

CHAPTER TWO

MONITORING

PART I. INTRODUCTION

1. PURPOSE. This paper presents a sample monitoring system for the CARE Mae Chaem agro-forestry project. It is not intended to be an immutable document which must be followed to the letter in every respect. Rather, it is intended as a working model to be changed and modified as appropriate to meet project requirements. This system has been developed to allow project managers with a limited budget to collect a minimum amount of data and obtain an overall picture of how the project is progressing.

2. WHY MONITOR? There are three key reasons for conducting periodic formal monitoring activities. First, for local (project area) benefit so project staff can see their progress toward achieving project goals and identify problem areas. Second, for internal benefit, i.e., to allow CARE officials and project donors to evaluate the project. Third, for external benefit, i.e., provision of information on CARE activities which other projects might find useful in their own development efforts.

3. WHEN TO MONITOR. Monitoring is an on-going process. Each field advisor monitors each of his villages on a regular basis, usually several times a month. However, it is appropriate

to have a specific "monitoring period" where the progress of each of the activities is more formally evaluated. This process, which usually includes a survey of various monitoring variables, is usually conducted on an annual basis. It is best to conduct the monitoring process at the same time each year to control for seasonal variations in responses.

4. MONITORING VARIABLES. Specific variables to be monitored have been selected by the PRDI staff based on previous highland experience and Rapid Rural Appraisal trips to selected CARE project villages. These items were selected from among data items included in the 1990 CARE baseline survey. They are intended to be examples, and they should be reviewed by CARE managers for appropriateness. New variables should be added and others eliminated as appropriate.

5. MONITORING CATEGORIES. Four categories of data have been selected for monitoring by the CARE Mae Chaem project. Each of these areas uses only data available from the 1990 baseline survey and has been selected to reflect an important aspect of the overall status of development of a village in accordance with CARE's stated project objectives. The four categories are (1) health, nutrition, sanitation, (2) rice production, (3) economic status and (4) degree of participation in CARE-promoted activities.

6. RANK ORDER. For each of the variables in each category, a rank order has been given. This means simply that the village with the "best" score, either high (as rice yields) or low

(degree of child malnutrition) is rated "1", the second village "2", etc. Each of these ranks is totaled across the monitoring variables within each category. The totals of the rank of each variable in a category is then itself ranked, providing the overall ranking of each village within a monitoring category, the "Overall R". It is NOT appropriate to total across monitoring categories; each category should be evaluated separately as should each variable within each category.

7. SAMPLE SIZE. Some CARE villages are relatively small, consisting of some only a few households. In these cases, interpretation of statistical data in the monitoring process must be done with an extra degree of caution as one household with an abnormally low or high score on one variable can have a very great effect on the village average.

8. DATA INTERRELATIONSHIPS. A number of the monitoring variables are usually highly correlated (e.g., when rice yields per unit planted go up, number of months with enough rice probably does, too). These correlations - especially those cases where the correlation between variables does not seem to "make sense" based on empirical knowledge - should be investigated to find out the reason. For example, if income per person is high in one village yet average level of child malnutrition is seriously high, this could indicate a need for training on purchasing nutritional foods. It is not possible to delineate every possible interrelationship in this paper, nor is it the intent of the paper to try to do so. Rather, the desired outcome

is that project officials will be better able to look at data and seek out the underlying causes of interrelationships.

9. COMMON SENSE AND EXOGENOUS KNOWLEDGE. In using this monitoring program, CARE staff should remember that statistical data are meant to be a HELP in evaluating village progress, but they are NOT intended to be a substitute for either common sense or exogenous knowledge about the villages. Many important variables are not quantifiable, and can be adequately assessed only by knowledgeable project staff in a necessarily subjective way. Also, this overall monitoring system is not intended to take the place of more frequent regular monitoring and evaluation of specific project activities; e.g., the quantities of improved seed provided or the number of persons completing a specific training program.

