

**THE USAID-ASSISTED ICDS PROGRAM IN INDIA:
THE DEVELOPMENT OF A PLAN FOR MANAGEMENT
INFORMATION IMPROVEMENTS AND SYSTEM EVALUATION**

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EXECUTIVE SUMMARY

This report presents a summary of the activities undertaken and conclusions derived during a four-week consultancy in March and April, 1985. Time was divided among three activities: (1) the ICDS Baseline Impact Evaluation Plan; (2) the ICDS Management Information System (MIS); and (3) the CRS Targeted Maternal and Child Education Project (TMCHEP).

Three field visits were made to Gujarat, where meetings were held with the staffs of the Food and Nutrition Department of M.S. University and the Operations Research Group of Baroda, which have a joint responsibility for preparing the analysis and report of the baseline survey.

In the Panch Mahals district, fourteen anganwadis were visited in both tribal and rural blocks, and meetings were held with officials at all levels of government: block, district, state, and ministerial. A small sample of data from the recently completed baseline survey were hand tabulated. Primary data from eight anganwadi groups were gathered and hand tabulated in order to gain some initial estimates of variable magnitude.

Computational and analysis capability was reviewed at the USAID/Delhi Mission, in Baroda, and at the Indian Institute of Management in Ahmedabad. Finally, one day was devoted to a review of TMCHEP implementation plans and suggestions provided verbally to CRS staff.

Conclusions and recommendations regarding ICDS stemming from these visits and the consequent analyses and discussions are as follows:

A. Regarding the Baseline Impact Evaluation Study

- Because of the substantial differences among observation groups, it is suggested that at least some of the same anganwadis be observed over time (see section 2.1).

- Because there are no clear dichotomies among treatment groups and time intervals, it is suggested that the analysis of successive surveys treat most of the variables as continuous rather than dichotomous (see section 2.1).
- In order to keep the interpretation task manageable, it is suggested that no further tabular formats be added to the baseline impact evaluation analysis at this time (see section 2.2).
- It is suggested that the source program code for error detection in the baseline survey be included in the report Annex in order to facilitate corrections in future survey rounds (see section 2.2).

B. Regarding the Data Analysis Plan

- We recommend that M.S. University, USAID/Delhi, ORG, and the Ministry of Social Welfare all have the same (or compatible) analysis capability, so that not only information but also analysis can be shared and worked on together. Using small, relatively inexpensive micro-computers, and existing database management and statistical package software, such an arrangement is both feasible and realistic. The steps necessary to operationalize this plan are detailed in section 2.3.
- Several small but perhaps useful changes in the handling of data in future survey rounds are suggested in section 2.4.

C. Regarding Management Information System Improvements

- Because the information system is massive, recommendations should be bounded by three criteria: (1) the current stage of system implementation and consequent usefulness of new feedback information; (2) improvement in reliability; and (3) improvement in validity.
- Emphasis to date has been on process indicators, so there is now the opportunity to expand feedback capability for impact indicators--especially at levels below the CDPO where there is a feedback gap. It is therefore recommended that the feedback gap at the mukhya sevika and anganwadi worker level be filled in a way that improves reliability and validity (see section 3.1.1).
- Because there are wide discrepancies between the individual growth card data and summaries forwarded by the anganwadi worker in some cases, yet in some the correspondence is perfect or nearly perfect, there is clearly the potential for a uniformly high degree of reliability. The less reliable anganwadis should be brought up to the level of precision of the reliable ones. Presently the country-wide ICDS program is preparing for distribution of an entirely

new set of manuals and procedures to improve upon the system which is a useful first step. Following steps will involve improvements in the MIS (see section 3.1.2).

- Although weight-for-age is a much more valid indicator of nutritional status than is arm circumference, gathering data on weight and age is more difficult than using an arm band. A sampling of arm bands in use revealed considerable variation in both the length of the red and yellow portions. Thus if it is decided to use arm bands, the newer fold-through design should be utilized in order to improve reliability. Serious consideration should be given to use of weight-for-age throughout in order to improve validity (see section 3.1.3).
- Even with the resulting consolidation of forms anganwadis complete in the data gathering process, a substantial proportion of an anganwadi's daily activity is spent in data gathering. Alternative MIS implementation schemes should be measured for what effect they have upon anganwadi work load, the degree to which they promote anganwadi learning and how much they improve reliability and validity in the system.
- Because the new ICDS information system is just now being implemented, it may be wise to devote the preponderance of the first year to developing and testing alternatives on a small scale, say in one block of each USAID-assisted state. Then after the new manuals are fully utilized and the improved system is implemented for a period of time, controlled experiments can begin, followed by formally testing on a larger scale in both Panch Mahals and Chandrapur several alternatives which appear to be most promising. In the exploratory phase, both data forwarding procedures and feedback methods should be varied. However, all possible combinations exceed even exploratory consideration so an initial screening will be required (see section 3.2).
- Improvements in reliability and validity will undoubtedly occur as the MIS becomes more fully developed. In order to ensure that the true effects of the ICDS are reflected in the data, it is recommended that careful measurements of sensitivity and specificity be undertaken (see section 3.3).

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
EXECUTIVE SUMMARY	ii
1.0 INTRODUCTION	1
2.0 ICDS BASELINE IMPACT EVALUATION PLAN	3
2.1 Evaluation Design	3
2.2 Format for the Baseline Impact Evaluation Report	5
2.3 Design of a Computerized Data Analysis Plan	10
2.4 Suggestions Regarding Treatment of Coding and Data Cleaning	12
3.0 MANAGEMENT INFORMATION SYSTEM IMPROVEMENTS	14
3.1 Criteria for Selecting MIS Improvement Activities	14
3.1.1 Present Stage of System Implementation	14
3.1.2 Improving Information System Reliability	15
3.1.3 Improvements in MIS Validity	22
3.2 A Strategy for Improving MIS	25
3.3 An Additional Gain from Improved Reliability and Validity	30
ANNEX I - LIST OF PERSONS CONTACTED	31
ANNEX II - LIST OF VALIDATION CHECKS	34
Table 2.1 Number of Anganwadi Groups in Sample Ordered by Number of Months ICDS Has Been in Operation (Question No. 7, Schedule B, Baseline)	6
Table 2.2 "On-Site" Analysis of Selected Questions from Anganwadi Schedule in Panch Mahals, Gujarat (Baseline Schedule B)	7
Table 2.3 Selected Variables Arranged by Increasing Value-- Panch Mahals, Gujarat (Baseline Schedule B)	8
Table 3.1 Individual Anganwadi Group Variation Between Card Tally and Monthly Records - Panch Mahals, Gujarat (March 1985)	18

Table 3.2	Variation Between Card Tally and Monthly Record Reports for a Sample of 8 Anganwadi Groups - Panch Mahals, Gujarat (March 1985)	21
Table 3.3	Variation Between Card Tally, Beneficiaries, Enrollment and Child Population Survey for a Sample of Five Anganwadi Groups - Panch Mahals, Gujarat (March 1985)	26
Figure 3.1	Existing Information Flows	16
Figure 3.2	Comparisons Among Arm Bands Currently in Use in ICDS Anganwadi Groups - Panch Majals, Gujarat (April 1985)	24

1.0 INTRODUCTION

This report presents a summary of the activities undertaken and the conclusions derived during a four-week consultancy in March and April, 1985. Time was divided between three activities: (1) the ICDS Baseline Impact Evaluation Plan; (2) the ICDS Management Information System (MIS); and (3) the CRS Targeted Maternal and Child Education Project (TMCHEP).

The first week of the consultancy was spent in reviewing the ICDS baseline survey schedules and code guides, and the various manuals to be used in implementing the ICDS system. A very fruitful meeting was also held with Mr. M.S. Dayal, Director of the Ministry of Social Welfare, and Mr. K.L. Gupta, also of MOSW. During the second week a visit was made to the Food and Nutrition Department of M.S. University in Baroda, and to the Operations Research Group of Baroda (ORG), which has the responsibility for providing computational assistance to M.S. University during the evaluation. The ORG computational facilities were visited and discussions held with Mr. K.K. Bansal and his staff concerning data cleaning, file organization, analysis procedures and computer hardware and software availability.

Fortunately, one of the surveys (Schedule B - Anganwadi Workers), had recently been completed for Panch Mahals, Gujarat. Since this schedule was administered at the anganwadi worker level, only in blocks which already had operating ICDS programs, the entire sample consisted of seventeen anganwadis. A manual tabulation of eight key questions was performed on this sample to provide some initial feedback on the most useful kinds of file organization and analysis methodology. The specifics of this "on-site" analysis are presented in the next section. The last two days of this week were spent in discussing the analysis plan further with the staffs of the Food and Nutrition Department and ORG and in preparing some of the analysis shown later in this report.

