistance of the municipality can be received from now on. - The water committee learned how to maintain the sterilizer system very well.

Conclusion	The water quality was improved immediately after installation of the sterilizer. However the benefit of the project could not be observed quickly and clearly. The municipality starts to involve the water treatment recently and they has intention to support the project continuously.

Recommendation *[Responsible agency]*	The following items should be monitored with high priority. - After 1 year; condition and operation status of the sterilizer. *[Municipality]* - After 1 year; status of municipality's assistance (supply of the chemical materials). *[MAGA]* - After 5 years; condition and operation status of the sterilizer. *[Municipality]*