PART II. NON-NUMERIC MONITORING VARIABLES

The Mae Chaem proposal document stresses development of village leaders and village groups as one of the key objectives of the CARE intervention. This area would appropriately be included as a fifth category to be monitored on a regular basis.

It is possible to quantify some variables, e.g., the percentage of villagers who belong to specific village groups, the per capita investment in the rice bank or the village revolving fund, etc. However, this does not give a complete picture of the quality of leadership and strength of village groups.

In a project such as the CARE activity in Mae Chaem where each field advisor is in close touch with both villagers in his area of responsibility and with other CARE Mae Chaem staff, it is possible to prepare meaningful subjective ratings of overall village leadership strength and village group strength. In a group meeting of all local area CARE staff, have each field advisor assign each village ratings in each area in terms of how nearly the village meets or exceeds project criteria. Give numerical scores, e.g., on a scale of 1 to 10 where 6 means that a village just meets project standards. Villages could then be rank ordered as the other variables.

PART III. A SAMPLE MONITORING SYSTEM

The information below provides a description of each of the monitoring variables selected by PRDI with comments, as appropriate, on why the variable was selected, the strengths and weaknesses of the variable, and, in some cases, special caveats about variable interrelationships. The variable names refer to the monitoring table following each category description.

MONITORING CATEGORY 1. HEALTH/NUTRITION/SANITATION

CARE GRADE = This is the village average of individual household grades assigned by CARE in the baseline survey. Numbers were substituted for letter grades for ease of statistical calculation. (CARE grade A = 1, B = 2, C = 3.) The LOWER the CARE grade number, the HIGHER the overall level of village development.

This item, as it has been used by CARE as a measure of the degree to which CARE goals have been achieved by households, was selected as a benchmark. It shows that a village given a high overall rating may not be rated high for every variable in every category. CARE Grade is included in every monitoring category for comparison purposes. The strength of this variable is that it is based on the professional judgment of persons knowledgeable about the village. Its weakness is that it is not based on any empirical scale, i.e., some people may be "harder graders" than others.

AVERAGE TOTAL MONTHS HOUSEHOLD HAS ENOUGH RICE = This variable shows the average number of months for which households in the village produced enough rice to eat. As the CARE project area is inhabited largely by farmers who produce for their own consumption, measuring the sufficiency of the primary staple crop is necessary. (This data should be used in conjunction with knowledge of each village's situation as there is no provision to differentiate between households who choose to purchase rice rather than grow it and households who wish to grow enough rice for their own consumption but are unable to do so.)

This variable may be affected by the season in which the survey is made. Farmers may tend to indicate a higher rice sufficiency soon after harvest than they would a few months before harvest. The way the question regarding rice sufficiency is phrased may also affect the answer, for example, farmers may not consider early rice (khao bao) in determining their total rice production. This question is best asked after the harvest is complete, phrasing the question in the past, i.e., "Last year, for how many months did you have enough rice?" The question should also be followed up by a check question regarding how any rice deficiency was made up, e.g., by borrowing, buying, etc.

In general, farmers could be expected to under rather than over estimate the number of months with enough rice, as this would encourage CARE to continue providing development services to their village.

AVERAGE DEGREE OF CHILD MALNUTRITION IN THE VILLAGE = The average village grade of malnutrition of children from age one month to five years is shown. The higher the number, the higher the average grade of malnutrition and/or the average number of malnourished children. The meaningfulness of this data item depends on the skill of the individuals measuring the weight and determining the age of the children. Weighing squirming, crying youngsters isn't easy, and often mothers are only roughly aware of the age of their offspring.

PERCENT OF HOUSEHOLDS WHICH HAVE TOILET = This is the percentage of households in each village that have a toilet. One limitation on this data item is that toilets are usually not popular unless and until a nearby source of water is available. It may be due to lack of water rather than lack of interest that a village has few or no toilets. To increase the meaningfulness of this variable, it might be appropriate to define the data item as the number of **WORKING** toilets: some toilets are constructed then allowed to deteriorate with villagers either using the facilities of a neighbor or returning to the woods.