The third week was spent in visiting a sample of operating anganwadis in Panch Mahals, Gujarat and in meeting with officials at each level of government (block and district). Fourteen different anganwadi groups were visited and in a sample of eight groups

Mr. Sengupta and Mr. Drake gathered data from growth card records and various registers and reports forwarded to the ICDS information system. In the last week one day was spent in reviewing the CRS/TMCHEP evaluation plan and in providing verbal recommendations regarding the implementation program and in undertaking a third trip to Ahmedabad to review progress with state-level officials. The final three days of the consultancy were devoted to preparation of this document and to several debriefings.

2.0 ICDS BASELINE IMPACT EVALUATION PLAN

A description of the proposed evaluation plan is provided in the USAID/ICDS Project Paper prepared by Ms. Mary Ann Anderson, June 1983. However, it was deemed useful to summarize the plan here in order to set the stage for the ensuing discussions in this report.

The USAID-supported Project is being implemented in a single district in each of two states: Chandrapur, Maharashtra and Panch Mahals, Gujarat. A sample of 42 out of 1115 anganwadi groups was selected from eight blocks in Chandrapur. A sample of 51 out of 2729 anganwadis was selected from 11 blocks in Panch Mahals. All block are to be re-surveyed twice during the life of the project with survey work done in alternate blocks annually. The anganwadis were selected randomly after stratifying by distance from primary health center and by tribal and rural category. In addition, in Panch Mahals the 11 blocks were stratified by the length of time the ICDS program had been in operation. Group A consisted of 10 tribal anganwadis in two blocks which had been functioning for at least 35 months by January of 1985. Group B consisted of 7 rural anganwadis in two blocks which had been functioning for 9-17 months. Group C consisted of 34 anganwadis (tribal and rural) in seven blocks which had not yet begun to function in January 1985.

The evaluation-related issues on which advice during this consultancy was requested were: (1) the evaluation design; (2) the format for the baseline survey report; (3) the design of a computerized data analysis plan; (4) suggestions regarding the treatment of coding and data cleaning. The sub-sections that follow discuss these issues in the order stated above.

2.1 Evaluation Design

The evaluation design initially selected by USAID/ICDS is a modified quasi-experimental design with reflexive controls. That is, ICDS program participants are to be observed over time (3 to 5 years) as the program is implemented. Either the same anganwadis or comparable

cohorts of participants from different anganwadis are to be surveyed in successive rounds. No other control groups were envisioned.

This type of design, like most designs which are implemented under actual program conditions, leaves ample opportunity for competing explanations of an observed outcome to arise. One of these competitors, secular trends, will be mitigated, in part, by grouping the samples of Panch Mahals into the three categories, Groups A, B, and C. While this categorization is helpful, it does not by any means control for all competing explanations, especially since the principal evaluation question is "what are the effects of the enhancement to the ICDS program provided by USAID support?" These enhancements are to be phased in over the next few years and include better supervision and training, modified management information system, and intensive nutrition and health education.

In this design competing explanations include not only secular trends, but also in- and out-migration, and non-comparability among comparison groups. Secular trends can be further dealt with, to some degree, by obtaining control trends from other similar ICDS and non-ICDS blocks not participating in the USAID enhancement. In- and out-migration can be mitigated by careful statistical adjustment, providing the same anganwadi groups are tracked over time. The final competitor, incomparability of comparison groups, is perhaps the most troublesome. There appear to be vast differences among blocks and even within blocks. Not only are there differences in tribal versus rural status and in proximity to a health facility, but also a large number of other important distinctions.

It is therefore strongly suggested that at least some of the same anganwadis be observed over time. The statistical adjustment for migration effects becomes possible and incomparability of controls is avoided. However, no design is without problems. There is the potential and, in fact, the likelihood of an evaluation effect, either positive or negative, to become a new competitor if the same anganwadis are re-surveyed frequently. In order to minimize this effect, perhaps a staggered schedule could be utilized, where the same groups are observed but in alternate years. Depending upon the resources available and the

number of MIS variations selected for study, new groups should be introduced at the time these variations are implemented.

Another question surfacing in this type of design is the degree to which the initial control groups (i.e., A, B, & C in Panch Mahals) are truly distinct from each other. To the extent that there is considerable variation within each group, there can be a masking of the among-group variation. (Even if the primary comparisons are intended to be within-group comparisons over time, it could be very useful to compare among groups when considering future policy implications.)

In order to assess whether this problem will arise, selected variables from the anganwadi survey (Schedule B) were hand tabulated. Question 7, the number of months the ICDS program has been in operation, is shown as Table 2.1.

It is clear that even though there are distinct break points, such as at 19 months, there is great variation within each grouping. As these anganwadis are observed over successive years, the breaks which now exist will become progressively less distinct in relation to the overall time period observed. Table 2.2 presents an "on-site" analysis of selected questions from the anganwadi schedule B from Panch Mahals. Table 2.3 orders these variables by increasing value. The same tendency was found to exist for the other variables as was true in Table 2.1. It is therefore suggested that the analysis of successive surveys treat these variables as continuous rather than as dichotomous. Less of the available information in the data will be lost and higher likelihood of showing any true effects, if they should exist, will be possible. Section 2.3 presents a strategy for dealing with this recommendation, along with some of the other unresolved evaluation issues.

2.2 Format for the Baseline Impact Evaluation Report

The baseline survey, consisting of some 9,000 individual family schedules and 59 anganwadi level schedules, is currently being keyed and processed by ORG of Baroda. For this task they are utilizing an IBM 1401 which has the statistical software package SPSS (version 5). An error detection code which adheres to the error range and logic checks

TABLE 2.1
 NUMBER OF ANGANWADI GROUPS IN SAMPLE
 ORDERED BY NUMBER OF MONTHS ICDS HAS BEEN IN OPERATION

(Question No. 7, Schedule B, Baseline)

DISTRICT	MONTHS OF OPERATION																												Total
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	..	35	36	37	38	..	48	..	56			
Panch Mahals	0	0	0	0	0	0	1	1	1	1	1	0	0	1	1	0	0	..	2	1	0	1	..	1	..	5	17		
Chandrapur	1	2	1	2	1	0	5	1	3	3	2	3	9	6	0	1	1	..	0	0	0	0	..	0	..	0	41*		
Total:	1	2	1	2	1	0	6	2	4	4	3	3	9	7	1	1	1	..	2	1	0	1	..	1	..	5	58		

* Hand tabulation apparently "lost" one observation. The total should be 42.

6

TABLE 2.2 - ON SITE ANALYSIS OF SELECTED QUESTIONS FROM ANGANWADI SCHEDULE IN PANCH MAHALS, GUJARAT (BASELINE SCHEDULE B)

ROW	QUESTION NUMBER	DESCRIPTION	SCHEDULE NUMBER -																	ROW AVE.
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1	7	MONTHS OF OPERATION	17	12	13	10	16	11	9	28	35	56	56	48	56	56	56	35	36	-
2	8	MONTHS OF SERVICE	17	5	13	10	11	11	9	14	35	56	56	48	8	56	11	35	36	-
3	9	MONTHS OF SERVICE AFTER TRAINING	10	5	1	10	11	4	4	16	35	56	56	9	55	56	3	35	36	-
4	10	LEVEL OF EDUCATION OF ANGANWADI	3	3	1	5	3	3	5	5	5	5	4	5	5	5	5	5	5	4.2
5	27	TIMES AVAILABLE W/Z LAST 3 MONTHS	4	2	1	2	1	1	2	2	12**	2	1	0	0	2	1	5	1	-
6	4	DISTANCE OF ANG. FROM PHC	8	2	13	25	5	9	1	7	7	5	7	3	25	31	7	16	1	10.1
7	12	AVE. RECIPIENTS FED AS PER ANG. RECORDS	53	78	55	112	71	128	57	83	82	68	108	72	79	77	69	68	81	78.5
8	22	RECIPIENTS FED ON DAY OF INTERVIEW (a+b+c)	29	23	41	58	39	23	44	27	24	14	40	19	24	35	22	30	27	30.5
9	22/12	PERCENT FED IN DAY IN SCHEDULED RECORDS	55	11	74	57	55	18	77	32	29	20	37	26	30	45	32	44	33	40.8
10	40	PERCENT NORMAL 3 1/2 LB (WEIGHT)	78	M*	M	M	M	M	55	26	60	M	52	91	46	M	72	57	72	-
11	40	PERCENT NORMAL (GREEN) USING ARM CIRC.	59	M	M	M	74	65	50	M	M	86	41	M	88	14	10	M	M	-

* = MISSING DATA - (THESE DATA WERE CODED AS ZEROS AND THEREFORE SHOULD BE TREATED TO MISSING VALUES SAMPLE ANALYSIS BY EXCLUDED)