QUALITY/QUANTITY OF WATER SUPPLY = This is an overall evaluation of the availability of water for household use. Factors used in preparing the rating include distance to water, cleanliness of water and whether the water is available all year. Preparation of ranking for this item will require discussion among CARE enumerators regarding standards used during the survey.

OTHER POSSIBLE VARIABLES = Although this would probably be highly correlated with degree of child nutrition, the average number of opium addicts is another potentially useful monitoring data item.

1. HEALTH/NUTRITION/SANITATION

VILLAGE	AVG. CARE GRADE	R	AVG. TOTAL MONTHS ENOUGH RICE	R	AVG. DEGREE CHILD MALNUTRIT.	R	% HH HAVE TOILET	R	QUAL./QUANT. OF WATER SUPPLY	R	OVER-ALL R
1 MAE LAEK	2.42	8	5.89	9	0.54	5	27	2			6
2 BAN KLANG PHA KHAO	2.77	10	5.54	10	0.33	1	7	5			6
3 SAM SON BON	2.38	7	6.15	7	0.44	4	22	3			2
4 PA KLUAI	2.35	6	6.05	8	0.58	6	13	4			9
5 YANG SAN LANG YANG SAN BON	1.86	3	7.75	4	1.08	10	40	1			5
6 OM LAN NOK	2.43	9	8.00	3	0.38	2	7	5			1
7 OM SOON KLANG	1.88	4	7.50	5	0.40	3	0	6			2
8 KONG LA	1.73	1	8.80	1	0.60	7	0	6			2
9 DIN KHAO	1.83	2	8.17	2	0.83	8	0	6			6
10 HUAI SAI	2.27	5	6.67	6	1.00	9	0	6			10
AVERAGE	2.10		7.28		0.65		12				

Note: Lower average CARE grades reflect preferred ratings.
Lower average degrees of malnutrition reflect better condition.

2. MONITORING CATEGORY 2: RICE PRODUCTION

UPLAND YIELDS = average yield of upland rice per unit of seed planted.

PADDY YIELDS = average yield of paddy rice per unit of seed planted. Usually, paddy rice yields per unit planted would be expected to be about twice that for upland rice, as is the case with the CARE data.

YIELD/PERSON = average total annual rice production in kilograms per person (upland plus paddy). The average hilltribe adult requires approximately 400 kg of unmilled rice per year and the average child of 15 or under about 250 kg per year. Thus a typical family of five, including two adults and three children, would require approximately 300 kg of rice per person per year.

Ranking where yields per year per person are low should be adjusted for villages which the project knows generally prefer to purchase rather than grow their own rice.

2. RICE PRODUCTION

		AVG. CARE GRADE	R	UPLAND RICE YIELD PER UNIT PLANTD	R	PADDY YIELD PER UNIT PLANTD	R	TOTAL RICE YIELD/ PERSON	R	OVER -ALL R
1	MAE LAEK	2.42	8	13.50	7	44.39	4	232.3	7	7
2	BAN KLANG PHA KHAO	2.77	10	5.36	10	36.63	5	181.1	10	10
3	SAM SON BON	2.38	7	15.90	5	29.96	7	225.5	8	8
4	PA KLUAI	2.35	6	21.93	2	56.17	1	266.0	5	1
5	YANG SAN LANG YANG SAN BON	1.86	3	9.43	8	46.02	3	239.7	6	6
6	OM LAN NOK	2.43	9	11.53	6	32.39	6	417.1	1	3
7	OM SOON KLANG	1.88	4	8.08	9	16.40	10	328.4	3	9
8	KONG LA	1.73	1	19.23	4	19.23	8	288.1	4	5
9	DIN KHAO	1.83	2	20.07	3	16.73	9	337.1	2	4
10	HUAI SAI	2.27	5	23.24	1	47.39	2	203.0	9	2
	AVERAGE	2.10		14.82		34.53		266.0		

3. MONITORING CATEGORY 3: ECONOMIC STATUS

BUFFALO, CATTLE, PIGS = average number of animals per person.