** = QUESTIONABLE DATA - PROBE FURTHER

TABLE 2.3 - SELECTED VARIABLES ARRANGED BY INCREASING VALUE
PANCH MAHALS, GUJARAT (BASELINE SCHEDULE B)

QUESTION NUMBER	DESCRIPTION	ORDER																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
4	DISTANCE OF ANG FROM PIC	1	1	2	3	5	5	7	7	7	7	8	9	13	16	25	25	31
7	MONTHS OF OPERATION	7	10	11	12	13	16	17	35	35	36	38	48	56	5	56	56	56
8	MONTHS OF SERVICE	5	8	9	10	11	11	11	13	14	17	25	25	26	48	56	56	56
9	MONTHS OF SERVICE AFTER TRAINING	1	3	4	5	7	9	10	10	11	16	35	35	36	55	56	56	56
10	LEVEL OF EDUCATION OF ANG.	1	3	3	3	3	4	5	5	5	5	5	5	5	5	5	5	5
27	TIMES ANM VISITED W/I LAST 3 MO	1	1	1	1	1	1	1	1	2	2	2	2	2	2	4	5	12*
22/12	PERCENT FED. OF ILL IN RELATION TO HHS	18	20	26	29	29	30	32	32	33	37	49	45	55	55	57	74	77

* = GUEST HOUSE DATA - FIGURE FOR 1961

developed by ORG and MSU is being written in Pascal. These checks are as shown in Annex II. Six additional logic checks were provided to ORG and will be added to those shown in Annex II. A large number of table formats have been provided to the baseline analysis team by the USAID Nutrition Advisor, Ms. Mary Ann Anderson. The staff of M.S. University, headed by Dr. Tara Gopaldas, will interpret the tables (computer output done by ORG) and provide a narrative in report form. The entire baseline analysis and report is scheduled for delivery to USAID and GOI by the end of October 1985.

This ambitious plan is an excellent first step and will surely be of great value in its own right. However, there are two additional suggestions which if implemented could provide enhanced future capability as successive survey rounds are carried out. The first suggestion deals with the proposed table formats. There are a large number of these formats which will require an even larger number of separate computer "runs" to implement. (Several tables will require more than one run). In order to keep the interpretation task manageable given the time and resources available, it is suggested that no further formats be added at this time. One of the reasons for this suggestion is that some of the tables will raise questions which further analysis can answer. Time should be provided either to perform these analyses or, more realistically, to specify what additional analyses need to be performed. These additions may have to be delayed until the initial tasks are completed. In specifying these further analyses, care should be taken to make the requested details explicit, keeping in mind the actual limitations imposed by the available data and time-table.

The second suggestion concerns error detection. The computer code currently being written by ORG could be of use in successive survey rounds. Undoubtedly, changes will need to be made, especially the recoding changes described in Section 2.4 of this report. It is even possible that in successive years, processing will be done on another computer using a database management system. Nevertheless, the code could still have value. It is therefore suggested that care be taken in ensuring that the source program code for error detection is included in an Annex of the M.S. University report. While it would be an additional

burden to provide complete documentation for this code, brief notations within the program listing would be easily implemented and could yield many benefits in the future.¹

2.3 Design of a Computerized Data Analysis Plan

Since the baseline survey analysis is currently under implementation through ORG, the computerized analysis plan discussed herein only relates to efforts following the initial stage. In Section 2.2 reference was made to the desirability of facilitating successive cycles of analysis on the baseline data as questions arise from the first cycle. Perhaps more important, future analysis will be longitudinal rather than cross-sectional and will include, we hope, ICDS program variations requiring some form of partitioned treatment. Most important of all is the desirability of having an on-going dialogue among researchers and program implementors with computational capability immediately available to both groups. While such a scenario would have been unrealistic a few years ago, it is easily implemented now. Using small, relatively inexpensive micro-computers, and existing database management and statistical package software, such an arrangement is both feasible and realistic.

The most desirable arrangement would be to have full computational compatibility among: (1) staff working for USAID (both as direct hire and under contract); (2) ORG; and (3) M.S. University in Baroda.² This would allow the benefits of on-going dialogues to be fully realized.

There are three steps necessary to operationalize this plan. First, machine-read data from the baseline survey must be made compatible with such hardware and entered into a database management

¹See "Nutrition Data Archiving System: Guidelines and Specifications," by Roy I. Miller and W.D. Drake, Community Systems Foundation, Ann Arbor, Michigan, September 1980, pp. B 1 through B 60.

²If training is provided to M.S. University staff and/or ORG, the arrangement which provides such training should be required to have comparable compatibility. Requiring this compatibility ensures both maximum utilization of training and the highest rate of in-country capability building.

system. While this step is very simple in theory, it can be less straightforward in practice. ORG currently can provide data in either ASCII or IBSCID format on a 9-track tape at a density of 800 bpi. Record length is 128. This data must be entered into a computational facility which can provide floppy disk output formatted according to the soft and hardware specifications utilized by the analysis team.

The second step is to specify the file organization, write the dictionary and enter the data into a database management system. Careful attention should be devoted to this task, since effort spent now will yield returns worth many times their cost as the second and third rounds of analysis are undertaken in the future. Effort spent in complete documentation is also essential. It would be preferable to have this task carried out by those who have both computational and substantive knowledge about the subject matter and who intend to be involved in future stages of this USAID/ICDS project.

The last step is to specify hardware. This is an interesting task because of the high rate of change now occurring in the hardware field. Our current thoughts are to utilize systems which are compatible with, or identical to, those already available to USAID staff. USAID has Wang PCs with IBM PC emulators. However, the mission does not have the emulator most needed at this time. What is required is the Wang PC-PM 101 Emulator Card for stand alone mode. Cost to USAID is \$417.00. Further discussion with Pawan Jaidka, AD/SYS Computer Operations Manager, should be held concerning system configuration. It is therefore recommended that ORG be provided with a PC with at least 256k of internal storage (and preferably 512k), 2 floppy disk drives and at least 10 megabytes of hard disk (preferably 20 megabytes). M.S. University should be provided with the same hardware and software but without the hard disk drive. The reason for this difference is that ORG has an uninterruptable power supply and M.S. University does not. Our experience elsewhere suggests that it is unwise to attempt using a hard disk without stable and reliable power.

CSF is presently engaged in two projects (in Indonesia and Ecuador) which have the kind of computational arrangement specified above. In both instances initial results are extremely promising, a fact which

raises our confidence in the appropriateness of these recommendations. The only qualification which we would propose is to recognize, at the onset, the importance of careful attention to detail in the initial stages of implementation.

2.4 Suggestions Regarding Treatment of Coding and Data Cleaning

Section 2.2 described the error detection and correction procedures ORG and M.S. University are currently implementing. If these plans are fully implemented, the resultant data set will have an excellent first-stage data cleaning. Our experience is that a second cleaning stage will also be desirable, but only after the first cycle of analysis is completed. This second stage consists of removing errors which only become apparent after analysis has commenced. If a database management system is utilized, this second stage of cleaning is very easy to implement. (A full description of this process is contained in several CSF documents and therefore will not be discussed further here. See CSF 83.4, 80.7 and 80.2.)

Variable coding for the baseline survey was, in general, carried out very well. There are, however, a few "mid-course corrections" which could be made in the next survey. All variables should be coded in a manner which distinguishes between a zero value, missing data and a not applicable response. While this distinction did not create a problem in most of the baseline questions, there were a few in which it did. Small changes in the re-survey instrument will resolve this difficulty for the next rounds.

One variable, distance of anganwadi to a PHC (question No. 4 on Schedule B), could receive slightly different treatment with some advantage. During the recent field visits to anganwadis, it was discovered that households were frequently utilizing health facilities different from the PHC when those alternatives were closer. In one instance the PHC was 20 kilometers away but a small hospital which everyone used was one-half kilometer distant. Travel difficulty also affected practical accessibility. If the village and PHC are linked by bus it is quite different than if the same distance has to be traveled

on foot.

Fortunately this question is one for which there are only 59 observations (Schedule B). Since there could be misleading results obtained from analysis of the response in its present form and since it appears relatively easy to change this variable, it is suggested that the variable be replaced by travel time to the nearest health care facility. This adjustment could await the second survey round if necessary.

3.0 MANAGEMENT INFORMATION SYSTEM IMPROVEMENTS

The Management Information System for the ICDS program currently under implementation in India has been developing over several years. The system collects information on the status of children and mothers as well as program process indicators from the basic service providers, anganwadi workers, at the village level. Data flow to the national government where it is processed. Feedback to middle and lower levels of government (state, district, and block) is provided at monthly intervals. Since much has been written about this system, only a summary will be provided in this report, except when a more detailed description is necessary to explain the USAID-assisted ICDS project in Gujarat and Maharashtra.

Because this information system is massive, the task of offering useful suggestions for improvement must be bounded. Without such bounding, a limited effort such as this could be diluted to the point of negligible gain. The first step, then, is to propose an approach to limiting the inquiry.

3.1 Criteria for Selecting MIS Improvement Activities

Three criteria are useful in helping to decide where to focus improvement activities: (1) current stage of system implementation and consequent usefulness of new feedback information; (2) improvement in reliability; and (3) improvements in validity. Each of these criteria will be considered, with particular attention paid to the relative cost of implementing system-wide changes necessary to attain improvement.

3.1.1 Present Stage of System Implementation

ICDS is being introduced throughout India at an extremely ambitious rate. There are now more than 100,000 anganwadis throughout all 22 states and union-territories and the goal is more than 200,000 by 1990. The GOI has quite properly placed initial emphasis upon expansion of coverage, leaving systems improvements to the next stages of development. It is important to recognize, therefore, that the MIS that

exists now is intended to evolve and improve over time and that the MIS component of USAID-assisted ICDS is but one small part of this overall development effort. Figure 3.1 is a picture of the ICDS/MIS as it exists in April 1985. Information flows from anganwadi workers to the mukhya sevika (supervisor), where it is summarized and provided to the Child Development Project Officer (CDPO). The CDPO prepares two forms, one of which is precoded, and forwards them both directly to the Ministry of Social Welfare. At the national level the ministry prepares several documents for distribution back to the state. The state prepares two tabulations showing process indicators, including percent coverage attainment in relation to target, and forwards them to the district and block. Written feedback does not proceed below the block level.³

Emphasis to date on process indicators has meant that there is now the opportunity to usefully expand the feedback in the area of impact indicators--especially at levels below the CDPO. Presently there is a feedback gap at the mukhya sevika and anganwadi worker level as shown in Figure 3.1. If this gap can be filled in a way that improves system reliability and validity, then all three of our bounding criteria will have been fulfilled. The next two sections explore the potential for positively affecting reliability and validity if emphasis is placed upon feedback below the level of CDPO.

3.1.2 Improving Information System Reliability

In recent years there has been considerable discussion concerning the reliability of data derived from the ICDS record system. Some would argue that the data, especially data on child nutritional status, is inherently unreliable and therefore should be discounted. Others say that, while there are limitations to this kind of data and shortcomings at the current stage of implementation, the information is on the whole relatively reliable. Of course there are positions to be taken in

³Of course there is substantial verbal dialogue between the CDPO and mukhya sevikas (weekly) and between the mukhya sevikas and anganwadi worker (monthly). However, no numeric indicators of progress are available to facilitate this dialogue.

between those two extremes. The questions before us then are: "What is the current state of reliability of the data?"; and given that condition, "Is there the potential for improvement?"; and "If this potential exists, are there specific mechanisms that can implement such improvements?".

During this consultancy field visits were made to the district of Panch Mahals, Gujarat. One of the purposes of these visits was to gain an impression of the current reliability of data gathered at its source, the anganwadi worker. It is these data which are then forwarded to various higher levels of government. Fourteen anganwadi groups were visited, and in eight groups a comparison was made between one of the source documents, which were individual child growth cards, and the monthly progress report forwarded up the management information system. A careful tally of child nutritional status was made, categorized by the age of the child. Attention was devoted to ensuring that no valid and in-use growth cards were missed in this tally. The monthly progress report or the anganwadi monthly record from which this report was prepared was then compared with the growth card tally. The results of this limited study are shown as Tables 3.1 and 3.2. Table 3.1 presents the findings from each of the anganwadis separately and Table 3.2 provides a summary of all eight groups.

General conclusions cannot reasonably be made about the entire information system based upon this limited sample from one district in one state. However, if the data from Panch Mahals are viewed as but one exemplar of the entire system, some useful statements can be made. First, in this sample there is a major variation between the individual growth card source records and data forwarded up the system by the anganwadi worker. Surprisingly wide discrepancies exist. In some cases there seemed to be virtually no connection between the two sets of data. Table 3.2, which is an averaging of the variation, shows an overall deviation of 46% between the source documents and monthly progress report data. This deviation, because of its average character, is a conservative estimate of actual differences.

On the surface, results such as this lend credence to those who would completely discount nutritional data derived from monthly progress

TABLE 3-1 . INDIVIDUAL ANSANNHADI GROUP VARIATION BETWEEN CARD TALLY & MONTHLY RECORDS - TAUCH NAHALS, GUJARAT (MARCH 1985)

SIMA LAYA (BARIA PALIA), DEUGARH BARIA (MARCH 1985) (TRIBAL)

	N	I	II	III	IV	TOTAL	SURVEY	ENR.	BEN.
1 < 2		4	1			5	16	12	
2 < 3	1	3	3	1		8	28	18	
3 < 4	1	2	3			6			
4 < 5	2	7	6	1		16			
5 < 6		4	5			9	40	41	
CARD TALLY TOTAL	5	26	21	2	0	54	84	71	N/A
MONTHLY RECORD TOTAL	5	26	21	2	0	54			

CARD COUNT VARIATION : 0%

GOGHAMBHA (MALPHARIA), DEUGARH BARIA (MARCH 1985) (TRIBAL)

	N	I	II	III	IV	TOTAL	SURVEY	ENROL.	PEN.
1 < 2		4	2			6			
2 < 3	7	13				20			
3 < 4	9	5	1			15			
4 < 5	5	5	1			11			
5 < 6	18	6				24			
CARD TALLY TOTAL	43	31	2	0	0	76	N/A	N/A	N/A
MONTHLY RECORD TOTAL	0	45	8	3	2	58			

CARD COUNT VARIATION : -23.7% $\left(\frac{58-76}{76} \times 100 \right)$

GUNASHIA, DEUGARH BARIA (MARCH 1985) (TRIBAL)

	N	I	II	III	IV	TOTAL	SURVEY	ENROL.	BEN.
1 < 2		1				1			
2 < 3	11	4				15			
3 < 4	18	4		1	1	24			
4 < 5	8	4				12			
5 < 6	8	2				10			
CARD TALLY TOTAL	49	20	0	1	1	71	N/A	N/A	N/A
MONTHLY RECORD TOTAL	0	8	40	1	1	50			

CARD COUNT VARIATION : -29.6% $\left(\frac{50-71}{71} \times 100 \right)$

W.D. & S.S.
2001-13, 2005

TABLE 3-1 (CONTINUED)

LIMDIA (OLD), LUNAWADA (MARCH 1985) (RURAL)

		N	I	II	III	IV	TOTAL	SURVEY	ENR.	BEN.
CASE No 4 (OPERATING 30 MO.)	<1						0	21	21	0
	1<2						0	58	60	9
	2<3	2		2			4			
	3<4	9	9	3			21			
	4<5	10	4	3	1		18	75	77	35
	5<6		1	2			3			
CARD TALLY TOTAL		21	14	10	1	0	46	154	158	44
MONTHLY RECORD TOTAL		30	10	0	1	0	41			
CARD COUNT VARIATION : -10.9% $\left(\frac{41-46}{46} \times 100\right)$										

MATAKHANPUR, LUNAWADA (MARCH 1985) (RURAL)

		N	I	II	III	IV	TOTAL	SURVEY	ENR.	BEN.
CASE No 5 (OPERATING 27 MO.)	<1	13		1			14	62	11	7
	1<2	1	2	2			5	71	36	25
	2<3	2	3				5			
	3<4	1	2	3			6			
	4<5	6	8	3			17	96	51	32
	5<6						0			
CARD TALLY TOTAL		23	15	3	0	0	47	229	98	64
MONTHLY RECORD TOTAL		24	15	8	0	0	47			
CARD COUNT VARIATION : 0%										

CHAUDIBAINAMOWADA, LUNAWADA (MARCH 1985) (RURAL)

		N	I	II	III	IV	TOTAL	SURVEY	ENR.	BEN.
CASE No 6 (OPERATING 40 MO. JHALOD TRAINING AUG '84)	<1						0	22	4	0
	1<2		1				1	31	30	14
	2<3	1	1				2			
	3<4	3	2	1			6			
	4<5	2	1	1			4	42	50	33
	5<6		1		1		2			
CARD TALLY TOTAL		6	6	2	1	0	15	95	84	47
MONTHLY RECORD TOTAL		0	13	16	0	0	29			
CARD COUNT VARIATION : +93.3% $\left(\frac{29-15}{15} \times 100\right)$ { GRADES READ HORIZONTALLY }										

TABLE 3-1 (CONTINUED)

SHAMNA, LUNAWADA (MARCH 1985) (RURAL)