INCOME = reported annual cash income per person.

EXPENSES = reported annual cash expenditures per person.

INCOME/EXPENSES = ratio of annual cash income to annual cash expenditures. Note: Cash income and expenditure data obtained through an after the fact survey are notoriously inaccurate. Respondents often have reasons for either over or under reporting this variable, and these reasons may change from year to year as socio-economic conditions change. In addition, as this variable requires recall over extended periods of time, inaccuracies due to memory are also a factor. This data should be interpreted with caution.

Average income/expenditures is NOT equal to the average income for a given village divided by the average expenses for that village. To compute average ratio of income to expenses, the ratios must be computed for each individual household. It is not mathematically correct to divide the average income for a village by the average expenses.

3. ECONOMIC STATUS

	AVG. CARE GRADE	AVG. # BUFF/ PERSON	AVG. # COWS/ PERS.	AVG. # PIGS/ PERS.	AVG. INC-OME/ PERS.	AVG. EXPE-NSES/ PERS.	AVG. INC./ EXP.	OVER-ALL
								R R
1 MAE LAEK	2.42	8	0.41	3	0.00	10	0.35	4 975 8 785 7 1.9 5 8
2 BAN KLANG PHA KHAO	2.77	10	0.21	6	0.05	9	0.27	7 1520 6 508 8 10.0 1 8
3 SAM SON BON	2.38	7	0.15	8	0.39	3	0.32	6 1349 7 317 10 5.2 2 6
4 PA KLUAI	2.35	6	0.19	7	0.22	6	0.56	1 733 9 370 9 2.6 4 6
5 YANG SAN LANG YANG SAN BON	1.86	3	0.14	9	0.33	5	0.39	3 3413 1 2128 3 4.1 3 1
6 OM LAN NOK	2.43	9	0.31	4	0.51	2	0.34	5 2529 4 2360 2 1.2 8 2
7 OM SOON KLANG	1.88	4	0.73	1	0.55	1	0.08	10 347 10 1020 6 0.4 10 10
8 KONG LA	1.73	1	0.56	2	0.17	8	0.12	9 3176 2 3173 1 1.5 6 3
9 DIN KHAO	1.83	2	0.08	10	0.33	5	0.50	2 1671 5 1436 5 1.2 8 5
10 HUAI SAI	2.27	5	0.28	5	0.19	7	0.23	8 2870 3 2084 4 1.5 6 4
AVERAGE	2.10		0.28		0.26		0.33	2245 1667 1.3

4. MONITORING CATEGORY 4: DEVELOPMENT PARTICIPATION

This monitoring category is a compilation of rates of participation of villagers in CARE-promoted development activities and other activities which directly reflect degree of development. Each of the individual variables used is explained below.

NUMBER OF CONSERVATION METHODS USED PER HOUSEHOLD = number of CARE promoted conservation methods adopted per household. CARE conservation methods included in the baseline survey included, e.g., rotation of crops, planting contour strips, planting windbreak trees, building terraces, etc.

PERCENT OF HOUSEHOLDS WHICH USED FERTILIZER = percentage of households using chemical fertilizer on any crop. The usefulness of this item is limited as the baseline did not determine the amount of fertilizer used, e.g., a farmer using one half kilo of fertilizer would be counted the same as one who used two 50 kg bags of fertilizer.

PERCENT OF HOUSEHOLDS WHICH USED PESTICIDES = percentage of households using chemical pesticides on any crop. In villages where pesticide use is high or which have just started using pesticides, additional training on pesticide safety may be appropriate. (Note: no households used natural pesticides.)

PERCENT OF HOUSEHOLDS WHICH PLANTED A CASH CROP = percentage of households that planted any of the cash crops promoted by CARE. A more meaningful variable might be the total

income per person from sale of cash crops.

PLANT TREES = percentage of households that planted fruit or other trees distributed by CARE excluding reforestation. A more useful variable might be the average number of surviving trees per person.

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4. DEVELOPMENT PARTICIPATION

	AVG. CARE GRADE	#CONS METH USED R/HH	% USE FERT	% USE PEST	% GROW CASH CROP	% PLANT TREES	OVER -ALL R						
1 MAE LAEK	2.42	8	2.05	3	5	5	0	5	53	4	5	9	7
2 BAN KLANG PHA KHAO	2.77	10	2.85	1	0	8	8	3	46	6	15	7	3
3 SAM SON BON	2.38	7	1.77	5	0	8	0	5	38	7	8	6	9
4 PA KLUAI	2.35	6	2.15	2	5	5	0	5	65	3	0	10	3
5 YANG SAN LANG YANG SAN BON	1.86	3	1.53	6	27	2	4	4	80	2	25	4	1
6 OM LAN NOK	2.43	9	1.50	7	7	6	0	5	7	8	29	3	8
7 OM SOON KLANG	1.88	4	1.00	10	0	8	0	5	0	9	25	4	4
8 KONG LA	1.73	1	1.37	8	57	1	53	1	0	9	20	6	3
9 DIN KHAO	1.83	2	1.28	9	17	8	11	2	50	5	44	1	3
10 HUAI SAI	2.27	5	1.87	4	13	7	0	5	87	1	33	2	2
AVERAGE	2.10		1.70		19		10		49		21		

PART IV. VILLAGE GRADUATION CRITERIA

1. ABSOLUTE VERSUS RELATIVE CRITERIA. There are two types of criteria could be used to select villages for graduation from the CARE program. These criteria could be used either singly or together. Absolute criteria are those criteria where a specific standard has been set. An example of such a criterion would be that 80% of the households in the village produce enough rice to eat for at least 9 months per year. Villages meeting the criterion would then be eligible for graduation. Other villages would be retained in the program.

Relative criteria are those where there is not an absolute standard, e.g., total annual income per person. Those villages with the highest per person income would be selected for graduation. The total number to be graduated would have to be determined by CARE.

2. USING ABSOLUTE AND RELATIVE CRITERIA TOGETHER. In most cases, it would be most appropriate to select villages for graduation based on a combination of absolute and relative criteria. For example, the 10 villages with the highest income per person (relative) which also meet the rice production requirement (absolute) would be graduated. When the CARE Mae Chaem project finalizes a monitoring system, it will be possible to determine if each monitored variable should have an absolute standard or should be a relative variable.

PART V. VILLAGER SELF-MONITORING

1. PROBLEM CENSUS/SOLUTION CENSUS. The monitoring system described above is designed to serve two purposes: (1) provide data for project implementers to use in designing programs/activities and (2) provide evidence for others, e.g., donors, of project progress. Another type of monitoring, which does not make direct use of the baseline type data, is the monitoring done by villagers themselves through a problem and solution census. These are meetings held in the villages with project staff acting as facilitators. Villagers identify their OWN problems and suggest solutions. In this way, it is possible to help insure that project activities meet the perceived needs of the villagers, not just the project staff. It also helps villagers feel that the project is their initiative rather than something imposed from outside. The specific methodology for this type of activity is too lengthy to include in this paper; however, this methodology has been used by many other projects and is readily available in the development literature.

2. VILLAGE MEETING MINUTES. Project officials frequently attend or call meetings regarding different aspects of development. If minutes of these meetings, particularly the villager-run meetings, are taken, this can form a valuable record of where a village has been, where it is, and where it is going. This is not monitoring in the traditional sense, but it is a form of "grass roots" monitoring which is worth trying.