	N	I	II	III	IV	TOTAL	SURVEY	ENR.	BEN.
CASE No 7	41					0	30	32	0
	142	1				1			
(OPERATOR'S 3000	243	2	1	1		4	46	37	12
RASKOT TRAINING	344	1	5	5		11			
JUNE '82)	445	4	3	2		9	44	36	23
	546	1	3	1		10			
CARD TALLY TOTAL	8	18	9	0	0	35	120	105	35
MONTHLY RECORD TOTAL	0	26	6	0	0	32			
CARD COUNT VARIATION	: -8.6% ($\frac{35-32}{35} \times 100$)					- 3 CARDS (35 - 32)			

VIRNIA, LUNAWADA (MARCH 1985) (RURAL)

	N	I	II	III	IV	TOTAL	SURVEY	ENR.	BEN.
CASE No 8	41	1				1	10	8	0
(OPERATOR'S 4400	142	1	1			2			
TRAINED 3400)	243	1				1	27	27	17
	344	3	4	2		9			
	445		2	1		3	47	46	27
	546	1		2		3			
CARD TALLY TOTAL	7	7	5	0	0	19	84	81	44
MONTHLY RECORD TOTAL	7	9	3	0	0	19			
CARD COUNT VARIATION	0%								

TABLE 3-2 : VARIATION BETWEEN CARD TALLY AND MONTHLY RECORD REPORTS FOR A SAMPLE OF 8 ANGANWADI GROUPS - PANCH MAHALS, GUJARAT (MARCH 1985)

	N	I	II	III	IV	TOTAL
<1	19	6	2	0	0	27
1<2	21	25	5	1	0	52
2<3	36	16	7	1	1	61
3<4	32	38	21	1	0	92
4<5	48	30	15	1	0	94
5<6	6	22	8	1	0	37
CARD TALLY TOTAL	162	137	58	5	1	363
MONTHLY RECORD TOTAL	66	152	102	7	3	330
CARD TALLY - MONTHLY RECORD (PERCENT)	245%	90%	57%	71%	33%	

* = INSUFFICIENT DATA

PERCENT DEVIATION FROM CARD TALLY -59 +11 +75 +40 *

OVERALL PERCENT DEVIATION BY NUTRITIONAL STATUS GRADE = 46%

(THIS DEVIATION IS SMOOTHED OVER EIGHT ANGANWADI GROUP OBSERVATIONS. ACTUAL DEVIATIONS ARE CONSIDERABLY HIGHER)

W.D. S.S.
APRIL 13 1985

reports (MPR). However, upon closer inspection, it is apparent that some of the cases show close correspondence between cards and MPR. In fact, case No. 1 is precisely in correspondence with the monthly progress report, followed closely by cases No. 5 and 8.

Thus, it could be concluded that, while current MPRs may be on the average unreliable, there is clearly the potential for high degrees of reliability. All that needs to be done is to bring the less reliable anganwadis close to the precision of the reliable ones.⁴ If such improvements are achieved, there is every reason to expect monthly data gathered as part of daily program operations also to provide reliable indicators of family well-being in the management information system.

3.1.3 Improvements in MIS Validity

We find it useful to distinguish between MIS reliability and validity. Reliability is concerned with the precision of data in the MIS. That is, if one repeats an observation, it will result in the same answer. For example, the monthly progress report is perfectly reliable if it shows the same values as a tally of the growth charts regardless of who performs the tally. Child weight is perfectly reliable if a second or third weighing provides the same numbers.

Validity is more concerned with how well the measure records the phenomenon of interest. For example, child weight-for-age is not a perfectly valid measure of nutritional status because some children are low in weight but not currently nutritionally deprived and others are within normal weight bounds but may be actually slightly malnourished. While it is desirable to have a highly valid indicator, there is usually a cost associated with increasing validity. Generally a balance must be struck between the additional cost (either time and/or money) and the gains from increased validity. To make matters more difficult still, often there is a trade-off between reliability and validity. As one goes up the other decreases. The measure which is most repeatable with

⁴In the initial phases of implementation the GOI has quite properly emphasized the expansion of coverage, leaving systems improvements, such as will be discussed herein, to the next stage of development.

similar results (reliable) is less good at indicating the status of the phenomenon of interest (validity).

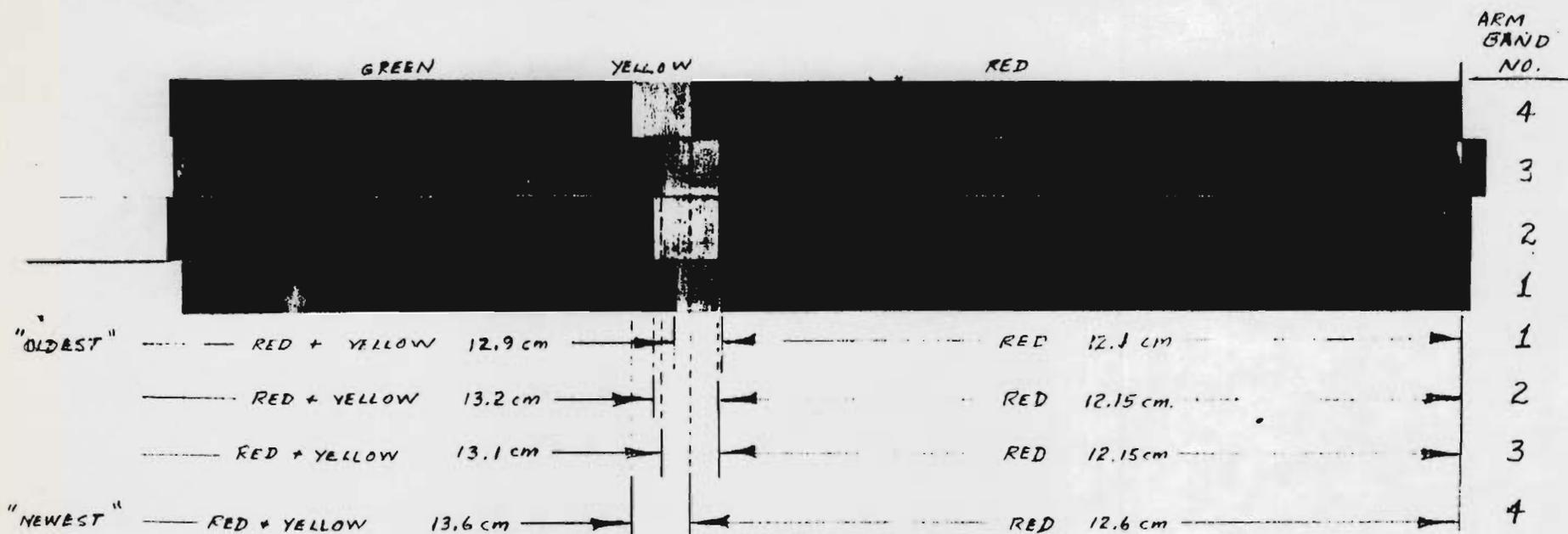
The ICDS/MIS is faced with such a trade-off in measuring child malnutrition. Weight-for-age is a much more valid indicator of nutritional status than is arm circumference. Yet gathering data on weight and determining age accurately are more difficult than using an arm band.

As part of the field trips during this consultancy, various samples of arm circumference bands were gathered from anganwadi workers. Figure 3.2 is a comparison among these arm bands which were in use in Panch Mahals, Gujarat during April 1965.

The top band in the exhibit (Band No. 4) has been recently introduced in some areas and the bottom band (No. 1) has been in use the longest and is therefore oldest. These bands are arrayed with the red portion beginning at the same point on the right-hand side of the figure. Considerable variation exists among these samples, in both the length of the red and yellow portions. One method of comparing among them is to see what effect the band differences have upon measuring child nutritional status. This figure shows that approximately 62% of those in the "oldest" yellow will fall in the "newest" red. Similarly, seventy percent of those in the "newest" yellow would have fallen in the "oldest" green.

It should be remembered that the sample from which these four variations were obtained was fourteen anganwadis in a single district of Gujarat. Again, if we treat this finding as merely an exemplar for the total ICDS/MIS system, we can still conclude that caution must be taken in drawing inferences from nutritional status measured by arm circumference. Putting aside the validity issue raised earlier about arm circumference measurements, reliability can be substantially increased by utilizing bands which "fold through" themselves, thereby allowing a much more reliable reading. There is considerable experience in using the "fold through" type of band and versions exist in India which could be easily adapted for use by ICDS. Our experience elsewhere is that it is virtually impossible to recall and stop use of all the "older" arm bands in favor of "newer" ones unless a significant change

FIGURE 3.2 COMPARISONS AMONG ARM BANDS CURRENTLY IN USE IN ICDS ANGANWADI GROUPS - PANCH MAHALS, GUJARAT, APRIL 1985



62.5% OF THOSE IN THE "OLDEST" YELLOW WILL FALL IN THE "NEWEST" RED. (5 ÷ 8)

70% OF THOSE IN THE "NEWEST" YELLOW WOULD HAVE FALLEN IN THE "OLDEST" GREEN (7 ÷ 10)

WDD.
APRIL 13, 1985

is made in the appearance of the newly introduced band. Shifting to a new design would accomplish this change at the same time reliability increased.

In addition to nutritional status data there is another "high payoff" arena for MIS improvement. Table 3.3 is a tabulation of variations found among beneficiaries, enrollment and child population as obtained from the village survey. These data are from a sample of five anganwadi groups in Panch Mahals, Gujarat. While reliability and validity concerns are undoubtedly issues in these data, perhaps more important is the question of coverage, especially in the younger age groups. For instance, in this sample only 24 percent of the children surveyed in the community are being weighed and that percentage drops to approximately 10 percent for children under three.

Providing feedback on coverage which is age specific could have a positive impact on these indicators. Given the potential for improvement, these coverage indicators ought to be considered along with child nutritional status when proposing improvements in the management information system.

The next section of this report presents an implementation strategy for improving the ICDS information system which focuses upon the flow of information below the CDPO and emphasizes child nutritional status and program coverage.

3.2 A Strategy for Improving MIS

Arguments have now been presented for focusing MIS improvements at the level of the CDPO, mukhya sevika, and anganwadi worker. The next questions are "What type of information should be emphasized?", and "What is the most useful implementation strategy?". Presently the country-wide ICDS program is preparing for distribution of an entirely new set of manuals and procedures. The first manual to be distributed to the anganwadi workers is on the use of growth charts.⁵ This

⁵"Growth Chart Manual (with exercises) for Anganwadi Workers," National Institute of Public Cooperation and Child Development.

excellent manual includes exercises which lead the anganwadi worker through the weighing, recording and interpretation of child growth information. It also provides instructions on the knowledge, attitudes and practices for improving health care of both mothers and children. The second manual, designed for use by CDPOs and higher levels of the ICDS system, is concerned with an integrated management information system. This manual, which is currently being edited by JSI and USAID, details the proposed system and, when compared with the prior system, is a major step towards integration and simplification. In spite of these substantial improvements, the data gathering requirements at the lower levels of ICDS are still massive. Under the new system the anganwadi worker must fill out seven forms at various time-intervals ranging from daily to monthly. These seven forms are consolidations of thirteen forms previously required. The change in workload, however, is not directly related to the change in number of forms because some of the consolidations result in matrices which may require somewhat more time per form than before. It is presently unknown what fraction of time the anganwadi worker and mukhya sevika spend in gathering this type of data but estimates provided by CDPOs and mukhya sevikas place this burden at 25% of the workers' time. If one accepted this estimate, then at the present level of implementation there are 25,000 person years per year being spent on data gathering by the anganwadi worker alone. Regardless of what estimate is used, the amount of time adds to thousands of person years annually.

An improvement strategy which builds upon the newly implemented system, focusing on the feedback loop to the CDPO, mukhya sevikas, and anganwadi workers, could result in reducing this load. Alternative implementation schemes should be measured for what effect they have upon anganwadi work load, the degree to which they promote anganwadi learning and how much they improve reliability and validity in the system.

Because the new ICDS information system is just now being implemented, it may be wise to devote the preponderance of the first year to developing and testing alternatives on a small scale, say in one block of each USAID-assisted state. Then, after the new manuals are fully utilized and the improved system is implemented for a period of

time, carefully controlled experiments can begin. Several alternatives which appear to be most promising can be formally tested on a larger scale in both Panch Mahals and Chandrapur.

Another advantage to this strategy is that it will allow the baseline impact evaluation survey to be analyzed prior to designing the experiments. Accurate estimates of variable variance and discriminating power will permit much less costly and more effective designs.

There are literally dozens of alternative configurations which could be tested during the next year in the block(s) selected for the exploratory phase. Both data forwarding procedures and feedback methods should be varied. [Examples of the dimensions on which this variation should be explored are:

A. Data Forwarding Procedure:

1. Anganwadi worker forwards data without help from the mukhya sevika.
2. Anganwadi worker forwards data with help from the mukhya sevika.
3. Mukhya sevika prepares data without working with the statistical assistant of CDPO.
4. Mukhya sevika prepares data working with the statistical assistant of CDPO.
5. Mukhya sevika prepares data working directly with CDPO.

B. Information Feedback Procedures:

1. Anganwadi worker receives report of her last month's submission compared with other anganwadi workers in the mukhya sevika circle:
 - a) within \pm 2 weeks of submission
 - b) within \pm 6 to 8 weeks of submission
2. Anganwadi worker receives a record of the "trajectory" of her prior months' information, comparing among months as well as comparing with other anganwadi workers in her circle:

- a) within \pm 2 weeks of submission
 - b) within \pm 6 to 8 weeks of submission
3. Anganwadi worker receives the same data as in B-1 and B-2 except with comparison made at a larger scale such as the block level. Eventually district, state, and national comparisons might be included when data become more reliable:
- a) with rapid feedback
 - b) with delayed feedback.
4. All of the above feedback procedures varied by the comparability of the records available at the next higher level of management. That is, does the mukhya sevika receive the same detail as the anganwadi worker so that she can be better prepared to discuss the findings or does she only have summary statistics by anganwadi workers? The same variation in amount of detail provided could be tested at the CDPO level as well.
5. All of the above varied by mode of feedback, i.e., mailed to home of anganwadi worker, mailed to office of anganwadi worker or hand delivered with and without discussion.]

All possible combinations of the above dimensions far exceed even exploratory consideration. Therefore an initial screening will be required prior to the first-year informal tests.

At the end of this first-year exploratory phase, a selection of a few of the most promising alternatives should be implemented in a manner which permits the effect upon anganwadi learning, staff workload and the reliability and validity of data to be carefully monitored.

In addition, computer-assisted data validating, aggregation, analysis and feedback should be proposed and tested. Some of the specifics of the design such as sample size and variable selection should await the baseline impact evaluation analysis and the selection of the most promising data forwarding and feedback configurations. However, it is clear at this time that the sample should be large enough to accommodate reliable estimates of both sensitivity and specificity for measures of malnutrition.

3.3 An Additional Gain from Improved Reliability and Validity

An additional benefit accruing to ICDS from improved reliability and validity is the effect upon measuring program impact. Recent research, both theoretical and empirical, indicates that programs such as ICDS are consistently undervalued in relation to their true impact. The reason for this is that when sensitivity and specificity are relatively low, such as in ICDS, the difference between "before" and "after" observations is understated. The lower the sensitivity and specificity, the lower the true impact that is reported. Unfortunately programs with this trait thereby often receive considerably less than their proper due because they are undervalued by policy makers.

There are two remedies to this problem. The first is to tighten up on reliability and validity of data. Improvement in this area should be a natural by-product of improvements in MIS. The second remedy is to measure carefully the amount of specificity and sensitivity existing under different field circumstances. If these estimates are obtained, analytical methodologies exist which permit the application of corrections to be made, thereby allowing proper reporting of program impact. It is for this reason that the design which measures the effect of MIS improvements should also capture estimates of sensitivity and specificity.

"Effect of Classification Errors on Evaluation Outcomes: Nutrition Programs Revisited," W.D. Drake, R.I. Miller, and R.J. Timmons, Community Systems Foundation, Ann Arbor, Michigan, U.S.A., Document 84.1, 1984.

ANNEX I - LIST OF PERSONS CONTACTED

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CDPO
Godhra, Panch Mahals
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ANNEX II - LIST OF VALIDATION CHECKS

USAID-assisted ICDS - Project EvaluationList of Validation Checks to be Performed

A1 : Household Survey : Family Schedule

Sl. No.	Description	Test Criterion
1	Missing and duplicate family numbers.	C(9-11)
2	Family size should be greater than or equal to the given age-wise distribution for number of children and women.	$C(13-14) \geq \sum_{i=15}^{22} C(i)$
3	Religion range check	C(26) within 1 to 6
4	Type of house construction range check.	C(27) within 1 to 5
5	Land owned range check.	C(28) within 1 to 5
6	Occupation range check.	C(29) within 1 to 9

A2 : Household Survey : Child Schedule

Sl.No.	Description	Test Criterion
1	Range check on following fields:	
1.1	Respondent type	C(13) within 1 to 4
1.2	Sex	C(14) within 1 to 2
1.3	Age	C(15-16) within 0 to 72
1.4	Birth interval	C(19) within 1 to 3
1.5	BCG received - Parent's Recall	C(20) within 1 to 2
1.6	BCG received - AWW/ANM	C(21) within 1 to 2
1.7	No. of DPT doses within 24 months - Parent's Recall	C(22) within 1 to 5
1.8	No. of DPT doses within 24 months - AWW/ANM	C(23) within 1 to 4
1.9	No. of DT doses - Parent's Recall	C(24) within 1 to 4
1.10	No. of DT doses - AWW/ANM	C(25) within 1 to 3
1.11	No. of doses of Oral-polio - Parent's Recall	C(26) within 1 to 6
1.12	No. of doses of Oral-polio - AWW/ANM	C(27) within 1 to 5
1.13	Measles received - Parent's Recall	C(28) within 1 to 2
1.14	Measles received - AWW/ANM	C(29) within 1 to 2
1.15	No. of doses of Vit-A syrup - Parent's Recall	C(30) within 1 to 4
1.16	No. of doses of Vit-A syrup - AWW/ANM	C(31) within 1 to 3
1.17	No. of health check-ups in past 3 months	C(32) within 1 to 5
2	Supplementary Feeding at AW in case age is within 6-72 months.	Applicable if C(15-16) is at least 6 and ≤ 72
2.1	Range check on months of participation	C(33-34) within 0 to 66

A2 : (contd.)

Sl.No.	Description	Test Criterion
2.2	No. of days received food in past 4 wks - Parent's Recall	C(35-36) within 0 to ²⁶ 28
2.3	No. of days received food in past 4 wks - AWW	C(37-38) within 0 to ²⁶ 28
3	Range check on following fields:	
3.1	All fields on health status	C(1) within 1 to 2 ; 1=39, ..., 44
3.2	Arm circumference (millimeter)	C(45-47) within ⁵⁰ 80 to ²⁰⁰ 200
3.3	Height (millimeter)	C(48-51) within 350 to ¹³⁰⁰ 1250
3.4	Weight (Deci-Kg; i.e. Kg x 10)	C(52-54) within 010 to ⁰³⁰ 070
3.5	Whether AWW had measure arm circumference	C(55) within 1 to 2
3.6	Growth chart details	C(56) within 1 to 4
3.7	Clinical signs of Vit-A deficiency	C(57) within 1 to 5
3.8	Anaemic	C(58) within 1 to 2
4	Pertaining to 1st child (youngest) only.	Applicable if C(13) = 1
4.1	Range check on following:	
4.1.1	Weaning age (months)	C(59-60) within ⁰¹ 3 to ³⁶ 10
4.1.2	Team leader's derivation about child's food	C(61) within 1 to 2
4.1.3	Eating frequency	C(62) within 1 to 2
4.1.4	Diet in Diarrhoea	C(63) within 1 to 3
4.1.5	Team leader's derivation about cause of malnutrition	C(64) within 1 to 2
4.1.6	Team leader's derivation about remedy	C(65) within 1 to 2
4.1.7	Mother's knowledge of growth chart	C(66) within 1 to 2
4.1.8	Mother's perception of child's status	C(67) within 1 to 2

A2 : (contd.)

Sl.No.	Description	Test Criterion
4.1.9	Mother's knowledge about treatment in diarrhoea	C(68) within 1 to 2
4.1.10	Use of ORS	C(69) within 1 to 2
4.1.11	Knowledge about ORS preparation	C(70) within 1 to 2
4.1.12	Receipt of ORS packets	C(71) within 1 to 2
4.2	Nutrition knowledge score recomputation and checking with C(72)	<p>Let $I(X) = 1$ if $X = 1$ $= 0$ else</p> <p>Then, $C(72) = I(C61)$ $+ I(C(62)) + I(C(63)) + I(C(64))$ $+ I(C(65)) + I(C(66)) + I(C(67))$ $+ I(C(68)) + I(C(70))$</p>
4.3	Range check on following:	
4.3.1	Treatment source	C(73) within 1 to 7
4.3.2	Mother's literacy	C(77) within 1 to 7
4.3.2	Mother's work	C(78) within 1 to 2
4.3.3	Baby sitter type	C(79) within 1 to 5

A3 : Household Survey : Lactating Women Schedule

Sl.No.	Description	Test Criterion
1	Range check on following fields:	
1.1	Age	C(14-15) ≥ 15 & < 45
1.2	T.Toxoid immunization - Woman's Recall	C(19) within 1 to 3
1.3	T.Toxoid immunization - AWW/ANM	C(20) within 1 to 3
1.4	Fe/Folic acid tablets given	C(21) within 1 to 2
1.5	No. of days Fe/FA tablets given - Woman's Recall	C(22-24) within 0 to ¹⁸⁶ 280
1.6	No. of days Fe/FA tablets given - AWW/ANM	C(25-27) within 0 to ¹⁸⁶ 280
1.7	Delivery Woman - Woman's Recall	C(32) within 1 to 4
1.8	Delivery Woman - AWW/ANM	C(33) within 1 to 4
1.9	Place of delivery	C(34) within 1 to 6
1.10	Mode of delivery	C(35) within 1 to 4
1.11	Birth weight (deci-Kg)	C(36-37) within ^{C15} 040 to ⁰⁴⁰ 070
1.12	Post-natal checkup within 10 days	C(38) within 1 to 2
1.13	Post-natal checkup after 6 weeks	C(39) within 1 to 2
2	Supplementary. Feeding at AW: Range check on following -	Applicable if C(40)=2
2.1	No. of months of participation	C(41-42) within 0 to 20
2.2	Days fed in last 4 wks - Woman	C(44-45) within 0 to 28
2.3	Days fed in last 4 wks - AWW	C(46-47) within 0 to 28
3	Range check on following:	
3.1	Nursing Diet	C(48) within 1 to 3
3.2	Anaemic	C(49) within 1 to 2
4	Family Planning adopted:	Applicable if C(50)=2
4.1	Range check on method used	C(51) within 1 to 3

A4 : Household Survey : Pregnant Women Schedule

Sl.No.	Description	Test Criterion
1	Range check on following fields:	
1.1	Age	C(14-15) > 15
1.2	Weeks pregnant(say, w)	C(20-21) within 0 to 40
1.3	Trimester recomputation and overriding column-22	C(22) =1 if w in 0-12 =2 if w in 13-24 =3 if w > 25
1.4	Birth interval	C(23) within 1 to 3
2	Range check follows only if woman in 3rd trimester	C(20-21) is at least 25
2.1	Immunized with T.Toxoid - Woman's Recall	C(24) within 1 to 3
2.2	Immunized with T.Toxoid - AW/ANM	C(25) within 1 to 3
3	Range check for:	
3.1	Fe/FA tablets - Woman's Recall	C(26-28) within 0 to 310
3.2	Fe/FA tablets - AW/ANM	C(29-31) within 0 to 310
4	Feeding at AW:	Applicable if C(36)=2
4.1	Months of participation plus number of months pregnant when first received food should not exceed 10 months.	C(37)+C(38) < 10
4.2	Days fed in past 4 wks - Woman's Recall	C(39-40) within 0 to 28
4.3	Days fed in past 4 wks - AWW	C(41-42) within 0 to 28
5	Nutrition status - Range checks on:	
5.1	Arm circumference(millimeter)	C(43-45) within $\frac{016}{1200}$ to $\frac{300}{1850}$
5.2	Height (millimeter)	C(46-49) within $\frac{1200}{300}$ to $\frac{1850}{999}$
5.3	Weight (deci-Kg; i.e. Kg x 10)	C(50-52) within $\frac{300}{070}$ to $\frac{999}{140}$
5.4	Anaemic	C(53) within 1 to 2
5.5	Risk factors	C(54) within 1 to 2
5.6	Diet during pregnancy	C(55) within 1 to 3
5.7	Level of haemoglobin (mg%)	C(56-58) within 050 to 140 070 to 140 850

B : Anganwadi Survey : Anganwadi Schedule

Sl.No.	Description	Test Criterion
1	Missing & duplicate AW codes	On C(5-7)
2	Distance of AW from PHC/Sub-health centre should not exceed 10 Km.	C(10-11) and C(12-13) within 00 to 10
3	Range check on following:	
3.1	AWs presence	C(14) within 1 to 2
3.2	AWs training	C(19) within 1 to 2
3.3	AWs education level	C(22) within 1 to 7
3.4	Working as village health guide	C(23) within 1 to 2
4	Range check on distribution of recipients fed:	
4.1	No. of pregnant women < ₹ 35	C(24-25) within 0 to ₹ 40
4.2	No. of lactating women < ₹ 35	C(26-27) within 0 to ₹ 40
4.3	Total no. of beneficiaries should not exceed 265 (assuming no. of children fed is < 200)	C(32-34) within 0 to 265
5	Range check on selection for kids / preg. woman / lactating woman	C(1) within 1 to 2; for 1-35, 36, 37
6	Range check on daily dry food:	
6.1	Kid's ration KCAL	C(38-40) within 000 to 500
6.2	Kid's ration protein(gram)	C(41-42) within 00 to 15
6.3	Severely malnourished child's ration KCAL	C(43-45) within 000 to 900
6.4	Severely malnourished child's ration protein	C(46-47) within 00 to 30
6.5	Preg/Lact. woman's ration KCAL	C(48-50) within 000 to 900
6.6	Preg/Lact. woman's ration protein	C(51-52) within 00 to 30

B : (contd.)

Sl.No.	Description	Test Criterion
7	Range check on following:	
7.1	Food measure accuracy	C(53) within 1 to 2
7.2	No. of usual feeding days in a month	C(54-55) within 0 to 31
7.3	No. of feeding days in last month	C(56-57) within 0 to 31
7.4	Supply efficiency ratio: is <100	C(59-61) within 000 to 100.
7.5	Food on hand/stored properly/spoiled.	C(1) within 1 to 2; 1=62,63,64
7.6	Total children observed at AW	C(65-67) within 0 to 200
7.7	Total preg. women observed at AW	C(68-69) within 0 to 45 40
7.8	Total lact.women observed at AW	C(70-71) within 0 to 50 40
7.9	Serving double ration to women	C(72) within 1 to 2
7.10	Serving double ration to children	C(73) within 1 to 2
7.11	Mothers help in running AW	C(74) within 1 to 2
7.12	Land provided by community for AW	C(75) within 1 to 2
7.13	Local inputs to AW	C(76) within 1 to 2
7.14	Treatment source	C(82) within 1 to 4
7.15	P/L referrals	C(85-86) within 0 to 65 40
7.16	Growth chart knowledge	C(89) within 1 to 2
7.17	ORS awareness	C(90) within 1 to 2
7.18	Knowledge of ORS preparation	C(91) within 1 to 2
7.19	Graduation criteria for participants	C(92) within 1 to 4

B : (contd.)

Sl.No.	Description	Test Criterion
7.20	Team leader's derivation about graduation criteria	C(93) within 1 to 2
7.21	Mukhya Sevika's visit to AW	C(94) within 1 to 2
7.22	Unusual events in last 1 year	C(97) within 1 to 4
8	Range check on verification of -	
8.1	Attendance registers	C(98) within 1 to 4
8.2	Family records	C(99) within 1 to 4
8.3	Antenatal cards	C(100) within 1 to 4
8.4	Growth chart	C(101) within 1 to 3
9	Sum of % break-up for children by degree of malnourishment should be within 99 to 100	C(104-105)+C(106-107) +C(108-109)+C(110-111) +C(112-113) within 99 to 100
10	Sum of % break-up for children by arm circumference should be within 99 to 100	C(114-115)+C(116-117) +C(118-119) within 99 to 100
11	AWW's residence range check	C(120) within 1 to 2

9. Sum of % break up for children by degree of malnutrition should be within 99 to 100
 $c(108-109) + c(110-111) + c(112-113)$ within 99 to 100.

No. ADPC/RPB 52

August 5, 1985

Dr. Michael T. Rock
ADPC Evaluation Team Leader
c/o : Bennington College
Bennington, Vermont
U.S.A

Dear Dr. Rock,

We wish to inform you that the Evaluation Team Report (ETR) on the evaluation of the ADPC (Phase I) was reviewed by the ADPC Board of Planners during its 7th Meeting last July 16-19, 1985. In this regard, the ADPC Board of Planners had decided that the ADPC should relay to the Evaluation Team their observations and/or views on the ETR which are enumerated below for your information and reference:

1. The Meeting noted with appreciation the positive impressions and conclusions made by the Team and the efforts of the Team in identifying the strong and weak points of the ADPC (Phase I) project implementation.

2. The Meeting noted that of the ETR contains a number of conclusions which speak highly of the project as implemented, particularly with regard to the training component, which the Team cited as being "highly successful and cost effective". It was also noted that the report stated that the research and planning component met with moderate success, with a small number of technically proficient studies produced for the COFAF.

3. The Meeting noted that many of important persons and institutions with which have direct relationships with ADPC activities were not consulted by the team and it was felt that this might be also one of the reasons why some of the statements and conclusions of the ETR were not accurately expressed.

4. The Meeting also further noted the ETR's observations on aspects of the project which need strengthening and on which recommendations were made in the ETR.

5. The Meeting took note of the recommendations which called for (a) sharper focus on the Centre's research activities, (b) policies and procedures of its administrative operations, (c) enhancing the visibility of the Centre, (d) refinements in curriculum; etc.

6. The Meeting expressed its views on some statements, observations and conclusions made by the Evaluation Team as follows:

i) The assumptions with which the ADPC was proposed for establishment as enumerated on page 2, items a, b and c of the ETR are not in consonance with those spelled out in the original project document, to wit:

- There are insufficient numbers of technically trained personnel in agricultural development planning, especially at the high levels;
- The few trained planners in the ASEAN countries are hampered in planning by inadequate data computation, dissemination and storage/retrieval systems; and
- Consequently, resulting in the existing shortfalls in the agricultural development planning process.

If the above assumptions were taken into consideration rather than those that are mentioned in the report, the evaluation results would have been different.

ii) The project proposal as well as the project document of ADPC had in actuality gone through the approved review process and proper scrutiny by higher authorities in ASEAN and the United States prior to the signing of the Project Agreement.

iii) The relationship between the BOP and the Director of ADPC had been clearly delineated since the start of the operation of ADPC, although the relationship between the ADPC and the funding agency was not, and is still not, properly defined.

iv) ADPC has placed its name in various meetings of ASEAN bodies, and had been invited to workshops, conferences and meetings sponsored by regional and international agencies like the FAO, ESCAP, etc. Anonymity, as described in the ETR in its conclusion about ADPC's existence, seemed to be overstated.

v) ADPC's decision to reduce the training period of the MG from 6 to 3 months was sound and this was based on the proper monitoring and review of the Centre's activities. This has led to an increase in the number of participants trained under the MG program with more or less the same amount of funds involved. Special group trainings conducted by the research and planning branch also contributed to the increased number of total participants trained by the Centre.

vi) The success of the MG program would be further enhanced if additional study areas like applied agricultural statistics and agricultural economics will be given emphasis too.

vii) On the conclusion which pointed out that neither the BOP, the ADPC, nor ASEAN have made sufficient efforts to attract outside funding to cover all or part of the Centre's recurrent cost, this conclusion is not correct because the ADPC, COFAF and the ASEAN Secretariat had made considerable efforts to find funds for the extension of the ADPC activities from other funding sources.

viii) That there is no basis whatsoever on the part of the Evaluation Team to express that the development in the ASEAN Countries and in agriculture, in particular, have suffered from the lack of sound policies in agriculture .

ix) The Evaluation Team, in the opinion of the Meeting, had expressed some statements which the Meeting found unacceptable. For instance, on the following statements:

a)... "In short, the policy impact of ADPC will depend on the degree of regional political development and economic integration desired by those policy-makers with the ability to transform ASEAN from a good political idea into a political and economic reality. Technical solutions to problems perceived or real which political leaders in ASEAN member countries are unwilling to address will tend to fall on deaf ears."

b)... Those recommendations, as well as those embodied in the fertilizer self-sufficiency study require a degree of integration and a regional vision that will take some time to develop."

7. The Meeting requested the ADPC Director to communicate officially the above observations to the Evaluation Team, particularly on matters where the team's report is deemed as being imprecise and/or in error, requesting also as appropriate that this clarification be furnished to whoever the ETR might be distributed to.

8. In conclusion, the Meeting expressed its hope that the ETR would be read by all parties concerned, with the view towards further supporting the importance of ADPC Phase II and of its being provided the funds required particularly by its present donor for Phase I, to enable it to continue with the work it has started. In this regard, the Board took specific notice of the decision as contained in its recommendation No. 1/14/84 approving the proposal for third party funding; and of the views expressed during the Sixth Meeting of ASEAN-US Dialogue.

We would like to reiterate the expression of the Board of Planners in item (7) above, where it is requested that these clarifications on the ETR be furnished/circulated to whoever the ETR might be distributed to.

Lastly, we would like to convey our sincere appreciation to the Evaluation Team for the great efforts being done in coming up, as much as possible, an objective evaluation of the Centre's operations.

Thank you and accept our best regards.

Sincerely yours,

Chumarn Sirirugsa

Chumarn Sirirugsa
Director

Copy furnished :

1. Dr. Edgardo Quisumbing, Member, ADPC Evaluation Team
2. Dr. Sopin Tongpan, - do -
3. Mr. Husin Anang, - do -